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3.3.2 Number of Books and Chapters in edited volumes/ Books published and Papers published in National / International Conference proceedings by teachers during last five years.

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ENGINEERING TECHNOLOGIES FOR RENEWABLE AND RECYCLABLE MATERIALS

Physical-Chemical Properties
and Functional Aspects

Edited by

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CHAPTER 14

PREPARATION AND CHARACTERIZATION OF WOOD-PLASTIC COMPOSITE BY PLASTIC WASTE AND SAW DUST

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CHAPTER 15

RECYCLING OF PVC WASTE BY FABRICATION OF A NBR–PVC BLEND

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Book Review

A Review of 'Topics in Graph Theory'

Dr. Jomon Kottarathil¹

Dr. N.K. Sudev, *Topics in Graph Theory - A book on Graph Theory*, Owl Books, Thiruvananthapuram, Kerala India, 2018, 190 pp; ISBN 978-93-856662-1-6.

Graph Theory is a branch of discrete mathematics which interweaves the link between mathematics and almost all the 'new-gen' subjects. In truth, the subject continues to be an inevitable part in the study of Computer Science and uses mathematical logic in the field of computer sciences to bring out certain results. That's why Graph Theory is given as a core paper for computer engineering students.

There are a lot of basic or introductory books on graph theory available in literature. But "Topics in Graph Theory" by Dr. N.K. Sudev alias Sudev Naduvath seems to be a standalone reference book on Graph Theory. It is prepared as per the syllabus of the fifth semester Bachelor of Technology program in Computer Science and Technology under APJ Abdul Kalam Technological University, Thiruvananthapuram, Kerala, India. Being a text book, even though it does not go to the depth of the subject matter, it is definitely a beginner's guide or a handy dictionary to the enthusiast. The narrative is similar to that of a teacher who teaches in a class. Few topics such as join and ring sum, deletion and fusion, subdivision and smoothing, vertex-cut and edge-cut, 1-isomorphism and 2-isomorphism, path matrix and cycle matrix which usually less explained in other books on introductory studies are dealt with

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extensively in the book. Besides motivating quotes, aesthetic sense in drawings and illustrations leave a high impression by the readers towards the book. The book is rich with application level problems and algorithms.

Sudev has done justice to the syllabus as well as to the students on covering the syllabus. In a bird's eye view the book has the following features: well explained and well-structured concepts, several examples for aspirants of learning, sufficient Bibliography, solved question papers, easy to refer index which cover even minute references and so on. Since it is primarily meant as a textbook for engineering students, Sudev made an extra effort to draw considerable number of diagrams and flow charts of algorithms and also explained them step by step. Though there are few typos, mastery of the author on the subject matter is explicitly seen while we go through the chapters.

The textbook is divided into ten chapters. The first chapter starts with a meaningful quote from the "Ambassador of Graph Theory" Frank Harary. It says, "Graph Theory serves as a mathematical model for any system involving a binary relation". It introduces the basic definitions, degree sequences, fundamental classes of graphs, subgraphs, spanning subgraphs and isomorphic graphs. For the characterization of degree sequences, the theorem known as *Havel-Hakimi Theorem*² could be added so that the students can easily identify whether the given sequence is graphical or not. The graph operations such as union, intersection, complement, join, ringsum, deletion, fusion, subdivision, smoothing are discussed in the second chapter. The third chapter is on the connectedness of graphs. Paths, cycles, distances, edge-deleted and vertex-deleted subgraphs are deliberated here.

The discourse in the fourth chapter includes the "Konigsberg Seven Bridge Problem", which is believed to be the foundation of Graph Theory. It may be a mere coincidence that the two pillars to whom the development of 'Konig(s)-Berg Seven Bridge Problem' (Graph

² Both Havel and Hakimi proved it separately. A non-decreasing sequence $s : d_1, d_2, \dots, d_n ; n \geq 2$ of non negative integers, where $d_1 \geq 1$ is graphical if and only if the sequence $s_1 : d_2 - 1, d_3 - 1, \dots, d_{d_1+1} - 1, d_{d_1+2}, \dots, d_n$ is graphical[1] [2].

Theory) in the 20th century owes much are Denes Konig and Claude Berg: The former wrote the first book on Graph Theory in 1936 after exactly 200 years of the publication of first article on graph theory by Leonhard Euler whereas the latter wrote the second prominent book on Graph Theory and introduced hyper graphs and is considered as an apostle of graph theory[3]. The fundamental concepts like Eulerian and Hamiltonian graphs, Fleury's algorithm, weighted graphs and the classic problems like 'Chinese Postman problem' and 'Travelling Salesman's Problem' are also seen in this chapter.

The fifth chapter deals with the directed graphs and their equivalence relations and networks. I think it covers almost all basic definitions related to digraphs. Unfortunately, no exercise problems are seen in the end of the chapter. Trees and their properties are elaborated in the sixth chapter. Though the connectedness is introduced in the third chapter and discussed in the sixth chapter, connectedness perceived through the vertex-cut, edge-cut, cut-sets, 1-isomorphism and 2-isomorphism and plenty of theorems related to cut-vertex and cut-edge make this chapter a unique one.

The planarity of graphs is introduced through the 'Three Utility Problem' in chapter eight. Related discourses like Kuratowski graphs, geometrical dual are followed in the chapter. Even though the concept of combinatorial dual graph is given in the syllabus, it is not described in the textbook. The reason may be that Whitney recognized the equivalence of geometrical dual graph and combinatorial dual graph [4]. The ninth chapter extensively explains the matrix representation of graphs such as incidence matrix, cycle matrix, cut-set matrix, adjacency matrix and path matrix. The final chapter explains various types of algorithms including the algorithm for connectedness and components, for spanning tree, for minimal spanning tree and for shortest path. The interconnections between various types of matrices are beautifully presented. The flow charts for these algorithms are added in the appendices.

As a textbook, a list of symbols used in the textbook for easy reference, answer key or hints for answers of exercise problems and the reference list of books (with reference to the pages) given in

chapter wise are preferably added. Keeping a little bit of history of the emergence of graph theory would strengthen the interest in students. Though the general mathematical concepts like pigeon-hole principle (Ref. Theorem 4.5.3 Dirac Theorem) and use of contra positive (Ref. Theorem 4.5.4 Ore's Theorem) are familiar to the students, they could be added in the appendix as glossary.

In short, the book "Topics in Graph Theory" by Sudev goes beyond the realm of a text book and provides a background on the basics of Graph Theory. The book is a synthesis of the flexibility in the writing and expertise of the author, hence the term 'flexpertise'[5] is an apt word to describe this book.

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In Transit MEDIA, CULTURE & NATURE



EDITOR: SUJARANI MATHEW



Sujarani Mathew

In Transit: Media, Culture and Nature



Dr Sujarani Mathew

In Transit MEDIA, CULTURE & NATURE

Synergizing matters and events has always been the remedy for the ongoing clash between the existing multiple predominant forces. Nature, Culture and Media form the three pillars on which modern human existence is raised: a healthy proportion of the three form the need of the era. The twenty two scholarly articles on Nature, Culture and Media forming part of this work are the contributions of gifted academicians across the country.

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Social Media- the Vox Populi of the Masses: A Cultural Reading of the Liberated Space in the Digital World

Roby Mathew

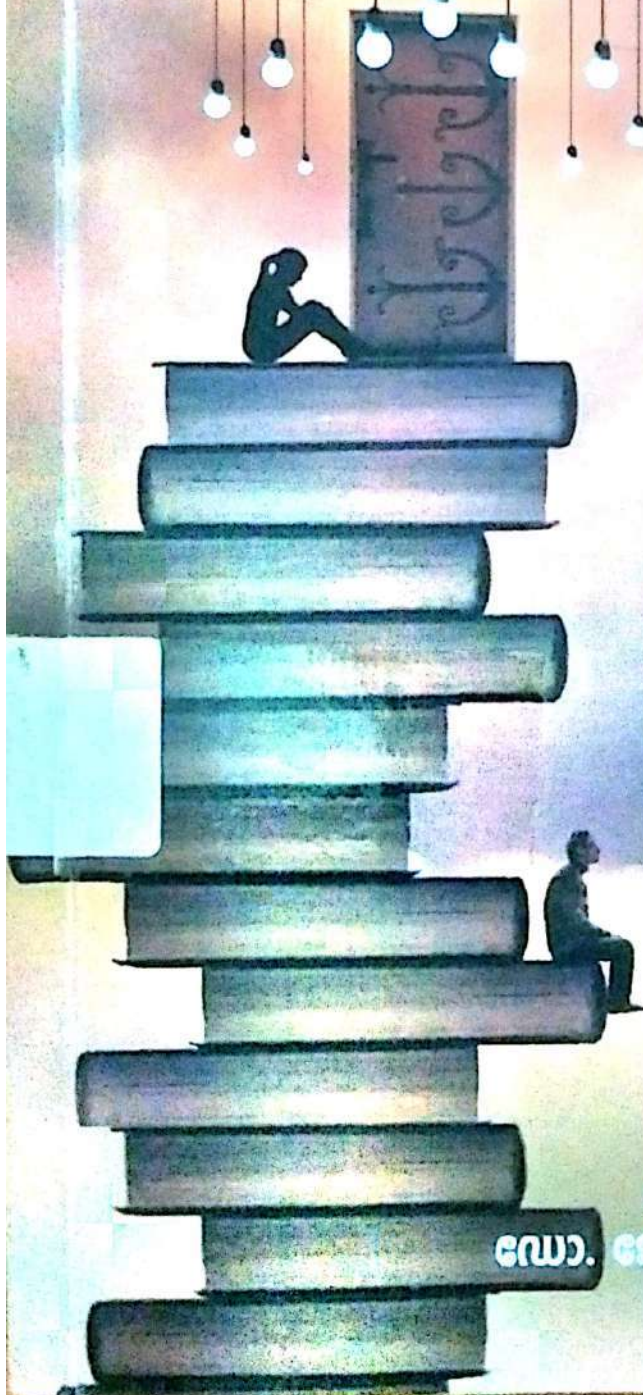
*Digital freedom stops where that of users begins...
Nowadays, digital evolution must no longer be a customer
trade-off between privacy and security. Privacy is not to sell,
it's a valuable asset to protect*

– Stephane Nappo

With the advent of computer and with the birth of the era of information technology, the quantum of information generated and transmitted across the globe has become unimaginable. The epoch making invention which changed the course of the world was the invention of the printing press which caused the democratization of education and information in the world. But with the passage of time various inventions put together to form the world of mass media. Media, though a socializing agent in the society with the potential to bring in the desired changes is an ideological apparatus in the view point of Marxist criticism. Hence it is manipulated and controlled by a set of powerful individuals. The voice of the common man was not heard on such mass media. But the advent of

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എഡിറ്റർ
ഡോ. ജോഷി വർഗ്ഗീസ്



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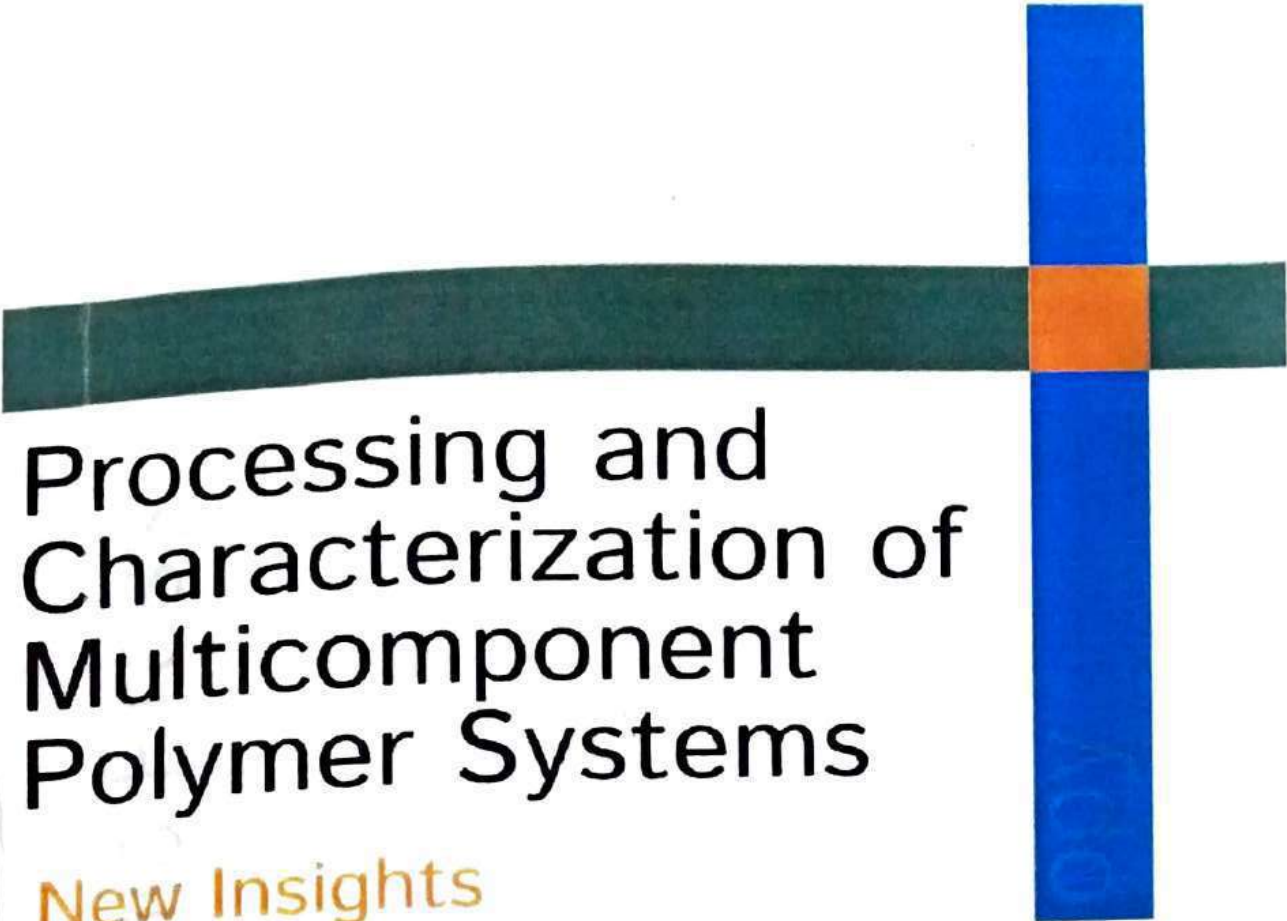
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New Insights



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CHAPTER 10

EFFECT OF INITIATING SYSTEMS ON THE VISCOELASTIC BEHAVIOR OF SBR-PMMA INTERPENETRATING POLYMER NETWORKS

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ABSTRACT

A series of interpenetrating polymer networks (IPNs) based on styrene butadiene rubber (SBR) and poly [methyl methacrylate] (PMMA) have been synthesized by Sequential polymerization technique. The effect of two initiating systems (Benzoyl peroxide (BPO) and Azobisisobutyronitrile (AIBN)) are employed in the polymerization of MMA during the fabrication of IPN. The viscoelastic properties of these IPNs were investigated in detail in the temperature range of -80 to 200°C and at a frequency of 1Hz. IPNs with 50 wt% of PMMA has broad transitions arising from β - and α -relaxations in PMMA. The morphology of the IPNs was analyzed with TEM images and tried to correlate these results with viscoelastic behavior and their damping properties.

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Chapter 12 - Nanocellulose Reinforced

SPECTROSCOPIC CHARACTERIZATION PROTOCOLS FOR INTERPENETRATING POLYMERIC NETWORKS

Jose James^{1,2,3}, George V. Thomas¹ and Sabu Thomas^{2,3}

¹Department of Chemistry, St. Joseph's College, Moolamattom, Idukki, India ²International and Interuniversity Centre for Nanoscience and Nanotechnology, Mahatma Gandhi University, Kottayam, India ³School of Chemical Sciences, Mahatma Gandhi University, Kottayam, India

10.1 INTRODUCTION

The central motive in materials science, especially in polymer technology, is to fabricate a material with effective performance, excellent properties, and an optimum cost-to-benefit ratio. The synthesis, properties, and applications of multicomponent polymeric systems are of great technical and educational interest in materials science. Polymer blending provides an efficient path for the creation of multicomponent polymeric systems [1]. The principal focus of polymer blending is to fabricate new materials with efficiency and low cost through commercially viable protocols. Interpenetrating polymer networks (IPNs) are one of the most rapidly growing areas in multicomponent polymeric systems [2].

The IUPAC compendium of chemical terminology defines IPNs as “polymers comprising two or more networks that are at least partially interlaced on a molecular scale but not covalently bonded to each other and cannot be separated unless chemical bonds are broken” [3]. IPNs are in fact a special class of polymer blend. The two characteristic features of IPNs [4] that distinguish them from other types of multiphase polymer systems are: (1) IPNs swell but do not dissolve in solvents and (2) creep and flow are suppressed in IPNs. Normal mixing of two or more polymers/copolymers does not lead to the creation of an IPN. The formation of an IPN is schematically represented in Fig. 10.1.

Only IPN strategy can admit the intermixing and intercalation of two or more cross-linked polymeric network systems [5]. Molecular level interpenetration is absent in almost all IPNs and true interpenetration occurs only at phase boundaries [6]. The sequential and simultaneous IPN fabrication routes are the most extensively used and studied methods [7].

PADAYANI

Salini L. R.



The most striking thing about Patayani and Kadamanitta poems is the fact that they have contributed significantly to the realization of self. It was not just a mimetic act, but has helped to satisfy the unconscious of the common man. They have made effective use of archetypal images. The book will focus on the psychoanalytical aspects of the form Patayani and will be looking on the major factors of what makes Patayani and Kadamanitta Kavithakal popular.

		
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എഡിറ്റർമാർ:
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ചെന്നൈ.

പാരിസ്ഥിതികവാദം

Ecofeminism എന്ന പദം ആദ്യമായി ഉപയോഗിച്ചത് ഫ്രാൻസാ ദി യൂബോൻ (1974) ആണ്. പരിസ്ഥിതിയുടെയും സ്ത്രീയുടെയും മേലുള്ള ആധിപത്യസ്വഭാവം സ്ത്രീയുടെ മാത്രമല്ല പരിസ്ഥിതി നാശത്തിനും കാരണമാകുന്നു. Patriarchal Man (പുരുഷാധിപത്യം) എന്ന വാക്കിനൊപ്പം women/the feminine/feminism എന്നീ വാക്കുകളുടെ കടന്നുവരവ് സാമൂഹിക ചുറ്റുപാടിൽ മാറ്റങ്ങൾ ഉണ്ടാക്കി. പാരിസ്ഥിതിക സ്ത്രീവാദം പാശ്ചാത്യനാടുകളിൽ വളരെ പെട്ടെന്ന് പ്രചരിക്കപ്പെട്ടുവെങ്കിലും അമേരിക്കയിലാണ് ഇത് കൂടുതലായി വികസിച്ചത്. പ്രധാനമായും രണ്ടു തലത്തിലാണ് ഈ ചിന്തയുടെ പ്രചാരണം നടന്നിട്ടുള്ളത്. ഒന്നാമത്തേതിൽ പരിഷ്കരണപരം (Radical), സാംസ്കാരികം (Cultural), ആത്മീയം (Spiritual) സ്ത്രീവാദം എന്നിവ ഉൾപ്പെടുന്നു. ഈ വിഭാഗം ഊന്നൽ കൊടുത്തത് സ്ത്രീയും പരിസ്ഥിതിയും തമ്മിലുള്ള നൈസർഗ്ഗികമായ ചേർച്ചയെക്കുറിച്ചാണ്. രണ്ടാമത്തേത് സാമൂഹിക നിർമ്മിതിയെക്കുറിച്ചും തീവ്രമായ രാഷ്ട്രീയ കാഴ്ചപ്പാടുകളെക്കുറിച്ചുമാണ്. ഇതിൽ പ്രധാനമായും സോഷ്യലിസത്തെക്കുറിച്ചും മാർക്സിസത്തെക്കുറിച്ചും ചർച്ച ചെയ്യുന്നു. പാരിസ്ഥിതിക അരാജകത്വത്തെക്കുറിച്ചുള്ള വീക്ഷണങ്ങളാണ് പ്രധാനമായും ഇതിലൂടെ അവതരിപ്പിക്കപ്പെടുന്നത്. സ്ത്രീയേയും പ്രകൃതിയേയും തമ്മിൽ ബന്ധിപ്പിക്കുന്ന പ്രധാനപ്പെട്ട ഘടകങ്ങൾ പരിപാലനം, സംരക്ഷണം എന്നിവയാണ്. ഈ സ്വഭാവസവിശേഷതകളെ ബന്ധപ്പെടുത്തിയാണ് ഇക്കോ ഫെമിനിസത്തിന്റെ സവിശേഷതകളെക്കുറിച്ച് Rape of the wild എന്ന പുസ്തകത്തിൽ ആൻഡി കോളാർഡ് വിശദീകരിക്കുന്ന



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**Fabrication of toughened plastic through semi-
Interpenetrating Polymer Networks of
Styrene butadiene rubber-Poly [methyl methacrylate]**

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Abstract

A classic set of semi-interpenetrating polymer networks (semi-IPNs) have been fabricated using the judicious selection of a pair of thermoplastic and an elastomer with effective interpenetration between them. Semi-IPN based on styrene butadiene rubber (SBR) and poly [methyl methacrylate] (PMMA) has been fabricated by sequential polymerization technique. The different mechanical properties of semi-IPNs are investigated in detail. Tensile toughness values of semi-IPNs are evaluated and their chemistry is explained. Morphological analysis of semi-IPNs through SEM provides clear insight of their component distribution in it. This protocol of characterization in semi-IPN can definitely act as a platform for designing of new toughened plastic with low cost and facile fabrication protocol.

Key Words: IPN, semi-IPN, Toughened plastic, Mechanical properties



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Microwave Assisted Oxidation Reactions Using EGDMA - Crosslinked Polyvinylpyrrolidone-Bromine Complex

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Abstract

A microwave assisted method for the oxidation of alcohols employing 3% ethylene glycol dimethacrylate (EGDMA) crosslinked polyvinylpyrrolidone - bromine complex (PVP-Br) in a solvent free condition is reported. Primary and secondary alcohols are easily converted into the corresponding carbonyl compounds using PVP-Br complex under microwave condition. A thermal comparison for each reaction was also carried out in order to get a clear understanding about the influence of microwave irradiation on the reaction yield. The effect of microwave power on the rate of oxidation and the stability of PVP- Br reagent under microwave conditions were also studied.

Key words: microwave assisted, polyvinylpyrrolidone, oxidizing reagent, polymer- supported, functionalized polymer

1. Introduction

Application of polymer-supported reagents in organic synthesis has grown over the years due to its convenient handling and easy work up procedures. But the main drawback of polymer-supported reagents is that the reaction kinetics is generally slow



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A review on cytotoxic and antimicrobial applications of noble metal nanoparticles

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Abstract

The uses of metal nanoparticles as therapeutical agents have been known from ancient times. Recently, noble metal nanoparticles have demonstrated their potential biomedical applications towards anticancer and antimicrobial fields. This review discusses the toxicity of selected cancerous and microbial cells the metal nanoparticles. The challenges in the targeted drug delivery are also briefly analyzed here.

Introduction

Cancer is the immoderate proliferation of abnormal cells. World Health Organization (WHO) stated cancer as the second top detrimental disease suffered by humanity. The uncontrolled cell division results in two types of mass of cells; benign and malignant tumours. The first type usually developed in a localized manner and the second type spread towards adjacent tissues by a process known as metastasis and was harmful to life. The causes of this mutagenic disease were genetic factors, chemical carcinogens, exposure to radiations, and tumour viruses. The modern food habits and lifestyle patterns lead to an increase in the number of cancer patients all over the world.



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ആത്മീയതയുടെ ആഘോഷം ബനീഞ്ഞാക്കവിതകളിൽ

ഡോ. ജോഷി വർഗീസ്

ദസ്തയേവ്സ്കിയെപ്പോലുള്ള വിശ്വസാഹിത്യകാരന്മാർ ജീവിതത്തിലൂടെയും കൃതികളിലൂടെയും ഈശ്വരനോട് ചോദ്യങ്ങൾ ചോദിക്കുകയും ഉത്തരങ്ങൾ കണ്ടെത്താൻ അസ്വസ്ഥരായി അക്ഷീണപരിശ്രമം നടത്തുകയും ചെയ്തവരാണ്. വലീൽ ജിബ്രാന്റെയും കസൻദ്സാക്കിസിന്റെയും സാഹിത്യ രചനകളും നീത്ഷേയുടെ ഫിലോസഫിയും നമുക്കറിയാം. ഇവരിൽ നിന്നെല്ലാം എത്രയോ വ്യത്യസ്തമായിട്ടാണ് - എത്രയോ ലളിതമായിട്ടാണ് - ബനീഞ്ഞ ജീവിതത്തെയും മരണാനന്തരജീവിതത്തെയും കണ്ടത് എന്നത് ശ്രദ്ധേയമാണ്. ജീവിതത്തിന്റെ മാത്തമാറ്റിക്സ് ലളിതമല്ലെന്നും മനുഷ്യ ജീവിതം നേർവരയിൽ സഞ്ചരിക്കുന്ന ഒന്നല്ലെന്നും ജീവിതം നൽകുന്ന അഗ്നിപരീക്ഷകളിലെ ചോദ്യങ്ങളുടെ ഉത്തരങ്ങൾ എളുപ്പത്തിൽ കണ്ടെത്താനാവില്ലെന്നും നമ്മുടെ കവയിത്രിക്ക് അറിയാമായിരുന്നു. പക്ഷേ ഈ അറിവ് ബനീഞ്ഞാമ്മയെ ഭയത്തിലേക്കും ആകുലതയിലേക്കും ഉത്കണ്ഠയിലേക്കും തള്ളിവിട്ടില്ല. ആത്മീയ ദർശനമാണ് ബനീഞ്ഞയിൽ നിറഞ്ഞു നിന്നിരുന്നത് എന്നതാണ് അടിസ്ഥാന കാരണം.

മലയാളത്തിന്റെ മിസ്റ്റിക് കവി സിസ്റ്റർ മേരീ ബനീഞ്ഞയുടെ ഭൂരിഭാഗം കവിതകളിലും ആത്മീയതയുടെ ആഘോഷമാണ് നമുക്ക് കണ്ടെത്താൻ കഴിയുന്നത്. തന്റെ ജീവിതത്തിന്റെ ലക്ഷ്യത്തെപ്പറ്റി വാനമ്പാടി എന്ന ആത്മകഥയുടെ ആമുഖത്തിൽ ബനീഞ്ഞാമ്മ പറയുന്നു.

“മർത്യനെ സൃഷ്ടിച്ചതീശ്വരനാണെങ്കിൽ
ഈശ്വരനോടൊരു ചോദ്യം”

എന്നൊരു കവിതാ ശകലം ഞാൻ കേട്ടിട്ടുണ്ട്. എന്ത് ചോദിക്കാനാണ്?



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Micro-finance and Micro credit for sustainable Business

Rev. Dr. Thomas George V, CMI

Need for managing financial risks has given birth to a number of micro credits, micro insurance products and many other financial services that are micro in nature. Over the years, micro finance as a financial service innovation is fast emerging as an important method of bettering the lot of the poor and the downtrodden. Micro finance is finance provided to benefit the low income women and men. It can be defined as provision of thrift, credit and other financial services and products of very small amount to the poor in rural, semi-urban or urban areas for enabling them to raise their income levels and improve living standards.

Micro credit is based on the premise that the poor have skills which remain unutilized or underutilized. In its latest report on the state of the micro finance industry, the Microcredit Summit Campaign says: if we want to provide financial services in a way that helps people to move out of poverty, then we need to provide things that cannot be stolen. In the last decade microfinance has penetrated major part of rural and sub urban India empowering particularly women. These women have taken up many professions including self employed sectors like cottage industries, tailoring, and handicrafts among other. This in turn has assisted in the overall development of the rural economy. This paper attempts to make a study on the contribution of micro finance and micro credit in sustainable business.

Key words: Micro Finance, Micro credit, Loss and Sustainability

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Carbon Trading: Green Signal to Green Earth

Dr. Joseph George

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Abstract

The Kyoto Protocol, 1977 made the countries to work out action plans to address the issues on climate change and the reduction of green house gas emissions. Even though it was a great march towards green earth, the issue of striking a balance between the industrial and economic development on one side and green initiative on the other side is a mammoth problem need to be faced by the world. This situation opened a platform for discussion upon the issue among the developed and developing countries.

Carbon trading initiatives in the world turned around mainly upon the carbon-capping and carbon offsetting which opens an opportunity to trade the unused credits as well to green technology for offsetting carbon emissions. Under carbon-cap trading programme, the countries with less emission can trade the credits among the countries with excess limits. In carbon offsetting, environment friendly technologies are developed or imported as well



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The Nostalgic Nomenclature of Eateries: A Cultural Reading of the Names of Street Food Stalls in Kerala

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Abstract

The culture of Kerala is inseparably entwined with the cultural development of hotels and cuisines. From the thatched teashops to the budding street food stalls stand as witness to the cultural changes that revolutionize the taste of the foodies in Kerala. The cultural intermediaries which are catalytic to the alteration in the food consumption of the Keralite people vary from social causes to economic rationale. Along with the modification of the ambience of hotels and street side food vending shops, the names too underwent transformations. The nostalgic names which anchor the consumer to a certain period in the history of Kerala magnify the prosperity and pristine ambience in the then time. This overcharging of the irrecoverable nostalgic past has an economic gain pervading underneath. This paper titled 'The Nostalgic Nomenclature of Eateries: A Cultural Reading of the Names of Street Food Stalls in Kerala' attempts to analyze the change in the names of hotels and street side food vending shops in Kerala in this decade. This study is backed by the application of Cultural Studies, the emerging theoretical area in the 21st millennium. The names of eateries in Kerala with the accompaniment of the typographies which take us to the past is a tool in the hands of late capitalism which opt for an aristocratic past which the modern society tries to recreate in such a manner that the consumers are wooed to move to them to experience the taste of the past.



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मन्नु भण्डारी की कहानी 'आकाश के आइने में' चित्रित नारी समस्याएँ

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साहित्य आँखें है। जो देखता भी है और दिखाता भी। साहित्य की आँखों से हम समाज देखते हैं और समाज की आँखों से साहित्य देखते हैं। साहित्य की अनेक विधाएँ होती हैं। उपन्यास, कहानी, नाटक, आलोचना, आत्मकथा, निबंध आदि साहित्य की प्रसिद्ध और सफल विधाएँ हैं। अन्य गद्य रूपों की अपेक्षा कथात्मक साहित्य में पाठक की रुचि सम्भवतः सर्वाधिक तृप्त होती है। इसी कारण आधुनिक युग में कथा साहित्य का अभूतपूर्व विकास हुआ। इस में कहानी सब से मनोरंजक साहित्यिक विधा बन गयी। इसके ज़रिए समाज की यथार्थ स्थिति सरल एवं मनमोहक रूप में उजागर होती है।

हर युग में समस्याएँ रही हैं। लेकिन समस्याओं का स्वरूप, तीव्रता और विस्तार अलग-अलग है। इन सभी समस्याओं को नई कहानीकारों ने अपनी कहानियों द्वारा प्रस्तुत करने की कोशिश की है। ऐसे साहित्यकारों में अग्रणी है मन्नु भण्डारी। मन्नु भण्डारी परिवार, समाज, राजनीति, धर्म, प्रशासन, शिक्षा आदि क्षेत्रों में उभरती समस्याओं का अंकन करने में कटिबद्ध दिखती है।

मन्नु भण्डारी अधिकांशतः ऐसे स्त्री पात्रों को गढ़ा है जो अपने परिवार से परे जाकर अपनी पहचान बनना नहीं चाहती बल्कि पारिवारिक संबंधों के घेरे में रहकर ही समस्याओं से जूझते हुए अपने अस्तित्व को बरकरार रखने का प्रयास करती है।

'आकाश के आइने में' कहानी में शहरी एवं ग्रामीण नारियों की समस्याएँ मन्नु जी ने उजागर किया है। कहानी की शुरुआत शहर से होती है। शिप्रा पति से अलग होकर एक स्कूल चलाती है। उसे स्कूल में लेखा, दिनेश, सुषमा, प्रीती जैसे लोग मिलते हैं। नौकरी-पेशा सुषमा के माता-पिता उसका विवाह करना नहीं चाहते हैं। लेकिन वह महिम से कोर्ट मैरेज करने की तैयारियाँ खुद करती है। प्रीति घर की देखभाल के लिए नौकरी छोड़ती है तो पति नाराज हो जाता है। यह सब शहरी



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कुमार अंबुज की कविता में उत्तर आधुनिकता

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वैश्वीकरण के परिणाम से उत्तर आधुनिक जीवन जगत अमानवीय माहौल से जटिल हो गया है। समकालीन समाज में दिन ब दिन बढ़ती स्वार्थता, धनलिस्सा, पदमोह आदि के कारण अवसरवादिता, समझौता परस्थता, क्रूरता, हिंसा आतंक आदि अमानवीय भावनाएँ बढ़ गये हैं। सत्य और अहिंसा के बुनियाद पर स्थापित भारतीय संस्कृति में नष्ट होनेवाली इनसानियत और भ्रातृत्व भावना को बचाने और जगाने के प्रयत्न में समकालीन कविता कर्मनिरत है। वर्तमान समय का नब्ज पकड़कर समकालीन कविता को दिशब्यापी करनेवाले कवियों में कुमार अंबुज का अद्वितीय स्थान है।

कुमार अंबुज ने संवेदनशीलता मौलिकता और अनुभव के बल पर वर्तमान समाज और जीवन को अपनी रचनाओं में समाहित किया है। उनकी रचनाओं में एक ओर हाशिएकृत मामूली आदमी की पीडा, संघर्ष, दर्द और तनाव का चित्रण है तो दूसरी ओर संवेदनशील पाठकों के हृदय को जगाने की अत्भुत क्षमता भी छिपी हुई है। प्रौद्योगिक और मीडिया संस्कृति के जाल में 'फँसकर खो गये मानवीय संवेदना को वापस लेने की निरंतर कोशिश में उनकी काव्य संवेदना पाठकों के हृदय को झकझोरती है। वर्तमान जीवन में रिस्तों के अभाव संबंधों की स्वार्थपरता, संवेदनहीनता, अपनी ज़मीन की स्मृतियाँ आदि चित्रण के साथ प्रौद्योगिक संस्कृति से पुनर्जन्म पाये पूँजीवादी संस्कृति का नया रूप, मीडिया, बाजारवाद उपभोक्तावाद, कंप्यूटर संस्कृति का चकाचौंध, विस्थापन की समस्या आदि प्रवृत्तियों ने अंबुजी की कविता को उत्तराधुनिक कविता का ज़बरदस्त दरतावेज़ बनाया है।

अंबुजी ने अपने जमाने की बहुमुखी चेहरे को देखा और उसे कविताओं अंकित किया। उनकी राय में यह मुखौटो की संस्कृति है। इस संस्कृति के पत्रों का बाहर प्रकट रूप असली रूप नहीं असली रूप तो मुखौटो में छिया पडा है जो मौकापरस्त है जिसमें मामूली आदमी को जाल में फँसाने की अदभुत क्षमता है लोगों में परंपरागत मूल्यों के प्रति एक विरक्ति भाव उत्पन्न करने का ताकत है। सांस्कृतिक



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Anxiety, Depression and Stress among Recovering Alcohol Dependent Individuals in Kerala

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Abstract

Alcohol dependency is a chronic disease characterized by uncontrolled drinking and preoccupation with alcohol. Stressful events such as bereavement or losing a job can also trigger heavy drinking. This can then lead to alcohol dependence and other complications. Major objectives of the study is to examine the anxiety, depression and stress of individuals with alcohol dependence and the influence of demographic variables such as age, marital status, income and place of residence upon anxiety, depression and stress. Samples (N=35) were selected through random sampling method from were person attending alcohol anonymous group. The result shows that there is no significant difference between marital status of the respondents on depression, anxiety and stress. Anxiety, depression and stress did not vary among individuals belonging in the urban and rural area. Further, it showed that age is not related with anxiety depression and stress.

Key words: Alcohol dependence, Anxiety, Stress, Depression.



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Abstract

Alcohol dependency is a chronic disease characterized by uncontrolled drinking and preoccupation with alcohol. Stressful events such as bereavement or losing a job can also trigger heavy drinking. This can then lead to alcohol dependence and other complications. Major objectives of the study is to examine the anxiety, depression and stress of individuals with alcohol dependence and the influence of demographic variables such as age, marital status, income and place of residence upon anxiety, depression and stress. Samples (N=35) were selected through random sampling method from were person attending alcohol anonymous group. The result shows that there is no significant difference between marital status of the respondents on depression, anxiety and stress. Anxiety, depression and stress did not vary among individuals belonging in the urban and rural area. Further, it showed that age is not related with anxiety depression and stress.

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Crystal Growth and Nonlinear Optical Properties of Guanidinium Carbonate Single Crystals for Optical Limiting Applications

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Abstract

Guanidinium Carbonate (GC), an organic third order NLO single crystal has been successfully grown in water solution by slow evaporation technique. The crystalline purity of the crystal was measured by powder X-ray diffraction technique. The third order nonlinear optical character of the GC crystal was confirmed through the typical pulsed laser beam Z-scan technique. The optical limiting behavior of the sample leads to the nonlinear refraction.

Keywords: Crystal Growth, PXRD, Z-scan, NLO

1. Introduction

Amino acids are given attention in the field of potential applications including laser technology, telecommunications, optical computing, optical data storage [1, 2]. The crystal structures with non-centrosymmetric space groups have been of interest as materials for optical second harmonic generation (SHG) and third order nonlinear optical properties [3]. The present study deals with crystal growth and third order nonlinear optical properties of guanidinium carbonate crystals.



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Synthesis and application of Nanoparticles - A Biological Approach

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Nanotechnology is a branch of science which deals with materials at nanoscale with the size of the particles concerned ranges less than 100 nm. "Nanotechnology" concept was introduced by Richard P. Feynman, a Nobel laureate in his famous 1959 lecture "There's Plenty of Room at the Bottom" (Feynman, 1960). This field of science has been experiencing an unprecedented growth since then and contributed immensely in the advancement of science (Laurent *et al.* 2008). These materials can be of various dimensions ranging from 1D, 2D or 3D (Tiwari *et al.*, 2012) owing to their overall shape. Nano particles are structurally made of three layers i.e., a surface layer which can be modified with various functional groups such as surfactants and metal ions etc, a middle shell layer consists of materials which are chemically different from the core and the innermost core region (Shin *et al.* 2016).

Different types of nanoparticles

Nanoparticles are broadly classified based on the physical and chemical characteristics into (1) Carbon-based Nanoparticles (2) Metal Nanoparticles (3) Ceramics Nanoparticles (4)



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Surface Modification of Polymeric Membranes by Layer by Layer Assembly of Polyelectrolytes

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Abstract

Membrane technology plays a significant role in analytical separations over the past decennia. They permit regulated passage of particles. By introducing proper functional groups, their efficiency can be further improved in terms of flux and antifouling property which directly affects the separation capacity and the life of the membranes. The layer by layer (LbL) assembly of polyelectrolytes (PEs) is a simple and promising technology for incorporating suitable functional group on polymeric membranes. In this review, various LbL methods of multilayer preparation, mechanism of formation and parameters which affect the properties of surface modified membranes are briefly discussed.

1. Introduction

Membrane treatment processes find applications in various fields such as water purification, gas separations, textile dye effluent treatment, removal of microorganisms, separation of macromolecules, hemodialysis, hemofiltration, plasmapheresis, gas

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Transport and Morphological Behaviors of SBR-PMMA Interpenetrating Polymer Networks

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Abstract

A series of interpenetrating polymer networks (IPNs) of styrene butadiene rubber (SBR) and poly(methyl methacrylate) (PMMA) have been synthesized by adopting the sequential interpenetration and in-situ polymerization method. The morphologies of the IPNs were analyzed with scanning electron microscopy (SEM). It is found that more interpenetration occurs as PMMA content in IPN enhances and there is a reduction in free volume of the corresponding IPN. Also the morphology changes from dispersed island pattern to a co-continuous one. Besides, the transport parameters and morphological behavior of IPNs were studied in detail. The specific physics involved in the characterization protocol is effectively utilized to explore the chemistry of IPN formation.

Key words: Interpenetrating networks, transport behaviour; microscopic techniques; morphology.

1. Introduction

Multi-component polymeric materials enable a new fabrication method to associate the properties of different polymers into one tailor-made material.¹ The synthesis of an interpenetrating polymeric network (IPN) provides a promising path in this direction. IPNs are a combination of incompatible polymer networks in which at least one of the polymer is synthesized and / or cross-linked in the presence of the other.² Conventional blending is usually accompanied by phase separation. This is in addition to their potentially wide ranging applications on account of the possibility to adjust the sorption and mechanical properties.

Amorphous materials like rubber and plastic are characterized by a rich concentration of free volume defects, which are the unoccupied regions available for segmental motion within the polymer material. The detailed analysis of transport parameters of the polymer networks has been made and is the highlight and novelty of the present work. The motivation behind the adoption of this particular protocol of characterization is that the IPNs can act as platforms for designing cost-effective toughened plastic with controlled morphology and properties.

2. Experimental details

2.1. Materials and methods

Styrene butadiene rubber (SBR) used for this study was supplied by Indian Synthetic Rubber Limited (ISRL) and methyl methacrylate (MMA), dicumyl peroxide (DCP), divinyl benzene (DVB) and benzoyl peroxide (BPO) of 99% purity were purchased from Sigma-Aldrich. Toluene, used as the solvent for transport studies, was purchased from Merck, India Ltd.

2.2. Preparation of IPNs

SBR was masticated with DCP (1/2/3 per hundred gram rubber (phr)) in a two-roll mixing mill at room temperature as per ASTM standards. The curing behavior of SBR compounds were studied on a Rheometer and the optimum cure time was determined. The mixture was vulcanized at 423 K on a hydraulic press and a cross-linked SBR sheet was obtained.

The cross-linked SBR sheet (2mm thick) was then weighed and kept immersed in a homogeneous mixture of MMA, DVB and BPO (of concentrations based on the MMA content) for different time intervals. The semi-IPN fabrication was carried out as per the above method without using the cross-linker (i.e., DVB). The obtained swollen samples with different weight percentages



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Thermal and Microwave assisted polymer-supported halogenation reactions using NNMBA-crosslinked polyvinylpyrrolidone-bromine complexes

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Abstract

A fast and simple method for the halogenation of some activated aromatic compounds and α -halogenation of ketones under *microwave irradiation* and *conventional heating*, is reported, using N,N'-methylenebis acrylamide crosslinked polyvinylpyrrolidone-bromine complex

Key words: microwave assisted, polyvinylpyrrolidone, oxidizing reagent, polymer-supported, functionalized polymer

1. Introduction

Application of polymer-supported reagents in organic synthesis has grown over the years due to its convenient handling and easy work up procedures. But the main drawback of the use of polymer-supported reagents is that the reaction kinetics are generally slower compared to traditional solution-phase chemistry. This is due to the necessity for the reactant to diffuse through the polymeric network in order to come in contact with the reagent, only at which point can the reaction take place. This drawback can be minimised by doing polymer supported reactions under microwave irradiation. Chemists are increasingly looking for a strategy that would combine the advantages of microwave heating with polymer assisted organic synthesis¹.

Microwave-assisted and polymer supported organic synthesis have emerged independently as versatile tools for rapid generation of organic molecules. A massive number of research publications have appeared over the last decades in the application of microwave technology in organic synthesis such as pericyclic², cyclization³, aromatic and nucleophilic substitution⁴, oxidation⁵, alkylation⁶, decarboxylation⁷, condensation⁸, peptide synthesis⁹, acylation¹⁰, cycloaddition¹¹, deprotection and protection¹², heterocycles¹³ etc. Some of the major advantages include spectacular decrease in reaction time, improved conversions, clean product formation and wide scope for the development of new reaction conditions.

Halogenation of organic substrates is an important reaction for the preparation of pharmaceutical and agricultural chemicals. Here we report the synthetic applications of NNMBA-crosslinked polyvinylpyrrolidone-bromine (PVP-Br) complex in a solvent free condition under microwave irradiation. This reagent was found to halogenate activated aromatic compounds. It can also be used for the α -halogenation of ketones.

2. Experimental

2.1 General: N-vinylpyrrolidone was purchased from Merck, Federal Republic of Germany. N, N'-methylene-bis-acrylamide (NNMBA) was purchased from Aldrich U.K. All low molecular weight compounds were commercially available samples and were purified by distillation or recrystallization unless otherwise stated. IR spectra were recorded on a Shimadzu FTIR-8400S spectrophotometer. UV spectra were recorded using shimadzu UV-2450 spectrophotometer. All microwave experiments were performed using a Onida Powersolo 20 microwave oven.

2.2 Preparation of NNMBA-crosslinked poly(N-vinylpyrrolidone)

To a solution of 0.46g of 10% aqueous solution of sodium dibasic phosphate and 40% of sodium sulphate in 240ml of water heated to 50-65°C, a solution of N-vinylpyrrolidone (43.12g) NNMBA (1.85g) and AIBN (0.12g) were added. The mixture was heated to 60-70°C for 5h. It was cooled to room temperature with stirring. The product was filtered, washed with water (25mlx4times) and acetone (20mlx5 times), dried at 60°C and yield (80%) was noted.

2.3 Preparation of polyvinylpyrrolidone-bromine (PVP-Br) complex

To a suspension of NNMBA-crosslinked PVP (5g) in CCl₄ (20ml), bromine (5ml) was added and stirred at room temperature



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Prospective Advantages of Social Media in Higher Education

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Abstract

Recently social networking sites became the most admired communication tools evolved as the central of information allocation source around the world. The potential positive outcomes of social networking are numerous and wide-ranging. There are serious apprehensions over how they could be integrated in the present academic atmosphere. As a net working tool, its effectiveness has already been manifested in millions of people who use these networks for amusement, communication and exchanging of observations, knowledge, data and information all over the world. The development of Web 2.0 technologies paved the way for the fast proliferation of social media. Currently, students and lecturers use social networking sites during working hours for entertainment, communication, exchanging views and knowledge, and even as efficacious teaching tool. When more and more people make use of the Web, additional knowledge, data and information is created, evolved and nourished daily. As more students and teachers involved in generating educational content, the quality, reliability, availability and standard of information gradually improve. Consequently, each and every net work browsing now becomes an uninterrupted learning experience for each user. Hence, gurus have to create conducive ambiance for formal and informal learning - that hold fast to educational guidelines and tie together social networking communities. A thorough examination of the impediments involved in the creation of new learning ecology, and a meticulous exploration of the challenges faced by both technology experts and teachers in delivering a truly ground-breaking and effective approach to education are authentic need of the time. This article intends to highlight the potential benefits of social media in today's education.

Keywords: *Education, Facebook, Media literacy, Content Creation, Collaborative Learning, Mobile technology, Social Networking, Social Networking Sites*

1. Introduction

Nowadays, besides entertainment and informational purposes, social networking sites have penetrated many fields of educational practices and processes. It transformed young people's way of thinking, doing, behaving and living, while it acts as the most appropriate means of communication and entertainment. Social media like Web 2.0 technologies, Facebook, Twitter, Myspace, Google+, LinkedIn, Instagram, Blogs, micro-blogs(Wikis), Ning, MySpace, Delicious, Digg, Flickr, YouTube, Dailymotion and RSS are used daily by millions and millions of youth worldwide. The development of Web 2.0 technologies triggered the fast proliferation of social media. Its web-based tools and platforms facilitate discussion, participation, and sharing of various forms of content (namely, text, video, audio and image) in a very convenient way. Increased broadband availability, the improvement of software tools, and the development of more powerful computers and mobile devices, have played pivotal role in integrating technology, social interaction and content creation through Web 2.0 technologies.

Social media encompass a wide range of tools that integrate technology, social interaction and content creation. Social networks certainly tone up the behavioural patterns of the adolescent who enjoy and universally acknowledge this medium in their life. As a net working tool, its effectiveness has already been manifested in millions of people all over the world who use these networks for amusement, communication and exchanging of observations, knowledge, data and information. Currently, students and lecturers use social networking sites during the working hours, not only for entertainment but also for communication, exchanging views and knowledge, and even as efficacious teaching tool. They are able to acquire collaboration, motivation and understanding or identifying methods of collaborative learning. When educators provide more information about their activities which they followed for academic processes, students' expectations about their trustworthiness are positively influenced and improved. This will bring their students closer, aiming at encouraging them to make progress of their educational experience. Further, it will reinforce their motivation for learning, positively reform educational reality, and enlarge the learning process beyond the boundaries of a traditional classroom. Social media platforms can be grouped into three major categories. The first



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Green Technology Protocol- An Introduction

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Abstract

Green technology has a significant impact on environmental, economic, and social status of society. Renewable technologies facilitate large-scale production of materials, novel innovation methods, abatement of pollution, and energy in a low-cost manner. The different notions of green and eco-friendly technology are of practical and academic importance. In this chapter we give the basics of green technology.

Key Words: Green technology; energy; pollution; cost-effective; large-scale; renewable

1. Introduction

Green technology is an eco-friendly concept that is being applied to basic education, technology, and engineering for production of materials that are less harmful to the eco-system of the planet. Green technology suppresses adverse gas emission to the atmosphere, save water resources, and preserve features of soil. It encourages environment friendly techniques with minimum waste. Green technologies utilize less amount of energy than the conventional technologies. It is a clean technology based on principles of environmental science, green chemistry, and modern technologies. Natural resources are exploited in a green pathway to produce materials with multidimensional characteristics. It also takes into account the various impacts of technology on the environment. Efficiency of the technology, recycling provisions, and issues related to the health of man, animals and plants are the major concerns of green technology. In order to deal with these concerns, green technology proposes a few major concepts. Hence, any knowledge of green technology requires an adequate understanding of these concepts. Of the many concepts we identify three major concepts. They are (1) cleaner production, (2) green innovation, and (3) social sustainability.

1.1. Cleaner production

The concept of cleaner production envisages the combination of the protection of environment and economic development. It rules out the opportunity for the accumulation of waste and ecologically unacceptable pollutants. It is an integrated attempt for sustainable development. Cleaner production demands changes in raw materials, changes in technology, and changes in production process. Sometimes quality, composition, and durability of the product needs to be compromised in an acceptable manner in order to reduce hazardous emissions. It requires more responsibility and offers new opportunities for innovation. Individuals as well as industrial undertakers must contribute towards the implementation of clean production. The availability of sophisticated instruments and necessary funding are inevitable for the implementation of the technology. Government has to insist policies and regulations for the fulfillment of the idea in to reality. Encouragements and incentives are to be given at appropriate time to inculcate the scheme of clean production into the mainstream.

1.2. Green innovation

Protecting our environment is our great responsibility. Green innovation urgently catches international attention as the natural resources dreadfully declines and environmental pollution increases. Green innovation involves three categories, namely product, process and managerial innovations. Environmental awareness requires the supply, production, and packaging design of products with minimum hazardous and toxic substances¹. Besides the above mentioned three categories of green innovation, there are six important aspects of green innovation. They are the innovation of new objects and the methods of their production.



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Synthesis of Hierarchically Porous MOFs for Dye Degradation

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Abstract

Hierarchically porous MOFs (HP-MOFs) containing mesopores (2-50 nm) along with micropores (< 2 nm) have raised considerable interest recently, due to their variety potential applications in adsorption, separation of molecules, drug delivery, catalysis etc. In this work we report a simple, green and ultrafast route for the synthesis of a hierarchically porous Zn-BDC MOF using the cooperative template strategy by the simultaneous introduction of ZnO as the accelerator and cetyltrimethylammonium bromide (CTAB) as the surfactant. The advantage of this method is that the synthetic procedure was accomplished in a few minutes (minutes) at room temperature and pressure and the synthesized MOF was found to be an efficient catalyst for photo-induced dye degradation.

Introduction

Water is essential for the existence of life on earth. However due to various anthropogenic activities, water is getting polluted day by day. On one hand industrial developments makes human life better whereas on the other hand, cause depletion of potable water. Water gets polluted mainly by heavy metals, industrial effluents, fertilizers, pesticides, organic dyes etc¹. Organic dyes from textiles, medicines, pesticides, solar cells etc contaminate the open water resources thereby causing threat to aquatic life leading to environmental imbalance². This has led to intense research in the field of technologies related to water treatment all around the world³. Porous coordination network structures called MOFs with fascinating applications such as adsorption, catalysis, separation, sensing etc have proved very early to be efficient photocatalysts for degradation of organic dyes⁴. Hence, hierarchically porous MOFs (HP-MOFs) with micro/meso/macro-pores in the network structures should be better catalysts for dye degradation than conventional MOFs⁵. Presence of mesopores along with micropores in the MOF networks enable them to be used as hosts to accommodate bulky molecules which enable their reaction or transformation in these pores. To generate MOFs of tunable porosity, different approaches were explored, resulting in hierarchically structured materials which include encapsulation and etching technique, ligand extension technique, ionic liquid assisted technique, induced-defect-formation, spray-dry technology etc⁶⁻⁹. However most of these methods use high temperature and pressure, long reaction time or special apparatus which are energy consuming and pollution causing. A time-controlled room temperature synthesis of HP-MOFs with high STYs (2035 kgm⁻³d⁻¹) was reported by Huo et al¹⁰. However, extending this strategy to green and facile synthesis remain challenging¹¹. A recent approach of synthesizing mesoporous materials with certain templates or surfactants that can act as structure directing agents has proved to be a promising route for the synthesis of HP-MOFs with tunable surface area and porosity¹²⁻¹⁶. Recently methods like modified template strategies as well as cooperative template strategies were developed to prepare HP-MOFs which have enabled the reduction of the synthesis time, under facile synthetic conditions¹⁷⁻²¹. Here, a simple room temperature method was applied successfully for the synthesis of a HP-Zn-BDC MOF which has proved to be an efficient photocatalyst for dye degradation.

Methods

(a) Rapid room temperature synthesis of hierarchically porous Zn-BDC MOF

14.4 mmol ZnO powder was dispersed in 32 mL deionized water and 72 mL DMF (solution A). 28.8 mmol Zn(NO₃)₂·6H₂O was dissolved in 72 mL deionized water (solution B). Then, solution B was mixed with solution A under fast magnetic stirring (solution C). 14.4 mmol of CTAB (surfactant) and 21.6 mmol of 1,4-benzene dicarboxylic acid were added to 64 mL ethanol and stirred for 30 minutes (solution D). Solution C was added to solution D under fast magnetic stirring for 2 minute and allowed to stand for 5 minutes. The colourless solid product was filtered, washed and dried in a vacuum oven at 150°C to obtain HP-Zn-BDC MOF which was further used for photocatalytic dye degradation studies of the dye Rhodamine- B.



Josephine Researcher **3**



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അന്തഃസംഘർഷം സാമൂഹിക മനുശാസ്ത്രത്തിൽ

ഡോ. ജോഷി വർഗീസ്

വ്യക്തിയുടെ മാനസികരോഗം ജൈവ-സാമൂഹിക-സാംസ്കാരിക പരിതോവസ്ഥകളുമായും, വ്യക്തിക്ക് ചുറ്റുമുള്ള ഭൗതിക
യുടും ബന്ധപ്പെട്ടാണിരിക്കുന്നതെന്ന ആധുനിക സാമൂഹികമനുശാസ്ത്രജ്ഞന്മാരുടെ സിദ്ധാന്തങ്ങളും ആധുനിക നരവംശ
ശാസ്ത്ര സംഭാവനകളും അന്തഃസംഘർഷത്തെക്കുറിച്ചുള്ള പഠനത്തിൽ ഒരു വഴിത്തിരിവ് സൃഷ്ടിച്ചിരിക്കുകയാണ്.
പുലി സംഘർഷങ്ങൾക്കു സമൂഹത്തിന്റെ താളക്കേടുകൾ കാരണങ്ങളായിത്തീരുന്നുവെന്ന നിഗമനത്തിലാണിപ്പോൾ
എത്തിനിൽക്കുന്നത്. കരുത്തുറ്റ വ്യക്തിത്വത്തിന്റെ ഭിന്നമുഖങ്ങൾ തമ്മിലുള്ള ഏറ്റുമുട്ടലിനെയാണ് അന്തഃസംഘർഷം
വിവക്ഷിക്കുന്നത്.

ചുവടുതലുകളെപ്പോലെതന്നെ പരിതഃസ്ഥിതികൾക്കും അതുല്യമായ വ്യക്തിത്വങ്ങളു്. ചില പരിതഃസ്ഥിതികൾ മനുഷ്യനെ
ൾ മറ്റു ചിലതു മനുഷ്യനെ തളർത്തുന്നു. മനോരോഗമെന്നത് ഒരു സാമൂഹിക കലാശില്പമാണെന്ന് ആർ.ഡി. ലെയിങ്ങ്
ഓരോ സമൂഹത്തിനും ഓരോ ജാതിക്കും അതിന്റേതായ രോഗമാതൃകകളു്. അസ്തിത്വബോധമുള്ള ഒരു വ്യക്തിക്ക്
ത്തിന്റെയും, സമൂഹത്തിന്റെയും നിയമങ്ങളോടും വിലക്കുകയോടും പലപ്പോഴും ഏറ്റുമുട്ടേവരുന്നു. ഈ അവസ്ഥ
അന്തഃസംഘർഷം സൃഷ്ടിക്കുന്നു. സാമൂഹികമായ അംഗീകാരം ലഭിക്കാത്ത വികാരങ്ങളും വിചാരങ്ങളും
കടന്നുവരികയില്ലെന്നും ബോധമനസ്സും അബോധമനസ്സും മനുഷ്യനായിരിക്കുന്നത് സാമൂഹികമായ ഉപാധികൾ
ന്നും അഭിപ്രായപ്പെടുന്നവരു്. മാനുഷിക പെരുമാറ്റങ്ങളിൽ ഏറ്റവുമധികം സ്വാധീനം ചെലുത്തുന്നത് സമൂഹമാണ്.
പിതത്തിൽ മറ്റൊരാളുടെ സാന്നിധ്യത്തിനു പോലും അനുകൂലമായോ പ്രതികൂലമായോ സ്വാധീനമുളവാക്കാൻ സാധിക്കും.
ധീനം (audience effect), സഹപ്രവർത്തക സ്വാധീനം (coaction effect) എന്നീ പേരുകളിലാണ് ഈ ചിന്താഗതിക്കാരായ
ജ്ഞന്മാരുടെ പരീക്ഷണങ്ങൾ അറിയപ്പെടുന്നത്. ക്രമമായും ലക്ഷ്യരഹിതമായ ആക്രമണവാസനയും മറ്റ് മട്ടേറെ
പകലുകളും ഇടുങ്ങിയ സ്ഥലങ്ങളിൽ ജീവിക്കുന്നവരിൽ കണ്ടതി. ജനത്തീരക്കും (crowding) ജനസാന്ദ്രതയും (den-
ത്തിലും ഉളവാക്കുന്ന മാനസികസംഘർഷങ്ങൾ ആ വ്യക്തികളുടെ മനോഭാവത്തെക്കുടി ആശ്രയിച്ചിരിക്കുന്നു. മിക്കവാറും
അബോധമായിട്ട് മറ്റുള്ളവരുടെ മരണം ആശ്രയിക്കുന്നവരാണെന്ന് ഫ്രോയ്ഡ് പറയുന്നു. മറ്റുള്ളവർ മരിച്ചുകഴിഞ്ഞാൽ
മരയാരു ലോകത്തിൽ ജീവിക്കാൻ കഴിയും എന്ന ചിന്തയാണത്രേ ഇതിന് മനുഷ്യനെ പ്രേരിപ്പിക്കുന്നത്.

മത്തിന്റെ വിവേചനങ്ങളും പിന്നോക്കാവസ്ഥകളുമാണ് വ്യക്തിയിൽ അന്തഃസംഘർഷം സൃഷ്ടിക്കുന്നതെന്ന്
രണ സിദ്ധാന്തം (Social Causation Theory) സമർത്ഥിക്കുന്നു. മാനസികമായി ദുർബലമായവർ നഗരത്തിന്റെ
രം പുലർത്തുന്ന സ്ഥലങ്ങളിൽ ജീവിക്കേണ്ടതാണ് അവരുടെ മനസ്സിന്റെ ആരോഗ്യം ക്ഷയിക്കുകയും കടുത്ത മാനസിക
നടികളായിത്തീരുകയും ചെയ്യുമെന്ന് സാമൂഹിക തിരഞ്ഞെടുപ്പ് സിദ്ധാന്തം (Social Selection Theory) അനുശാസിക്കുന്നു.
രം നൽകിയിട്ടുള്ള വലിയ ശക്തിയുപയോഗിച്ച് മനുഷ്യനെ അടിമയാക്കാൻ കഴിയുന്ന ഒരു വ്യവസ്ഥ ഇന്ന് നിലവിൽ
നഗരവൽകരണം, വ്യവസായവൽകരണം, സാങ്കേതികപുരോഗതി എന്നിവ പ്രാധാന്യമർഹിക്കുന്ന സാമൂഹികമാറ്റങ്ങളാണ്.
ല സാമ്പത്തികവും സാമൂഹികവുമായ ശിഥിലീകരണങ്ങളും യന്ത്രസമാനമായ ജീവിതവും വ്യക്തിയെ
നാക്കുകയും അവനിൽ സംഘർഷം നിറയ്ക്കുകയും ചെയ്തു. ലോകമഹായുദ്ധങ്ങളും വ്യവസായികവിപ്ലവങ്ങളും
ലും സാഹിത്യത്തിലും ജീവിതരീതിയിലും വരുത്തിയ മാറ്റങ്ങൾക്കു മനുശാസ്ത്രപഠനങ്ങൾ നൽകുന്ന വ്യാഖ്യാനങ്ങൾ
ാണ്. വിവിധ മാതൃകകളിലെ യുദ്ധങ്ങളും കലാപങ്ങളും ദുരന്തങ്ങളും അവിടെയുള്ള ശിശുക്കളിലും മുതിർന്നവരിലും
ഘർഷത്തെപ്പറ്റിയുള്ള വിവിധതലത്തിലുള്ള പഠനങ്ങൾ ശ്രദ്ധേയമാണ്. മാനസികമായി വ്യക്തി അനുഭവിച്ചിരുന്ന
ബോധം ആധുനിക മനുഷ്യന് നഷ്ടപ്പെട്ടിട്ടു്. കോൾമാന്റെ വീക്ഷണത്തിൽ,⁽¹⁾ ടെലിവിഷൻ സെറ്റുകളും സദാസമയവും
ുന്ന ഫ്രീഡ്ജുകളും ആധുനികജീവിതത്തിലെ മറ്റൊറ്റ സുഖസൗകര്യങ്ങളുമായിട്ടും ജീവിതത്തിന്റെ അർത്ഥം
കൈവിട്ടുപോകുന്നതായി ആധുനിക മനുഷ്യന് തോന്നുന്നു. മുജി ദെയേശായുടെ⁽²⁾ വീക്ഷണത്തിൽ എല്ലാവരും പിടിച്ചുപറി
b)യിൽ ഏർപ്പെട്ടിരിക്കുകയാണ്. ജോലി, വിദ്യ, വെള്ളം, ഭക്ഷണം, ബസ്സിലും ട്രെയിനിലും നിൽക്കാനിടം, പുറംപോക്കുകൾ
യാർത്താക്കന്മാർക്കു വേണ്ടിപ്പോലും പിടിച്ചുപറിയാണ്. ഒരു വ്യക്തിയുടെ ആത്മസംഘർഷത്തിന്റെ കാരണം അവന്റെ
യിൽ മാത്രം അന്വേഷിച്ചാൽ പേരെന്നും അവന്റെ നിയന്ത്രണപരിധിക്കപ്പുറം നിൽക്കുന്ന അനവധി ബാഹ്യഘടകങ്ങളെക്കുടി
വ്യക്തിയിൽ മാനസികസംഘർഷം ജന്മമെടുക്കുന്നതെന്നുമുള്ള വസ്തുതയിലേക്കാണ് ഈ പഠനം നമ്മെ നയിക്കുന്നത്.
ൽ മനുഷ്യന്റെ ആത്മവിഷ്കാരമാണ്. മനുഷ്യന്റെ സർഗ്ഗശക്തികളാണ് തൊഴിലിലൂടെ ഒരു രൂപമാർജ്ജിക്കുന്നത്.
പിയയിൽ തൊഴിലാളികന് അനുഭവപ്പെടുന്ന അന്യതാബോധം ആത്മസംതൃപ്തിയുടെ മേഖലയാകേ തൊഴിലിനെ
ട ഗർഭത്തിൽ എത്തിച്ചു. മുതലാളിത്ത വ്യവസ്ഥിതിയിൽ പരസ്പരം മത്സരിക്കുന്നവരെയും സഹപ്രവർത്തകന്റെ
ത്ത ചോദ്യം ചെയ്യാൻ ശ്രമിക്കുന്നവരെയുമാണ് നാം കാണുന്നത്. ബന്ധങ്ങൾ താന്ത്രികനാട്യങ്ങളായി മാറി. ഇന്നത്തെ



Josephine Researcher **3**



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'ഒരു നല്ല അപ്പന്റെ ചാവറുളം' കുടുംബനവോത്ഥാനവും

ജിയോ തോമസ്, ഗവേഷകൻ
ശാസ്ത്രീശാലം ഡീപ് യൂണിവേഴ്സിറ്റി, ഡിബലിഗൽ

നല്ല അപ്പന്റെ ചാവറുൾ എന്നത് ചാവറ കുടുംബക്കോസ് ഏലിയാസച്ചൻ' മരണത്തിനുമുമ്പായി നൽകിയ കരണപട്ടമാണ്. "എന്റെ കൈയെഴുത്തുവാൻ ഇതിനെ ഞാൻ നിങ്ങൾക്കു തരുന്നു. ഞാൻ മരിച്ചാലും ഈ കടലാസ് മരിക്കുകയില്ല. ഇത് എന്റെ നിക്ഷേപമായി സൂക്ഷിപ്പാൻ എന്റെ മക്കളായ കൈനകരി കുരിശുപള്ളിക്കാരായ നിങ്ങളെ ഞാൻ ഇത് എടുത്തു. 19-ാം നൂറ്റാണ്ടിൽത്തന്നെ കുടുംബങ്ങൾ സാമൂഹിക, സാംസ്കാരിക, ആത്മീയമേഖലകളിൽ നവീകരിക്കപ്പെടേണ്ടതുണ്ട്. മൂത്തോടെ, അതിനുവേണ്ട സുവ്യക്തമായ മാർഗ്ഗനിർദ്ദേശങ്ങൾ മരണത്തിനുമുമ്പായി ചാവറയച്ചൻ നൽകി. "എന്റെ കുടുംബപ്പുസ്തകം" രണ്ടുപ്രകാരത്തിലും മക്കളുമായിരിക്കുന്ന നിങ്ങൾക്ക് ഇത് എന്റെ ഒരസ്മരണ (മരണശാസനം) ഈ ലഘുകൃതിയിലെ കുടുംബ-സാമൂഹിക നവോത്ഥാനതലത്തിന്റെ വിശദമായ വായനയാണ് ഈ പ്രബന്ധം.

ചരിത്രവും പാരമ്പര്യവും

ഉസാമുഹൂ-രാഷ്ട്രീയപശ്ചാത്തലത്തിൽ നവോത്ഥാനം എന്നത് കാലികമായി ഏറെ ചർച്ചകൾക്ക് വഴിയൊരുക്കിയ നിയമവും പ്രകിയയുമാണ്. ഇംഗ്ലീഷിലെ Renaissance എന്ന പദത്തിനു തന്നെല്ലാമയ മലയാളപദമായിട്ടാണ് നവോത്ഥാനം അറിയപ്പെടുന്നത്. പുനർജന്മം, പുന:സൃഷ്ടി എന്നീ അർത്ഥങ്ങൾ വരുന്ന Renaissance എന്ന പദം പതിനാലാം ശതകത്തിൽ ജനിച്ച സാമൂഹികവും സാംസ്കാരികവും ഖൈഷണികവുമായ പുത്തൻ ഉണർവിനെ സൂചിപ്പിക്കുവാൻ ഉപയോഗിച്ചതോടുകൂടി തത്ത്വങ്ങൾ വിശാലമായി പതിനാലാം ശതകത്തിൽ ഇറ്റലിയിലാണ് നവോത്ഥാനത്തിന്റെ ആരംഭം എന്നും സമൂഹത്തിന്റെ പലകളിലും സംഭവിച്ച പുത്തൻ ഉണർവ് ആദ്യം പ്രകടമാകുന്നത് കലയിലും സാഹിത്യത്തിലും ആയിരുന്നു എന്നും നിർവചനങ്ങൾ വ്യക്തമാക്കുന്നു. യൂറോപ്യൻ ചിന്താമണ്ഡലത്തിൽ സംഭവിച്ച നവീകരണപ്രകിയ പുതിയ തലങ്ങൾക്കു കാരണമായി. അച്ചടിയന്ത്രം, കടലാസ്, വെടിമരുന്ന്, വടക്കുനോക്കിയന്ത്രം എന്നിവയുടെ ഉപയോഗം യൂറോപ്യൻ നവോത്ഥാനത്തിനു പ്രധാനമായും വഴിയൊരുക്കിയത് ഡോ.എൻ.സാം അഭിപ്രായപ്പെടുന്നു. 'യൂറോപ്യൻ മറ്റു കണ്ടുപിടുത്തങ്ങളേക്കാൾ കടലാസിന്റെയും അച്ചടിയുടെയും ആരംഭവും തത്ഫലമായി എഴുതപ്പെട്ട പലകളുമാണ് യൂറോപ്പിന്റെ സമസ്തമേഖലകളിലും സംഭവിച്ച പുത്തൻ ഉണർവിനു തുടക്കം കുറിച്ചത് എന്നത് വ്യക്തം. ചരിത്രത്തിൽ നന്മയും ധർമ്മവും പ്രചരിപ്പിക്കുകയും അതുവഴി ഉൽകൃഷ്ടമായ ഒരു സമൂഹത്തെ സൃഷ്ടിക്കുകയുമാണ് യൂറോപ്പിന്റെ ലക്ഷ്യമെന്ന പ്രാചീന യവനസാഹിത്യചിന്തകൾ ലോകനവോത്ഥാനത്തിനുതന്നെ കാരണമാകുന്നതായി തിരുപറഞ്ഞാലിലുടെ മനസ്സിലാക്കാം.

പാലോ ശതകത്തിൽ ഇറ്റലിയിൽ ആരംഭിച്ച നവോത്ഥാനം, പത്തൊമ്പതാം ശതകമാകുമ്പോഴേക്കും പാശ്ചാത്യസമൂഹത്തിന്റെ നൂതനതലവും എത്തുന്നതായി കാണാം. സമൂഹത്തിന്റെ സമസ്തമേഖലകളിലും സംഭവിച്ച ഈ പുത്തൻ ഉണർവിന് തത്ത്വസമൂഹത്തെ ഇന്ത്യയിലും സാഹിത്യവുമായി അഭ്യേദമായ ബന്ധമാണുള്ളത്. രാജാറാം മോഹൻ റോയ്, സ്വാമി ദയാനന്ദൻ സർവ്വീട് അഹമ്മദ് ഖാൻ എന്നിവരുടെ സാഹിത്യ സാംസ്കാരിക ഇടപെടലുകൾ ഇന്ത്യൻ നവോത്ഥാനമുഖത്തെ ഏതാനും നൂറ്റാണ്ടുകൾ മാത്രം.

പാശ്ചാത്യ നൂറ്റാണ്ടിന്റെ രണ്ടാം പാതി മുതൽ ഇരുപതാം നൂറ്റാണ്ടിന്റെ ആദ്യപാതി വരെയുമാണ് കേരളനവോത്ഥാനത്തിന്റെ പലതരം ചരിത്രം അടയാളപ്പെടുത്തുന്നത്. അതോടെ കേരളനവോത്ഥാനം പൂർണ്ണമാക്കുന്നോ അതിനുശേഷം നവോത്ഥാനം സമൂഹായത്തിലും സംഭവിച്ചിട്ടില്ലെന്നോ ഇതിനിർമ്മമില്ല. ചട്ടമ്പിസ്വാമിയെയും ശ്രീനാരായണഗുരുവിനെയും തുടർന്നുവന്ന നവോത്ഥാനം സാമൂഹ്യ- സാമൂഹികനേതാക്കളെയും കേരളനവോത്ഥാനത്തിന്റെ അവിഭാജ്യനേതൃത്വനിരയിൽ ചരിത്രം ആദരവോടെ നൂണ്ടെങ്കിലും, ഇവർക്കെല്ലാം മുമ്പേ കളമൊരുക്കി പ്രാദേശികമേഖലകൾ വിജയകരമായി പെയ്തുവച്ച പ്രതിഭയാണ് ചാവറസ് ഏലിയാസച്ചൻ. അദ്ദേഹത്തിന്റെ കേരളനവോത്ഥാനസംഭാവനകൾ ഇന്ന് ഏറെ പഠനവിഷയമാകുകയും ചെയ്തിട്ടുണ്ട്.

കുടുംബനവോത്ഥാനവും

നവോത്ഥാനം എന്ന സംജ്ഞ സാമൂഹത്തിനും രാഷ്ട്രത്തിനും സമൂഹായത്തിനും മാത്രമല്ല, കുടുംബത്തിനും അനുയോജ്യമാണെന്ന് എന്റെ ചാവറുൾ എന്ന ലഘുകൃതി സാക്ഷ്യപ്പെടുത്തുന്നു. വീക്ഷണങ്ങളിലും ദർശനങ്ങളിലുമുള്ള നവോത്ഥാനതലത്തിലൂടെ നവീകരണമാണ് ചാവറയച്ചൻ ലക്ഷ്യം വച്ചത്. കുടുംബങ്ങളാണ് സമൂഹസൃഷ്ടിയുടെ ഘടകം എന്നതിനാൽ കുടുംബങ്ങളെ



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'Ecosophy' of the 'American Adam': The Archetypal Mould of Melville's Mythical Characters and Situations

Roby Mathew¹

¹Assistant Professor, St. Joseph's College, Moolamattom, Arakulam P.O., Idukki-685591, Kerala, India

19, the bicentennial year of the birth anniversary of Herman Melville one of the herculean figures in American nautical literature, gives the psyche of Melville who penned the parable of a monomaniac who ventures into the deep to annihilate evil from the face of the earth. *Moby Dick*, the magnum opus of Melville, undoubtedly depicts the archetypal quest of an archetypal protagonist and an archetypal antagonist. *Typee* which preceded *Moby Dick* drives home the archetypal state of Eden which human beings have but always longed for. *Moby Dick* with multiple quests at its core; the quest of Captain Ahab "heading towards destruction" and the quest of Ishmael "heading towards survival" (Jenkins 5) sheds light into the roots of our ecological crisis. Lynn Jenkins remarks, "Our "environmental crisis" is often held to have its roots in early patriarchal myths, the *Genesis* myth, and the Judeo-Christian mythology of a god-given supremacy of man over woman and nature." (White 1203)

Herman Melville's narratives are set in a frame of voyage which is technically part of whaling. Whaling, one of the most popular enterprises in the nineteenth century, offered umpteen possibilities to incorporate any number of archetypes in its narrative. Herman Melville's *Moby Dick*, with which he made an indelible mark in the history of American literature, and other works which preceded *Moby Dick* like *Typee* and *Omoo* share the common structure as that of a voyage. The frame tale is that of a journey through the sea which various narrative patterns are created. The journey through the sea entails uncertainty, encountering the unexpected, proving the prowess of masculinity and exploring the exotic shores and a courageous mind seeking something for renown and reward. Herman Melville who was forced to find a living in the sea at an early age was initially drawn to this life in the watery part of the earth.

The lessons which his life taught him during his childhood and later as a harpooner in whaling ships and while doing some other work, led him to a longing for the distant past in which he lived as Adam in the Garden of Eden. *Typee* obviously recreates the Edenic past. To quote the phrase of Arne Naess, it is an 'ecosophic quest'. Jenkins remarks, "In ecosophy there is a kind of quest which, rather than seeking progress by the domination and use of nature, seeks harmony with nature, but with it goes the recognition that it is no longer possible to live as we did in the prepatriarchal, distant past. (6)

Because of the historical dominance of nautical culture by men, Melville's central characters are usually men. It focally explores archetypal themes such as masculinity and heroism, investigations of social hierarchies and the psychological struggles of the individual in the hostile environment of the sea. The archetypal mould of an adventurous nautical story demands its parts as: characters and setting in and around the sea, introduce a problem or unexpected difficulty during the voyage, solve the problem by having an adventure and the resolution which in the dramatic tradition can be catastrophe or denouement. Melville, inspired by William Shakespeare, moulded Ahab in the guise of a Shakespearean tragic hero with the archetypal tragic flaw as hubris. The antagonist in this tragic tale is the mythical leviathan that figures in the book of *Job*. Infuriated by the ill-treatment of Job, Job questions God and in return God asks Job about leviathan as,

⁷ Can you fill its hide with harpoons
or its head with fishing spears?

⁸ If you lay a hand on it,
you will remember the struggle and never do it again!

⁹ Any hope of subduing it is false;
the mere sight of it is overpowering. (Job 41: 7-9)

At the place Ahab determined to harpoon the leviathan which for Ahab is an eternal symbol of all that is evil in nature. Melville's works namely *Moby Dick* and *Typee* reenact the biblical narratives which begin in *Genesis* and passing through the book of *Job*, the story of Jonah, the story of great flood and the book of prophets. Many a character in his works takes after the biblical character with similar names. While *Moby Dick* delineates the fall of man and the



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The lessons which his life taught him during his childhood and later as a harpooner in whaling ships and while doing some odd jobs ignited a longing for the distant past in which he lived as Adam in the Garden of Eden. *Typee* obviously recreates the Eden in him. To quote the phrase of Arne Naess, it is an ‘ecosophic quest’. Jenkins remarks, “In ecosophy there is a kind of primitivism which, rather than seeking progress by the domination and use of nature, seeks harmony with nature, but with it goes a realization that it is no longer possible to live as we did in the prepatriarchal, distant past. (6)

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The Mirage of Progress Depriving Life in Sarah Joseph's *Gift in Green*

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Abstract

Though nature is all powerful and perennial, man transmogrifies it to fit his selfish needs which ultimately perpetrate irredeemable damage to our ecosystem. Ecocriticism examines the various ways literature treats the subject of nature. There are debates within Ecocriticism concerning the crucial matter of the relationship between nature and culture. When cultural dominance is perpetuated without sensitivity to, and respect for, indigenous ways of life, it is imperialistic and expansionist. Cultural invasion tends to have a negative effect on cultural diversity. The novel *Gift in Green* by Sarah Joseph points fingers at various kinds of invasions and ecological destructions and laments the departed rustic fertility and glory of the simple pure land of 'Athi' at the wake of the 'so called' progress. It is high time to rethink the idea of progress as a cultural practice.

Key Words: Nature, Invasion, Ecocriticism, Progress

Introduction

Nature functions as a synonym for life. Nature is also defined against artifice and technology. Culture is a term that refers to a large and diverse set of mostly intangible aspects of social life. Culture can be a force for oppression and domination when subscribing to mainstream values and norms which benefit only to the powerful minority. Material culture is composed of things that humans make and use. This aspect of culture includes a wide variety of things from buildings, technological gadgets, and clothing to film, music, literature, and art among others. Material culture emerges from and is shaped by the non-material aspects of culture – knowledge, values, beliefs etc. It is in the realm of non-material culture that a minority is able to maintain unjust power over the majority.

Ecocriticism is the study of literature and the environment from an interdisciplinary point of view where literary scholars analyze texts that illustrate environmental concerns. The term ecocriticism is first used by William Rueckert in his essay "Literature and Ecology: An Experiment in Ecocriticism" in 1978. Ecocriticism starts developing as a school of literary criticism in the 1990s. Ecocriticism is a response to the need for humanistic understanding of our relationships with the natural world in an age of environmental destruction. Ecocritical writers evaluate the texts which exemplify the environmental issues. The Writers in India also showed a great concern towards nature and natural objects. Sarah Joseph, a leading novelist and short story writer in Malayalam, is one such writer who explores the theme of ecocriticism in her works through different ways. All her works are well received and have won prestigious awards as well as the Sahitya Academy Award. Her novel *Gift in Green* assumes particular significance in the context of the rising stridency of a global culture. The novel pivots on the decay, death and degeneration of Athi. The atrocities inflicted on nature by the modern, 'cultured' man disrupt the harmonious relationship between the land and the simple folks living there. Sarah Joseph questions the irredeemable damage done to the body of nature in the name of progress. The novel significantly touches important environmental issues emerging at the time, such as environmental pollution, deforestation, endangered species, water contamination and so forth.

Man Vs Nature

The novel *Gift in Green* depicts how the greed for material wealth, prosperity, and progress assisted by technology and power disrupts the harmonious relationship between man and nature. Athidesam, an imaginary location provides the ambience for *Gift in Green*. This unravished island with its natural beauty and primitive purity depicts the sublime existence of nature. The peace-loving, farm-loving people there live a life inseparable from the land and water. The land provides everything to meet their daily needs. "Fish or mussels: enough to meet one's daily needs. Add to this the two Pokkali harvests from the paddy fields . . . Everyone cultivated pumpkin, white gourd, spinach and beans for their own use. Every household had a cow, buffalo, hens and



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Electronic Resources: a study with special reference to UGC INFLIBNET N-LIST Consortium

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Abstract

The present information seeking behavior of users changed to Electronic Resources than Print Resources for gathering information. But one should not forget that both print and electronic resources are inevitable in the procedure of information gathering. Many electronic resources have been made available in Academic and Public Libraries. Speaking of the academic Community, one of the important sources providing electronic sources is "National Library and Information Services Infrastructure for Scholarly Content" (N- LIST).. Consortium for Higher Education Electronic Resources, e - content for PG Courses etc. are part of this. This paper intends to study different types of electronic resources and how they help academic community with special reference to UGC INFLIBNET N-LIST Programme.

Key words: Electronic Resources, UGC, INFLIBNET N-LIST programme, Academic Community, Academic Publishing.

Introduction

The present era is an era of Information and Knowledge revolution. Cambridge English dictionary defines Information as an uncountable noun meaning "facts about someone/something." And knowledge as "understanding of or information about a subject they you get by experience or study, either known by one person or by person generally. (dictionary.cambridge.org). Information has always been a part of growth and improvement. As the father of Library & Information Science, Dr. S.R.Ranganathan explains through his "Five Laws", Users demand the most relevant, accurate and current information without loss of time since information gets obsolete within no time. Due to the complexity and varied interpretation of the concept of users' needs and requirements, it is unanimously accepted opinion that user needs cannot be predicted. In the modern society, the types of information and the media which present them have become manifold and multifarious, offering users a wide spectrum of vast selection.

The arrival and proliferation of electronic resources and digital libraries have a number of significant impacts on the use of print resources and traditional libraries. Reading preferences and the use of print and electronic resources vary among different disciplines. They desire to meet their information needs through online. The new age readers' insist on the use of online resources to cater to their needs.

Electronic Resources

Electronic resources (or e-resources) are materials in digital format accessible electronically. Examples of e-resources are electronic journals (e-journals), electronic books (e-books), online data bases in digital formats, Adobe Acrobat documents (.pdf), webpages (.htm, .html) etc. (www.libfaq.smu.edu.sg>fag).

Electronic Resources are defined as resources which require computer access or any electronic product that delivers a collection of data, be it text referring to full text databases, electronic journals and image collections, other multimedia products, and numerical, graphical or time based, as a commercially available title that has been published with an aim to be marketed.(lisbdnet.com)

To some extent, Electronic Resources solve storage problems. It also enables multiple users to access information simultaneously. The users can find out information easily and collection and organization of electronic resources can be done quickly. Also it offers efficient delivery of information economically to all users.

Types of Electronic Resources

Electronic Resources are divided into two major types. They are

1. Online Electronic Resources
 - a. Electronic Journals



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Quality of life and stress tolerance of ASHA workers

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Fr. Lijo Kochuveetil CMI*

Dr. Justin Joseph**

Dr. Mathew Joseph Kanamala**

Jismy Joseph***

Abstract

An **accredited social health activist (ASHA)** is a community health worker instituted by the government of India's Ministry of Health and Family Welfare as a part of the National Rural Health Mission (NRHM) since 2005 onwards. Today the ASHA workers play significant and defined role in individual families of our society irrespective of their caste, creed and economic status. ASHAs are also meant to serve as a key communication mechanism between the public healthcare system and local communities. Thus the ASHA workers are vital part of our social support system and making sense of gender equality. The present study scrutinized influence of age, education and experience ASHA workers upon their quality of life and stress tolerance. A sample of 100 ASHA workers was selected through convenient sampling technique. 'T test and ANOVA were used to test the hypothesis. The result showed significant deference in the level of stress tolerance on the basis of age whereas no statistically significant deference showed in quality of life. Further, no significant deference was observed in quality of life and stress tolerance of ASHA workers grouped on the basis of education, experience and number of children.

Key Words: Quality of life, Stress tolerance, ASHA worker.

Introduction

The National Rural Health Mission (NRHM) (2005-12), is a government flagship programme, launched on the 12th April, 2005 in 18 states across the country, including eight Empowered Action Group (EAG) states, the North-Eastern states, Jammu & Kashmir and Himachal Pradesh, that seeks to provide effective health care to the rural population, especially the disadvantaged groups, by improving access, enabling community ownership and demand for services and strengthening public health systems for efficient service delivery.

In April, 2005, as a key component of efforts to expand access to health services by National Rural Health Mission (NRHM) introduced the Accredited Social Health Activists (ASHA) in each village within the identified States to act as an interface between the community and the public health system. ASHA must primarily be a woman resident of the village married/widowed/divorced, preferably in the age group of 25 to 45 years. She should be a literate woman with due preference in selection to those who are qualified up to 10 standard wherever they are interested and available in good numbers. This may be relaxed only if no suitable person with this qualification is available. ASHAs are seen as health activists in the community who will create awareness on health and its social determinants, counsel mothers on key health behaviors and mobilize the community towards local health planning and increased utilization and accountability of the existing health services.

The present study focuses to assess quality of life and stress tolerance of ASHA workers with reference to their environs. The concept of quality of life broadly encompasses how an individual measures the 'goodness' of multiple aspects of their life. These evaluations include one's emotional reactions to life occurrences, disposition, sense of life fulfillment and satisfaction, and satisfaction with work and personal relationships (Diner, such, Lucas, & Smith, 1999). Social acceptance and job satisfaction of ASHA workers in the Garo Hills Division of Meghalaya: a cross-sectional study, revealed that social acceptance of ASHAs was rather to some extent for 36.4%. Almost 52% of ASHAs were dissatisfied with job and 61% were unhappy with their performance based remuneration. This is a mere example of diminished quality of life of ASHA workers with reference to their sphere of work.

Today ASHA workers are facing tremendous stress due to their heavy work load and lack of sufficient honorarium. A study conducted by Saxena, V., Kakkar, R., and Semwal, V.D - *Indian J Community Heal.* 2012 illustrated that the most important



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The role of magnetic properties of Metal Organic Frameworks towards clean energy storage application

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Abstract

Metal Organic Framework based gas absorptive system are of wide interest in today's scenario due to their fascinating properties such as high porosity and surface area, tunable nature, diversity in metal functional groups and make them attractive candidate for various application such as catalysis, sensing, gas separation and storage. Though various studies have been done to improve the efficiency of MOFs, the role of magnetic properties of MOFs are less studied. Paramagnetic MOFs offer much attention as they offer flexible ground state and the nature of magnetic coupling will give idea towards tuning the ground state properties. Here in this review, various modifications of MOFs to improve their magnetic properties and thereby gas adsorption properties are explained.

Introduction

Development of safe and effective gas storage system is critical for the implementation of fuel cell economy. Among the various approaches to improve the performance of such systems, Metal Organic Frameworks (MOFs) based adsorptive gas storage system is envisaged as a long-term solution as a replace of carbon based fuels.¹ Metal-organic frameworks (MOFs) are crystalline porous materials made by linking metal ions and clusters with organic ligands. Their application in clean energy is most significantly as storage media for various gases such as hydrogen and methane and carbon dioxide.² The fascinating properties of MOFs such as porous nature, size tunability and the surface area³ make them an attractive candidate for potential applications in gas storage^{4a,4b}, molecular separation^{5a-5c}, and catalysis.^{6a-6c} The coordinatively unsaturated sites of frameworks allow selective and adsorptive separation of various gases.^{7a-7c} Though zeolites, COFs and complex hydrides are available for gas adsorption applications⁸, the balance between the high gravimetric and volumetric adsorptive capacity of MOF make them a promising class of material for adsorptive gas storage application and clean energy purpose.

Why magnetic MOFs?

MOFs can be considered as porous network possessing metal clusters and organic ligands as linkers. Apart from the applications of MOF as molecular sieves, sensors and storage devices it has also been widely studied as a molecular magnetic material due to their peculiar responsive nature of changing the magnetic features under the influence of external agents such as temperature, pressure and guest molecules. Their magnetic properties offer wide application as switches and sensors.^{9a-9c} The slow magnetic relaxation of single chain magnet (SCM) allows them potential candidate for spintronic devices, high-density information storage, quantum computing etc. The reason for these characteristic properties of SCM arise from the weak inters chain interactions and large single-ion anisotropy and intrachain interactions. Such switchable SCMs provide an additional and independent way to control the magnetic states. Thus the diversity of MOFs and their potentially interdependent properties due to organic inorganic components ensure them as magnetically responsive materials.^{10a-10c} Also, paramagnetic MOFs offer additional flexibility to ground state by switching of spin state as well as magnetic coupling interactions in their ground state. Theoretical insight into the gas adsorptive nature of MOF seeks high impact because the prediction of magnetic properties and the coupling data provide much input towards the synthesis procedures of MOFs.

The effective manipulation of the magnetic properties of the framework through physical or chemical responses is a major challenge in bridging molecular magnetism and responsive MOFs.^{11a-11c} The solution to connect these two is to introduce suitable motifs that are responsive for external stimuli and causes a switching the magnetic state and influencing the coupling interactions in a fruitful manner. Thus the target of MOFs as a tunable magnetic material with external responses such as pressure or temperature can be achieved. The magnetically tuned MOFs offer wide application in molecular magnetism due to their reversible nature of gas binding due to physisorption or chemisorption interactions.



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Synthesis of the sensing part of Perylene Mono-Imide based fluorophore probe for sensing applications

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Abstract

Fluorescent based chemo sensors are potential candidates for sensing applications such as detection of cations and anions, environmental pollutants and biologically active species due to their peculiar properties such as high sensitivity and selectivity, low cost etc. This article focuses on the synthesis and analysis of photophysical properties of the sensing part of a perylene monoimide (PMI) based fluorophore probe for cation sensing application. PMI substituted with ethylhexyl amine was selected as the sensing part of the fluorescent probe. Mono brominated PMI derivative was synthesized and the normalised absorbance and emission spectra of reactant PMI gives $\lambda_{abs} = 485(\text{nm})$; $\lambda_{em} = 541(\text{nm})$; ($\lambda_{ex} = 541\text{nm}$) and that of mono brominated PMI was found to be $\lambda_{abs} = 485(\text{nm})$; $\lambda_{em} = 541(\text{nm})$; ($\lambda_{ex} = 541\text{nm}$).

Introduction

Fluorescent sensors have attracted much research interest in various fields such as pharmacology, biology, and environmental sciences as it offers wide application such as detection of pollutants in water, environmentally important species, biologically important anions and cations¹, small neutral molecule etc. Florescent sensors comprise of a sensing site and binding site to which the substrate molecule binds and the binding site is capable of transferring the substrate interaction to sensing site through charge transfer interaction. The peculiar properties of fluorescent molecule such high sensitivity, high selectivity², cost effective nature and sub nanometre spatial resolution with submicron visualisation³⁻⁴ make them potential candidates for sensing applications. The detection of analyte molecule is achieved by photo physical mechanism such as chelation induced enhanced fluorescence, intramolecular charge transfer, photo induced electron transfer and so on. Hence, fluorescent chemosensors have attracted much attention in past decades for gas sensing applications.

In light of this, we designed several precursors for fluorescent sensor which can serve as a linker for the binding site to which the metal binds and is called sensing part or fluorophore. We have developed several sensing site for the sensor based on the Perylene Mono-Imide dye (PMI), which is a polycyclic aromatic hydrocarbon with excellent electron acceptor ability. It also possesses diverse and fascinating properties such as high molar extinction coefficient in the visible region, high fluorescence quantum yield and high thermal stability which makes it a suitable acceptor moiety in the fluorescent probe.⁵⁻⁶ The structure of the PMI is shown in fig 1 is with bay and peri positions marked in the diagram. Modification of peri position of PMI derivative give rise to enhanced photo physical properties of the system.

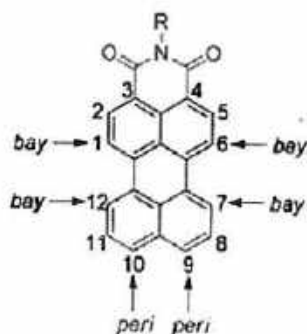


Fig 1: Structure of Perylene Mono-Imide (PMI) derivative showing peri positions and bay positions of the compound



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Catalytic Degradation of Organic Dye Using Biosynthesized Silver Nanoparticles

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Abstract

Nanotechnology which is an emerging field in research and nanoparticles are considered to be its basic for the development of several nanostructured devices or materials. Metal nanoparticles exhibit unique properties due to its magnetic activity, chemical reduction, sensing, biomedical application and others. It has been widely reported that in green synthesis using plant extracts, the plant medium act as a good reducing and capping agent for the synthesis of metal nano particles. The present study reports an environmentally gentle and unexploited method for the synthesis of silver nanocatalysts using *Salvinia molesta*. The synthesised AgNPs were characterized using Ultraviolet-Visible (UV-Vis) spectroscopy, X-ray diffraction (XRD), and High resolution transmission electron microscopy (HR-TEM). High resolution transmission electron microscopy images revealed that the synthesized objects were predominantly of spherical shape with its average diameter ranges between 19-25nm. The XRD and HR-TEM studies clearly demonstrate the crystalline nature of the nanoparticles. Further, the Ag NPs has an effective catalytic activity in the reduction of highly environmentally polluted organic dyes like Methylene blue.

Introduction

The development of biological inspired experimental process for the synthesis of nanoparticles is evolving into an important branch of nanotechnology[1]. Biologically synthesized silver Nano particles could have many applications such as they might be used as spectrally selective coating for solar energy absorption and intercalation material for electrical batteries as optical receptors, for bio labelling, and as antimicrobials[2]. Silver compounds were shows to be effective against both aerobic and anaerobic bacteria by precipitating bacterial cellular proteins and by blocking the microbial respiratory chain system[3][4]. Before the advent of silver nanoparticle, silver nitrate was an effective antibacterial agent used clinically[5]. The possible mechanisms of actions includes better contact with the microorganism nanometre scale, silver provided an extremely large surface for contact with bacteria. The nanoparticles get attached to the cell membrane and also penetrate inside the bacteria. Silver nanoparticle immobilized on silica spheres have been tested for their ability to catalyst the reduction of dyes by sodium borohydride (NaBH₄)[6]. In the absence of silver nanoparticles the sample was almost stationary showing very little or no reduction of the dyes. When silver nanoparticles where added to the solution, rate of reduction increases. The reaction time showed to be strongly. When the concentration was doubled, the reaction time was reduced to less than one third. Here silver nanoparticle aids the transfer of electrons from the BH₄ ion to the dyes, and thereby causing a reduction of the dyes. BNH₄ ions are nucleophile while dyes are electrophilic[7]. SEM pictures of the nanoparticles showed that they were intact after the reaction and still immobilized on the silica spheres[8]. This proves that the particles act as a catalyst because they are not consumed in the reaction

Materials and methods

Silver nitrate (99.99%), methylene blue and sodium borohydride were purchased from sigma Aldrich. All glassware's were cleaned with aqua regia and rinsed several times with deionized water.

Synthesis of silver nanoparticles

Silver nanoparticles have been synthesized by adding 2 mL extract to preheated 30 mL 3.1×10^{-4} M silver nitrate solution and subjected to microwave irradiation for 4 min. The formation of silver nanoparticles is indicated by the appearance of yellowish brown colour within 5 min.

Catalysis

1 mL 100 mM sodium borohydride solution is added to 1 mL 10^{-3} M methylene blue. The solution are then made up to 10



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Protein Designs With D- Amino Acids Expand Current Protein Topology

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Abstract

De novo protein design is a powerful tool that plays an important role in understanding the sequence-to-structure and structure-function relationships in proteins and polypeptides. The successful protein designs have tremendously advanced our understanding of protein folding problem, by providing structurally and functionally enhanced novel polypeptides or miniproteins with appreciable thermostability and bioavailability. Use of advanced computational techniques have been an integral part of successful *de novo* design of peptides and proteins. One advancing method involves unusual structural fold, created *de novo* for functional engineering is retrofitted with a novel polypeptide sequence to harbor a desired function, by following the established principles of protein folding. Inspired by the previously reported 20-residue triple stranded antiparallel β -sheet peptide "Betanova", we have used the later approach in the current study to rationally design a triple stranded antiparallel β -sheet miniprotein of d" 30 amino acids, named 'RL1' with an unusual structural fold, having a receptor-like hole, with a potential to be engineered as a functional receptor. The structural stability of RL1 is tested in comparison with Betanova using classical molecular dynamics (MD) simulation over 20ns at 300K. In a short look RL1 is found to be stable enough throughout the MD and has the potential to be engineered as a receptor.

Introduction

Proteins are a class of biologically important macromolecules made up of a chain of amino acids. Depending on the functional requirement, proteins can be a small polypeptide chain of 10 amino acids and sometimes can be a very long polypeptide chain of 100s of amino acid residues.¹ The main chain of naturally occurring proteins are generally made up of only L- () amino acids, except Glycine. All proteins possess the inevitable property of protein folding through critical tertiary contacts. Researchers still study this problem of protein folding since serious biochemical malfunctions arises when a protein misfolds to other states. To better understand such protein folding processes one can design small fragments of complex proteins and study those individual foldons.

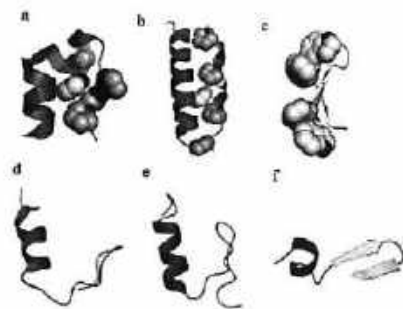


Figure 1: Cartoon representation of the structure of few miniproteins d" 30 amino acids, from the literature. (a) Trp Cage, (b) avian pancreatic polypeptide, (c) Trp zipper, (d) BBA, (e) Zinc finger and (f) BH17.

Υπερφο Δ-αμινο αχιδσ ιν πεπτιδε δεσιγν ηασ α λογη ιστορησ σταρτινγ φρομ χημχλιχ πεπτιδε βασειδ νανοτοβεσ. Βασειδ ον α δεσιγνεδ τυπε-ΠΠ Δ-Προ-Γλψ βturn, Gellman and coworkers, Balaram and coworkers³⁻⁵ designed two to four stranded all β -systems. Durani and coworkers even contributed a hexapeptide fold using D-amino acids.⁶⁻⁷ Further, Durani and coworkers⁸⁻¹⁰ explored the conformational space of D-amino acids by designing a molecular bracelet with five D-amino acids in a total 14 residue polypeptide. In addition, using the stereochemical engineering approach, an / mini-protein was designed as a -cup shaped receptor for acetyl choline. The authors employed residues that exhibits - interactions, stabilizing the protein



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ദലിത് ജീവിതത്തിന്റെ നേർക്കാഴ്ചകൾ സരസ്വതീ വിജയത്തിൽ

പ്രൊ. ടെലി കെ. തോമസ്

സമൂഹത്തിന്റെ മുഖ്യധാരയിൽ നിന്നു മാറ്റി നിർത്തപ്പെട്ടവരാണ് ദലിതർ. യഥാസ്ഥിതിക ഹിന്ദുമതവും ബ്രാഹ്മണിക ധർമ്മശാസ്ത്രങ്ങളുമായി രൂന്നു അന്തിന്നു കാലണം. സ്വന്തം മണ്ണിൽ വളർന്നുവന്ന ഇവിടുത്തെ ദേശീയ ജനവിഭാഗത്തെയാണ് ദലിത് എന്ന പദം കൊണ്ട് അർത്ഥമാക്കുന്നത്. കടന്നാക്രമണത്തിന്റെയും കയ്യേറ്റത്തിന്റെയും സംസ്കാരം പ്രചരിപ്പിച്ച് തദ്ദേശീയ ജനവിഭാഗങ്ങളുടെമേൽ ആധിപത്യം ഉറപ്പിച്ച ആഭ്യന്തരവും പിന്നാലെ വന്ന പടിഞ്ഞാറൻ പരിഷ്കാരികളും ഒരു ജനതയുടെ സംസ്കാരത്തിന്മേൽ അധിപത്യം പുലർത്തി സ്ഥാപിച്ചെടുത്തതാണ് ഈ മോഴ്കോയ്ക. പരിത്രാസര മെന്റണെടുക്കുകയും എന്നാൽ എപ്പോഴും പരിത്രാസരത്തിന്മാണ് മാറ്റിനിർത്തപ്പെടുകയും ചെയ്യുന്ന ജനവിഭാഗമാണ് ദലിത് ജനങ്ങൾ. അവരുടെ വിധിപ്പുകകൊണ്ടും കണ്ണുനീരുകൊണ്ടും കെട്ടിപ്പൊക്കുന്ന സമൂഹത്തിൽനിന്നും അവർ അന്യരാകപ്പെടുന്നു. ഇതിനുമേലും സമ്പന്നരും സാങ്കേതിക ആധിപത്യവും ചേർന്ന് മൂപ്പപ്പെടുന്ന വരേണ്യതയ്ക്കുമുമ്പിൽ എപ്പോഴും അപേക്ഷിക്കാൻ മാത്രമായുള്ളവർ എന്നു കരുതപ്പെടുന്ന ഒരു ജനതയാണിത്. യഥാർത്ഥ ദലിത് ജീവിതം അപമാനീതവും പീഡിതവുമായ അനുഭവങ്ങൾ മാത്രം നിറഞ്ഞതാണ്.

ചിന്തകളുടെയും സിദ്ധാന്തങ്ങളുടെയും ശക്തമായ അടിത്തറയിലാണ് പാരമ്പര്യം ജനിക്കുകയും വളരുകയും ചെയ്യുന്നത്. ഈ ചിന്തകളും സിദ്ധാന്തങ്ങളും തന്നെയാണ് പാരമ്പര്യത്തെ നില്പിർത്തതുകയും സമ്പന്നമാക്കുകയും ചെയ്യുന്നത്. അധിമവർഗ്ഗം എല്ലാഴ്ചോഴ്ചം തങ്ങളുടെ സ്ഥാപിത താല്പര്യങ്ങൾക്ക് മുന്നം തട്ടാത്തതരത്തിലുള്ള പാരമ്പര്യം സൃഷ്ടിക്കാൻ ശ്രമിക്കുന്നു. സമൂഹത്തിലെ ദുർബ്ബലവിഭാഗങ്ങളെ ഈ പാരമ്പര്യത്തിൽ അവർ തളച്ചിടുന്നു. ഇന്നുവരെയുള്ള നൂറുകൾ പാരമ്പര്യങ്ങളെല്ലാം ഒരു പിടിയാളുകൾ ദുരിപക്ഷത്തിനുമേൽ അടിച്ചേല്പിച്ചതാണ്. ഇത്തരം പാരമ്പര്യത്തെയും സംസ്കാരത്തെയും തിരസ്കരിക്കുന്നതോടൊപ്പം അധിമവർഗ്ഗം അടിച്ചേല്പിച്ച് പാരമ്പര്യത്തെ ചോദ്യം ചെയ്യുകയാണ് ദലിത് സാഹിത്യകാരന്മാർ ചെയ്യുന്നത്. വരേണ്യവർഗ്ഗത്തിന്റെ ആവ്യന്യതയ്ക്കു സമാന്തരമായി സഞ്ചരിച്ചുകൊണ്ട് അവർ നിരവധി ചോദ്യങ്ങൾ തൊടുത്തു വിടുന്നു. ഇപ്രകാരം പരത്താൻപതാം നൂറ്റാണ്ടിന്റെ ഉത്തരാർദ്ധത്തിൽ ദലിതരുടെ ജീവിതാവസ്ഥകൾ ചിത്രീകരിച്ചുകൊണ്ട് പോയേതടിക്കുത്തമ്പു രചിച്ച നോവലാണ് സരസ്വതീവിജയം.

സരസ്വതീവിജയത്തിന്റെ രചനാലക്ഷ്യം

അന്ധനീരാസത്താലും ഇടിയവ്യക്താസത്താലും അന്ധാചരങ്ങളാലും അവകോലപ്പെട്ടു കിടക്കുന്ന ഹിന്ദുമതത്തെ കഠിനമായി കവറുത്തിരുന്ന വ്യക്തിയാണ് സമുദായ പരിഷ്കർത്താവും സാമൂഹിക സേവകനും അഭിഭാഷകനും എഴുത്തുകാരനുമായിരുന്ന പോത്തലി കുഞ്ഞമ്പു. ഇതിനുമേലുള്ള വിദ്വേഷമേലും വിജയമാണ് സരസ്വതീവിജയത്തിലൂടെ അദ്ദേഹം പ്രകീർത്തിക്കുന്നത്. ഇതിവ്യത്യാസത്തെ സൃഷ്ടിച്ചത് ബ്രാഹ്മണമതമായിരുന്നുവെന്നും അത് വൈദികന്മാരുടെ സാർവ്വത്രിയ താല്പര്യങ്ങളുടെ ഫലമായിട്ടായിരുന്നുവെന്നും അദ്ദേഹം വിശ്വസിക്കുകയും ചെയ്യുന്നു. അഭിപ്രായപ്പെടുകയും ചെയ്തിരുന്നു. താഴ്ന്ന ജാതികാരോടുമുള്ള താല്പര്യം, ബ്രാഹ്മണവിദ്വേഷം, അഭിഭാഷകവൃത്തി, ക്രിസ്ത്യമതാഭിമുഖ്യം എന്നിവ സരസ്വതീവിജയത്തിന്റെ രചനയിൽ പ്രകടമായ സ്വാധീനം ചെലുത്തിയിട്ടുണ്ട്.

നോവലിന്റെ രചനയെക്കുറിച്ച് അദ്ദേഹം തന്നെ പറയുന്നത് ഇപ്രകാരമാണ്. കണ്ടാൽ കണ്ണുകളുകേണമെന്നുവെച്ച് ഉയർന്ന ജാതികളാൽ നടപ്പുണ്ടാക്കിയ വിഭജനം ഉള്ള ജീവിതത്തെ എന്നപോലെ ബഹുമാനമായി ദുർഭര അകറ്റപ്പെട്ട അഗതികളായ ഹന്തരുടെ ഇടയിൽ വിദ്യാഭ്യാസം ഉണ്ടാക്കേണ്ടത് അത്യാവശ്യമാണെന്നും വിദ്യാഭ്യാസം കൊണ്ട് അവരുടെ സ്ഥിതി വളരെ പരിഷ്കരിച്ചു വരുമെന്നും മദിരാശിയിലെ ചില ഇംഗ്ലീഷുവർത്തമാനപത്രങ്ങൾ ചോദിച്ചോടയച്ചുതന്ന ചില ലേഖനങ്ങൾ വായിച്ചപ്പോൾ മലയാളത്തിലെ പുഴയരുടെ സങ്കടാവസ്ഥ ഓർത്ത് ഇവ പുസ്തകം എഴുതാൻ ഇടപന്നുമാണ്. 1892 ൽ സരസ്വതീവിജയം പ്രസിദ്ധീകരിക്കുമ്പോൾ അദ്ദേഹത്തിന്റെ മനസ്സിലുണ്ടായിരുന്ന ചിന്ത ഇതുതന്നെയായിരുന്നു.

സാമൂഹിക പ്രതിഫലനം നോവലിൽ

സാമൂഹികമായ ഉച്ചനീചത്വങ്ങളുടെ ഹൃദയസ്ഫുടകായ വിവരണങ്ങൾ സരസ്വതീ വിജയത്തിൽ സുലഭമാണ്. ഇന്ത്യൻ ജാതിവ്യവസ്ഥയുടെയും ബ്രാഹ്മണാധിപത്യത്തിന്റെയും പ്രത്യയശാസ്ത്രമായ മനുസ്മൃതിയെ കൂട്ടുപിടിച്ചാണ് കുബേരൻ നമ്പൂതിരി തന്റെ ക്രൂരതകളെല്ലാം കാണിക്കുന്നത്. ചുരുക്കം ചുരുക്കമാണ് വരുത്താനും അതിന് ദൈവികമായ അടിത്തറ ഉണ്ടെന്ന് സ്ഥാപിക്കാനും മനുഷ്യന്റെ ആദിപിതാവായ മനു എന്ന സാങ്കല്പിക മഹർഷിയിൽ അതിന്റെ പിതൃത്വം അവർ അടിച്ചേല്പിക്കുന്നു. ചുരുക്കത്തിന്റെ ആയുധം മാത്രമല്ല ആക്രമണത്തിന്റെ ഭാഷ്ട്രീയ ആയുധവും നിർമ്മാണമാണ് മിജ്ജരാജിക്ക് മനുസ്മൃതി. മനുസ്മൃതി എന്ന പാഠശ്വാത്താണ് ഹൈന്ദവ സാമൂഹിക പ്രമം പടുത്തുയർത്തിയിട്ടുള്ളത്. ഹൈന്ദവ വിദ്വേഷഗ്രന്ഥങ്ങളുടെ ഭാഗമായതുകൊണ്ട് എല്ലാ ഹിന്ദുക്കൾക്കും അത് ദിവ്യഗ്രന്ഥമാണ്. ഇതിനെയും തൊട്ടുകൂട്ടിയായുമായും മനു ഉയർത്തിപ്പിടിക്കുന്നു എന്നു മാത്രമല്ല അവയ്ക്ക് നിയമപരമായ അംഗീകാരം നല്കുകയും ചെയ്യുന്നു.

പാട്ടുപാടിയ കുറ്റത്തിന് കുബേരൻ നമ്പൂതിരിയുടെ കാര്യസ്ഥനാൽ ചവിട്ടിനീട്ടിത്തപ്പെട്ട ബോധം മകളു മരണത്തിന് എന്ന പുഴയ യുവാവിന്റെ മരണത്തെക്കുറിച്ചാണ് കഥ വികസിക്കുന്നത്. ചെർമ്മൻ എഴുത്തുപഠിക്കാൻ പാടില്ല. പാട്ടുപാടാൻ പാടില്ല. അങ്ങനെ ചെയ്താൽ നാട്ടിൽ മറ്റു പെണ്ണിപ്പേരും നമ്പൂതിരി പൊറ്റുകൾക്കു പറഞ്ഞുകൊടുക്കുന്നതാണിങ്ങനെ. മാത്രമല്ല അവന്റെ ചാലയിൽപോലും അവൻ പാടാൻ പാടില്ല. എഴുത്തു പഠിക്കാൻ നാട്ടിൽത്തന്നെ മാറ്റിപ്പോയി പിടിച്ചെടുക്കും എന്നാണ് നമ്പൂതിരി പറയുന്നത്. ചെർമ്മന്റെ അമ്മയെയും പെങ്ങളെയും വിസ്മരിക്കുന്നത് 64 അടിമകൾ വന്നുകൊണ്ടാണ്. അല്ലെങ്കിൽ ഉണ്ടാകാതിരിക്കാനാണ്. പുഴയർ താമസിക്കുന്ന മാളത്തിന്റെ ഹൃദയഭേദകമാണ്. കട്ടിലോ കയ്യോ



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Hierarchy of Needs in *The Martian*: Stranded Soul Spilling the Silver Screen

Dan George, Research Scholar, Dept. of English, Goa University

The existence of human beings comprises of the choices that they make. From sipping a cup of coffee in the morning, from building a house to live, from calling a person that he miss, people take a plethora of decisions, make choices and bear the consequences. Human beings are motivated by a hierarchy of needs and the choices they make in their life depend on these needs. Historically, the word 'motivation' comes from the Latin root 'moveers' which means to move. Motivation is the process of inducing movement in the organism. Motivation is a complex phenomenon which is influenced by multiple variables operating within the organism and in the environment. In our daily life, we use the term motive as our determination to act in some specific way, to carry out an intention, to arrive at a goal. Human beings are motivated when they are characterized both by a state of drive and by a direction of behaviour towards some goal which is selected in preference to all other possible goals.

The problem of motivation has been the central theme of philosophy since ancient times. Men have always been speculating and finding reasonable explanations of behaviour. The history of motivation is as old as the existence of human beings on earth. Its history can be traced back in the writing of Greek philosophers who believed in the concept of 'free will' of man. The man was supposed to be an active and free agent capable of choosing the right or wrong course for his action. Old Greek philosophers did not introduce the concept of motivation in their explanation of human behaviour. Man's intellect and free will provided sufficient amount of his actions. Reason was the determinant of the behaviour of man. Contemporary philosophers rejected the theory of 'free will' developed by Plato. They proposed the concept of ethical hedonism. It was believed that pleasure seeking and avoidance of pain is the ultimate goal of human life and this action of human beings is ethically good. The philosophical thought was characterized by the concept of reason and free will as the explanation of human behaviour. It hardly contained direct relevance to the modern problem of motivation. The second phase in the development of the concept of motivation began with a great intellectual revolution in sixteenth and seventeenth centuries. Philosophers and scientists replaced the old Greek philosophy by introducing more rational and scientific concepts.

Motive is a concept which joins together drive and goal. Motives can be grouped into Physiological motives, Social motives and Personal motives. Physiological motives are essential for the survival of the human beings. They include food, oxygen, water, sex, warmth in the body and emotions. Man is a social animal. Therefore he has social motives. He lives in groups which shape his behavior according to a definite pattern. Social motives are learnt in the social environment. They are influenced by cultural heritage and philosophy of the life of people. They are rooted in physiological motives and emerge out of them gradually with advancing age of the child. Social motives are the sources which bind human beings and social progress depends on their proper development. Some of the important social motives are social approval, affection, respect, prestige and money, etc. In addition to the social motives which are necessary for socialization, every person has special categories of motives which are dependent on the unique structure of the personality of the person. There may be a long list of personal motives depending upon individual differences which motivates individuals for action. Some of the common personal motives include interests, attitudes, values, and goals.

Maslow's hierarchy of needs is a theory in psychology proposed by Abraham Maslow in his 1943 paper "A Theory of Human Motivation." in *Psychological Review*. Maslow used the terms "physiological", "safety", "belongingness and love", "esteem", "self-actualization", and "self-transcendence" to describe the pattern that human motivations generally move through. Soon after Maslow began his career, he became frustrated with the two types of psychology at the time, which were Freudian psychoanalysis and behavioural psychology. Maslow believed that psychoanalysis focused too much on the sick half of psychology and not enough on the healthy half. On the other hand, he believed that behaviourism did not focus enough on how humans differ from the animals studied in behaviourism. He thus contributed to the third force of psychology that arose in response to this frustration: humanistic psychology.

Maslow critically examined the traditional approach of pain avoidance, pleasure seeking and tension reduction as the major sources of motivating behaviour. He has consistently argued that needs are arranged in a hierarchy. As one general type of need is satisfied, another higher order need will emerge and become operative in life. He developed his own system of needs and



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The Pursuit of Meaning: Nuances of Frankl's Logotherapy in *Into the Wild*

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Introduction

The course of human history is a series of quests and confrontations to and of the "self." Since the ages of Plato and Aristotle, the ideas regarding the "self" and "meaning" have been given greater importance. Being a "thinking species", the humans are always attributed with a wide range of choices and ultimate freedom. In a sense one can say that it is this choice of freedom, that is, the choice of "will" that paves the way to a man's ultimate meaning and his confrontation with his existence. What really count are one's own actions. "Man is nothing other than what he makes of himself" (22) says Jean-Paul Sartre in his *Existentialism Is a Humanism*. The question is, how does a man "make" himself? What is really happening in the making process? How can a man make his life a "meaningful" one? The idea was celebrated and was at its peak until the formulation of the Psychotherapeutic theories of Austrian neurologist and psychiatrist as well as a Holocaust survivor, Viktor Emil Frankl. Frankl introduced new psychoanalytic and psychotherapeutic terms into the realm of studies related to the complexities of human mind. It was in his seminal work, *Man's Search for Meaning* (1946), that Frankl introduced the idea of Logotherapy, as a clinical as well as a psychological term.

Logotherapy: The Final Destination!

Life is not primarily a quest for pleasure, as Freud believed, or a quest for power, as Alfred Adler taught, but a quest for meaning. The great task for any person is to find meaning in his or her life (Frankl 8), says Harold S. Kumar in his preface to Viktor E. Frankl's ever celebrated work *Man's Search for Meaning* (1946). In general, the human life can be regarded as an unlimited, eternal quest for meaning and existence. According to Frankl, "Logotherapy focuses on the meaning of human existence as well as on man's search for such a meaning" (104). The term "logotherapy" comes from the Greek word "Logos," which means "meaning". In general terms, it is considered to be The Third Viennese School of Psychotherapy, the other two being Sigmund Freud's psychoanalysis and Alfred Adler's individual psychology. Based on an existential analysis, which refers to the analysis of one's own existence, which naturally flows into the question of meaning, logotherapy focuses on Kierkegaard's "will to meaning" and opposes Adler's Nietzschean doctrine of "will to power" and Freud's "will to pleasure." Elaborating further on the "will to meaning," one can see man's search for meaning as the primary drive in his life and not a secondary rationalization of instinctual drives. What Frankl says here is important in this context, that the meaning is unique and specific in that it must and can be fulfilled by him alone; only then does it achieve a significance which will satisfy his own will to meaning (105).

There are certain occasions when one cannot find a meaning of his or her own. Frankl calls this "existential frustration". In this condition, the will to meaning gets frustrated and logotherapy views this as "existential frustration."

The term "existential" may be used in three ways: to refer to (1) *existence* itself, i.e., the specifically human mode of being; (2) the *meaning* of existence; and (3) the striving to find a concrete meaning in personal existence, that is to say, the *will* to meaning (106).

This notion of "existential," as it is evident, is different from the traditional concept of the term. Frankl says that this existential frustration can cause neuroses, that is, "noogenic neuroses." The next most important aspect that Frankl introduces in relation to logotherapy is that of the "existential vacuum". Life does not always take a flawless path. Sometimes there comes a situation where one's whole assumption about life and meaning gets questioned. Haunted by the experience of inner emptiness, they feel a void within themselves, and thus end up in existential vacuum. According to this, the meaninglessness is a hole, an emptiness, in one's life and one needs to "fill" this hole. When man is questioned by life, he can only answer by answering for his own life; to life he can respond only by being responsible. Logotherapy makes one fully aware of his or her own responsibilities. The maxim of logotherapy about the responsibility of life is important here,

Live as if you were living already for the second time and as if you had acted the first time as wrongly as you are about to act now! (Frankl 114)



Josephine Researcher **3**



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A Review on Nanomaterial Coated Polymeric Membranes

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Abstract

Water scarcity is a major global issue. Polymeric nanocomposite membranes play a major role in the removal of various pollutants from aquatic media due to the presence of nanofillers. In this review the performance of the nanocomposite membrane in terms of permeability and fouling resistance are compared with the bare polymeric membranes. The nanocomposite membrane shows better permeability due to very small pore size distribution. They also show improved fouling resistance due to the decrease in surface roughness. The performance of the membrane depends on both the properties of nanofillers as well as the composition of the membrane. At higher concentrations of nanofillers aggregation of nanoparticles results in a decrease in performance.

1. Introduction

The demand of water is increasing with population growth. It also leads to water pollution. The protection of current water resources and production of clean drinking water by proper technologies are of vital importance.

Membrane technique is a widely accepted and an effective method for the production of safe drinking water. It is a cost effective and environmental friendly method since it requires minimum energy input and does not produce any harmful chemicals [1, 2]. It is a cost effective and environmental friendly method since it requires minimum energy input and does not produce any harmful chemicals. By properly modifying the pore sizes and surface properties it is capable of selectively filter various contaminants [3]. There are various membrane separation process. Among which pressure driven membrane process have great importance. Pressure driven membrane techniques can be classified as microfiltration (MF), ultrafiltration (UF), nanofiltration (NF) and reverse osmosis (RO). Among these MF and UF are low pressure methods and they are mainly used for the removal of suspended solids, fungi, virusus and macromolecules [4]. But the high pressure techniques such as NF and RO mainly focus on small ions, organic pollutants, hardness removal, water desalination etc [5].

Another classification of membranes is based on their composition as inorganic and polymeric membranes. Inorganic membranes are superior to polymeric membranes due to its high mechanical strength, chemical resistance, temperature endurance, good fouling resistance etc. But the major disadvantages are high cost and difficulty in controlling pore size. In water treatments polymeric membranes are commonly used. Polymeric membranes are cost effective and we can easily tune the pore sizes. But due to hydrophobic nature it is more prone to fouling and it affects the filtration efficiency of the membranes [6]. Also it reacts with chlorine, which is the most commonly used disinfectant in water treatments.

A good membrane always possesses good permeability, antifouling performance and resistant to chlorine. The performance of the membrane can be improved by changing its surface functional properties by different surface modification methods. One way to change the surface functional property is the incorporation of proper nanoparticles in the membrane system. These nanoparticles show unique properties and possess large surface area [7]. Thus the properties of the polymeric membranes can be enhanced by the introduction of nanoparticles. Different types of nanocomposites such as mix matrix, thin film nanocomposites, surface located nanocomposite etc. can be synthesized depending on the location and structure of nanoparticles on the membrane. This review discusses about various nanocomposite membranes and their efficiency in improving the filtration properties of polymeric membranes.

2. Carbon nanotubes (CNTs)

Carbon nanotubes (CNTs) are composed of graphene sheets. Both Single-walled carbon nanotubes (SWCNTs) and multi-walled carbon nanotubes (MWCNTs) have been used for improving the functional properties of membranes. CNTs allow frictionless transport of water molecules and hence useful for the fabrication of high flux membranes [8]. The antifouling performance of the polyethersulfone membrane was found to be improved on incorporating CNTs during the filtration of proteins, albumin and



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बदलती नारी मानसिकता : मन्नु भंडारी की कहानियों में

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भूमिका

साहित्य समाज का दर्पण होता है। साहित्य की आँखों से हम समाज देखते हैं और समाज की आँखों से साहित्य देखते हैं। प्राचीन काल से अब तक साहित्य के विभिन्न रूप कविता, कहानी, उपन्यास, नाटक आदि समाज का प्रतिनिधित्व करते रहे हैं। इसमें कहानी सर्वाधिक लोक-प्रिय विधा है। अदिन दुग से लेकर कहानी आज तक विकसित होती आ रही है। इस में परिस्थिति और समय के अनुसार परिवर्तन होता रहा है। स्वतंत्रता के बाद की कहानी परिवर्तित भावलोक की कहानी है। कहानी ग्रामीण परिवेश से आगे चलकर शहरी जीवन को अपनाया है। नवीन कहानीकारों ने बाजारवादी, उपभोक्तावादी जीवन की जटिलता और आर्थिक विसंगतियों तनावों एवं संघर्षों को पर्याप्त कुशलता से उभरा है।

मन्नु भंडारी

स्वातंत्र्योत्तर काल में नारी समस्याओं को लेकर अनेक लेखिकाओं ने कहानी के क्षेत्र में पदार्पण किया। साहित्य के युगों पुरानी कथा की रुढ़ियों के मलबे के नीचे से नारी के मौलिक व्यक्तित्व का अन्वेषण, उसके चरित्र का यथार्थ और निस्संग अभिव्यक्ति करनेवाली लेखिका है मन्नु भंडारी। वह नारी अस्तित्व के पारिवारिक और सामाजिक पक्ष के प्रति पूर्ण सहज है।

मन्नु जी पहली साहसी लेखिका है जिन्होंने आधुनिक शहरी नारियों के भावों को सत्य के साथ खोलने का प्रयत्न किया। इसके बारे में राजेन्द्र यादव की राय है। “भ्रम और सेक्स के दुहरे जटिल शोषण के संस्कारों के जाल से नारि के मौलिक और स्वातंत्र व्यक्तित्व को खोज निकालने के लिए जिस साहस और निर्भीकता की आवश्यकता है वे मन्नु के सबसे सशक्त हथियार हैं।”¹ अकेलेपन और आर्थिक समस्याओं से आहत नारी के धूधले स्वरूप को लेखिका ने बड़ी सहजता और पैनी दृष्टि से प्रस्तुत किया है, मन्नु जी ने ‘आँचल में दूध और आँखों में पानी’ वाली नारी के विपरीत नारी मन की घूटन, टूटन तथा आक्रोश को उकेरा है।

छठे दशक की महिला लेखिकाओं में मन्नु भंडारी का नाम सर्वाधिक महत्वपूर्ण है। कथा रचना में नया मोड़ लेकर आयी मन्नु भंडारी ने हिंदी कहानी को रुढ़ियों से मुक्त करने की कोशिश की। मन्नु भंडारी के अंतर लिखने की जो शक्ति निहित है इसके बारे में उनका कहना है, - “जीवन की धड़कन से भरपूर स्थितियाँ, विचार या समस्याएँ ही मुझे लिखने के लिए प्रेरित करती हैं।”² मन्नु जी ने बड़ी ही ईमानदारी के साथ नारी मन के भावों, स्थितिविशेष में पुरुष के मन में उठनेवाले भावों, शंकाओं और ईर्ष्याओं को अपनी कहानियों में समावेश किया। इस संदर्भ में डॉ. उर्मिला गुप्त का कथन शोथक है, □ “सुश्री मन्नु भंडारी ने व्यक्तिगत चरित्रों को मुख्य केंद्र बनाकर कथानकों की सृष्टि की है। व्यक्तित्व के विकास में सामाजिक परिवेश को प्रेरणा स्रोत माना”³। उनकी कहानियों में व्यक्तियों को प्रमुखता देने के साथ समाज भी प्रमुख रहा।

मन्नु भंडारी ने नारी जीवन के विभिन्न पहलुओं जैसे दाम्पत्य जीवन, बेटी की समस्याएँ, नारी शोषण, नारी का प्रेमिका रूप आदि को अपनी कहानियों के लिए कथ्य चुना है। आधुनिक पति-पत्नी के औपचारिक सम्बन्ध, टूटते-बिखरते स्नेह, रिश्ते नातों के विविध पहलुओं की सटीक अभिव्यक्ति इनकी कहानियों में हुई है। ‘तीन निगाहों की एक तस्वीर’, ‘कील और कसक’, ‘बंद दरवाजों के साथ’ आदि कहानियाँ इसका दस्तावेज हैं।

तीन निगाहों की एक तस्वीर

□ ‘तीन निगाहों की एक तस्वीर’, पारिवारिक प्रेम और दाम्पत्य सम्बन्ध की कहानी है। बीमार दर्शना नैना की मौसी है। नैना उसे मिलने आती है। दर्शना उसे नहीं पहचान सकती है। लेकिन मौसी को बेहद ध्यान करने के कारण वहीं रुक जाती है। दर्शन नैना से मिले बिना ही दम तोड़ देती है। वहीं से नैना दर्शना की डायरी और हरीश नामक लेखक की कहानी हाजिल करती है। यहाँ से दर्शन की कहानी शुरू होती है। दर्शना टी. बी से बीमार पति की सेवा करती है। रिश्तेदारों से सिर्फ मौखिक सहानुभूति मिलती है। टी. बी के कारण उसकी ओर किसी ने झाँककर भी नहीं देखा है। आर्थिक तनाव के कारण दर्शना एक कमरा किराये पर दे रखा है। उस कमरे में आया लेखक हरीश और दर्शना के बीच एक आत्मीयता स्थापित हो जाती है। जब इस बात का पता उसके पति को चलता है, तो उसे वह बहुत पीटता है। उसके बाद घर से निकाल देता है, और सब संबंधियों को इसकी सूचना देता है। सब लोग दर्शना से नफरत करते हैं। यही दर्शना अपने पति की मृत्यु की खबर सुनकर कहती है, “मरी तो मारी भावनाओं ही जैसे मर गई हैं। मैं ही जाने क्यों जिंदा हूँ।”⁴ यह अंत में नौकरी करती है। ऐसे दर्शना के बारे में नैना ने जो अनुभव पाया है उसकी तस्वीर मन्नु जी ने प्रस्तुत कहानी के द्वारा खींची है। डॉ. शिवशंकर पाण्डेस की राय में “तीन निगाहों की एक तस्वीर कहानी पारिवारिक प्रेम एवं दाम्पत्य सम्बन्ध की कहानी है। जिन्दगी का यथार्थ तथा आधुनिकता बोध जीवन में अकेलेपन, अजनबीपन तथा व्यर्थताबोध को उभरने का प्रयत्न तो करता है ही, साथ ही धरातल पर सघर्ष को जन्म देकर उसके संबंधों को खंडित भी करता है और उसके सोच को भी बदलता है।”⁵ इस कहानी में तीन निगाहें नैना, हरीश, और दर्शना हैं।

कील और कसक

यौन अतृप्ति के परिणाम की और संकेत करनेवाली कहानी है ‘कील और कसक’। इस कहानी की नायिका रानी के विवाह काले चेचक के दागोंवाले कैलास से होता है। रात-दिन प्रेस में काम करते-करते कैलास का मन-मरिचक चयन की तरह हो गया है। मन्नु जी के शब्दों में “कैलास स्वयं एक मशीन बन गया था, भावहीन, रसहीन, उसे न रानी में दिलचस्पी थी, न घर में कर्ज का भूत कोड़े लग-लगाकर काम करवाता था”⁶ रानी के यहाँ एक पेटुंग ‘रेखर’ आया। रेखर खवारा मिली प्रशंसा और सहानुभूति ने रानी को उसकी ओर आकृष्ट किया। इसी दौरान रेखर का व्याह एक सुन्दर लड़की से हो जाता है। व्याह के बाद रानी विद्विष्य-सा



Josephine Researcher **3**



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राष्ट्रवाद और हिंदी सिनेमा

Dr. Susan Alex

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भूमिका

मानव सभ्यता के आरंभ से मनुष्य मस्तिष्क की भूख मिटाने के लिए विभिन्न कलाओं का सृजन किया। साहित्य, कला, शिल्पकला, चित्र कला, संगीत कला, नाट्य कला आदि विभिन्न कलाएँ सभ्यता के विकास में महत्वपूर्ण भूमिका निभाती हैं। सिनेमा चित्रकला से ज्यादा प्रभावित है। सिनेमा और नाटक दृश्यकला है। सिनेमा रंगमंच की सीमाएँ भेदने में समर्थ है। इसी कारण से सिनेमा का प्रभाव ज्यादा महत्वपूर्ण है। भारत जैसे देश में जहाँ ज्यादा लोग अनपढ़ हैं, सिनेमा एक ऐसा माध्यम है जिसके द्वारा जनता जागृत हो सकती है।

सिनेमा और भारतीय समाज

सिनेमा एक कथा प्रस्तुत करनेवाला माध्यम है। इसकी भाषा चित्रभाषा होने से सिनेमा की संप्रेषणीयता बढ़ती है। सिनेमा एक साथ अनेक लोगों तक पहुँचने में सक्षम है। यह सार्वदेशिक और सार्वकालिक है। सिनेमा सद्भावनाएँ उत्पन्न करने में सक्षम दीखता है। डॉ. सी. एच. रामुलु के मत में - १. □ सद्भावना के मूल में सद्वृत्ति, सत्संकल्प, सदिच्छा और मानवीय करुणा निहित है। इसके लिए व्यक्ति का परिष्कृत हृदय तथा उदात्त चरित्र का संपन्न होना अपेक्षित है। □

सिनेमा का स्वरूप परिवर्तित होता है। सिनेमा का व्यावसायिक पक्ष है। यह मात्र कला नहीं व्यवसाय भी है। यह गतिशील माध्यम है। वैज्ञानिक साधनों की सहायता से सिनेमा का प्रसार संभव है। इस कारण से सिनेमा को विशुद्ध कला के रूप में रखना समीचीन नहीं दीखता है।

भारत में १९१३ से सिनेमा की शुरुआत हुई। दादा साहेब फालके द्वारा बनाया राजा हरिश्चंद्र प्रथम फीचर फिल्म है। उन्नीस सौ तीस तक आते आते भारत में करीब २०० से अधिक फिल्में बनती थीं। राजा रडिश्चन्द्र में शब्द का अभाव था। भारत का प्रथम शब्दयुक्त फिल्म आलम आरा १९३३ में आरदेशिर इरानी ने बनाया था। उस समय से आज तक भारत फिल्मों के लिए उर्वर भूमि रही। भारत में विभिन्न भाषाओं में फिल्में बनती हैं। लेकिन हिंदी भारत के प्राय सभी राज्यों के बीच संपर्क भाषा का दर्जा प्राप्त करने से पूरे भारत में हिंदी सिनेमा का महत्वपूर्ण स्थान है।

राष्ट्रवाद: सामान्य अवधारणा

भारत को संपूर्णता में देखने का प्रयास करती हिंदी सिनेमा कई फिल्मों के द्वारा अपनी स्थानीय सीमाओं से ऊपर उठते दीखता है। पूरे भारत को एक राष्ट्र के रूप में प्रस्तुत करते हुए भारतीय जनता को देशप्रेम के आदेश में दुबोनेवाली कई फिल्में निकली हैं। डॉ. सी. एच. रामुलु के मत में २. □ राष्ट्रीयता एक मानसिक भावना है कि जो एक निर्णीत भूखंड में रहनेवाले लोगों के सामान्य गौरव, विभूतियों और परंपराओं का सन्मिश्र रूप है। □

व्यक्तिपरक प्रेम विस्तृत होकर राष्ट्रीयता बनती है। राष्ट्रीयता देशप्रेम और देशभक्ति की नींव पर टिकी है। राष्ट्रीयता व्यक्तिपरक प्रेम से ऊपर उठकर समष्टिपरक बनती है। डॉ. सी. एच. रामुलु का कथना इस संदर्भ में उल्लेखनीय है- ३. □ मातृभूमि के प्रति सघन रागात्मकता ही राष्ट्रीयता है। □

सभ्यता के विकास क्रम में जंगली मानव अपना घर, कुल, कबीले की रीति रिवाजों और आचार - विचारों का निर्माण करता रहा। अपना परिवार और परिवारवालों की सुरक्षा हेतु कुछ नियम बनाये। अपनी वस्तुओं की चोरी न हो इस दृष्टि से कानून बनाये। धीरे- धीरे मानव समूह विभिन्न गोत्रों, देशों में विभक्त हो गये। हरेक गोत्र और देश अपनी अपनी रीति रिवाज और आचार - व्यवहार अपनाने लगे।

स्थूल दृष्टि से देखने पर राष्ट्रीयता भौगोलिक सीमाओं के अंतर्गत निहित है। देश की प्रकृति, नदियाँ, पर्वत आदि के माध्यम से अपने जन्मदेश को देखना ही राष्ट्रीयता का आधार है। देश की सामाजिक और सांस्कृतिक परिस्थितियाँ भी राष्ट्रीयता के अंतर्गत निहित हैं। राष्ट्रीयता का मनोवैज्ञानिक पहलु भी है। जिन लोगों में एक हो वैभव, परंपराएँ और वैतुक संपत्तियाँ हैं, उन में राष्ट्रीयता की मनोवैज्ञानिक भावना उत्पन्न होती है।

भारत और राष्ट्रीयता

भारत में राष्ट्रीयता का सूत्रपात उन्नीसवीं सदी के नवजागरण के साथ हुआ। पूरे भारत में विदेशी शासन के विरुद्ध एक उल्लेखना जागृत हो उठी। भारतीय राष्ट्रीय चेतना के प्रसार के अंतर्गत भारत में एक शिक्षित वर्ग उभरा। स्वामी विवेकानंद, रविंद्रनाथ टैगोर जैसे महान व्यक्तित्वों ने भारतीय राष्ट्रवाद को अंतर्राष्ट्रीय आकार देने में सक्षम रहे।

अंग्रेजी शिक्षा द्वारा सभी जाति के लोगों को शिक्षा का अधिकार देने से शिक्षा पर ब्राह्मणों के एकाधिकार को समाप्त कर दिया। भारत में सब से पहले बंगला भाषा अंग्रेजी से ज्यादा संपर्क में आई थी। महान उपन्यासकार बंकिमचंद्र और शरत्चंद्र उभरे जिन्होंने अपनी रचनाओं द्वारा राष्ट्रवाद की प्रेरणा दी। स्वामी दयानंद ऐसे व्यक्तित्व थे जिन्होंने पूरे भारत को हिंदी के सूत्र में बाँध दिया था। निर्मल कुमार जी का कथन उल्लेखनीय है- ४. □ स्वामी दयानंद ने अपनी सभी पुस्तकें हिंदी में लिखीं। उनका विचार था कि हिंदी के जरिए पूरे राष्ट्र को संगठित किया जा सकता है। □

नवजागरण की प्रवृत्ति समूचे भारत में राष्ट्रीयता की लहर उत्पन्न करने में सक्षम रही। स्वाधीनता संग्रम एक ऐसा अंदोलन रहा जब भारत में एक शिक्षित वर्ग सामने आया। जिन्होंने भारत की प्राचीन संस्कृति, साहित्य और इतिहास का पढ़न- पाठन में अपने को पूर्ण रूप से समर्पित किया।

तत्कालीन साहित्य और दूसरी कलाएँ नवजागरण की प्रवृत्तियों को अपने में समेटने में सक्षम रहे। आगे चलकर ये स्वाधीन भारत की सामाजिक, सांस्कृतिक



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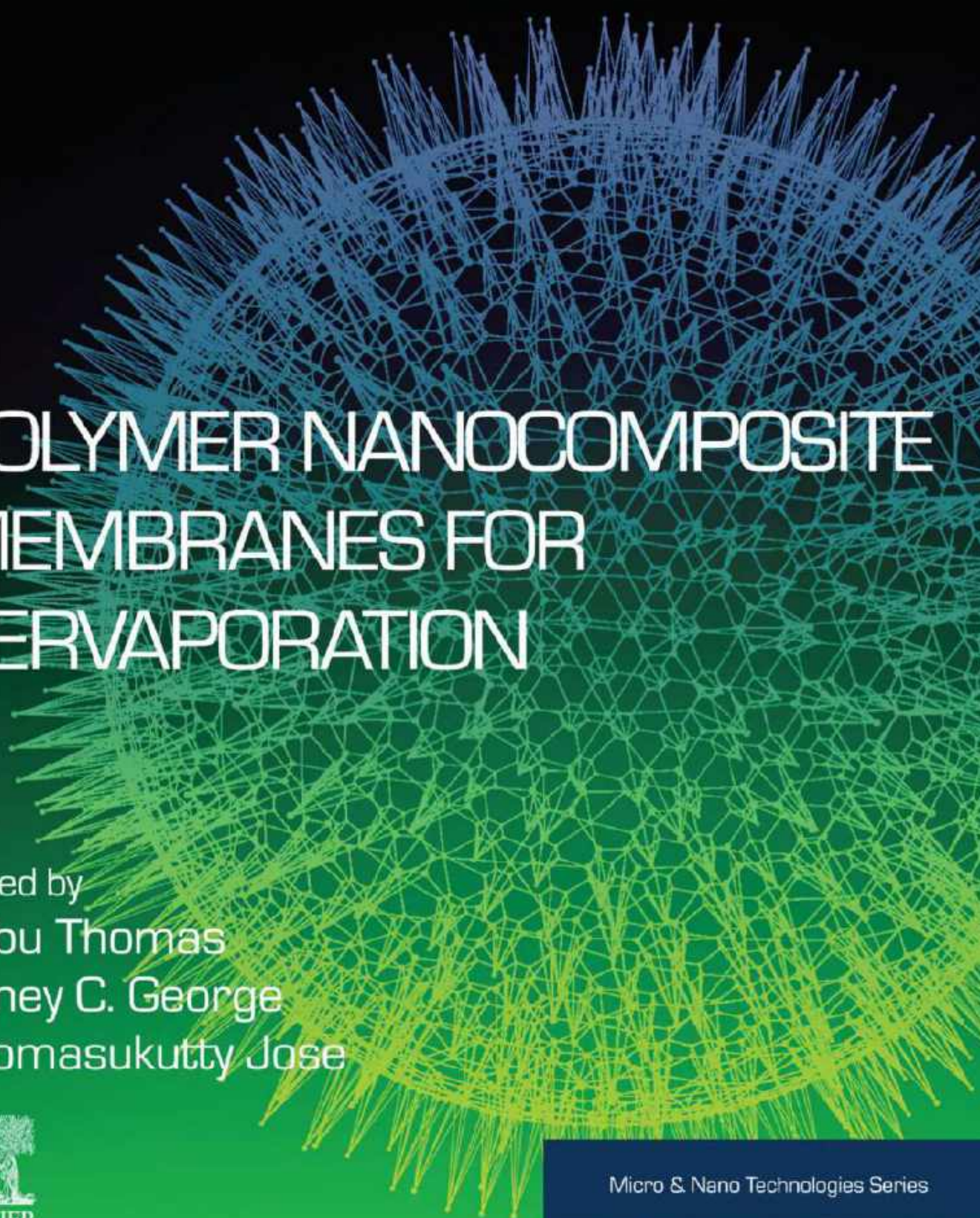


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Nanocellulose/polymer nanocomposite membranes for pervaporation application

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2.1 Introduction

Pervaporation (PV) is an efficient membrane process for liquid separation. The past decades had witnessed substantial progress and exciting breakthrough in both the fundamental and the application aspect of PV. The thermodynamic approach of PV, featuring emphasizing membrane/species interactions, though gained great successes in the past decades, is now facing its toughest challenge in the org–org separation. A kinetic era of PV, featuring emphasizing diffusion selectivity, as well as the synergy between the selective diffusion and sorption, is in the making, and this approach will eventually find solutions to the challenging org–org separation [1–3].

2.1.1 Design and choice of membrane materials for pervaporation

For the practical application of PV, the membrane must have a high permeation rate and a large separation factor. To obtain a higher permeation rate, an improved permeability coefficient is necessary. Although a so-called trade-off relationship exists between permeability and selectivity, that is, high selectivity is generally accompanied by low permeability, acceptable membrane materials with both high permeability and high selectivity may be synthesized by polymer design. Generally diffusion of small molecules through a dense membrane is favored, and the solubility of a compound in a polymer is governed by the chemical affinity between the penetrant and



**POLYMERS AND
MULTICOMPONENT
POLYMERIC SYSTEMS**
THERMAL, THERMO-MECHANICAL AND
DIELECTRIC ANALYSIS

Edited by
Jose James, K.P. Pramoda, and Sabu Thomas



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1 Thermal, Thermo- mechanical, and Dielectric Characterization Tools for Polymers and Multicomponent Polymeric Systems *New Trends, Challenges and Opportunities*

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CREATION OF NEW GENERATION WITH SCIENTIFIC TEMPER

Dr Jose James

Introduction

“Education is the manifestation of perfection already in man.” It was one of the principle doctrines of Mahatma Gandhi about education. It is a process for the creation of Global citizens with caliber to face the challenges of contemporary society. To cope up this concept, the new generation must equip with scientific temper. The term scientific temper was coined by the first Prime Minister of India Jawaharlal Nehru in his book “The discovery of India.” The salient feature of scientific temper consist of exploration for new branches of knowledge, admit anything with a proof, the ability to change one’s opinion in light of new indications and not to trust on pre-conceived philosophies in the absence of observational substantiation.

Importance in the Current Scenario

The scientific temper is a way of life which uses the scientific method and which may, consequently, include questioning, observing physical reality, testing, hypothesizing,

Subliminal to Sublime

Literature of Protest

Dr. Preeti Oza
Dr. Anita Sharma



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DALIT STEREOTYPING AND THEIR RIGHTS: REHASHING KAMMATTIPADAM

— Dr. Joseph George, Anjana Sabu,
Nikhila Siriac

Abstract

Caste discrimination remains one of the most severe and forgotten human rights abuses of the twenty-first century. It leads to extreme poverty and powerlessness which contribute to exploitation and violence against the Dalits – formerly known as untouchables. Cinema is a political arena with an established contour of domination and subordination. Though the realm is fraught with sexist ideologies, the more perounding matter of contention is racism. The racist dogma penetrates into the social fabric so subtly that the biased credo has become the norm. The paper aims to read Kammattipadam as a film that represents the body politics and the stereotyping of Dalits in subordinate roles. We live in a society where our bodies form a part of our identity and our identity is coupled with the body that we were born into. In ancient days, the visual body was treated as something ordinary, fixed and trouble-free. The Dalit aesthetics is delineated in contrast with the aesthetics of the mainstream character in the movie. The skin color, physical features, hair, the way the characters are dressed up and the way they are conducted, often act as a way to tell others about the characters – in fact, 'betray' them. It clearly offers the notion of being a Dalit which instills into the inner depths of the audience who blatantly believes what is portrayed in the film is absolutely real. The viewers thereafter consider Dalit people as meek and submissive and look upon them as a section to be suppressed and to be ruled. A subtle exploration of the voicelessness of the subaltern who falls victim to the deceptive notions of development is discussed. The attempt to unveil the cliched portrayal of Dalits and

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THE VOYAGE OF DEVADASIS FROM THE PAGES TO REALITY

— Dr. Joseph George, Roby Mathew,
Anu Vincent, Sethulakshmi P.S.

Abstract

The term devadasis itself suggests the meaning as the servant of God and the practice of devadasi system was followed from the Vedic age itself. This system was prevalent in South India especially in the reign of Cholas and Pallavas. They enjoyed their high status by practicing dance and music to entertain the kshatriyas and guests of the royal family. After the decline of the dynasties, the status of devadasis fell into the profession of the prostitute. The practice is still following through the ritual of Yellamma, the deity of devadasis. Now a day, it does not appear as a ritual but as simply sexual exploitation as most of the girls belong to Dalits.

The chapter focuses on the life of devadasis who offer their life to satisfy the mortal needs of higher status men. There are many organizations to help women. Unfortunately, these helping hands never stretch to the little girls who were forced to act as devadasis in their early childhood. In this vast country, they hide in the dark corners and again they wrap into the secrets of superstitious beliefs. The human rights and the abolishment of laws never help them until they get basic rights. In the twenty-first century, there are many people who struggle to meet their needs. The human rights, particularly of women are discussed in the chapter.

Keywords: Devadasis, sexual exploitation, human rights

Introduction

'Devadasis', the term itself says that they are the servants of God but

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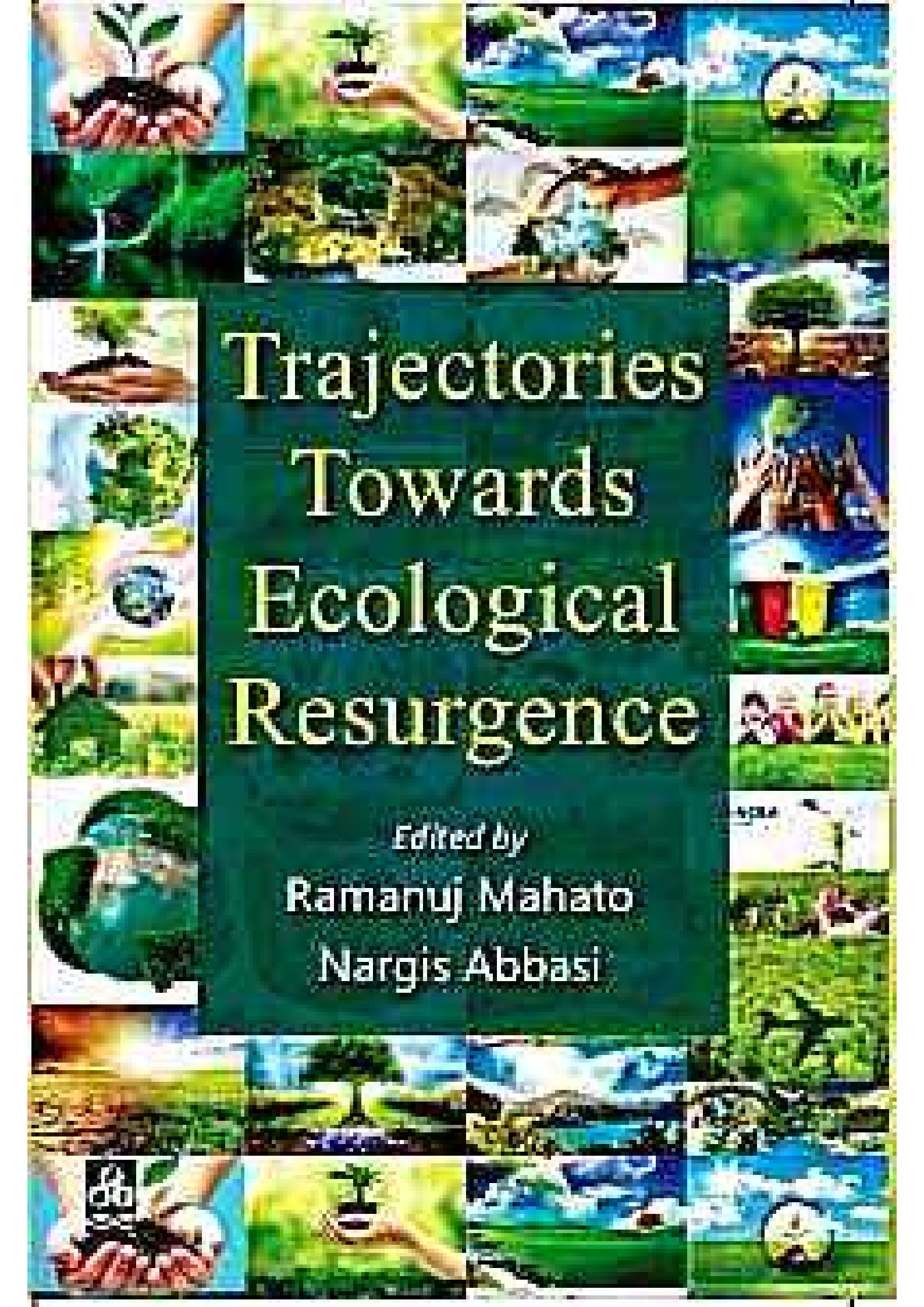
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Trajectories Towards Ecological Resurgence

Edited by
Ramanuj Mahato
Nargis Abbasi

Trajectories Towards Ecological Resurgence

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Environmental Aesthetics and Women-Nature Connections: An Ecofeminist Analysis of the Malayalam Movie *Ottamuri Velicham*

Lismin P. Samuel, Sailas Mathew, and **Roopa Jose**

Introduction

Cinema is a creative visual art. Films need plots which portray real life situations that are relatable to the audience, a sound environment to appeal to the minds of the concerned people, effortless and simple dialogues to trigger the emotions of the spectators, etc. It is very well known that the Indian film industry is vast as it covers numerous cultures as well as multiple languages. But most of the time, such multicultural properties are manifested only in the portrayal of male protagonists, and everything else is side-lined.

Malayalam films are not any exception in this case as it predominantly narrates for pleasing the patriarchal tastes of the society. The superiority that men want to enjoy all the time is being celebrated in cinema. It proves that in our society, male dominance is very evident, and women are placed in the margin. In other words, "there is a clear discrimination between man and woman, and placement of a clear position as well, in which man is



WOMEN'S EMPOWERMENT FOR GENDER EQUALITY



**Prof. (Dr.) Aftab Anwar Shaikh
Dr. Ana Mateen**

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Preface

Gender equality is not only a fundamental human right, but a necessary foundation for a peaceful, prosperous and empowering world. But women and girls around the world continue to experience violence and cruel practices. Physical and/or sexual violence affects women of all ages, ethnicities, socioeconomic status and educational level. About one third of developing countries around the globe have not achieved gender parity in primary education. In sub-Saharan Africa, Oceania and Western Asia, girls still face barriers to entering both primary and secondary school according to USAID. Regardless of where you live in, gender equality is a fundamental human right. Advancing gender equality is critical to all areas of a healthy society, from reducing poverty to promoting the health, education, protection and the well-being of girls and boys. Investing in gender equality and women's empowerment can unlock human potential on a transformational scale.

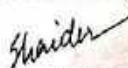
For societies to thrive, women and girls, men and boys must have equal access to education, healthcare, and technology. They must have equal control of resources, lands, and markets. And they must have equal rights and opportunities as peace-builders and leaders. There has been great progress over the last decades as more girls are going to school, fewer girls are forced into early marriage, more women are serving in parliament and positions of leadership and laws are being reformed to advance gender equality. Despite achieving these goals, many challenges still faced by the various economies around the globe. These include discriminatory laws and social norms being pervasive, women continue to be underrepresented at all levels of political leadership, and 1 in 5 women and girls between the ages of 15 and 49 report experiencing physical or sexual violence by an intimate partner within a 12-month period.

and we are mostly confined within the four walls of our homes, cases of domestic violence have registered an unprecedented rise in countries across the world. It appears that the corona virus is actually testing relationships across societies. Unfortunately, women are facing abuse at home, the place where they are supposed to be the safest. This work based on various issues related to women offers a ray of hope during the tumultuous times we all are part of.

Dr Ana Mateen as I know her has been a profound scholar, a dedicated academician and nice human being. The work under consideration is definitely a much needed research in the field of women and their roles in a globalised society.

I sincerely believe that this book will be a great source of information for researchers and academicians especially related to women studies with special emphasis on socio economic issues encompassing women empowerment. I wish the composition the very best!

Lucknow
20.06.2020


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Assistant Professor-History,
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INTRODUCTION

The objective of maternity leaves and provisions for childcare are to ensure the dignity of motherhood by giving holistic consideration to woman and her newborn, when she can't play out her obligation because of her physical and biological conditions. In the modern world, since the number of women employees are burgeoning day by day in the industry, the need for maternity/parental leaves is keenly and seriously deliberated by different countries and states together with the concerned organizations and the matter is gaining decisive attention all around.

Being a mother is extremely sensitive and special moment for a woman. This is one time when she needs to take the best care of herself and her baby so that she fulfills her call to care for a healthy next generation. It additionally changes her way of life and expects her to make certain trade-offs with her daily routines and life. A woman employee should have the option to give quality time to her baby without agonizing over whether she will lose her employment or steady income. The Maternity Benefit in India gives her the assurance that her rights will be looked after while she is at home to care for her child.

Women in India are better-off in many ways than their peers around the world. India being a developing country, is not really ready to embrace the luxury of six months benefit of maternity as in many developed countries. It is mainly because it denies opportunity for women to work in private sector where maternity laws are applicable. The possibility for women to work lies up to 90% in the private sector too. The chapter critically analyses the maternity benefit in India. The Maternity (Amendment) Bill was passed in 2017 with increased paid leave of 6 months over and above the existing Maternity Benefit Act 1961 where it was only 12 weeks, which is the third highest in the world. The question that remains is whether it is applicable for every single woman working – as an inclusive measure, or does it exclude many unfortunate and underprivileged women working in unorganized sectors. Currently, the law is applicable to firms with at least ten or more employees. This limited view of maternity benefits is a result of the Indian elite's desire to merely imitate policies meant for, and

6

MATERNITY BENEFITS IN INDIA AS A WELFARE MEASURE FOR WOMEN : A CRITICAL ANALYSIS

*Saji George
**Roopa Joshi

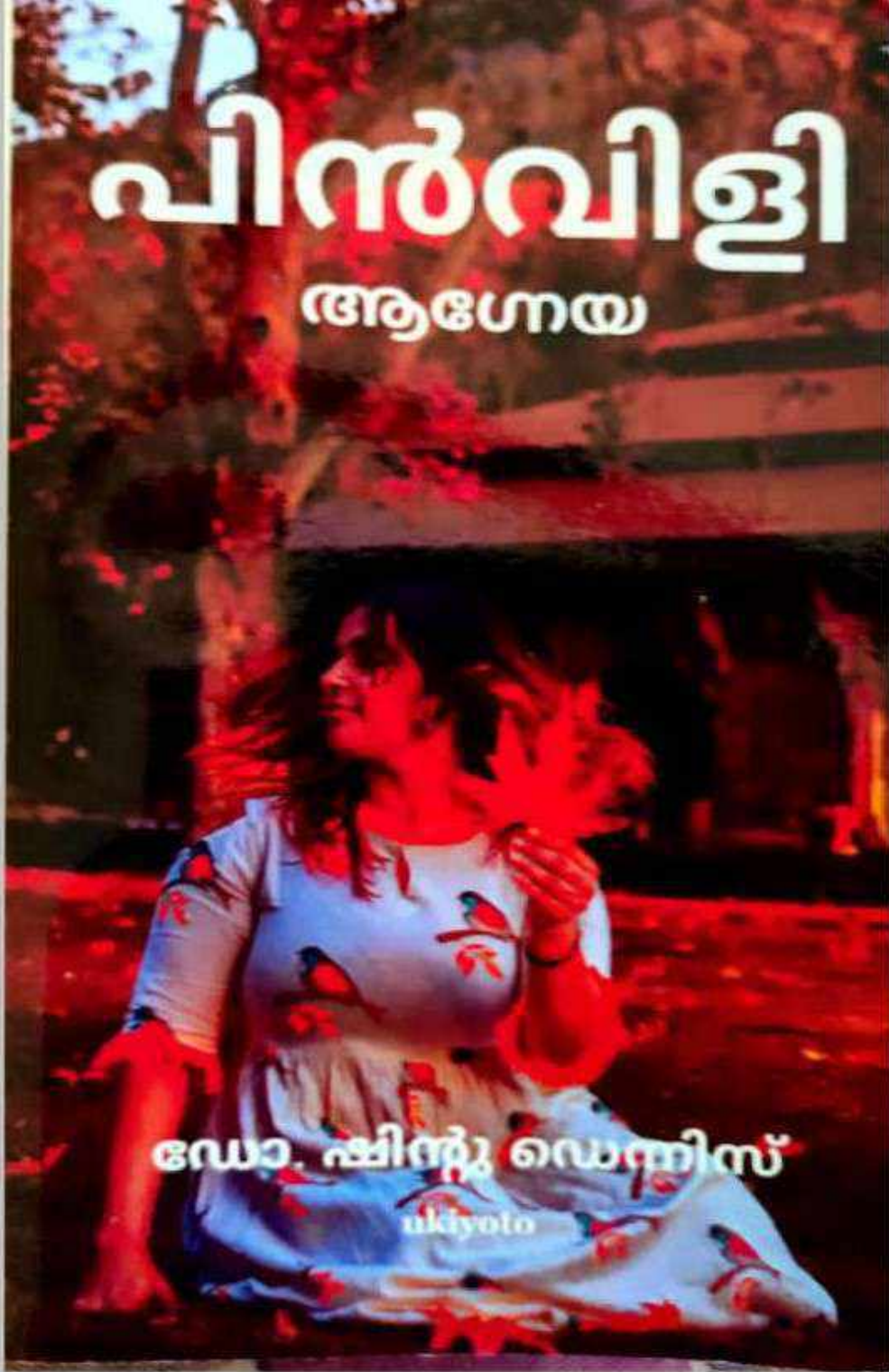
ABSTRACT

The socio-economic scenario of the developing countries have witnessed remarkable changes in the last two decades. The most important and positive change in this regard is the emergence of women as part of the country's labor force. The policymakers in these countries need to comprehend this imperative role of women and provide the necessary gender-centric support to them. The Maternity Benefits Amendment Act 2017 in India with its many embellished provisions, is supposed to be one such forward thinking and farsighted measure. The chapter explores why and how these glossy stipulations can potentially backfire by hindering opportunities for women to enter work force, and even disable women empowerment indirectly. It calls for an eye-opening deliberation from the part of policy makers, stakeholders, establishments and the public to ensure social equality for women and to make sure that she does not cease to be part of the work force after child bearing and maternity leave.

Keywords: Women empowerment, Maternity Benefits, Women labour force, Working woman, Childcare, Social security, Welfare for working women.

പിൻവിളി

ആഗേയ



ഡോ. ഷിന്റൂ ഡെന്നിസ്

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എല്ലാ അവകാശങ്ങളും നിക്ഷിപ്തം.

ഈ പ്രസിദ്ധീകരണത്തിന്റെ ഒരു ഭാഗവും പ്രസാധകന്റെ മുൻകൂർ അനുമതിയില്ലാതെ, ഏതെങ്കിലും രൂപത്തിൽ, ഇലക്ട്രോണിക്, മെക്കാനിക്കൽ, ഫോട്ടോകോപ്പി, റെക്കോർഡിംഗ് അല്ലെങ്കിൽ മറ്റേതെങ്കിലും വിധത്തിൽ ഒരു വീണ്ടെടുക്കൽ സംവിധാനത്തിൽ പുനർനിർമ്മിക്കുകയോ കൈമാറ്റം ചെയ്യുകയോ സൂക്ഷിക്കുകയോ ചെയ്യരുത്.

ചെയിതാവിന്റെ ധാർമ്മിക അവകാശങ്ങൾ സംരക്ഷിക്കപ്പെട്ടിട്ടുള്ളതാണ്. ഇതൊരു ചിക്ഷൻ സൃഷ്ടിയാണ്. പേരുകൾ, പ്രതികങ്ങൾ, ബിസിനസുകൾ, ഡമലങ്ങൾ, ഇവന്റുകൾ, പ്രദേശങ്ങൾ, സംഭവങ്ങൾ എന്നിവ ഒന്നു കിൽ ചെയിതാവിന്റെ ഭാവനയുടെ ഉൽപ്പന്നങ്ങളാണ് അല്ലെങ്കിൽ സാങ്കല്പിക രീതിയിൽ ഉപയോഗിക്കുന്നു. യഥാർത്ഥ വ്യക്തികളുമായോ ജീവിച്ചിരിക്കുന്നവരോ മരിച്ചവരോ യഥാർത്ഥ സംഭവങ്ങളുമായോ ഏതെങ്കിലും സാമ്യം തികച്ചും യാദൃച്ഛികമാണ്.

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- ഷെമി ജോഷി

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പി. വത്സലയുടെ മണ്ണുത്തിയിൽ നിന്ന് ഒരു ഭൂതം എന്ന കഥയെ അടിസ്ഥാനമാക്കി ഒരു പഠനം

അഞ്ജലി അഗസ്റ്റിൻ

സ്ത്രീയെയും പ്രകൃതിയെയും താരതമ്യപ്പെടുത്തിക്കൊണ്ടുള്ള എഴുത്തുകൾ സാഹിത്യത്തിൽ ആദ്യകാലഘട്ടം മുതൽ സജീവമായിരുന്നു. ഉല്പാദനത്തിന്റെയും വികസനത്തിന്റെയും പ്രധാന പങ്കുവഹിക്കുന്നവർ എന്ന നിലയിൽ സ്ത്രീയും പ്രകൃതിയും ഒരുപോലെ ചുഷണത്തിനും മലിനീകരണത്തിനും വിധേയരാകുന്നു എന്ന ആശയത്തിൽ ഊന്നി നിന്നുകൊണ്ട് പ്രകൃതിയുടെയും സ്ത്രീയുടെയും വിമോചനത്തിനു വേണ്ടിയുള്ള എഴുത്തുകൾ എന്ന രീതിയിലാണ് സാഹിത്യമേഖലകളിൽ രചനകൾ നടത്തിയിരുന്നത്. ഇതിനോടനുബന്ധിച്ച് പാരിസ്ഥിതിക സ്ത്രീവാദമെന്ന പ്രസ്ഥാനവും വളർന്നു വന്നു. പരിസ്ഥിതിയെയും സ്ത്രീയെയും പ്രധാന ഘടകങ്ങളായി എടുത്തുകൊണ്ട് പ്രകൃതിയുടെ പ്രശ്നങ്ങൾ മനുഷ്യന്റെ കൂടി പ്രശ്നങ്ങളായി മനസ്സിലാക്കുകയും, അത് കൂടുതൽ ബന്ധപ്പെടുത്തുവാൻ കഴിയുന്നത് സ്ത്രീകളോടാണെന്ന. നിലയിൽ പരിസ്ഥിതി പ്രശ്നങ്ങളെയും സ്ത്രീ പ്രശ്നങ്ങളെയും സമന്വയിപ്പിക്കാനുള്ള പദ്ധതിയാണ് പാരിസ്ഥിതിക സ്ത്രീവാദപ്രസ്ഥാനത്തെ രൂപപ്പെടുത്തിയിരിക്കുന്നത്. ഈ ആശയമാണ് പാരിസ്ഥിതിക സ്ത്രീവാദ എഴുത്തുരീതികളിലും സജീവമായിരിക്കുന്നത്. ഈ രീതിയിലുള്ള ആശയങ്ങളെ കേന്ദ്രമാക്കിക്കൊണ്ട് സ്ത്രീയും പ്രകൃതിയും വിവേചന വിധേയമാകുന്നത് എങ്ങനെയെന്ന ആശയത്തിലൂടെ മുന്നോട്ടുപോകുന്ന കഥയാണ് പി. വത്സലയുടെ മണ്ണുത്തിയിൽ നിന്ന് ഒരു ഭൂതം പ്രത്യക്ഷത്തിൽ സ്ത്രീ, പരിസ്ഥിതി വിവേച



കഥയുടെ സ്വർഗ്ഗവേശങ്ങൾ

മലയാള ചെറുകഥാപഠനങ്ങൾ - 6



എഡിറ്റർ

ഡോ. ടി. ജിതേഷ്



Malayalam Language
Kadhayude Sparachavegankal
Malayala Cherukadhapadanangal - 6

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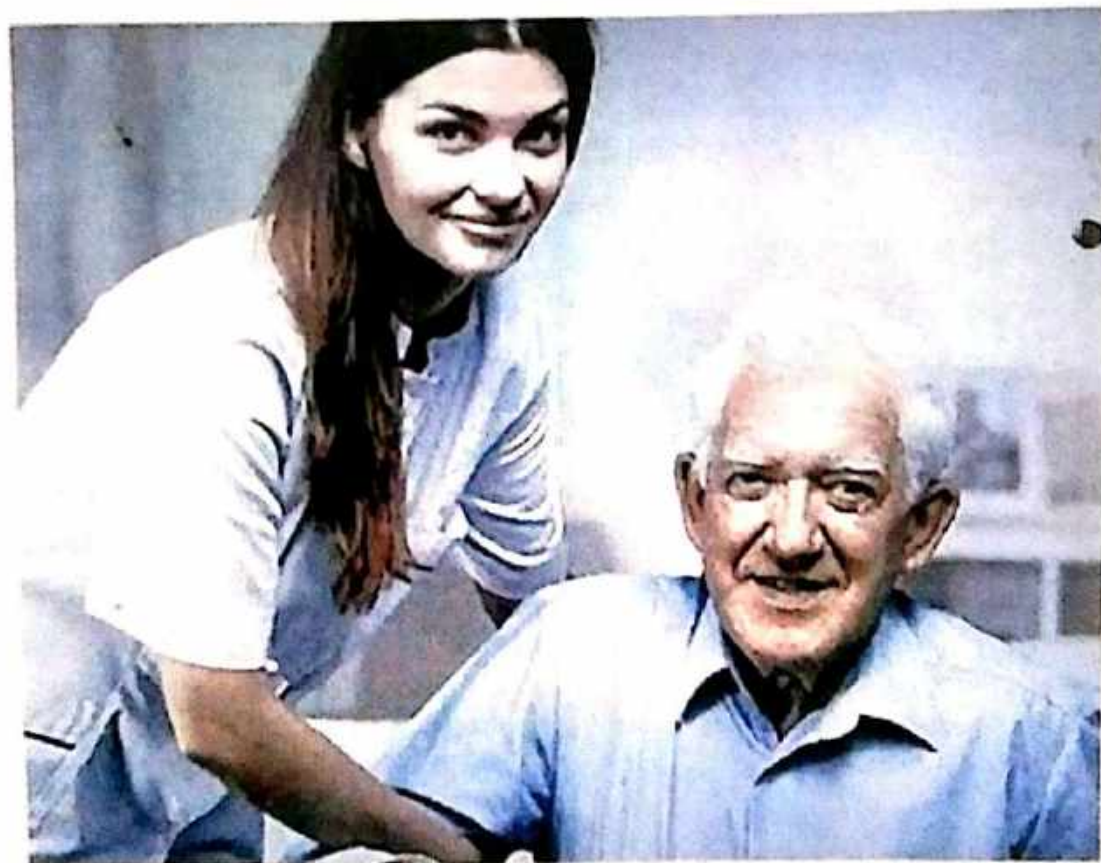
വർത്തമാനകാലകഥയിലെ ഭൂതങ്ങൾ

ശരത് ചന്ദ്രൻ

Forms or images of a collective nature which occur practically all over the earth as constituents of myths and at the same time as autochthonous individual products of unconscious origin.
- C.G Jung

സമകാലിക മലയാളസാഹിത്യത്തിൽ കലാമൂല്യംകൊണ്ടും ആഖ്യാനത്തിലെ പുത്തൻ തന്ത്രങ്ങൾ കൊണ്ടും ഏറ്റവും സജീവമായി നിൽക്കുന്ന മേഖലയാണ് ചെറുകഥ. പ്രമേയംകൊണ്ടും ആഖ്യാനം കൊണ്ടും വർത്തമാനകാല കഥാകൃത്തുക്കളിൽ വ്യത്യസ്തനായ എഴുത്തുകാരനാണ് ദേവദാസ് വി. എം. സമകാലികജീവിതത്തിലെ വ്യത്യസ്ത തലങ്ങളെ സ്വന്തം കഥകളുടെ ആഖ്യാനപരിസരത്തിലേക്ക് എത്തിക്കുകയും അവയെ ചരിത്രവുമായും മിത്തുകളുമായും കൂട്ടിയിണക്കി അനുഭവത്തിന്റെ പുത്തൻ പ്രതീതികൾ സൃഷ്ടിക്കുകയുമാണ് ദേവദാസ് മിക്കകഥകളിലൂടെയും ചെയ്യുന്നത്. ഇതിനായി അദ്ദേഹം ഭാഷയിലും ആഖ്യാനഘടനയിലും നവതന്ത്രങ്ങൾ പണിയുന്നു. ഫിക്ഷനെയും റിയാലിറ്റിയെയും കൂട്ടിയിണക്കി വർത്തമാനകാല ജീവിതത്തിന്റെ മാനസികാവസ്ഥകളും അസ്വസ്ഥതകളും അവതരിപ്പിക്കുമ്പോഴും ആഖ്യാനം സങ്കീർണ്ണമാവാതിരിക്കാനും ഏതെങ്കിലുമൊരു സിദ്ധാന്തത്തിന്റെയോ വിഭാഗത്തിന്റെയോ ചേരിയിലകപ്പെടാതിരിക്കാനും ശ്രദ്ധിക്കുന്നു. കഥകൾ കേവലം മൂദ്രാവാക്യസദൃശങ്ങളായിരിക്കരുതെന്ന് ഉറച്ചുവിശ്വസിക്കുന്ന എഴുത്തുകാരനാണ് ദേവദാസ്. അതുകൊണ്ടുതന്നെ അദ്ദേഹത്തിന്റെ കഥകളെ പുത്തൻ അനുഭവങ്ങൾ തേടി സഞ്ചരിക്കുന്നതിന്റെ സാക്ഷ്യങ്ങളായിക്കാണാം.

Quality of Life of People With Dementia in Residential Care Homes of India



Dr. Mathey Kanamala
Dr. C.R.Harilakshmeendra Kumar



Quality of Life of People with Dementia in Residential Care Homes of India

(Thesis awarded for DOCTOR OF PHILOSOPHY, from Mahatma Gandhi University,
Kottayam in Gandhian Studies under the Faculty of Social Sciences in 2019)

First Edition

Authors

Dr. Mathew Joseph Kanamala

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Autonomous and Non-Autonomous Micro/ Nanomotors and Their Biomedical Applications

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Introduction:

Molecular machines are meant to an assembly of molecular components which perform machine-like movements by suitable external stimuli. A nanomotor is a molecular or nanoscale device which is capable of converting distinct forms of energy into motion.[1] The natural or most complex biological molecular motors are present in the cells in the form of multi-protein chains. These protein-based biological nanomotors are responsible for all kinds of motion/transportation in all forms of life. Bio-nanomotors make an essential appearance in all aspects of critical cellular processes like mitosis, DNA replication, repair, recombination, RNA transcription, ATP synthesis, and directional motility of cellular components to their destinations.[2] Some of such biomotors include myosin, which is responsible for muscle contraction and kinesin, which carries cargo inside the cell, named as linear bio-nanomotors. The other types of biomotors are rotary biomotors for example, spermatozoa that are highly specialized haploid cells equipped with a self-powered flagellum to facilitate the motility.[3,4]

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Though the different biomotors are known to associate with diverse cellular function and possess different structure, they all must undergo conformational changes to trigger the motion. Most motile bacteria are driven by rotation of flagellar filaments from the cell membrane and different species of bacteria use different motion methods to locate optimal growth conditions or to avoid toxic substances.[5] Inspired from nature as the cells in living organisms act as the molecular machines to power the organs, regulate temperature and repair the damage, scientists from multidisciplinary fields pivoted their attention in developing artificial nanomotors. Thus the active transport in cells inspired for the integration of active motion into synthetic devices. And a first successful attempt in replicating such kind of function for relatively controlled conversion of chemical energy to mechanical energy in synthesized molecules was a breakthrough in the area of nanotechnology.

Bio-hybrid devices by employing motor proteins in the synthetic environment are the primary version of molecular shuttles. A direct approach to build the nanoscale transport machine is by employing linear motors like myosin and kinesin which possess the necessary structural feature to have directional motion along cytoskeleton and also can bind the cargo. These motors are fuelled by ATP hydrolysis and convert its chemical energy into linear motion. However, the replacement of natural motors by synthetic or hybrid motors needs a suitable environment similar to the conditions in a cell. Myosins move along the actin filament consisting of two strands polymerized from actin subunits twisted around each other and in the year 2000, Soong and his co-workers successfully replaced the actin filament with a nickel bar and mounted the motor protein on an engineered, nanoscale support structure.[6] The major difference between the motor proteins, Kinesin and Myosin are that they move along different cellular track, which is a microtubule network onto which Kinesin is attached whereas it is actin filament for Myosins. It was found that the combined action of many motor proteins which could transport microchips of 20 μm length demonstrating the possibility to develop artificial muscle.[7] Nevertheless, the design of bio-hybrid nanomachines has to address the questions of loading, guiding, and control of movement simultaneously. The main drawback of incorporating biological motors into synthetic devices is that it demands a specific biological environment or this environment may not necessarily be compatible with the device.

The Nobel Prize in Chemistry 2016 was awarded to Jean-Pierre Sauvage, J. Fraser Stoddart and Bernard L. Feringa for “*the design and production of artificial molecular machines*”. The development of molecules with controllable movements became a revolution in the world of miniaturisation of technology which could bring Chemistry into another dimension. In 1984 Sauvage, a chemist at the University of Strasbourg in France made an attempt to produce such molecular machines and he succeeded in it by linking two ring-shaped molecules together to yield a nanoscale chain called catenane which is often a mechanically-interlocked architecture consisting of two or more interlocked macrocycles and also showed that one ring structure could freely move relative to the other.[8a] Then in 1994, Stoddart who is from Northwestern University built a first molecular wheel which is a free-moving ring structure on an axle called rotaxane capable of moving 0.7 nanometers and was used to develop molecular muscle and in a computer chip. Feringa, who works at the University of Groningen showed that a molecular rotor blade - made from two flat chemical structures connected by carbon atoms and attached to methyl groups - could be made to spin continuously in the same direction by exposing it to UV light. He continued his work on nanomotors and in 2011 he and his lab created a ‘*nanocar*’ (Figure 1). [8b] Artificial motors not only in molecular scale but also micro- and nanoscale with controlled motion have got inclusive attention among the nano-science community and the applications of these motors would be limitless. The nanomotors can be designed and fabricated for targeted applications like environmental remediation, sensing, assisted fertilization,

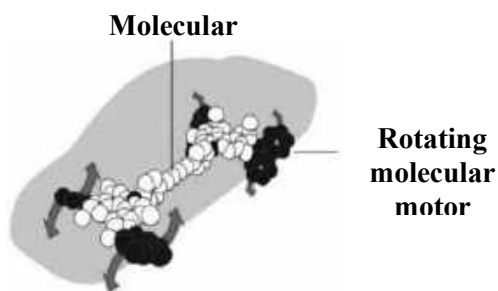


Figure 1: Feringa’s version of Nanocar featured in 2016 Nobel Prize media [image reproduced from ref. 8b with copyright

cargo transportation, drug delivery, and even precision micro-/nanosurgery.[8c-10] The control on speed, direction and collective behaviour of the artificial Micro/Nanomotors might be affected by diverse factors. It is found that the speed variation of motors is highly connected to the concentration of fuel which makes a crucial role in functioning of Micro/Nanomotors.[11] The environmental conditions like temperature also have a profound effect on the regulation of speed

of nanomotors because the temperature-dependent catalytic efficiency of selected synthetic catalytic nanomotors trigger and fasten the decomposition of fuel and increase the rate of motor motion.[12] In the case of motors which are driven by an external field, the strength and direction of the applied field may have a control on the speed and direction of their motion. Another possible way of controlling the motion of synthetic motors is by applying external magnetic field and incorporating magnetic metallic components in the design of Nanomotors.[13,14] The sensitive response of nanomotors to even minor changes of local environment promise these motors a chemotaxis behaviour which is due to the occurrence of local chemical gradient and pushes the motors to move towards the area of higher concentration. The collective behaviour of nanomotors is especially crucial in biomedical applications. The chemotactic state generated by diseased sites in living organisms trigger the action of nanomotors and become a potential candidate in targeted drug delivery applications. Therefore, it is very important to understand the design, functions, mechanism, and working conditions of these nanoscale machines.

2. Design and Fabrication

Inspired by the biological motors, considerable effort was taken to fabricate artificial Micro/Nanomotors. Designing plays a pivotal role in fabricating efficient Micro/Nanomotors which mimic the natural motors. It took long years for researchers to come up with perfect designs where the properties change dramatically when dealt with micro/nano size. Because, on moving to the microscopic world, Brownian Randomization effects, physical forces between the particles, low Reynold's number etc. become challenging while designing these motors in this size regime. However, researchers were able to overcome these challenges to an extent and fabricate artificial Micro/Nanomotors of various designs such as Janus type,[15] Bimetallic,[16] and Tubular.[17]

2.1 Janus Micro/Nanomotors

Janus motors or two-phased spheres are particles with unique properties due to their asymmetric structure. The term "Janus" comes from the ancient mythological Roman God, having twin faces looking to the past and the future, to creation and destruction. These particles possess two distinct phases which differ in their physical and chemical properties or directionality within a single particle. These particles are generally classified into three categories such as polymeric, inorganic, and polymeric-inorganic, all of which possess different shapes. The most common types are

spherical or cylindrical Janus motors. Au-SiO₂,[18] Pt-SiO₂,[19] Au-TiO₂[20] are some of the examples of synthetic Janus motors whereas, lipids, enzymes, and plant leaf surfaces are natural asymmetric Janus like systems. The conventional physical vapour deposition (PVD) is the most used method to fabricate Janus type motors. But, due to the uncompromising conditions of this method of fabrication, electrochemical deposition turned up as an ideal method for metallic Janus motors.

2.2 Bimetallic Micro/Nanomotors

Bimetallic Micro/Nanomotors are comprised of two different metal segments chosen in such a way that they establish an asymmetric charge distribution and electrical dipole around the particle when in contact with an electrolyte. In other words, one of the metal acts as anode and other as a cathode. Therefore, these types of nanomotors work as a short-circuited electrochemical cell in which the surface flux of protons is generated from the anode and moves to the cathode. During motion, the more anodic metal will be directed forward in the bimetallic Micro/Nanomotors. The two main methods of fabrication are template-directed electroplating (TDEP) and physical vapour deposition (PVD). TDEP method uses a porous membrane template to which the metallic nanorods are deposited electrochemically, which can be later released from the template. PVD method consists of coating substrates by the heating and evaporation of metals and metal oxides. Au/Pt nanomotor is one of the best examples for bimetallic nanomotors where platinum serves as the anode which is synthesized electrochemically in alumina membrane template.[21] The observed velocities of these type of Micro/Nanomotors are comparable to flagellar bacteria or similar organisms.

2.3 Tubular Micro/Nanomotors

Tubular Micro/Nanomotors have a unique hollow structure, which enables them to possess a strong driving force and easy surface functionalization. These hollow structures provide a confined space for chemical/biochemical reactions or physical transformations and thereby enable the driving force to be much stronger than other Micro/Nanomotors with different geometries like cone or cylinder. Tubular motors can be metallic, polymeric, semiconducting, and magnetic in nature. Tubular micromotors were initially known as Microjets/Microrockets.[22] The fabrication techniques of tubular motors mainly include rolled-up [23,24] and template-assisted method. Rolled up method is performed by the deposition of a photoresist layer on a substrate followed by

the deposition of different metals to form a pre-stressed, multimetallic thin membrane. By selectively removing the sacrificial photoresist layer using a suitable solvent, the multimetallic membrane roll up to form tubular Micro/Nanomotors. Fe/Pt bilayer micromotor is an example.[25] Unlike Rolled up method, Template assisted method is mostly used to prepare smaller sized Micro/Nanomotors with larger in number. Membrane template-assisted electrodeposition is one of the commonly used techniques which utilizes porous alumina membranes as a template.[26,27] The tubular nanomotors synthesized in these pores results in uniform size and large pore densities and are highly demanded for biomedical applications. Tubular Micro/Nanomotor are widely used in environmental [25,28] and biomedical applications.

Although researchers have contributed a lot to the design and fabrication of synthetic nanomotors, the biocompatibility and efficiency towards biomedical applications remain confronting. To overcome this, scientists developed biohybrid Micro/Nanomotors consisting of both synthetic and biological parts. The biological parts may include enzymes (eg: Catalase, Urease etc), [29,30] cells (RBCs, Sperm cells etc.), bacteria (*E. coli*) [31,32] etc. Bio-hybrid Micro/Nanomotors are promising alternatives for drug delivery in an effective and biocompatible way where the biological parts mimic the distinguished characteristics of the living organisms.

3. Mechanism- An Overview

Contrary to the macroscopic objects, micro/nano scaled motors seldom have moving parts for their propulsion. In the macroscopic realm things can move by virtue of its inertia which scales with L^3 (L is the linear dimension) whereas in the nano regime viscous forces dominate (which scales with L^2). The ratio of the inertial forces to the viscous forces is a very important parameter called Reynold's number (Re) which decide the nature of motion of a particle in a fluid. Near the nanometer size regime where the viscous forces dominate the inertial forces the Re becomes a small number ($\sim 10^{-4}$). At low Re the particles will interact with the fluid medium much more than that of the macroscopic object and hence can show discontinuous motions such as Brownian motion. In order for a nanomotor to obtain continuous propulsion in a desired direction, there has to be breaking of symmetry happening in the system.[33] Primarily, this symmetry breaking is introduced into a nanomotor system by the use of a gradient of some physical parameter (thermal, acoustic electric, magnetic *etc.*) around the nanomotor. The above-mentioned symmetry breaking can be introduced into the system either by self-generated field gradients (Autonomous

nanomotors) or by an external applied field (Non-autonomous). Self-propelling can be facilitated using suitable chemical reactions for expelling gas molecules and utilizing the recoiling from such emitted gas and also by utilizing local electric field inherent to the medium in which they propel. At first, we will discuss a few methods in which an external field (Non-autonomous) is key to the propulsion of the Micro/Nanomotor followed by a discussion on self-propelling (Autonomous nanomotors) mechanisms.

3.1 Acoustophoresis: Propulsion mediated by ultrasonic sound waves.

Sound waves with high frequencies, typically in MHz (10^6) frequency range are used for propelling the nanomotors because those frequencies are safe for living beings. Ultrasound waves form standing wave (just like a rope tied to a pole and made to oscillate at the free end forms a standing wave) pattern if applied across the cell containing the nanomotor suspension. The ‘nodes’ are points where the resultant wave amplitude (hence energy) is minimum. Such nodes at various spatial positions form a plane called the ‘nodal plane’ and the nanorods (motors) are lifted to the nodal plane.[34]

We have, $h = n \lambda/2$; where, n is an integer is the condition for forming the standing wave, and h is the height of the cell. All of the action (translational /rotational) of the nanomotors are happening at this plane where the resultant amplitude will be minimum with a lower energy hence, compelling the nanoparticle to migrate to those regions. Prof. Thomas Mallouk and team at the Pennsylvania State University

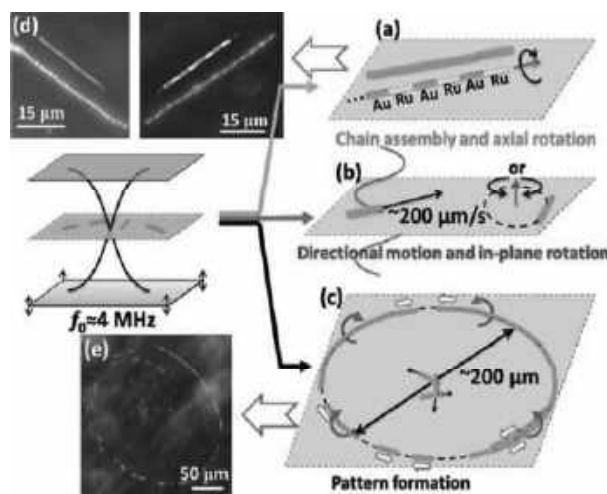


Figure 2: Acoustophoresis of Au and AuRu nanorods. (a) Alignment of nanorods into chain assembly under the influence of an acoustic field. (b) in plane motion and in plane rotation of nanorods and (c&e) pattern formation which are dimensionally related to the wavelength of sound wave in use. (d) Optical image of the response of nanorods and the

have imaged the various kinds of motion of the nanorods with certain specific patterns such as

circular chain of particles, parallel lines of assembled particles and so on, all having some dimensional relationship with the wavelength of sound wave used (400 nm in this case) as shown in Figure 2. The above-mentioned team of researchers have made this research into the next level *i.e.*, they could utilize this acoustic propulsion of nanomotors made of gold nanorods inside living cells (HeLa cell) for actively interacting with intracellular components which show tremendous potential in biomedical application.[35]

3.2 Magneto/Electrophoresis: Propulsion mediated by Magnetic field/ Electric field gradients

The mechanism in which an electric field is responsible for the motion of nanomotor is called Electrophoresis. Usually, the interfacial layer between a particle and the medium in which it is dispersed is rather a passive surface which doesn't impart any kind of force on the particle. But only in certain combination of interfaces such an interface is an active area whose responses create a slippery action resulting in the propulsion of the particle. These kinds of slip velocities are derived from the concept of a double layer, the first one being a layer of fixed charges on the surface and the second one is a spatial charge which is diffused into the liquid.[36,37] Both the charges balance each other to maintain a charge neutral state. An externally applied electric field exerts a force on the outer diffuse charge layer. The Debye screening length (k^{-1}) decides how much the stationary charge layer is screened from an externally applied field and is inversely proportional to the square of electrolyte concentration in the surrounding liquid. The electrokinetic flow of this diffuse charge layer according to the applied field is termed as electro-osmosis which becomes parallel to the surface (along the direction of E field) if the dimension of the particle is greater than the Debye length. A combination of the Stokes equation (for velocity field in electro-osmosis) with the Poisson's equation for the variation of electrostatic potential as a function of the space charge results in 'slip velocity' u governed by Helmholtz equation for electro-osmosis.

$$u = \frac{-\epsilon k T}{\eta e} \zeta E$$

A more simplified version of this in the case of a nanorod is the Smoluckowski equation, $u = \frac{\epsilon}{\mu} \zeta_{\text{rod}} E$; for a uniform charge distribution, where ϵ is the permittivity of the medium around the nanorod, k -Boltzmann constant, T - temperature, η -coefficient of viscosity, ζ -the zeta potential, E -the applied electric field and μ - the dynamic viscosity. From the above expression it is

clear that the movement of a nanoscopic object in fluid is a function of the zeta potential of the material in the medium and the dielectric permittivity of that medium and it also depends on the applied electric field.

There are a class of magnetic-nanomotors whose propagation is controlled by the simultaneous use of magnetic and acoustic fields. In the absence of a magnetic field they behave similar to the non-magnetic counterparts which are propagated by ultrasound. They form the similar kind of pattern, and levitation to the nodal plane in the absence of magnetic (B) field; whereas the B field gives an additional control for their motion which adds to their functionality. The control of such nanomotors is achieved at relatively low fields 40 mT. The motion of such nanomotors under the influence of B field is governed by the expression for torque of magnetic moment μ_B given by $\tau = \mu_B \times B$. There are also deterministic alignment of magnetic layer (permalloy) capped silica microspheres in an AC magnetic field.[38] Artificial bacteria flagella composed of a magnetic head (Cr/Ni) and a spiral ribbon (semiconducting) shows deterministic movement at B fields as low as 2 mT.[39]

3.3 Light controlled propulsion of nanomotors

Light is another interesting stimulus to propel the nanomotors which shows numerous possibilities. It was demonstrated that micro torpedoes with gold capping can be steered using infrared light and can also be used for micro explosives triggered by high power of light/IR. They also show excellent mobility in various fluids including intra-cellular fluids with a tremendous application potential in biomedical field. The mechanism being photothermal effect in which the gold nanoparticles incorporated into the torpedoes can give rise to local heating upon light irradiation.[40] This results in a thermal gradient driving movement of the water molecules in the medium giving rise to a thermophoretic force. The direction of motion of the torpedoes is determined by the resultant of many hot steam bubbles which provide the recoil thrust for the nanomotor to be propelled.

$F_{\text{thermophoresis}} = C\Delta T$; where $C = \frac{9\pi p\eta^2 K_a}{2\rho g T K_p}$; η -coefficient of viscosity, p - radius of torpedoes tail, K_a - thermal conductivity of steam gas, K_p - thermal conductivity of gold. In the case of AgCl particles, unlike Janus particles, the symmetry breaking is obtained by shape anisotropy which results in the asymmetry of reactivity. AgCl particles release H^+ ions by hydrolysing the water

molecules along with the release of Cl^- ions. In the presence of light, unbalanced release of compositional difference between the two phases of the nanoparticle which in turn creates an asymmetric ion gradient (diffusiophoresis) giving rise to movement of the nanoparticle.[41]

3.4 Various Autonomous motions of nanomotors

Self-electrophoresis and self-diffusiophoresis are examples of autonomous propulsion mechanisms. In self-electrophoresis the necessary asymmetry in the electric field is obtained by chemical gradients unlike an external source in the case of ordinary electrophoresis. Such an electric field generated by the chemical gradient pushes the nanomotor in desired direction.[42]

For example, Ayusman Sen's research group demonstrated that AuPt nanorods make use of this mechanism in dilute H_2O_2 solution for their propagation by a catalytic reaction at the Pt side converting H_2O_2 into H^+ and a reverse reaction at the gold end resulting in the production of H_2O molecules utilizing H_2O_2 , electron and H^+ . Such a chemical gradient gives rise to an electric field and the nanorod propagate with Pt as the leading end. Not only nanorods but also spherical bimetallic particles are also showing self-electrophoresis.[43]

The mechanism in which the solute concentration gradient drives the nanomotors is called diffusiophoresis which are majorly of two types namely electrolyte (if the solute molecules are charged) nonelectrolyte (uncharged) diffusiophoresis which are used by micromotors and pumps.[36,44]

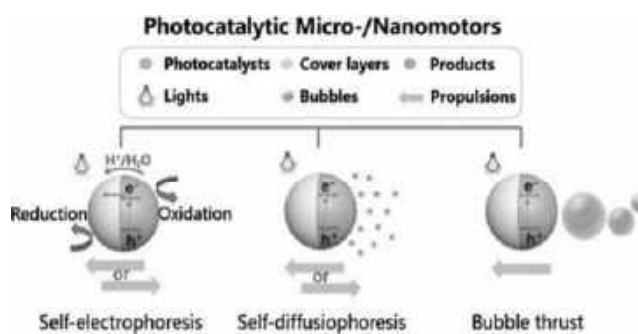


Figure 3: Photocatalytic micro/nanomotor with different mechanism for working. Though light is the stimulus in this the image shows 3 different kinds of mechanisms as a response to the light out of which bubble thrust is also shown which can occur with normal catalytic reactions without light. [image

3.4.1 Chemically powered Nanomotors

In the case of Janus particles, the symmetry breaking is obtained by compositional difference between the two phases of the nanoparticle. One of the phases is an active catalyst which enhances certain reaction, giving rise to the production of either gases or excess ions.[45] The other phase is an inert metal which doesn't take part in catalytic activity and hence aiding to attain the necessary asymmetry needed for the propulsion of nanomotors. Figure 3 shows the bubble thrust mechanism,

but not for an ordinary catalytic reaction but for a photocatalytic reaction which also incorporates some of the phenomena discussed in the previous sections such as self-electrophoresis and self-diffusiophoresis in the presence of light. Certain chemical species which can react utilizing this catalytic activity of nanorod/Janus particle powers the nanomotors.[46] The reaction product will be in gaseous phase which when escaping from the nanomaterial exerts a recoiling force (due to momentum conservation) which can be utilised for cargo delivery at the microscales. There are also certain works in which photocatalytic reactions giving rise to bubble generation along with other photoactivated mechanisms.[47] Although there is a plethora of variations of the above mechanisms and their combinations for the manipulation of nanomotors for various applications, we are limiting our discussions to the above few mechanisms due to the limited scope.

4. Bio-Medical Applications

In search of artificial analogue for biological motors, a significant progress in the design and fabrication of man-made Micro/Nano-motors with much biocompatibility has been evidenced in recent years. The applications of biocompatible artificial and bio-hybrid nano-devices are promising especially in areas like sensing and isolation, cancer therapy - drug delivery and diagnostics, nanosurgery and imaging. Fuel free and physically driven Micro/Nanomotors are more attractive in biomedical applications than fuel driven motors which otherwise demand for non-biotoxic and biocompatible fuel. Moreover, integration of magnetic nanoparticles into the motor makes it convenient for loading, transporting and releasing pathway.

4.1. Isolation/Sensing

Nanomotors are used in the field of sensing and isolation of biomolecules/pathogenic cells via specific functionalization which depends on the target biomolecules/cells to be sensed or isolated. Tubular Micro/Nanomotors fabricated by rolled-up method with large surface to volume ratio is used for the isolation of circulating cancer cells (CTCs). For instance, a rolled-up metal sheet containing layers of platinum (power system-converts peroxides to oxygen and water), iron (transport system-to be steered with an external magnetic field) and gold (Bio-conjugating system-decorated with antibody molecule that target carcinoembryonic antigens (CEA)) inside out, shows high performance in the isolation of CTCs.[48] Template-based self-propelled gold/nickel/polyaniline/platinum (Au/Ni/PANI/Pt) tubular micromotors, functionalized with the Concanavalin A (ConA) lectin bioreceptor, are shown to be extremely useful for the rapid, real-

time isolation of *Escherichia coli* (*E. coli*) bacteria from fuel-enhanced environmental, food, and clinical samples.

4.2. Drug Delivery

The geometry and the design of nanomotors show great importance for drug delivery. The large surface area and increased mobility of Janus motors facilitate higher DOX (doxorubicin, stops the growth of cancer cells) uptake by HeLa cells. Certain modifications to the design of Janus motors demonstrated the effective encapsulation of DOX, navigated by an external magnetic field and responsive drug release triggered by NIR light.[49] Janus motors with one hemisphere as magnesium core and other coated with poly(N-isopropylacrylamide) (PNIPAM) hydrogel was used for temperature-controlled cargo release useful for cancer drug delivery.[50] Recently chemically driven tubular micromotors are known for active drug delivery. Wang and Co-workers demonstrate the use of Zinc-based tubular micromotor for drug delivery in stomach triggered by the harsh acidic environment in the stomach.[51] The use of rolled-up tubular microengines perhaps eliminate the step of pre-functionalization before drug loading and entrap the cargo inside through precise motion in laminar fluid. Ti/Fe/Pt microtube is an example for a tubular motor which exhibit the movement with the cargo at speeds of up to 275 $\mu\text{m/s}$ with optimized surfactant and fuel concentration.[52] Bio-hybrid nanomotors are also highly potent due to their large bioavailability resulting from the high affinity of cells towards biomolecules. Moreover, the biological organism can mediate the enhanced drug uptake.[53] Cell-based structures such as red blood cells, bacteria and stem cells show remarkable efficiency and biocompatibility as drug carriers.[54]

4.3. Nanosurgery

Significance of Nanosurgery arises due to totally non-invasive operation performed from outside the body by using nano or micro tools. Surgical nanorobots such as microdrillers, microbulletes or nanojets which are readily fabricated are introduced into the body through vascular system and their motion is manipulated and controlled by external magnetic field. Biocompatible surgical nanorobots are capable of eliminating isolated cancerous cells, remove micro vascular obstructions and perform “non-invasive” tissue transplants. In 2013, Solovev and his co-workers explored the possibility of performing drilling operation by Ti/Cr/Fe microtubes with sharp tips and controlled remotely by external magnetic field.[55] An iron layer was deposited carefully on the Ti/Cr layers

in a trapezoid pattern before a tilted roll-up process, yielding sharp tips. These microdrillers were shown to re-orient from horizontal to vertical rotation and perform corkscrew-like movement towards the porcine liver tissue and starting the drilling operation.

4.4. Imaging

Cell imaging based on Micro/Nanomotors is sensitive to physiological and pathological conditions. Magnetic nanorobots are useful in magnetic resonance imaging. The potential of these man-made nano-devices for controlled navigation make them one of the best tools for image-guided therapy. The bio-hybrid magnetic nanorobot derived from spirulina microalgae and coated with Fe₃O₄ particles allowed in vivo fluorescence imaging and remote diagnostic sensing without the need for any surface modification.[56]

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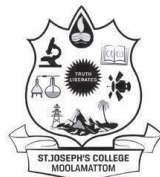
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EDITORIAL

The dawn of this decade witnessed the unmanageable hike of bogus information which disoriented the masses with their verisimilitude. The reliable source of information is imperative in this world of information explosion. *Josephine Researcher-IV*, the novel initiative of St. Joseph's College, Moolamattom, brings together the likeminded researchers, scientists, social activists and faculty members belonging to various disciplines to contribute the veritable piece of information to the treasure chest of knowledge. The outcomes of explorations and experiments which infuse life to the pages enthuse the readers with insightful and inconclusive piece of information. This volume which affirms quality rather than the quantum of knowledge reiterates the interdisciplinary of research paradigm and spurs further researches.

This interdisciplinary research book, which functions as energy pathway, offers dynamic platform for the creative minds to disseminate the distilled knowledge for the inquisitive minds. The treasure trove of knowledge unravels itself before the explorer and demystifies the plurality of knowledge it eludes. On this occasion, we are thankful to the contributors, who are like Alfred Lord Tennyson's Ulysses says, "yet all experience is an arch whereto/Gleams that untraveled world whose margin fades/ Forever and forever when I move". The paramount role of the readers in bridging the energy pathway is appreciated on this context.

We are extremely grateful to our manager **Very Rev. Dr. Fr. George Edayadiyil CMI** for his insightful support. We are thankful to **Rev. Dr. Thomas George CMI** (*Our Local Manager and Chairman of the advisory board*). The inspiration and ingenious support of **Dr. Ebey P. Koshy**, our Principal is to be reckoned on this occasion for infusing life to this resource book. We also express our gratitude to Rev. Fr. Libin Valiyaparambil CMI, our Bursar.

The present issue (fourth Volume) includes nine research articles from science, four from social science and twelve from literature. We expect that these articles of primary and secondary nature would enable us to have a share in creating a more harmonious world.

Dr. Jose James
Dr. Joseph George
Mr. Roby Mathew

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Dr. Joseph George

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Sri. Rony Mathew, Assistant Professor and Head, Department of English, St. Joseph's College, Moolamattom, has been serving as the Chief Editor of *THROBS*, the annual newsletter of the college for the last three years. Having undertaken a Minor Research Project and a few publications in National and International journals, he has a stint of research experience to his credit. Pursuing his Ph. D programme in American nautical fiction, he has also been serving as the staff editor of college magazine for the past few years.

ACADEMICS FOR HOLISTIC AND FRUITFUL LIFE

Rev. Dr. George Edayadiyil

Provincial
St. Joseph's Province, Kottayam

As St Joseph College, Arakulam publishes the 2021 edition of Josephine, let us reflect on our mission. Our college situated on a very beautiful, serene, and picturesque hilly area in the district of Idukki in the high ranges is established for the seekers of knowledge and wisdom. We focus on quality based, disciplined, holistic, inclusive and Glocal approach as a centre for study, teaching, learning, research, service and holistic formation of the young minds. That is about the creation of an ambience in which this process happens naturally with the team work of all the stake holders, namely, the students, the staff, the parents, the university, the management, the well-wishers and the general public. Education is a team game where all the stake holders are integral parts working together with the single aim of inspiring and empowering the new generation in a holistic way for their own good and their families, societies and nations.

Our Interconnectedness

An anthropologist proposed a game to a tribe of *Nguni* children in Southern Africa. He put a basket of sweet fruits about 30



meters away and told them that whoever touches it first, can have the entire basket of fruits. He blew the whistle, so that they may start running. To his amazement they did not run alone, but rather they took each other's hands and ran together, then they sat together enjoying the treats. When he asked them, why they did not run alone for the basket, to have it all for oneself, they said: UBUNTU, and said how can one of us be happy when others are sad? Ubuntu is a *Nguni Bantu* term meaning "humanity." It is often translated as "I am because we are," or "humanity towards others," but is often used in a more philosophical sense to mean "the belief in a universal bond of sharing that connects all humanity." Over



two thousand years ago, black people of Africa developed a collective meaning to life, to describe the kind of relationship an individual person is expected to have with their family, community, society, environment and their spiritual world.

In our globalized and digitalized world, the common and shared bond is something that is to be given a better attention. The virtual, the imaginative and the ideal world makes us strangers in the real world of imperfections. The tendency of the day, is to grow alone rather than growing together. This is becoming true even in families. Pope Francis in his recent Encyclic letter, *Fratelli Tutti* quoting Pope Benedict XVI, highlights this aspect when he wrote: “society becomes ever more globalized, it makes us neighbours, but does not make us brothers.” He further writes: “Nobody is saved alone.” The pandemic COVID 19 has unequivocally shown the interconnectedness of humanity.

At times we blame the system and the challenges that we face, to escape from our own responsibilities and commitments as members of one human family. George Bernard Shaw said, “People are always blaming their circumstances for what they are. I don't believe in circumstances. The people who are born on in this world are the people who get up and look for the circumstances they want, and if they can't find them, they make them.” People create better circumstances where things happen. Such people create history. History is not something that happens, great men and women create history facing all the challenges and threats. It is true in the history of any institution and for our college too. There are people who stood against the odds to create the legacy of this

college. Learning history is about learning what we are and what we can be.

CMI Education Vision

The St Joseph College, Arakulam is a Christian catholic minority institution. The Catholic Church in India runs around 50,000 educational institutions including 400 colleges, six universities and six medical colleges. The CMI congregation runs over 400 schools, 39 colleges and a university. In the Bible, Proverb 29:18 says: “Where there is no vision, the people perish.” The CMI congregation has a profound and inclusive education vision of integration that rests on five pillars: 1) Holistic Education; 2) Value Education; 3) Quality Education; 4) Co-operation of Families; and 5) Social Commitment. The education vision of our college is rooted in these.

The Basic Reference Point

CMI Education mission has a reference point and a long legacy that comes from the life, spirit and vision of St Kuriakose Elias Chavara, the mystic founder of CMI congregation who was deeply involved in the socio, cultural and educational empowerment of the people of the 19th century Kerala. The starting of the Sanskrit school at Mannanam, Kerala in 1846 marks the beginning of the CMI legacy of education. This was something unimaginable in Kerala society of the 19th century which was very divided on various ways: caste, creed, colour, etc. According to K.S. Radhakrishnan, the renowned philosopher and the former Vice-Chancellor of Sanskrit University, Kalady, St Chavara's revolutionary step in starting the inclusive Sanskrit school was instrumental in forming a common



public in the society of that time. Later in 1866 he inspired all the churches to start inclusive elementary schools associated with them, with the threat of the closer of the Churches otherwise.

Rooted in that legacy and through years, CMI holistic education philosophy has flowered and it aims: "...to form leaders who are intellectually competent, spiritually mature, morally upright, psychologically integrated, physically healthy, and socially acceptable; who will champion the cause of justice, love, truth and peace." As per CMI education policy, "education is the integral formation of the human person for the fulfillment of his/her individual and social responsibilities." Our education mission aims at individual and social transformation. "We aspire towards creating a just and humane society where dignity of the human person is respected, where unjust social structures are challenged, where our cultural heritage of ahimsa, religious harmony and national integration is upheld, and where the poor and the marginalized are especially taken care of." The challenging education vision of our college is integrally connected with the aspirations and the dreams of our mother land.

It is the commitment to the realization of the holistic individual and social welfare that has to inspire us in our education mission of excellence to go forward with passion, thanking God for the showers of blessings that we received from him all these years as an education institution. We are to be the faithful care takers of that noble legacy coming from our founders and nurtured by people who walked before us these years. Let us be grateful. The Motto of our college is "truth liberates."

The way to freedom is the way of truth. This is rooted in the Biblical and the Indian traditions. Knowledge dispels darkness of ignorance and fills the heart of all with the light of truth. This is the mission of the college. We shall not forget that there are people, systems and ideologies that try to keep people away from knowledge and wisdom feeding on the ignorance of the poor people.

Dreams of Our Land

The noble legacy of our nation that is enshrined in the preamble of our constitution makes us feel proud of our nation and of our ancestors: WE, THE PEOPLE OF INDIA, having solemnly resolved to constitute India into a SOVEREIGN SOCIALIST SECULAR DEMOCRATIC REPUBLIC and to secure to all its citizens: JUSTICE, social, economic and political; LIBERTY of thought, expression, belief, faith and worship; EQUALITY of status and of opportunity; and to promote among them all; FRATERNITY assuring the dignity of the individual and the unity and integrity of the Nation. Right now, whether the pillars of Indian democracy, namely, the legislative, executive and judiciary are working together to realise the dreams enshrined in our constitution? The signs of the times, liberalism, popularism and divisive politics and religions are forcing us to think otherwise. Are the Indian dreams on anvil today after 74 years of independence? Are the generations that fought and brought us the freedom based on the age-old Indian values and ethos becoming strangers to us?

In a changing society, how far do the changes make the society cultured and civilized? Are the changes for good? Here is a story of a man who wrote a letter to a



hotel asking permission to accommodate his dog. "I would very much like to bring my dog with me. He is well groomed and very well behaved. Would you be willing to permit me to keep him in my room with me at night?" In reply the hotel owner wrote: "I have been operating this hotel for many years. In all that time, I've never had a dog steal towels, bedclothes or silverware or pictures off the walls. I've never had to evict a dog in the middle of the night for being drunk and disorderly. And I've never had a dog run out on a hotel bill. Yes, indeed, your dog is welcome at my hotel. And if your dog will vouch for you, you're welcome to stay here, too." A beautiful reply indeed. It speaks volumes about the distorted human nature and the unpolluted goodness of creatures and nature. All our developments and growth need to make us more cultured and refined, more open and generous, more inclusive and integral, more creative and happier, more grateful and giving, and more authentically human and deeply spiritual. Let us pray and act for the realization this dream.

Change Agents in a Changing World

We are living in an ever changing and challenging world that moves at a tremendous pace. The pandemic COVID 19 has brought in a new normal which was unthinkable a year back. The time has changed and we too have changed. At this time of history, we shall train the young ones for life rather than for jobs. The great Greek philosopher Heraclitus wrote: "The only thing that is constant is change." Change is an eternal reality that we encounter on a day-to-day basis. Science says that for an average person the cells totally change within a span of seven years. We are constantly created

anew. How can we cope up with these changes in this ever-changing world? In this digitalized and globalized netizen's world, people are getting divided with narrow-mindedness. At times, people tend to become barbarians in our age. How can we create a better world of peace and harmony?

In such a fast changing world our education vision, mission, policies and strategies are to be constantly reinterpreted, updated and made alive by critically and creatively responding to the times by being faithful to the original spirit and focused vision in tune with the needs and aspirations of all stake holders.

One of my confreres, Fr Varghese shared his experience with me a few years back. He was going for a trip to the Himalayas and on the way, he walked with some Hindu pilgrims going for a festival. On the way to the mountain where the festival was held, there were many booths with exhibitions, displays, games, etc. Since he got tired of walking, he got into a booth with not too many people. A respected swami was giving a talk in that booth on the subject, "Rigidity and Flexibility." He said that what is rigid is going to die and what is flexible is going to survive. He gave the example of the teeth and tongue. See, how our teeth go, but what about the tongue? It lasts. Further he gave the example of the Catholic Church. He said it is surviving because it adapts and renews itself time and again. Today Pope Francis with his clarion call for change and by his love for the poor, marginalized and youth is challenging and renewing the church from inside.

As for us, we have to renew and revitalize ourselves from within to be relevant



and meaningful for this ever changing and challenging world. Education is the powerhouse of humanity. Gurukulas, Academies, Schools and Universities were the change agents in history. So, we shall not be complacent. Constant renewal and adaption with a focus on the internal resources and the ambience are necessary for the survival any living organism. Let us be agents of change wherever it is needed. For that we need a solid vision, genuine motivation and deep commitment. Let's remember the ancient quote: "When you change the way you look at things, the things you look at change."

Motivation

In *Alice's Adventures in Wonderland* by Lewis Carroll, there is a beautiful and relevant dialogue between Alice and the Cat.

Alice: "Would you tell me, please, which way I ought to go from here?"

"That depends a good deal on where you want to get to," said the Cat.

"I don't much care where—" said Alice.

"Then it doesn't matter which way you go," said the Cat.

"--so long as I get SOMEWHERE," Alice added as an explanation.

"Oh, you're sure to do that," said the Cat, "if you only walk long enough."

Let us not be like Alice, not knowing where to go. We have the vision and mission to guide us on the way. Book of Psalms 143:10 reads: "Teach me to do your will, for you are my God, may your good Spirit lead me on level ground." Trust in God remains as our foundational core value. Let ours be a purpose driven life strengthened by the providence of God.

The onus is upon us, and on nobody else, to take this centre of learning, research and service forward on a path of excellence with vision, commitment, hard work and passion. For that let us be the best of what we can. Here is a poem by Douglas Malloch, titled, **Be the Best**:

If you can't be a pine on the top of the hill,
Be a scrub in the valley – but be

The best little scrub by the side of the rill;
Be a bush, if you can't be a tree.

If you can't be a bush, be a bit of the grass,
And some highway happier make;

If you can't be a muskie, then just be a bass –
But the liveliest bass in the lake!

We can't all be captains, we've got to be crew,
There's something for all of us here.

There's big work to do and there's lesser
to do

And the task we must do is the near.

If you can't be a highway, then just be a trail,
If you can't be the sun, be a star;

It isn't by size that you win or you fail –
Be the best of whatever you are!

This is what we shall all be and this is what
we animate our students to be.

Be the best of what we are.

The Path of Excellence

Ours is an era of excellence. Under the new education policy (NEP) average or mediocre institutions cannot stand the test of time. Here is a story. A German once visited a temple under construction in India, where he saw a sculptor making



an idol. Suddenly he noticed a similar idol lying nearby. Surprised, he asked the sculptor, "Do you need two statues of the same idol?" "No," said the sculptor without looking up. "We need only one, but the first one got damaged at the last stage." The gentleman examined the idol and found no apparent damage. "Where is the damage?" he asked. "There is a scratch on the ear of the idol," said the sculptor, still busy with his work. "Where are you going to install the idol?" The sculptor replied that it would be installed on a pillar twenty feet high. "If the idol is that far, who is going to know that there is a scratch on the ear?" the gentleman asked. The sculptor stopped his work, looked up at the gentleman, smiled and said, "I will know it."

The desire to excel doesn't depend on whether someone else appreciates it or not. "Excellence" is a drive from inside, not from outside and that drive creates history. Let us have that collective will for excellence to take our students too in the path of excellence. Former Director of CMC Vellore, Dr Sunil Chandy once said: "We are not opposed to merit but what the government defines as the exclusivity of merit. We believe in suitability. Let's say we have candidates with full score in all subjects, they can get into any medical college. But to convert him/her into a physician takes a different kind of suitability." "Getting 99 percent does not ensure that you will make a committed doctor. I would rather train a chap with 55 percent who has a sense of social consciousness." This Dr Chandy described as 'merit with a mission.' We need to have a profound social sensitivity as individuals and as an institution. As an education institution in the district of Idukki, we have

a tremendous responsibility to empower our student community coming mostly from the agrarian background. We cannot turn a blind eye to the thousands of farmers who are organizing non-violent protection against the farm laws legalized by the central government. We have to stand with justice. St Chavara said: "the day that you haven't done any good for others, will not be counted in the book of life." This is the culture of Excellence we try to inculcate in the students and we create a disciplined, holistic and inclusive ambience in which the students are trained for life rather than for a career. The ambience matters and all the stakeholders are responsible for that in their own unique way.

Our college is to be a nurturing ground for an individual's holistic development to make an effective contribution to the society in a dynamic environment. Do we have a mission with a passion trusting in the providence of God? We believe that "The Glory of God is man fully alive." This stands at the core of our path of excellence.

Every institution has a culture of its own. What is the unique culture of our college? Do we have one? Is it just one among the hundreds of other colleges? What kind of difference can we make as a centre of learning for the better future of our students and for the good of the society? Do we have a benchmark to actualise our potentials as individuals, members of different departments and as a college? What is the benchmark here? To what extent are we able to take forward the young dynamic minds that come to us? Are we here for a purpose? So, let us try hard to realise our own potential for the betterment of our own students and for the



good of those around us and the society. We need to have the passion for excellence on the individual, departmental, and of college levels. We read in Brihadaranyaka Upanishad, 4.4.5:

You are what your deep, driving desire is/ As your desire is, so is your will

As your will is, so is your deed/ As your deed is, so is your destiny

Intense desire, will, and deed – this is the path to create destinies for us and our societies.

Team Work

It is in the ambience of educational institutions that the culture of the society and the nation is nurtured and matured. This is all the more true in our times when the socialization process that takes place in families is minimum due to small nuclear families and because of the invasion of digital media. We come together and work together with a vision and a mission. A sentence attributed to Aristotle reads: “The whole is more than the sum of its parts.” Further, one of the important war strategies that Chanakya proposes in His book *Kautilya's Arthashastra* is “Never go into battle alone” however confident you are. We need real team spirit in our education mission especially in these challenging and complex situations of the world.

When we consider the two major stake holders of this institution, namely the students and the staff, we find more elements that unite them than separate. Based on the set theory in mathematics, if we draw circles around these, we find a lot of intersection points. The air we breathe, the water we drink, the space we occupy, our dreams and our challenges, the service we undertake here, the time we spent in

this campus, when we meditate on these and other points we come to know that there are more points of intersection than of divergence. But we need to realise that there are centripetal and centrifugal forces within us and in our communities and societies. Can we count on the centripetal forces to strengthen our collective will and goals for the good of the student community and for the good of humanity at large? Arnold J. Toynbee, one of the most famous British historians of the last century in his twelve-volume analysis of the rise and fall of civilizations, claims that most of the ancient civilizations died of internal decay rather than of external attack. Unity of the staff fraternity together with the management needs to be the strength of the College.

As there are many stake holders in this institution, our inner strength comes from the percolation of the vision and mission by all the stake holders, the students, parents, staff, the management and the public. This fit between the individual and the organization is the key to committed team work in the path of excellence. It is here that we need collective decision making and implementation in an atmosphere of togetherness.

Make a Choice which is Ours

William Jennings Bryan said in 1899: “Destiny is not a matter of chance, it is a matter of choice; it is not a thing to be waited for, it is a thing to be achieved.” Our former president, Dr APJ Abdul Kalam wrote: “Dream is not that which you see while sleeping it is something that does not let you sleep.” Our college is the result of the dreams and sleepless nights of many who made things happen with vision, determination, commitment,



and hard work trusting in the providence of God. Even today we toil together to take our college to a grater tomorrow. We have to build a system of organizational excellence and a consistent all-round development strategy with a far-sighted vision.

Today, despite all the developments and growth, many are insensitive to the harsh social realities that exist. There is a sharp divide between the rich and the poor in our country. Many turn their face away from truth, justice, gender justice, freedom, poverty, equality and job loss. We have to look at the socio, political, cultural and economic realities around us in a critical and creative way. We have heard the famous prayer of Rabindranath Tagore: "Where the mind is without fear, and the head is held high; Where knowledge is free; Where the world has not been broken up into fragments by narrow domestic walls; Where words come out from the depth of truth; Where tireless striving stretches its arms toward perfection; where the clear stream of reason has not lost its way into the dreary desert sand of dead habit; Where the mind is led forward by You into ever widening thought and action- Into that haven of freedom, my Father, let my country awake." These lines reflect the heart of our Motto: Truth Liberates.

We have to ask: Are we living in a world of freedom or fear? Are we in the process of creating a just and human society? Do we live in a culture of mutual respect and care? Do our women, children, and less privileged feel safe? Are we allured by systems and ideologies that create a divided society? Are power, money and fame the only things that matter in our time? At times, the Indian scenario presents a bleak picture. We know that corruption

of various types reigns everywhere and it even challenges the foundation of our republic, namely, the legislature, executive and judiciary. We need to be watchful and act prudently as the citizens of our country.

Nick Vujicic writes in his book titled, *Life without Limits*, three types of guides who have made impact in his life. They are the Mentors, Role Models and Fellow Travelers. He further explains: "Mentors are people who've been where you want to go, but they are also supporters and encouragers who share your dreams and truly want you to succeed." "Role models have been where you want to go, but they aren't usually as close to you as mentors." "Fellow travelers are usually peers, co-workers, and others with similar goals to yours, who are walking on a parallel road." The staff fraternity and the parents can be all the three for our seekers of knowledge and wisdom. It is in serving these learners that we shall find our true happiness and peace. Let me salute all the staff and parents for their wonderful contributions to the College and to the students for making the college what it is today. It is the staff fraternity that is to take the college and the students to new heights with innovative and collaborative projects and programs. Let us make our college a centre of Excellence, creating a new education culture, which is the nurturing ground, for teaching, learning, research and service. Let our college march forward in her service to the seekers of knowledge and wisdom and for the welfare of all – Sarvodaya. God bless you all and let us seek the intercession of our patron St Joseph for whom Pope Francis has dedicated this year through the apostolic letter *Patris Corde* (With a Father's Heart).

■

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LIFE SKILLS PROFICIENCY OF ADOLESCENTS IN RELATION TO SELF-CONFIDENCE AND SOCIAL INTELLIGENCE

Rev. Dr. Thomas George CMI

Prior

St. Joseph's Monastery, Arakulam

Introduction

The World Health Organization defines life skills as the abilities for adaptive and positive behavior that enable individuals to deal effectively with the demands and challenges of everyday life. They represent the psychosocial skills that determine valued behavior, reflective skills such as problem solving and critical thinking, and personal skills such as self-awareness and interpersonal relationship skills. Specific emotional, cognitive, and behavioral and resilience skills play a vital part in ensuring an adolescent's personal and social success (Langford & Badeau, 2015). Children and adolescents with psychosocial skills have positive mental health and wellbeing (Savoji & Ganji, 2013; WHO, 1993). These skills are known to be the key contributors to negotiating and mediating challenges that young people face in becoming productive citizens (Prajapati, Sharma, & Sharma, 2017).

Today behavioral disorders and social deviations among adolescents lead to aggression, destructive tendencies, alcoholism and drug abuse, violence, inability to maintain healthy relationships

with others, emotional instability, inability to take decisions and solve problems effectively. These issues are mainly due to lack of life skills, self-confidence and social intelligence which should be providing them with the ability to confront such difficult situations and prepare themselves to solve life's problems. The research on addiction to drug and drug abuse in adolescents indicated three relevant related factors – low self-confidence, disability in showing emotions and lack of social intelligence. Recent research reveals that the life skill education has positive effect on self-confidence, social intelligence, psychological health, assertiveness, self-esteem, and decision making among adolescents. Learning and practicing of life skills in relation to self-confidence and social intelligence would lead to reinforcement in the perspectives, values and manners of adolescents.

Given the role of life skills as a strong catalyst for the development of positive behavior, building life skills in the early years of life will help adolescents navigate their social and emotional challenges such as coping with emotional pain, conflict, peer pressure and relationship issues



(Aishath Nasheeda et al., 2018). How life skill programs are structured and delivered can significantly impact long-term program quality. Therefore, it is important to deliver these programs systematically in order to have a lasting impact on the health and wellbeing of participants (Holt et al., 2008). Findings reveal great promise for life skills education as a way to promote positive behavior and to act as a buffer against risk-taking behaviors for adolescents in developing countries (Aishath Nasheeda et al., 2018). There is a need to understand adolescents' learning experiences within life skills education and to identify which skills are most effective at times of difficulty. Examining adolescent experiences within the embedded culture of the individual is important to understand how individuals from different backgrounds construct life skill knowledge into reality.

Life Skills in Curriculum

Life skills proficiency is also an educational intervention that is designed to address areas with wants- and result-based participatory learning. There is a growing demand to educate adolescents with life skills to help them deal with their day-to-day life challenges and transition into adulthood with informed healthy choices. (Aishath Nasheeda, et al., 2018). The goal of life skills proficiency is to equip individuals with fitting information on risk-taking behaviors and build up skills such as communication, boldness, self-awareness, problem solving, critical and creative thinking, etc., to protect them from ill-treatment, misuse and exploitation. Demonstrating its effectiveness, significance and value, life skills have become a major part of many intervention programs

around the globe, particularly those aimed at the prevention of alcohol abuse, drugs and smoking (Huang, Chien, Cheng, & Guo, 2012). Developing countries such as India, Sri Lanka, Maldives, Bangladesh, Thailand, Myanmar and Nepal incorporate life-skill concepts into their curriculum at different grade levels (WHO, 2001). Countries in the Asia and Pacific Regions, for instance, combine life skills into comprehensive Sexuality Education (CSE) programs to reduce risk behavior and improve the health and well-being of young people (UNFPA, 2015).

Drawing on Bandura's social learning theory, skills are learnt through interaction, processing and structuring of experiences (Prajapati et al., 2017). One of the more recent approaches to teaching life skills is through an infusion. Infusion integrates preventive objectives and activities into academic activities. The fundamental purpose of the infusion approach is to educate learners on how to transform knowledge and concepts to become skilled in their daily life. Thus, life skills proficiency contents are infused into the basic subjects of higher education prospectus with a ground-breaking delivery technique. Infusion has been shown to be effective in reducing smoking, binge drinking, and use of marijuana (Smith et al., 2004; Vicary et al., 2004) and as a result, many countries have integrated life skills into their primary, secondary and higher education curricula. However, for an infusion approach to be effective, it needs to be designed well and delivered age-appropriately (Konkel, 2016).

Preparing young generation to confront today's severe situations in educational scenario seems to be a vital task. Helping



adolescents in the growth and development of necessary skills for effective life, creation or increase of self-confidence in confronting problems, solving them, to have successful compatibility with social environment and effective and constructive life in society seems crucial (Shoari, 1998). Therefore, most of the learning environments in the world have initiated the education of life skills in relation with self-confidence and social intelligence in order to prevent behavioral disorders and social deviations. Educating on the life skills is one of the means of psychological and mental health development which would further lead the individual to social, cultural and political evolutions. Studies reveal that life skills tend to be effective in bringing about individual changes relevant to knowledge, skills and attitudes in risk areas as well as psychosocial skills (Menrath et al., 2012). Programs conducted in countries like India and Iran, such as the Life Skills Education Program, comprised of a series of developmental sessions consisting of communication skills, assertiveness, anger management, decision-making, creative and critical thinking skills, etc. (Naseri & Babakhani, 2014; Parvathy & Pillai, 2015). Scholars, however, have emphasized the need to implement sustainable life skills programs as a top priority (James et al., 2006; Jegannathan et al., 2014). Gatekeepers, policy makers, administrators and teachers of life skills need to believe in the potential and value of the life skills programs and receive appropriate training (James et al., 2006; Jegannathan et al., 2014). Further, long term monitoring and evaluation reviews are required to gather empirical evidence on the effectiveness of programs (Tuttle

et al., 2006). This includes participant feedback and discussion on each life skills topic in order to improve application of the skills taught (WHO, 2001).

Life Skills for Adolescents

Adolescence is a period of multiple transitions marked by physiological changes, efforts toward the construction of identity, and a progression from concrete to abstract thought and the ability to think abstractly, multi-dimensionally and to reason more effectively. It is an emotionally intense and often stressful period. Adolescence nature is multifaceted and flexible; the same potential may have different results depending on whether the environment encourages or discourages it. Each adolescent has his own unique traits and express them as uniquely. Adolescence is a transition stage and thus is the period of tremendous psychological imbalances among students. During adolescence, students try to understand more about society, social relations, social approval, respect, social identity, etc. They begin their social contact in a wider sense, approach various social institutions in a novel way, develop morale, and understand taboos, standards, and mores of society. Their behavioral aspects undergo many changes in a rapid speed. Some of them accept society with increased social awareness and some of them may become agitators, aggressors, bullies, or even criminals.

Life skills for adolescents would mean adolescents being able to maintain smooth and effective inter-personal relations, fulfilling personal and social responsibilities, making accurate and timely decisions, solving conflicts without any delay and healthy and positive arguments with dynamic actions which



are helpful to themselves and others. For these young adults, life skills are expounded as, “personal and social skills that adolescents should have learned in order to take effective and certain actions regarding other people and society” (Nori, 1998). They are abilities for adaptive and positive behavior that enable adolescents to deal effectively with the demands and challenges of life. In a wide sense, the skills that function for the well-being of these adolescents to develop into active and productive members of their communities, nurturing a greater sense of confidence, usefulness, sensitivity and openness, are considered as life skills for them. Caring, understanding, cooperation and collaborative learning are important life skills which stimulate cooperative learning, conflict resolution, group-oriented method of problem solving and task performance. Hence, future research should be directed toward investigating how life skills program knowledge is translated into behavior and attitude change in these adolescents (O’Hearn & Gatz, 1999; Parvathy & Pillai, 2015; Pierce, Gould, & Camiré, 2017).

Self-Confidence as a Life Skill

Self-confidence is an attitude that is characterized by a positive belief that you can take control of your life and of your plans. It is a belief in your abilities. The feeling of self-confidence is a positive state of vibration where the subconscious mind is directed towards success. When an individual’s level of self-confidence increases, then his/her chances to succeed in life also increases. Self-confidence deeply depends on one’s character, guts, and self-worth and it focuses more on doing things that give positive results. Each positive

experience is a positive reinforcement that increases one’s self-confidence. Thus, self-confidence is an attitude which allows individuals to have a positive yet realistic views of themselves and their situations. Even when some of their expectations are not met, they continue to be positive and accept themselves. It is the belief in one’s ability to succeed and is the stepping stone to progress, development, achievement and success in life. The successes and achievements in turn will strengthen one’s self-confidence further. Self-confidence thus becomes the key determinant for human cognitive, motivational, affective and decision making processes. Self-confident people know how to take the edge off doubts, conquer fears, and how to find a silver lining in a sky gone gray with storm clouds. They get to the root of the problem; focus on it and understand that one needs to resolve each issue before one can move on. Learning how to be confident is the most important life skill that adolescents need to acquire. It impacts their happiness, success and well-being. All other desirable qualities use confidence as the foundation. Historically, confidence was thought of as an innate personal trait — some were born with it; others were not. However, more recent research substantiates that confidence is learned and developed. No one is born with confidence. People begin to develop confidence during the growing-up process. Adolescent age strengthens the foundation of self-confidence laid in childhood.

Social Intelligence Skills for Adolescents

Social intelligence is the capacity to understand the society and its heartbeats. It is generally defined as an aggregate



global capacity of an individual to act purposefully, think rationally and deal effectively with a given situation. Thorndike (1920) defined Social Intelligence as “the ability to understand others and act wisely in human relations”. It is also the ability to understand the feelings, thoughts and behaviors of people in social or interpersonal situations and to act appropriately based on that understanding. The main dimensions of social intelligence are patience, cooperativeness, confidence, sensitivity, recognition of social environment, tactfulness, sense of humour, and memory. Socially intelligent individuals possess tolerance, cooperation, sympathy, social acceptance, helping mind, and a spirit of we-feeling in the society. Social scientist Dr. Ross Honeywill believes that social intelligence is an aggregated measure of self- and social-awareness, evolved social beliefs and attitudes, and a capacity and appetite to manage complex social changes. Recently, popular science writer Daniel Goleman has drawn on social neuroscience research to propose that social intelligence is made up of social awareness (including empathy, attunement, empathic accuracy, and social cognition) and social facility (including synchrony, self-presentation, influence, and concern) (Introducing Social Intelligence, 2021). Recent research in the emerging field of social neuroscience—what happens in the brain while people interact—is beginning to reveal subtle new truths about what makes a good person. One exhibits empathy and become attuned to others’ moods—this action literally affects both their own brain chemistry and that of others. Indeed, researchers have found that when two (or more) independent brains react

consciously or unconsciously with each other, the individual minds become, in a sense, fused into a single system. Another finding in neuroscience reveals that, the brain produces a class of neurons called spindle cells with an extra-long branch to make attaching to other cells easier and transmitting thoughts and feelings to them quicker. This ultra-rapid connection of emotions, beliefs, and judgments creates what behavioral scientists call our social guidance system. Goleman and Boyatzis define social intelligence as “a set of interpersonal competencies built on specific neural circuits (and related endocrine systems) that inspire others to be effective.” The socially intelligent, who influence others, are skilled at appealing to others and developing mutual trust from key players in a situation. They give constructive feedback to colleagues and help others focus on growth opportunities. These socially intelligent people build an atmosphere of cooperation, helpfulness, and respect in other people. They help others commit to the group’s effort. They help a team to develop an identity, positive relationships, and spirit. Adolescents with high social intelligence understands subtle etiquettes and knows how to listen to people. These adolescents can typically motivate others to cooperate, and people generally enjoy being around her/him. Socially intelligent adolescents have the ability to pick up emotions in other people and to work out what’s really going on with them; to appreciate another person’s perspective; to understand and appreciate the impact of one’s communication on others; to cultivate rapport and be attuned with the broad diversity of adolescents, and to manage interactions effectively and to engage with others for mutual benefit.



Operational Definition of the Key Terms:

Life skills are abilities for adaptive and positive behavior that enable individuals to deal effectively with the demands and challenges of everyday life [WHO, 1996]. The following are the ten generic skills.

Critical Thinking: According to Michael Scriven & Richard Paul, critical thinking is the intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action. It implies making reasoned and well-thought out judgments with clarity, accuracy, precision, consistency, relevance, sound evidence, good reasons, depth, breadth, and fairness.

Creative Thinking: It is an ability that helps adolescents look beyond their direct experience and address issues in a perspective which is different from the obvious or the norm. It adds novelty and flexibility to the daily life of adolescents. It contributes to problem solving and decision making by enabling adolescents to explore available alternatives and various consequences of their actions or inaction.

Decision Making: The process of assessing all the pros and cons of each issue by considering all possible options and the merits and demerits various decisions might have in the present and in the future on them. This skill teaches the adolescents to take appropriate decisions in crucial, decisive and critical situations.

Problem Solving: Choosing the best-suited decisions out of different options, in the face of various types of obstructions

and hurdles, and going through the process again and again until a positive and dynamic outcome of the problem is achieved. Through this skill, adolescents acquire knowledge and experience to unearth the best solutions for their problems.

Interpersonal Relationship: This skill teaches the adolescence to begin and reinforce cooperation, trust, and sportsmen spirit. Further it helps them to understand the significance and worth of mutual relationships with others and how to relate with others always in a positive and reciprocal manner. It helps them to maintain healthy and enduring relationships with their peers, friends and their family members.

Effective Communication: It is a process of indoctrination. This skill educates the adolescents to understand others, conditions, expresses desires and demands active listening, and seeks assistance and advices in times of need. Clarity and integrity of thoughts enhance the additional meaning of the message. Contextual communication improves its effectiveness as it takes into consideration the age, region, sex and intellectual abilities of the recipient.

Coping with Emotions: Emotion is a mental reaction, which manifests itself in the mind of an individual. It creates responses in the brain called feelings, which causes physical changes in the body. This includes alteration of expressions in the face and chemical alteration in the brain. Upon coping with emotions, being aware of how emotions influence behavior, one can take conscious effort to solve personal and interpersonal problems, in order to try to master, minimize or tolerate stress and conflicts appropriately.



Coping with Stress: Coping with stress is an ability to recognize the source of stress, how to be aware of the experience of stress and how to take action to reduce and control it in one's life through life skills education. It is the process of spending mental, conscious energy on dealing with problems in life. The first fraction of coping with stress is being able to tolerate stress – to function reasonably well in stressful situations and get through them. The second component is recovering, that is, getting back to normal when the stressful situation is over.

Self-Awareness: Self-awareness is the capacity for introspection and the ability to recognize oneself, his character, strengths and weaknesses, desires, feelings, motives and dislikes as an individual separate from the environment and other individuals. Daniel Goleman proposed a popular definition of self-awareness, as “knowing one's internal states, preferences, resources, and intuitions.” This definition emphasizes on the capacity to monitor one's inner world, thoughts, feeling and emotions as they arise. Self-awareness is the capacity to go beyond accumulating knowledge about ourselves – to recognize one's own feelings, behaviors, and other characteristics like cognitive, reasoning, physical, psychological and intellectual power and the ability to notice and monitor one's inner world.

Empathy: It is an ability to understand another person's thoughts, feelings and condition from his or her point of view. It helps one to understand and accept others and their behavior, which may be very different from him. According to Hodges and Myers, “Empathy is the capacity to comprehend and experience

what another person is experiencing from within his frame of reference, that is, the competence to put oneself in another's situation. Empathy includes a broad range of emotional states, together with caring for the others, a desire to help them, experiencing emotions that is equivalent to another person's emotions, being sensitive to another person's thinking or feeling

Conclusion

According to the WHO (1997), internalizing the core essential life skills helps the adolescents to deal with the concerns in the modern world in a dignified and mature way bringing success to them. Learning of life skills together with self-confidence and social intelligence, will make adolescent students to engage in problem solving, make conjectures and test their ideas. This will further form assertive students who will assist and lead the group in all its endeavors providing equal status and role to all students and creating an atmosphere to realize the importance of everyone's thinking. In such a situation, roles are clearly defined and students are accountable for their assigned tasks in order to maintain individual responsibility and group accountability. Psychologists believe that learning of life skills together with self-confidence and social intelligence helps students to effectively negotiate and navigate through complex relationships and also difficult environments. A positive learning environment with life skills, builds confidence, resilience and hope in students. It also prepares them for success in the future. It promotes group interactions that help the adolescents to discover his/her own strengths and limitations in following instructions, understanding ideas, generating new ideas, making joint



decisions, listening to others' ideas and learning to appreciate different points of view.

Most accomplishments require more than a sharp mind. In fact, an impressive intellect is of little value if it is not paired with self-knowledge and an ability to work well with others. True success requires a great deal of life skills along with self-confidence and social intelligence. Adolescents smart in these skill sets, are able to read between the lines by picking up on the subtle changes in the tone and body language of others. Their listening skills extend beyond auditory clues to include the visual and tactile hints that are often missed. When a colleague or friend is uncomfortable, they are able to uncover the reason and quickly put them at ease. They do not only listen well, they know how to speak in an impressive and interesting way. They are able to express themselves without dominating a conversation. They are conscious of entertaining without offending. They have mastered the delicate balance it takes to be interesting, but not intimidating. They do this by reading others. They are conscious of making their friends feel valued, loved, and important. Other students enjoy being around them. They just spread a good feeling wherever they are. Life skills flourish knowledge, values and views, that guide the children how and when to perform a task. Unfortunately, this crucial set of life skills with self-confidence and social intelligence is not adequately taught in modern educational scenario. Therefore, more attention is required in the contemporary scenario to develop programs that are ongoing and sustainable, through systematic planning, implementation, monitoring and

evaluation in order to help adolescents acquire these skills.

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A LOT CAN HAPPEN OVER A COFFEE: A CASE STUDY ON CCD

Dr. Joseph George

Assistant Professor
St. Joseph's College, Moolamattom

Cafe Coffee Day, a part of Coffee Day Global Limited, is India's favourite hangout for coffee and conversations. Cafe Coffee Day popularly known as CCD, opened its first cafe in 1996 at Brigade Road, Bangalore. V.G Siddhartha from Chikkamangaluru District of Karnataka was the man behind changing the beverage culture of India with a variety of drinks and side dishes. Cafe Day Global which is the parent of CCD chain was incorporated in 1993. V.G Siddhartha opened first CCD outlet with an initial investment of 1.2 crore.

CCD founder V.G. Siddhartha who feared of achieving a target of 500 tons end up selling 6500-7000 tons of branded coffee, exports about 28000 tons of coffee, sells another 2000 tons locally each year and has a carrying capacity of 75000 tons which is largest in the country and additionally cafe attract at least 40000-50000 visitors per week. CCD is a 750 crores ISO 9002 certified company has over 6000 acres of coffee estate which is one of the largest in Asia. Largest number of Coffee Day Cafes is located in Bangalore. It has even tied up with world space and micro sense to enable its cafes with satellite radio and Wi-Fi respectively. Its first Wi-Fi cafe was opened in Lavelle road Bangalore.

Vision:

'To be the best cafe chain in the country by offering world class coffee experience at affordable prices.'

Mission:

- To be ranked number one among the service sector
- To provide the best quality service to customers at affordable price
- To create own niche merchandising like Indian coffee powder, cookies, coffee mugs and curry paste.

Bean Good: Coffee Day Growth

Year	No. of cafes	No. of cities	No. of vending machines
2013-14	1568	211	25561
2014-15	1518	215	29760
2015-16	1607	231	35441
2016-17	1682	241	41845
2017-18	1722	245	47747
2018-19	1750	250	48000~

Source: Coffee Day Annual report



Birth of Cafe Coffee Day

V.G. Siddhartha is born to a family which has a history of growing coffee since 1870 and owned several acres of property. Siddhartha started his career as a trainee in Indian stock market at FM Financials, Mumbai in 1983. With the two years of experience in stock market, Siddhartha left Mumbai to build something of his own by 1985. While working on FM Financials, Siddhartha bought Sivan Securities in 1984 and turned it into a successful investment banking and stock broking company with the seed investment given by his father, he invested 5 lakhs in a property at Bangalore. He started Sivan Securities with the amount left.

Between 1985 and 1992, he made a lot of money through inter market arbitration. With the 10% arbitration margin per day, he made about rupees 1 lakhs to 2 lakhs per day and in the process, he was steadily buying land near his father's plantation. By 1991, he would have over 5000 acres of coffee plantation, which meant 20 sq. km of land.

Back then, coffee growers would make 35 cents per pound of coffee, while the international price was \$1.20. Despite owning large tracks of coffee plantations, Siddhartha wasn't quite making a lot of money from his coffee business. Much of that was because India's coffee sector was still under the control of the coffee board. There was no open market system and coffee planters were supposed to pool the coffee to the coffee board.

The year 1991 was crucial for India as the government decided to embrace a new economic policy of liberalisation. Siddhartha, along with a few others, went to meet Manmohan Singh, India's then

finance minister, credited for opening up the Indian Economy.

By 1992, with the government then opening up the sector, Siddhartha was among the handful to tap into the opportunity. That year, Siddhartha started his coffee business, Amalgamated Bean Company Trading Ltd. (now called Coffee Day Global) an integrated coffee business that ranges from procuring, processing and roasting coffee beans to retailing of coffee products.

In March - April 1993, he sold 4000 tons of coffee to international buyers at 80 cents per pound, with a frost affecting business in Brazil, Siddhartha was able to sell coffee at \$ 2.5 per pound. Soon, he started retailing coffee through a chain of stores under the brand Fresh & Ground.

Between 1992 and 1995, it became India's biggest trader in commodity because there is a frost, and the prices went up by three times.

But the big idea to set up retail outlet came from a chance to meet with one of his buyers in Europe, the owner of Germany's best Coffee Chain, Tchibo. To his dismay, Siddhartha would learn that the family had only ventured into the coffee business as late as 1948, when they opened a ten by ten stores in Hamburg. Siddhartha was inspired by Tchibo and the rest is history.

The first Cafe Coffee Day retail store was launched in 1995 and in 1996, first outlet was opened in 1996 July 11 at Brigade road Bangalore, Karnataka. CCD's first outlet attracted many people with the offer - a coffee and an hour internet surfing with rupees 100. The initial investment to start the first outlet was rupees 1.2 crores.



After acquiring Sivan Securities; Coffee Day invested in Mindtree Hospitality Firm in 2000. And Sivan Securities was renamed as Way 2 Wealth Securities. Way 2 Wealth Ltd. is a venture capital division came to be known as Global Technology Ventures and setup Global village Tech Park as Incubator Park in Bangalore, providing office space, communication links, recreational facilities and a commercial centre.

The Hospitality venture through Coffee Day Hotels & Resorts Private Limited launched a subsidiary under brand name "The Serai" in Chikkamangaluru. By 2010, private equity firm Kohlberg Karvis Roberts & Co, standard chartered and NS invested in Coffee Day enterprises. In the year 2011 Coffee Day picked another 7.62% in Mindtree and Coffee Day Global acquired Sical Logistics through Tanglin. His business ranged from coffee business and plantation to real estate and financial investment.

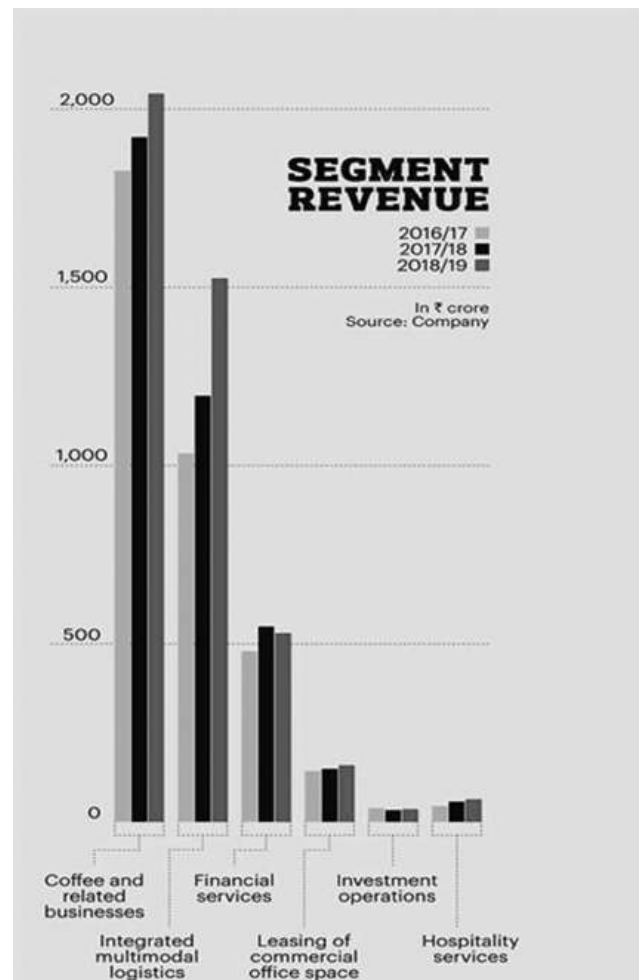
In the year 2015, Cafe Coffee Day goes public with listing at \$ 1 billion valuation and tax department attached Mindtree shares owned by V.G. Siddhartha and Coffee Day enterprises. Through IPO, CCD raised \$175 million.

CCD group exports India's biggest green coffee with a turnover of 2500 crore. CCD now has 1750 outlets in more than 200 cities including Prague, Vienna, Kualalumpur, Czech Republic, Nepal, Egypt, Malaysia etc. The company reported a revenue of Rs.1777 crores in FY 2018 and Rs.1814 crore in FY19.

Today CCD sells 6500-7000 tons of coffee, sells another 2000 tons locally each year exports about 28000 tons of coffee and has a carrying capacity of 7500 tons, which

is largest in the country. Additionally CCD attracts about 40000-50000 visitors per week.

A money control report puts the annual turnover of the Coffee Day enterprises at Rs. 4264 crores. V.G. Siddhartha owns 12000 acres of coffee plantations in 2015 Forbes list pegged his net worth at \$1.2 billion.



Source: www.economicstimes.com

Initial challenges faced by CCD

- Major challenge faced by CCD chain was to make a revolutionary change in Indian culture; where people refer to use tea rather than coffee.
- Next was the tough competition from



International chain such as Costa Coffee, Starbucks and also from various domestic players and concept cafes.



Source: www.economictimes.com

Strategies followed by CCD to overcome challenges

To stand up against competition CCD has build 3As strategy.

- Affordability
- Accessibility
- Acceptability

Combination of Aspiration and Affordability worked better for Indian

Cafe Coffee chain. It gives coffee an attractive makeover and remained as favourable hangout choice for school and college students. It wasn't restricted to metro cities; it took coffee to cities and towns across the country and offered same experience everywhere. It brings people together to relax and unwind and to make people speak more about CCD by saying "Lets Catch Up".

Starting of crisis

The things started to go in a wrong way when they started to follow Debt Centric Method. That means borrowing money from market. About Rs.1.5crore is needed to start that much outlet faster. So commonly debts will occur; because raising such money by importing coffees is not possible; so they started borrowing and also by other means.

2015: In 2015, their debts were accumulated as 6300crores; so they launched an IPO and 1150crore were raised from an IPO.

2015-2016: The Company's net debt was Rs.6600 crores including short term borrowing. The company's cash flow was a negative Rs.533 crore at the end of 2015-2016. The promoter group had already pledged more than half of their holding to raise money largely for construction business (Tanglin) and hospitality business.

2016-2017: The net adjusted debt stood at Rs.3323 crores. By the end of June 2017, close to 50% of promoter, group shares and 39% of Siddhartha's share were also pledged. This was because the income tax department conducted a raid at CCD and find out 362 crores of unaccounted income. A person was caught in Singapore with Rs. 1.2 crores of cash and declares that



the money belongs to V.G. Siddhartha; this was the reason for income tax department to conduct raid in different offices for 20 times.

After outrage on social media under tax terrorism, the income tax department reported that search on a prominent politician's case had led to credible evidence of concealed transaction by CCD and after search operations on Siddhartha's company and other properties he had admitted to not revealing unaccounted money of around Rs. 480 crores.

His first high headache was a loan of Rs. 300crore that took several years ago from HDFC Ltd. That loan was coming up for repayment early this year, Siddhartha however managed to convince Axis bank and Standard Chartered Bank to put in close to Rs. 1000 crore in his business.

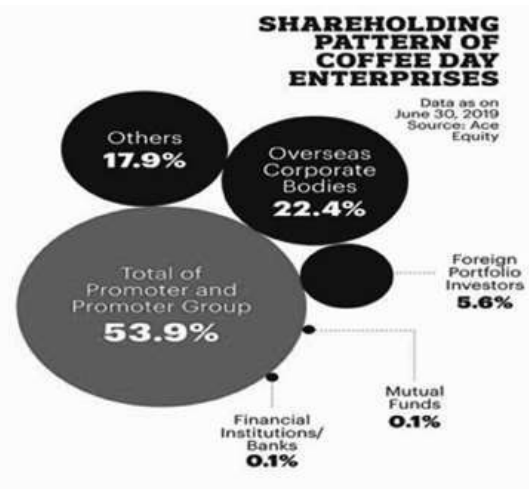
2018: Together with all these, main auditor of CCD reported that 40 subsidiaries was not conducted any audits for the last period. This reached the Board of Directors and all the lenders came to know about this and they said that they will not give money because they lost trust on CCD and the shareholders said that they need buy back i.e., by taking the shares back the company should give money back. But the company was not in a situation to repay the money; so much pressure was created by the shareholders; and in 2018; in an unverified note, Siddhartha has blamed one of the private equity investors for pushing him to return capital apart from his taxation woes.

Standard Chartered sold its private equity asset in December 2018 to ICG strategic equity, the private equity arm of the US based Intermediate Capital group.

2019: In 2019, the debt was at 6600crores. They earn Rs. 4264crore revenue at 2019, but the profit was only 143crores out of that and this was not enough to cover the debt of Rs.6600crores.

V.G. Siddhartha in his personal capacity owns 32.75% stake in CDEL, the listed company of which 0.3% of his personal share are pledged. In total the promoter group and family own 53.93% shares. In 29 July 2019, Siddhartha went missing and his body was found in Netravathi river backwater two days later. A letter assumed to be written by Siddhartha addressing board of directors and staff was made public in which he takes responsibility for not creating a profitable business mode.

In September 2019, the company appointed auditing firm Ernst and Young to scrutinize their books of account. They also suggested that the auditors will also go into circumstances of last letter written by founder and the points he made in it.



Source: www.google.com

Analysis of the crisis Trapped in the corner:

The curious case of V.G Siddhartha's alleged suicide and purported note has



caused consternation across corporate India. Coffee Day Enterprises, the holding firm of CoffeeDay, had a total debt of around Rs. 6550 crore as on March 2019. The group's coffee business, which includes some exports reported revenues of Rs. 1777 crore in FY18 and Rs.1814crore in FY19.

Besieged from all sides Siddhartha's core business of coffee was badly hit. A 13 year low coffee price in the international market dragged Indian prices also to multi-year lows despite lower domestic production. Indian Coffee exports too are expected to be down 10 per cent this year.



The Mindtree Connect



Sources close to developments have revealed that debt level of the entity had drastically reduced after Siddhartha's controversial stake in most of his business to pare his debt.

Earlier in March 2019, he had sold his entire 20.32 per cent stake in the

Bengaluru headquartered IT services firm to engineering major, L & T for around Rs. 3200 crore, which had been utilized to pare some debt from Coffee Day Enterprises balance sheet.

Grasping at Straws

The amount of debt was impairing his business as working capital requirements could not be met. While the Mindtree stake sale gave him some room to manoeuvre, the going had got really tough. In his desperation, he was also reportedly in a dialogue with global beverage maker Coca-Cola for an equity sale in flagship Cafe Coffee Day (CCD) at an enterprise valuation of around Rs.10000 crore may have been on the anvil.

It was also reported that Blackstone was in talk to buy a majority stake in Siddhartha's real estate venture Tanglin Developments for around Rs. 2800 crore.

Nowadays everyone look forward to expand their business. CCD also opened several outlets across the country. The very first problem started here. Out of the unorganised outlets CCD opened in the same locality; some shop will have business and rush and the other remain empty. Even though some of the outlets remain vacant these outlet also have running expenses and they don't have enough profit to cover up this.

Customers used CCD for availing free Wi-Fi and other costless services. They only order low cost item and spent 4-5 hours in the outlets. Thus the outlet seem rush but they may not earn enough profit.

CCD opted COCO model, ie, company owned company operates rather than franchisee model. If they were opted



franchise model they will never face such an expense because they will get rent and fee and the other operating expenses in franchisee model.

Debt increased in CCD outlets and the loss tempted them to take loan, but they became unable to repay these loans; debt increased more and they invested earnings from business in real estate.

Even though they have assets above 12 crores they invested in real estate, this was a suicidal attempt. According to economic times, they have 6500 crores debt and 3500 crores by CDEL promoter and 1000 crores by the owner. This created low liquidity and piled up debt.

Another reason for the failure of CCD was their gross margin. They expanded geographically all over the world but their gross margin remains same. There was no one to check the unnecessary expansion.

Under Income Tax Scanner

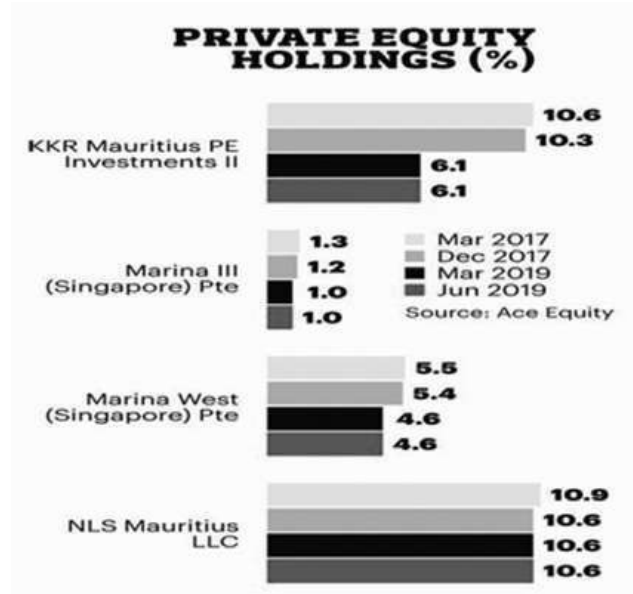
In September 2017, the Income Tax Department first raided premises of India's largest coffee chain Cafe Coffee Day and they found Rs. 650 crore concealed income from the documents seized while concluding the search and seize operations.

Foul Play

In his purported letter that Cafe Coffee Day boss V.G Siddhartha wrote, he expressed unhappiness over not creating "the right profitable business" and alleged "harassment" by a senior income tax officer.

Siddhartha is the elder son-in-law of former Karnataka Chief Minister S.M Krishna. Siddhartha is credited with creating India's largest coffee empire. But he

was under huge pressure from his private equity partners. Even though Siddhartha mention in his letter as *one of the private equity partners*, we don't know who was forcing for repayment. KKR Mauritius PE investments, Marina III PE investments, Marina West PE, NLS Mauritius LLC are some of the private equity firms of CCD.



Source: www.economicstimes.com

The Last Letter

The letter says, *I have failed to create the right profitable business model despite my best efforts. I would like to say I gave it my all. I am very sorry to let down all the people that put their trust in me. I fought for a long time but today I gave up as I could not take any more pressure...*

He could not take any more pressure from one of the private equity partners, forcing him to buy back shares, a transaction he had partially completed six months ago by borrowing a large sum of money from his friend. Tremendous pressure from other lenders lend to him succumbing to the situation and was a lot of harassment from the Income Tax Department in the form of attaching

our shares on two separate occasions to block their Mindtree deal and then taking position of their Coffee Day shares...

V.G. Siddhartha

To our Board of Directors and Coffee day family,

After 37 years, with strong commitment to hard work, having directly created 30,000 jobs in our companies and their subsidiaries, as well as another 20,000 jobs in technology company where I have been a large shareholder since its founding, I have failed to create the right profitable business model despite my best efforts.

I would like to say I gave it my all. I am very sorry to let down all the people that put their trust in me. I fought for a long time but today I gave up as I could not take any more pressure from one of the private equity partners forcing me to buy back shares, a transaction I had partially completed six months ago by borrowing a large sum of money from a friend. Tremendous pressure from other lenders lead to me succumbing to the situation. There was a lot of harassment from the previous DG income tax in the form of attaching our shares on two separate occasions to block our Mindtree deal and then taking position of our Coffee Day shares, although the revised returns have been filed by us. This was very unfair and has led to a serious liquidity crunch.

I sincerely request each of you to be strong and to continue running these businesses with a new management. I am solely responsible for all mistakes. Every financial transaction is my responsibility. My team, auditors and senior management are totally unaware of all my transactions. The law should hold me and only me accountable, as I have withheld this information from everybody including my family.

My intention was never to cheat or mislead anybody, I have failed as an entrepreneur. This is my sincere submission, I hope someday you will understand, forgive and pardon me.

I have enclosed a list of our assets and tentative value of each asset. As seen below our assets outweigh our liabilities and can help repay everybody.

Regards,
V.G. Siddhartha

Observations & reflections

An analysis of CCD's available financials from stock exchange notes, Siddhartha's own suicide note and corporate presentations, assuming these are all true figures, nothing that would the business down; nothing in the available figures suggest that a collapse was imminent or the business had failed permanently. The company has assets well over its liabilities to cover its obligations and there was investor's interest in CCD to pick up a part of the stake in the fast growing coffee chain. Siddhartha had already pledged most of his shares. The company's borrowings were heavily used for expansion plans. Besides coffee business, CCD had ventured into real estate, hospitality among others. What possibly worried Siddhartha was rising debts and interest burden, which wasn't unique to CCD. At a time when general economy was slowing steadily, demand has decreased drastically across the segments

and credit lines are drying upon account of a continuing liquidity crunch. Most of the companies in the consumer business have been facing a similar situation, promoting many of them to cut costs, labour, and sell non-core assets. Most of the FMCG firms have been posting weak results.

What is puzzling here is that not all doors were closed before Siddhartha and CCD for the promoter to end life citing business failure. Selling his assets and part of his shareholdings would have given a new lease of life to CCD and Siddhartha, helping the company to pare its debts and focus on core business. Over the year, the overall debt jumped to 64% to around Rs.6547crore and the interest outgo increased. There were several financial institutions that lend money to CCD including IFCI being one of the major lenders.



Source: various reports

The role of some private equity players and their nominees on Coffee Day Enterprises and also some independent



directors has come under the scanner of market regulator SEBI. In the letter to the company's directors and employees, Siddhartha said that he had 'given up' in the face of pressure from one of the private equity partners to buy back shares. A senior resource from CCD reported to a newspaper that, *should the PE firms and lenders be not booked for abetment to Siddhartha's suicide? It took Siddhartha's life by demanding 25% returns where as it borrowed from State Bank of India at 8%. Is that company responsible for Siddhartha's suicide?*

Now use simple logic, how can a plain shareholder, large or small, put pressure on promoter to do buy back unless there is a deal?

As of March 2019, Coffee Day Enterprises, which is the holding firm for CCD, had a total debt of around Rs 6,547 crore. Not only this, his other companies like, Devadarshini Info was under 1171crore debt and Gonibedu Coffee estate was under 775 crore debt. Out of which 1028crore debt was personally guaranteed by him of the Coffee day enterprise. This likely reduced drastically after Siddhartha sold his stake in Mindtree for about Rs 3,200 crore. The total debt had now reached 10,000 crore, out of which Coffee day enterprise had 6547crore debt.

In order to get aid from these debts he started giving most of his shares to banks, so that with that money he could clear off some debt. But it's not thousands of debt we are talking about, it was a debt of crores, which is not that easy to clear off. Due to which, in the stock exchange, he sold his 20.41% stocks of an IT company, Mindtree. With this he earned 3200crore, which helped him to clear off some loan.

But again, this was not sufficient. He was continuously planning to work this out. He even thought to sell off the Coffee day enterprises stakes to Coca Cola.

The urgency to sell his stake in Mindtree was magnified in the aftermath of the IL&FS crisis, when troubled lenders refused to roll over debt as they would have normally done.

While Cafe Coffee Day has historically been seen as a beloved chain in India, its sheen had been wearing off over the last decade. Losses jumped from mere Rs 7.72crore in FY 2009, to over Rs 150 crore in FY 2016. On a consolidated basis, the company had reported profit after tax of Rs 6.64 in FY 2011, but this rocketed to a loss of Rs 155.75 crore by FY 2015.

In the last two years, things started looking upwards, with Coffee Day Enterprises reporting a profit of Rs 48.94 crore in FY 2018. The group's coffee business expected to close FY 2020 with sales of over Rs 2,000 crore. In fact, in the last few months, market buzz indicated that Siddhartha may have been looking to sell his equity in CCD to Coca Cola for up to Rs 8,000 crore.

In the audit by the firm EY, it is likely to conclude on their draft report that 20 - 25 billion rupees (\$270 - 300 million) is missing from its accounts. It also details hundreds of transactions between the founder's listed and personal businesses that were not conducted at arm's length.

Thus the question arises that on what rule is such a non transparent deal allowed in listed shares? What is the difference between such a deal and pledge of shares?

The CCD founder has also had various



run-ins with the Income Tax department. In 2017, his offices in Bengaluru were raided in the search for undisclosed income. His letter also refers to the January 2019 incident when the department had attached the shares that he and Coffee Day Enterprises owned in Mindtree Ltd., a move that sparked worries that would prevent them from selling their stake in the IT firm.

In its regulatory filing, Mindtree said that the attachment was for a “tax demand” that was likely to be raised on Coffee Day and Siddhartha.

It was unclear whether this attachment had anything to do with the Rs 650 crore in undisclosed income the IT department had claimed it unearthed in its 2017 raids. The attachment, according to Mindtree’s filing, also *prohibited for transfer or charge* of 22.2 lakhs equity shares of Coffee Day Enterprises Ltd., and 52.7 lakhs shares held by Siddhartha.

At the time, Coffee Day enterprises insisted that there was no tax liability on the part of Siddhartha as the company and its promoters had filed the revised returns – a claim that the CCD founder makes in his alleged letter to the Board as well.

In February 2019, the IT department appeared to relent and released the attachment on Siddhartha and Coffee Day’s Mindtree’s shares.

However, on the same day, to make up for this, it directly attached 46.01 lakhs shares of Coffee Day Enterprises held by the CCD founder.

Siddhartha has received an order under section 281B of the Income Tax Act, 1961, on February 13, 2019, provisionally

attaching 46,01,869 shares of Coffee Day Enterprises held with Way 2 wealth Brokers of V.G Siddhartha to safeguard the interest of the revenue in respect of likely future tax and penalty obligations in respect of open assessments,” the company said in a regulatory filing at that time.

While the exact contours of the IT department’s grievance with Siddhartha are unknown, the CCD founder has referred to it as “harassment” and that it led to liquidity concerns and his eventual “succumbing” to the situation.

With the Cafe Coffee Day in every nook and corner, certainly, many a cups of their coffee was a turnover in many lives. Waking up to the parting of the once most successful entrepreneur it gives chills to every youngsters who once followed his journey as a roadmap.

Mental health and wellness rapidly deteriorating in our country, not only to V.G Siddhartha but in our Kerala too. Recent case of Joy Arackal is also an example. Depression is being underrated in India, giving up life is seeming easy, it’s extremely saddening.

V.G Siddhartha was a godfather for many, but what if the society has done just a black day with such a disastrous end. The challenger to star bucks, internationally famous Cafe Coffee Chain and his rise and fall is a lesson to youngsters.

There were many reasons on the failure of CCD. Media reflect the same old story of excessive borrowing by company which is disproportionate to intrinsic valuation of company.

Siddhartha started with a small capital and ended up creating an empire of around



Rs. 20,000 crores. He did that, as he said, not by chasing money but by chasing his passionate dreams.

Now there are two ways one could do that. One way is to invest that money in a business, accumulate the profits over a time, reinvest that profit in other businesses and gradually diversify. This is a slow process and one may not live to realize one's entire dream in one's life time.

There's another, more rapid way of growing, to realize one's dreams in one's lifetime. That's to fuel growth by taking loans and other like means. Here again there are accepted standards to maintain, like debt-equity ratio. While passionately chasing one's dreams there'll be temptation to cross the acceptable limit and accumulate more loans than one can manage, especially so when one has powerful political connections to stall loan recovery by banks. But we are not eluding Siddhartha's to be the case. That time will tell. But that's the general trend for lot of businesses. Siddhartha fuelled feverish growth of his companies with loans and probably by some dubious means as well. Whether it was within acceptable limits, whether were there any misuse of political power time will tell. Siddhartha's greatness lies in turning the investment, whatever the source may be, into highly successful internationally reputed business generating employment to several thousands of local people.

But what about the loans and the dubious means, if any? After all banks have to survive. Well usually in such cases one ropes in a big company flush with cash to buy a big slice of stake or even to take over the company if necessary. That was

precisely what Siddhartha was trying; he was in talks with Coco Cola to invest in Cafe Day to tide over the loans.

Then why did he die?

Essentially an entrepreneur's job is risky one. It's like walking on a razor's edge. It's the system that can make a hero out of a successful entrepreneur by acknowledging his positives or a zero out of him by focusing on the negatives.

Looks like our hero Siddhartha was a late in the wrong political end, with wrong political connections, using dubious *hawala* means. There was also a private equity investor who was behaving like a money lender.

When we look at the large picture, what Siddhartha created against the negatives, one wishes the system was more tolerant, more compassionate, even grateful as to reward his achievements and at the same time punish, if justified, just so much as to correct him. It's all about maintaining a delicate balance.

But the sad thing is the system cruelly threw Siddhartha into river Nethravathi. A fate no entrepreneur deserves. This must stop at all cost if we are to nurture the spirit of entrepreneurship. Without entrepreneurs Indian economy is doomed.

■

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SPIRITUAL INTELLIGENCE AND MORAL VALUES AMONG ADOLESCENTS

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Abstract

Morality and Spiritual intelligence are one of the most important dimensions in every one's life, and the level of moral development would affect any person's life. The present study aims at finding out the spiritual intelligence and moral values among adolescents. The study was conducted on a sample of 502 adolescents, out of these, 199 boys and 303 girls. The researcher used questionnaire method for the collection of relevant demographic details from the respondents. For the collection of necessary data, the investigators used the Spiritual Intelligence Scale by King and DeCicco (2009) and Moral Value Scale (MVS; Guptha and Singh, 2010). The data were analyzed by using Mean, S.D., 't' test, ANOVA and correlation. The results indicated that there is a significant difference in age, gender and religion, type of family, adolescents have or have not siblings and time for personal prayer.

Keywords: Spiritual Intelligence, Moral Values, Adolescents

Introduction

Spiritual intelligence is a set of

intellectual capabilities based on non-material and transcendent aspects of reality, specifically those that contribute to the integration, awareness and adaptive application of the non-material and transcendent aspects of one's existence. The concept of spiritual intelligence was first raised in the academic literature in psychology by Stevens (1996) in her book, *Spirituality in Nursing: from Traditional to New age*, and then in 1999 by Emmoms. Spiritual intelligence was coined and introduced by Danah Zohar (2000). The word spiritual in the Zohar/Marshall concept comes from the Latin word *spiritus*, which means, "that which gives life or vitality to a system". Then Danah Zohar and Ian Marshall combined and did research on SI and defined it as the intelligence with which problems related to meaning and value are addressed and solved. It is an intelligence with which one will plan and place one's actions and one's life in a wider, richer, meaning-giving context. Spiritual intelligence is the intelligence with which one can access one's deepest meanings, purposes, and highest motivations. It is the intelligence with which fundamental questions are asked and with which answers are reframed. SI



becomes a form of “hyper thinking giving rise to” meaning-giving, contextualizing, and transformative intelligence.

According to Wolman (2001), Spiritual Intelligence is the human capacity to ask ultimate questions about the meaning of life and to experience simultaneously the seamless connection between each of us and the world in which we live. The spiritual intelligence is an awareness of world or globe and place of the person where he is situated. According to Vaughan (1998), Spiritual Intelligence suggests wisdom and compassion; understanding and inner peace; love and freedom; depth and breadth of vision. According to Emmoms (1999), ‘Spiritual Intelligence is a framework for identifying and organizing the skills and abilities needed for adaptive use of spirituality’.

Spiritual Intelligence is the ultimate intelligence with which we address and solve problems of meaning and value, the intelligence with which we can place our actions and our lives in a wider, richer, meaning-giving context, the intelligence with which we can assess another. Thus spiritual intelligence has a significant impact on the excellence of student's life and it goes devoid of saying that teenage years are a sensitive stage which requires instruction to make a brighter outlook and be uncovered to the difficulties.

A moral value is a universally accepted ethical principle that governs the day to day living of life. Moral values are usually communal and shared by the public in general, thus if there is no agreement among community members no moral values will be established. Moral values are the worthy ideals or principles that

one follows to distinguish the right from the wrong. These ideals or virtues are considered worthy in building up the character of an individual. Moral values refers to the good virtues such as honesty, integrity, truthfulness, compassion, helpfulness, love, respectfulness, hard-work, etc.

The word moral is derived from the Latin word “Mos” that means custom, practice or rule, a way of accomplishing things. Morality is inferred from a person intrinsically motivated resistance to a temptation and from its guilt feelings that follow acts of transgression when he understands and also accepts prevailing standards of morality of the specific society (Kohlberg, 1976). Students are the future of India. The future of our country depends upon the moral values imparted to them during their children life. Moral lessons should be properly implemented among students in school and colleges.

Adolescents is the intermediate period between childhood and adulthood. This period is otherwise called as the age of teenagers. It includes three sub periods, such as: early adolescents (12 years -14 years), middle adolescents (14 years -17 years) and late adolescents (17 years -19 years). Adolescents is the developmental transition between childhood and adulthood entailing major physical, cognitive and psychological changes. During this period physical changes that occur are universal, but social and psychological changes largely depend on the cultural contexts. As this is the transitional phase of life adolescents rebel against their parents and society most often. Therefore, this period is labelled as storm and stress period.



Method

Descriptive research design was used in this study. Sample (N=502) selected from Meenachil Taluk in Kottayam district, Kerala.

Tools

1. Demographic data sheet prepared by the researcher.
2. Spiritual Intelligence Scale by King and DeCicco (2009)
3. Moral Value Scale (MVS) by Gupta and Singh (2010).

Reliability and Validity

The split half reliability co-efficient of the test is calculated to be 0.91 after correlation and the test-retest reliability is 0.89. Both co-efficient are at the level 0.01. Hence SISRI 24 is a reliable measurement for assessing spiritual intelligence.

The test retest reliability and the split-half reliability were estimated for each age group separately. MVS was validated against MJT (moral judgement test) developed by Sinha and Verma (1992). MJT measures moral judgement which involves the cognitive capacity and insight to see the relationship between the abstract principles and concrete cases and to judge the situations as right or wrong, keeping in view the knowledge of moral standards.

Objectives

1. To find out whether there are any significant difference in spiritual intelligence and moral values among adolescents on the basis of their age.
2. To find out whether there are any significant difference in spiritual intelligence and moral values among adolescents on the basis of their gender.

3. To find out whether there are any significant difference in spiritual intelligence and moral values among adolescents on the basis of their religion.
4. To find out whether there are any significant difference in spiritual intelligence and moral values among adolescents on the basis of their type of family.
5. To find out whether there are any significant difference in spiritual intelligence and moral values among adolescents on the basis of whether they have siblings.
6. To find out whether there are any significant difference in spiritual intelligence and moral values among adolescents on the basis of their time spend for personal prayers.
7. To find out whether there are any significant difference in age, spiritual intelligence and moral values.

Hypotheses

1. There will be a significant difference in spiritual intelligence and moral values among adolescents on the basis of their age.
2. There will be a significant difference in spiritual intelligence and moral values among adolescents on the basis of their gender.
3. There will be a significant difference in spiritual intelligence and moral values among adolescents on the basis of their religion.
4. There will be a significant difference in spiritual intelligence and moral values among adolescents on the basis of their type of family.



5. There will be a significant difference in spiritual intelligence and moral values among adolescents on the basis of whether they have siblings.
6. There will be a significant difference in spiritual intelligence and moral values among adolescents on the basis of their time spend for personal prayers.
7. There will be a significant difference in age, spiritual intelligence and moral values.

Results and Discussion

The following session explains the difference in the spiritual intelligence and moral values among adolescents.

Table No. 1

Mean, standard deviation and corresponding 't' values of spiritual intelligence and moral values among adolescents based on gender

Variables	Mean of Boys(N=199)	SD	Mean of Girls(N=303)	SD	't' values
CET	17.18	4.84	18.79	5.30	3.45**
PMP	13.33	3.83	14.99	3.61	4.92**
CSE	16.19	4.71	18.33	4.27	5.25**
TA	11.35	3.78	13.44	7.07	3.82**
Spiritual Intelligence	58.06	14.43	65.56	15.61	5.42**
Lying	5.50	1.29	5.53	1.28	0.26
Dishonesty	6.45	1.22	6.74	0.89	3.13**
Stealing	7.85	1.19	8.43	0.89	6.26**
Cheating	5.65	1.26	6.45	1.21	7.04**
Moral Value	25.47	3.37	27.17	2.63	6.32**

**significant at 0.01 level *significant at 0.05 level.

Above table revealed that spiritual intelligence and its all subscales significantly differed among boys and girls. Spiritual intelligence higher among girls than boys. Girls in the society lead a prescribed life according to the norms of the society than boys.

Mohanty (2018) found that girls are better than boys in the development of both spiritual intelligence and positive self-identity.

In the case of moral values except lying, keep statistically significant difference.

Moral values higher among girls. Cultural features and attitude towards girl children from a significant adults may be developed a higher level of moral value among children.

“There will be a significant difference in spiritual intelligence and moral values among adolescents on the basis of their gender.”

Hypothesis is accepted.

Table No. 2

Mean, standard deviation and



corresponding 't' values of spiritual intelligence and moral values among adolescents based on type of family.

Variables	Mean of Nuclear family(N=371)	SD	Mean of Joint family(N=131)	SD	't' values
CET	18.31	5.26	17.70	4.95	1.14
PMP	14.46	3.80	13.96	3.70	1.31
CSE	17.81	4.56	16.55	4.47	2.72**
TA	12.95	6.58	11.64	4.18	2.13*
Spiritual Intelligence	63.55	15.78	59.87	14.71	2.33*
Lying	5.56	1.29	5.41	1.25	1.10
Dishonesty	6.58	1.05	6.76	1.02	1.68
Stealing	8.22	1.07	8.14	1.03	0.77
Cheating	6.18	1.27	6.00	1.32	1.41
Moral Value	26.56	3.10	26.32	2.97	0.75

**significant at 0.01 level *significant at 0.05 level.

Above table revealed that subscales of spiritual intelligence conscious state expansion (CSE) and transcendental awareness (TA) and total spiritual intelligence showed significant difference. Other subscales did not varied significantly according to their type of family.

In the case of moral values, no significant difference was observed.

“There will be a significant difference

in spiritual intelligence and moral values among adolescents on the basis of their type of family.”

Hypothesis is partially accepted.

Table No. 3

Mean, standard deviation and corresponding 't' values of spiritual intelligence and moral values among adolescents basis on they have or have not siblings.

Variables	Mean of have siblings (N=462)	SD	Mean of haven't siblings (N=39)	SD	't' values
CET	18.27	5.21	16.84	4.71	1.64
PMP	14.44	3.73	13.07	4.22	2.17*
CSE	17.63	4.54	15.79	4.61	2.43*
TA	12.76	6.18	10.87	4.41	1.87
Spiritual Intelligence	63.12	15.53	56.58	15.19	2.52*
Lying	5.53	1.28	5.48	1.27	0.21
Dishonesty	6.64	1.06	6.43	0.78	1.21
Stealing	8.26	1.00	7.58	1.44	3.85**
Cheating	6.14	1.29	6.00	1.25	0.68
Moral Value	26.58	3.01	25.51	3.59	2.10*

**significant at 0.01 level *significant at 0.05 level.



Above table revealed that subscales of spiritual intelligence personal meaning production (PMP) and conscious state expansion (CSE) and total spiritual intelligence showed significant difference. Other subscales did not varied significantly according to whether they have siblings.

In the case of moral values, subscale of moral values stealing and total moral values showed significant difference. Other subscales did not varied significantly according to whether they have siblings.

“There will be a significant difference in spiritual intelligence and moral values among adolescents on the basis of they have or have not siblings.”

Hypothesis is accepted.

Table No. 4

Mean standard deviation and corresponding ‘t’ values of spiritual intelligence and moral values among adolescents based on time for personal prayer.

Variables	Mean of Yes(N=459)	SD	Mean of No(N=43)	SD	‘t’ values
CET	18.35	5.29	16.06	3.19	2.78**
PMP	14.50	3.81	12.55	2.88	3.24**
CSE	17.76	4.61	14.53	2.72	4.51**
TA	12.87	6.19	9.81	3.61	3.18**
Spiritual Intelligence	63.49	15.76	52.97	9.04	4.30**
Lying	5.54	1.30	5.37	1.00	0.82
Dishonesty	6.67	1.01	6.13	1.24	3.25**
Stealing	8.26	1.03	7.55	1.16	4.26**
Cheating	6.20	1.28	5.37	1.09	4.12**
Moral Value	26.69	3.00	24.44	2.97	4.70**

**significant at 0.01 level

*significant at 0.05 level.

Above table revealed that spiritual intelligence and its all subscales significantly differed on the basis of personal prayers. Spiritual intelligence higher among adolescents have their personal prayers than adolescents haven't their personal prayers.

In the case of moral values except lying, keep statistically significant difference. Moral values are more among in adolescents have time taken for personal prayers. Moral values and its subscales dishonesty and Stealing are higher among

in adolescents haven't time taken for personal prayers than adolescents have time taken for personal prayers.

“There will be a significant difference in spiritual intelligence and moral values among adolescents on the basis of personal prayers.”

Hypothesis is accepted.

Table No. 5

Correlation table of age group, spiritual intelligence and moral values.



Variables	Age group
CET	-0.233**
PMP	-0.110**
CSE	-0.134**
TA	-0.084
Spiritual intelligence	-0.176**
Lying	0.046
Dishonesty	-0.059
Stealing	0.041
Cheating	-0.110*
Moral value	-0.033

As per the table age is related with spiritual intelligence. The relation is negative and significant. Which means that as age increases spiritual intelligence and moral value subscale cheating decrease.

As age increases critical existential thinking (CET), personal meaning production (PMP), conscious state expansion (CSE) and total spiritual intelligence decreased. In the case of moral values subscale cheating also decrease, as increases.

Hypotheses is partially accepted.

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HAPPINESS AMONG WOMEN UNDERGONE TUBAL LIGATION SURGERY.

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Abstract

Artificial birth control methods are used to prevent conception or pregnancy through the use of various devices, drugs, agents, sexual practices, or surgical procedures. One among such surgical procedure for women is known as Tubal ligation, wherein fallopian tubes are cut, blocked or burned or a combination of all these to seal them and prevent future fertilization. The primary objective of the study was to evaluate the happiness of women undergone tubal ligation surgery in Idukki district. Snowball sampling method was used for the selection of the samples. The study was conducted on 100 women who have undergone tubal ligation surgery. Descriptive research design was used by the researcher. The results revealed that anxiety and depression of women undergone tubal ligation surgery is influenced by number of children and pregnancy complications. It is also revealed that the level of happiness is higher among women undergone tubal ligation surgery.

Keywords: *Anxiety, Depression, Stress, Happiness, Tubal ligation, Artificial birth control surgery.*

Introduction

Tubal Ligation is a type of surgical sterilization procedures for women. “Tubal” refers to your fallopian tubes, and “ligation” means to tie off (WebMD, 2019). It is a surgical procedure in which the fallopian tubes are permanently blocked or removed. Studies suggest that tubal sterilization is a remarkably safe surgical procedure. The most effective form for preventing pregnancy is sterilization and it is the permanent form of birth control (Spadoto et al., 2014).

The most accepted method of contraception in India is female sterilization or tubal ligation. Tubal sterilization is the most practiced method of contraception globally. It has been estimated that the procedure has been performed on 190 million women worldwide. Among other advantages, tubal sterilization is a balanced contraceptive method (Lutala et al., 2011). India officially launched its population policy and family planning policy in the year 1952 which was the first in its kind all over the world. During the programme, the government made available many contraceptive methods to the couples like condoms, IUD,



diaphragm, and sterilization. The method of sterilization gained popularity soon after the implementation. During its early years, the programme focussed on the health rationale of family planning. Family planning as a strategy for population stabilisation received attention only after 1971 population census (Chaurasia & Gulati, 2007).

The studies related with psychological and physical repercussions among women undergone tubal ligation surgery is less in number. However the studies conducted among women undergone tubal ligation states that they have experienced psychological problems in a number of ways after being sterilized (Lutala et al., 2011). Yet another studies revealed that women undergone tubal ligation experienced some of the common mental health disorders like depression anxiety and stress (Luo . et.al. in 1996).

Mental health is all about how people think, feel, and behave. It refers to cognitive, behavioral, and emotional well-being. According to World Health Organization(2004), "Mental health is a state of well-being in which an individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively, and is able to make a contribution to his or her community." According to this definition mental health has been often conceptualized as a purely positive affect, marked by feelings of happiness and sense of mastery over the environment. The contributing factors which disrupt mental well being includes factors in people's lives, interpersonal connections, and physical factors. The ability to enjoy life is an important characteristic of a mentally well person.

That means happiness and mental well being are interconnected. In order to achieve psychological resilience, one needs to make a balance between life activities, responsibilities, and efforts. When there is an imbalance, especially when a person experiences conditions such as stress, depression, and anxiety, mental health is at risk and disrupt a person's routine.

Depressive disorders are the most common mental health problem in any human community with ten percent of the population evicted by depression at any given time (WHO, 2008). According to the World Health Organization (2012), unipolar depressive disorders were ranked as the third leading cause of the global burden of disease in 2004 and was expected to move into the number one place by 2030. Depression is the also most frequently encountered mental health problem affecting woman's overall health. Prevalence rates are approximately twice among women than men with 30 percentage has been reported among women in South East Asia (Gururaj et al., 2020). The National Mental Health Survey also proved that Depression was higher in females, separated or widowed (Malhotra & Shah, 2015).

Little science exists to explain how or why mental health influences contraceptive behavior. Psychological research suggests that altered cognitive processes may contribute to heightened "perceptions" of physical symptoms among women with mental health conditions. Depressed or anxious women may also internalize negative or incorrect information about contraception and have exaggerated concerns about risks and side effects (Beck, 1987).



Happiness is as a state of well-being and contentment (Merriam-Webster, n.d. 2020). It is perhaps one of the most salient of human pursuits. Happiness has been the most important goal for humans throughout history (Tamir et al., 2017). Aristotle considered his eudaemonia, usually translated as 'happiness', to be the ultimate goal of humans, and superior to all other goals. Eudaemonic happiness was suggested to be related to psychosocial functioning and distinct, albeit correlated, with pleasure-driven hedonic happiness. Cross-cultural research conducted in 47 countries indicated that happiness is rated higher than all other personal values such as health, love or wealth (Medvedev et al., 2017). Majority of the women are satisfied and happy after the decision to undergo sterilization. But the scientific studies regarded with the relationship between happiness and tubal ligation is lacking. The present study is an attempt to understand the level of happiness among women undergone tubal ligation surgery.

Method

Descriptive research design was used in this study. Sample (N=100) selected from the Idukki district.

Tools

1. Demographic data sheet prepared by the researcher
2. Oxford happiness questionnaire developed by Michael Argyle and Peter Hills (2001)
3. Anxiety, depression, stress scale developed by Pallavi Batnagar (2011)

Reliability and Validity of Anxiety, Depression Stress

Reliability of the total scale in terms

of internal consistency as measured by Cronbach's Alpha and Spearman- Brown coefficient is 0.81 and 0.89. The obtained reliability for anxiety depression and stress subscales as measured by Cronbach's Alpha is 0.76 and 0.75 and 0.61 and when measured by Spearman- Brown coefficient is 0.86 and 0.76 respectively.

Reliability and Validity of Happiness

The Oxford happiness questionnaire has a high reliability value of 0.91. It has a high test retest reliability. As well as a strong correlation ($r = 0.90$) with other well known happiness measures like the depression happiness scale.

The construct validity established through association of the measure with a variety of individual differences in traits and cognitive variables that are associated with psychological wellbeing. Robbins and Francis and Edward (2010) found the construct validity in terms of positive association with extraversion ($r = 0.38$) and negative association with neuroticism ($r = 0.57$) Oxford happiness questionnaire accesses the same construct with validity as the Oxford happiness inventory.

Objectives

1. To find out whether there is any difference in anxiety, depression, stress and happiness of women undergone tubal ligation surgery on the basis of number of children.
2. To find out whether there is any difference in anxiety, depression, stress and happiness of women undergone tubal ligation surgery on the basis of problems confronted on pregnancy.

Hypotheses

1. There will be a significant difference



in the anxiety, depression, stress and happiness of women undergone tubal ligation surgery on the basis of number of children.

- There will be a significant difference in the anxiety, depression, stress and happiness of women undergone tubal ligation surgery on the basis of problems confronted on pregnancy.

Results and discussions

The following session explains the significant difference of anxiety, depression, stress and happiness of women undergone tubal ligation surgery.

Table 1

Mean, SD and corresponding 't' values of anxiety, depression, stress and happiness based on their Number of children.

Variables	Mean of having two children (N=75)	S.D	Mean of three children and above (N=25)	S.D	't' values
Anxiety	4.4667	3.39448	6.3200	3.00998	2.429*
Depression	2.0000	2.88050	3.4800	3.44141	2.117*
Stress	4.3333	3.01946	5.2800	3.03480	1.356
Happiness	3.9568	.50123	3.8193	.43836	1.223

*significant at 0.05 level

The above table shows that there is significant differences in Depression, Anxiety, based on their number of children. In depression the 't' value 2.117 is higher than the table value, then it is significant at 0.05 level. In anxiety the 't' value 2.429 is higher than the table value, then it is significant at 0.05 level. Stress and happiness did not vary significantly on the basis of number of children.

Hence, hypothesis, there will be a significant difference in anxiety, depression, stress and happiness of young mothers undergone tubal ligation surgery based on number of children is partially

accepted. Present study supported the findings of Luo et al., in 1996. They found that the risk for depression is higher among women who had undergone tubal ligation surgery and also they found that the risk of anxiety is also higher after tubal ligation surgery. It may be because of the regret and guilt feeling experienced by them after the surgery. Present findings contradicted the findings of Ertel et al., 2011.

Table 2

ANOVA of ADS and happiness of women undergone tubal ligation surgery with respect to problems confronted.

Variables		df	Mean squares	f
Anxiety	Between group	4	50.954	5.201**
	Within group	95	9.797	
	Total	99		
Depression	Between group	4	19.987	2.210
	Within group	95	9.046	
	Total	99		



Stress	Between group	4	22.756	2.632
	Within group	95	8.647	
	Total	99		
Happiness	Between group	4	.769	3.568*
	Within group	95	.216	
	Total	99		

* *significant at 0.01 level *significant at 0.05 level

The table reveals that the calculated 'F' value of anxiety is 5.201, which is greater than the table value and it is statistically significant at 0.01 significant level. The calculated 'F' value of happiness is 3.568, which is greater than the table value and it statistically significant at 0.05 level. The calculated 'F' value of stress is 2.632, which is lower than the table value and it is not statistically significant. The calculated 'F' value of depression is 2.210, which is lower than the table value and it is not statistically significant. In the case of happiness F value is greater than the table value and it is significant at 0.05 level which means that happiness varied among different groups of women.

The result of group mean analysis is given below.

Post hoc test of anxiety with respect to problems confronted during pregnancy

Confronted problems	N	Subset for alpha= 0.01	
		1	2
Abortion	6	3.5000	
None	72	4.2639	
Stillbirth	8	6.6250	6.6250
Miscarriage	8		7.5000
Pre-term birth	6		8.6667
Sig.		.055	.212

According to the results, women confronted with pre-term birth group and miscarriage group kept a difference with aborted women group. Still birth group women do not differed with any other groups. Anxiety is comparatively low among aborted women. The present findings supported the findings of Tavoli, et al., in 2018. They found that women confronted with miscarriage experience higher level of anxiety and depression as compared to women without history of miscarriage.

Post hoc test of happiness

Confronted problems	N	Subset for alpha = 0.05		
		1	2	3
Still birth	8	3.5388		
Miscarriage	8	3.5905	3.5905	
None	72	3.9598	3.9598	3.9598
Pre-term birth	6		4.0632	4.0632
Abortion	6			4.2874
Sig.		.082	.051	.177

The group mean analysis indicated that stillbirth and miscarriage kept a difference with abortion. The findings of present study indicates that the happiness is higher among aborted women group than the women confronted with stillbirth group and miscarriage group. The above findings



supported the study of Rocca et al., (2012) which revealed that women confronted abortion experienced more relief, comfort and happiness. It might be due to the satisfaction experienced by the women confronted with abortion and the absence of the pregnancy related problem in the future. The argument of the researchers is supported by the finding of Lutala et al., (2011). It revealed the fact that after tubal sterilization, participants experienced either physical or mental relief that gave them a sense of satisfaction. Women undergone abortion face short-term negative emotions after an abortion. At the same time, evidences of experiencing negative long-term impacts on mental health is not proven through scientific studies. So hereby researchers assume that as a long term impact happiness and relief prevails over guilt, regret and sadness.

Conclusion

The number of women undergoing tubal ligation has become larger in India and worldwide. Clinical and psychological repercussions of tubal ligation is to be studied thoroughly. But majority of studies over the topic proves that some of the common mental health problems like depression anxiety and stress affects the quality of life and happiness of women undergone tubal ligation.

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THE INFLUENCE OF EXERCISE ON WELLNESS AMONG EX-SERVICE MEN HAVING LIFESTYLE DISEASE

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Abstract

People from different parts of the nation join the armed forces; get involved in the activities of the force for a period of time. After the period of service, the person retires from the armed force and gets introduced into a different community. The present study is aimed to reveal the connection between exercise, wellness and lifestyle diseases. The convenient sampling was used for the selection of the samples. The study was conducted on 156 Ex-servicemen who have served in different sections of the armed force. Ex-servicemen who have Diabetics (N=49), Cardiac diseases (N=35) and BP/Cholesterol variations (N=47), all of the mentioned lifestyle diseases (N=15) and without any lifestyle diseases (N=10) are selected for the study. The researcher used questionnaire method and interview method for the collection of relevant demographic data from the respondents. There is a significant difference was observed with the wellness of persons doing exercise with others.

Keywords: Wellness, Exercise, Ex-servicemen, Lifestyle diseases

Introduction

A person who services in the armed force goes through different circumstances which demands both physical and mental hard work. The majority of the jobs in the armed force are physically demanding jobs and the service men follows a well disciplined way of life in which a person gets about four hours of exercise in a day, balanced diet and periodic medical checkups. But things begin to change when a person retires from the armed force after the completion of service period (basically of 15 years). They experienced various problems related with their retirement. Bellino (1969) listed seven anxiety-producing problems experienced by military retirees: employment, finances, changing social factors, residence, new household patterns, integration into civilian life, and changing interpersonal relations. Bellino (1970) noted that civilian life often resulted in the military retiree spending more time at home than ever before, which often caused adjustment problems for the family. Garber (1971) observed that unemployed retirees experienced a high incidence of family disruption, as well as a higher



divorce rate than the general population. They are entered into an entirely different society and their habit of doing exercise and concentration upon their duties based on their trade begins to change with the retirement. Hence the majority of the persons gradually loses their interest to follow those habits especially that of doing exercise, having a balanced diet etc. By this way, the retirement brings drastic changes in their life. As time passes, due to the changes in their lifestyle (decrease in the duration of exercise and difference in the quality and quantity of food and the periodic medical checkups), majority of them affected with lifestyle diseases.

Presence of any lifestyle diseases may bring changes in the wellness of the person. This brings changes in the thought, emotions, control, work and the positive humor of the person. It also brings changes in the wellness factors including: creativity, physical, social, essential and coping of the person. This definitely puts an influence upon the person's way of viewing the world around him/her changes. The stress and strain in the daily life may results maladaptive adjustments among them. Various research studies evidenced that diet and lifestyle are the major factors influenced susceptibility to many diseases. Some of the effects of lifestyle diseases upon a person include; tiredness, low appetite, unable to tolerate life stress, adoption of health risk behaviors, inability to find a task enjoyable, sudden anger, reduced curiosity, decreased confidence levels, increased nervousness, inability to take quick decisions and so on.

The lifestyle diseases can be considered as diseases linked with the way people live their life, which is commonly caused by

lack of physical activity, unhealthy eating as well as alcohol, drugs and smoking abuse.

Lifestyle disease can be defined as a disease associated with the way a person or group of people lives. Lifestyle diseases include atherosclerosis disease, stroke, obesity, type 2 diabetes; and diseases associated with smoking and alcohol and drug abuse. Diseases that mostly have an effect on our lifestyle are heart disease, stroke, blood pressure, obesity and diabetes. The diseases that appear to increased among ex-service men too. The sudden changes in the lifestyle of ex-servicemen like quitting exercise and avoiding timely food may also contribute to this. Presence of any lifestyle diseases brings changes in the normal functioning of a person. The burden of disease reduces the wellness among veterans. The presence of any of the disease or disorder affects not only the person himself, but those who are around him/her also (William and Schiel, 2016).

According to ICMR (2017) the range of disease burden or DALY rate among the states in 2016 was 9-fold for ischemic heart disease, 4-fold for chronic obstructive pulmonary disease, and 6-fold for stroke, and 4-fold for diabetes across India. Non-communicable diseases (which include lifestyle diseases) caused for 62 percentage of all deaths from major disease groups. Three of the five leading individual causes of disease burden in India were non-communicable, with ischemic heart disease and chronic obstructive pulmonary disease as the top two causes and stroke as the fifth leading cause.

Mental and physical fitness were important in the well functioning of a



person. Regular physical exercises enhance the total fitness. The studies of Jones (1998) and Vuori (1995) found enormous positive effects of daily exercise. The people who make exercise as essential part of their routine are more happy and efficient than others. Exercise does not mean to go to gym or some club for daily activity; it only means to do some physical activity no matter how and where. Exercise is useful in preventing or treating coronary heart disease, osteoporosis, weakness, diabetes, obesity, and depression. Strengthening exercises provide appropriate resistance to the muscles to increase endurance and strength. Cardiac rehabilitation exercises are developed and individualized to improve the cardiovascular system for prevention and rehabilitation of cardiac disorders and diseases. A well-balanced exercise program can improve general health, build endurance, and slow many of the effects of aging. The benefits of exercise not only improve physical health, but also enhance emotional well-being. Regular physical activity remains an essential behavior for endorsing health, postponing or preventing predominant musculoskeletal disorders such as mechanical low back pain, neck and shoulder pain and decreasing the risk of increasing coronary heart disease, hypertension, diabetes, osteoporosis, obesity and colon cancer.

Majority of the sample is doing any type of exercise such as muscle stretching, muscle strengthening and other forms of exercise (including yoga and cardiac exercises). Some of them have returned to their exercise patterns after the onset of the lifestyle disease.

Deviations from the regular pattern

of life of veterans created multifaceted change in the remaining life of the veterans. The concept of wellness, safety feeling and comforts may be crushed in between the drastic change and social demands of the surroundings. At this stage, regular lifestyle could not be followed and the fitness and wellness may go down. In this scenario, present study is relevant and entitled as 'The Influence of Exercise on Wellness of Ex-servicemen having Lifestyle Disease'.

Objective

To examine the influence of exercise on wellness of Ex-servicemen having lifestyle diseases.

Hypothesis

There will be a significant difference in the wellness of the Ex-servicemen having lifestyle diseases on the basis of the type of exercise.

Tools

1. Demographic data sheet prepared by the researcher
2. Five Factor Wellness Inventory developed by Myers, Sweeney and Hattie (2004)

Method

A number of 156 Ex-servicemen were selected by using convenient sampling method. Ex-servicemen having Diabetics (N= 49), BP/Cholesterol (N=47), Cardiac diseases (N=35), all of the mentioned lifestyle diseases (N=15) and without any lifestyle diseases (N=10) were included in the study.

Reliability and Validity

Hattie, Myers and Sweeney (2004) reported alpha coefficients for the five sec-



ond order factors as: Creative self- .93, Coping self- .92, Social self- .94, Essential self- .91, Physical self- .90 and .94 for total wellness. The sample in their study included 3043 persons who had completed the wellness evaluation of lifestyle, however, only the 73 items that comprise the 5F-Wel were examined in their reliability analysis.

The authors report that several studies provide evidence of construct validity of the Five Factor

Wellness Inventory (e.g., self-esteem, Spurgeon, 2002; relationship self-efficacy, Shurts, 2004; and spirituality, Gill, 2004; as cited in Myers & Sweeney, 2004). In-

ternal consistency was examined for the 5F-Wel using a sample of 2,093 persons, including 52% males and 48% females (Myers & Sweeney, 2004). The alpha coefficients are reported to be high for both the first- and second- order factors and ranged from .90 to .85 (Myers & Sweeney, 2005, p. 41). In the third-order scales, alpha coefficients ranged from .70 to .87, except for Self-Care (.66) and Realistic Beliefs (.68) (Myers & Sweeney, 2005).

Results and Discussion

The following session explains the influence of exercise upon the wellness of Ex-servicemen having lifestyle diseases.

Table 01

ANOVA with respect to type of exercise

Type of Exercise		Sum of Squares	df	Mean Square	F
Coping self	Between Groups	384.359	2	192.179	4.069*
	Within Groups	7225.661	153	47.227	
	Total	7610.019	155		
Physical self	Between Groups	176.683	2	88.342	3.270*
	Within Groups	4133.907	153	27.019	
	Total	4310.590	155		
Creative self	Between Groups	1146.195	2	573.097	6.472**
	Within Groups	13548.030	153	88.549	
	Total	14694.224	155		
Essential self	Between Groups	1.723	2	.862	.023
	Within Groups	5691.969	153	37.202	
	Total	5693.692	155		
Social self	Between Groups	17.951	2	8.975	.465
	Within Groups	2954.530	153	19.311	
	Total	2972.481	155		
Total wellness	Between Groups	5249.991	2	2624.995	4.07*
	Within Groups	98645.907	153	644.744	
	Total	103895.897	155		

* Significant level at 0.05 level



The above table shows that the ANOVA of the wellness of the ESM with lifestyle disease on the basis of the type of exercise done by the ESM. It shows that the wellness of the ESM with lifestyle disease is varied according to the type of exercise, whether they are following muscle stretching or muscle strengthening exercise. The calculated 'F' value of the wellness is 4.07, which is higher than the table value; hence it is statistically significant at the 0.05. The calculated 'F' value of the wellness factor coping self is 4.06 which is higher than the table value and it is statistically significant at 0.05 level. The calculated 'F' value of the wellness factor physical self is 3.27 which is higher than the table value and it is statistically significant at 0.05 level. The calculated 'F' value of the wellness factor creative self is 6.47, which is higher than the table value and it is statistically significant in the 0.01 level of significance.

Post Hoc Tests

Table 02
Coping Self

Type of Exercise	N	Subset for alpha = 0.05	
		1	2
Muscle stretching exercise	130	50.55	
Muscle strengthening exercise	16	53.43	53.43
Others	10		56.20
Sig.		.215	.235

According to the post hoc tests, the ESM with lifestyle disease have difference in the wellness subscale coping self based on the type of exercise which they are doing. The mean of wellness factor coping self of the ESM who are doing

muscle stretching exercise is 50.55 and that of ESM doing other forms of exercise is 56.20, which means that the ESM doing other forms of exercise kept a difference with muscle stretching exercise group.

Table 03
Physical Self

Type of Exercise	N	Subset for alpha = 0.05
		1
Muscle stretching exercise	130	25.98
Muscle strengthening exercise	16	28.31
Others	10	29.50
Sig.		.059

According to the post hoc tests, the ESM with lifestyle disease have no difference in the wellness factor 'physical' based on the type of exercise which they are doing. The mean of wellness factor 'physical' of the ESM who are doing muscle stretching exercise is 25.98 and that of ESM doing other forms of exercise is 29.50. In ANOVA the F value is statistically significant but in group mean analysis there is no group mean difference was observed.

Table 04
Creative self

Type of Exercise	N	Subset for alpha = 0.05	
		1	2
Muscle stretching exercise	130	54.49	
Muscle strengthening exercise	16	58.56	58.56
Others	10		64.80
Sig.		.201	.051



According to the post hoc tests, the ESM with lifestyle disease have difference in the wellness factor 'creative' based on the type of exercise which they are doing. The mean of wellness subscale creative self of the ESM who are doing muscle stretching exercise is 54.49 and that of ESM doing other forms of exercise is 64.80, which means that the ESM who doing other forms of exercise is more creative than the rest of the categories based on the type of exercise.

Table 05
Total Wellness

Type of Exercise	N	Subset for alpha = 0.05	
		1	2
Muscle stretching exercise	130	195.51	
Muscle strengthening exercise	16	206.68	206.68
Others	10		216.00
Sig.		.193	.278

According to the post hoc tests, the ESM with lifestyle disease have difference in the wellness based on the type of exercise which they are doing. The mean of wellness of the ESM who are doing muscle stretching exercise is 195.51 and that of ESM doing other forms of exercise is 216.00, which means that the ESM who doing other forms of exercise is having more wellness than the rest of the categories. As per the result, individuals doing other forms of exercise keeping more wellness than others.

Conclusion

The main aim of the study was to investigate about the influence of exercise

upon wellness of the Ex-service men having lifestyle diseases. The study found that the habit of daily exercise have a noticeable influence upon the wellness of the Ex-servicemen with lifestyle disease. Exercise plays an important role in the wellness. The transformation of the life of people retired from the armed force has led them to lead a life that is entirely different, a life in another community with another lifestyle. Majority of the people who have retired from the armed force have lifestyle disease of one or another type. The people who once served the nation are now trying to deal with their issues in the day to day life. The restrictions put by the lifestyle diseases upon the retired people have brought changes in their personality also. They are unable to enjoy what they enjoyed in the past and are unable to do what they wish to do.

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HAPPINESS AND SELF-CONCEPT OF SEXUALLY ABUSED ADOLESCENT GIRLS

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Abstract

The prime focus of this study is to illustrate the happiness and self-concept of sexually abused female adolescents. A number of 70 participants (N =70) were selected from various institutions of Idukki District by using convenient sampling method. The happiness questionnaire by Bharadwaj & R Das (2017) and The self-concept questionnaire by Saraswat (1984), were administered to collect data from the respondents. It was found that there is significant difference in self- concept and happiness based on age and educational qualification respectively and happiness increases with the belief of having someone to share their feelings. As the age increased the adolescents showed a significant difference in self-concept which indicates their acceptance towards dreadful life events.

Keywords: *Happiness, Self-concept and sexually abused*

Introduction

Child sexual abuse is an upcoming terror in our society. Sexual assault in childhood or adulthood impacts not only the victim, but also the victim's family and friends as well as society as a whole. In

this regard, sexual assault is a public health problem that concerns everyone. According to WHO: "Child abuse or maltreatment constitutes all forms of physical and/or emotional ill-treatment, sexual abuse, neglect or negligent treatment or commercial or other exploitation, resulting in actual or potential harm to the child's health, survival, development or dignity in the context of a relationship of responsibility, trust or power". The reports and ratio of sexual abuse cases can be obtained from official webs of state and central governments, news papers, journals etc.. whereas the psychological and physiological aftermath on those victims are seldom detailed. Childhood sexual abuse (CSA) can have many medical, social, and psychological sequelae, which are wide ranging and need to be addressed. Sexual assault has numerous potential consequences that can last a lifetime and span generations, with serious adverse effects on health, education, employment, crime, and the economic well-being of individuals, families, communities and societies. The consequences of sexual assault are complex and difficult to document. Victim studies reveal the difficulties experienced by people who have been sexually assaulted compared to their



non-assaulted counterparts. However, most of these studies do not allow these difficulties to be attributed to the sexual assault alone. As per the data revealed by National Crime Record Bureau 21,605 child rapes were recorded in 2018 which included 21,401 rapes of girls and 204 of boys. Overall crimes against children has increased steeply over six times in the decade over 2008-2018. As per the report of Childline, in Kerala during the period between April and September, 2019 a number of 690 cases of child sexual abuse were reported.

Happiness always reflects the state of mind. It is a state of well-being characterized by emotions ranging from contentment to intense joy. Happiness or a happy person has been defined as someone who experiences frequent positive emotions, such as joy, interest, and pride, and infrequent (though not absent) negative emotions, such as sadness, anxiety, and anger (Lyubomirsky et al., 2005). Exposure to adverse experiences in childhood can have substantive negative impacts on individuals' physical and mental development, affecting behavioral choices during adolescence and adulthood and ultimately long-term health outcomes. Negative childhood experiences, such as physical or sexual abuse, exposure to domestic violence, family breakdown and bullying in school or community settings, have been associated with poor educational attainment, low employment, substance use, involvement in violence and poor physical and mental health. The psychological and physiological mechanisms linking childhood adversity and poor adult health are increasingly being identified (Bellis, Hughes, Jones, Perkins, and McHale 2013).

Self-concept is a general term used to refer to how someone thinks about, evaluates or perceives themselves. To be aware of oneself is to have a concept of oneself. According to Baumeister "The individual's belief about himself or herself, including the person's attributes and who and what the self is". It seemed that there is a close connection between self concept and sexual abuse. Majority of the studies over the topic proved their significant relationships. Sexually abused children had lower self-concept, social support and perceived parental quality, and higher psychopathology than the control group did. Higher self-concept, social support and perceived parental quality were linked with lower levels of psychopathology (Ateret Gewirtz-Meydan 2020)

Objectives

- To study whether there is any significant difference in happiness and self-concept among sexually abused adolescent girls
- To study whether there is any significant difference in happiness and self-concept based on their age.
- To study whether there is any significant difference in happiness and self-concept based on their education
- To study whether there is any significant difference in happiness and self-concept based on their belief of having someone to share their feelings.

Hypotheses

- There will be a significant difference in happiness and self-concept among sexually abused adolescent girls are significantly different.
- There will be a significant difference



in happiness and self-concept based on their age.

- There will be a significant difference in happiness and self-concept based on their education.
- There will be a significant difference in happiness and self-concept based on the belief of having someone to share their feelings.

Method

Descriptive research design was used by the researchers to conduct the study. Participants (N=70) of the study were selected from Idukki District by using convenience sampling method. The researchers obtained permission from Child Welfare Committee of Idukki district to collect data from shelter homes. The researchers followed all the rules, regulations and guidelines of Child Welfare Commomittee regarding the confidentiality of sexually abused adolescent girls . The data was collected from the respondent individually by obtaining their verbal consent and administrated the questionnaire.

Instruments

- Demographic data sheet prepared by the researchers.

- The happiness scale - The happiness questionnaire was developed by Dr. Rajeev Lochan Bharadwaj and Dr. Poonam R Das, professors of department of psychology (2017). This scale has twenty-eight items relating to issues of happiness and hold the property to evoke response correctly. The scale of happiness can be administered in both individual or group testing situations. Scale has both positive and negative items.
- The self - Concept scale - The self-concept questionnaire was developed by Dr. Raj Kumar Saraswat, professor in psychology. The self -concept questionnaire provides six separate dimensions of self-concept such as physical, social, intellectual, moral, educational and temperamental self-concept. It also gives a total self-concept score. The inventory contains 48 items and each dimension contains eight items which is provided by five alternatives.

Results and Discussion

Table no:01

The mean, Standard Deviation and corresponding 't' values of happiness and self-concept based on the belief of having someone to share feelings.

Variables	Mean of having belief that there is someone to share feelings (N=50)	SD	Mean of not having the belief that there is someone to share feelings (N=20)	SD	't' values
Self-concept	113.14	19.34	108.45	16.53	0.953
Happiness	108.45	21.38	154.65	26.56	2.42*

*significant at 0.05 level.



The above table reveals that there is a significant difference in happiness of sexually abused female adolescents based on the belief of having someone to share feelings. The 't' value of happiness is 2.42 which is higher than the table value. But self-concept doesn't show any significant difference with the belief of having someone to share feelings. In happiness, the mean of having the belief to share feelings with someone was 108.45 and mean of not having someone to share feeling was 154.65.

The present findings supported the study of Schonbucher, Maier, Kuo, Schnyder, and Landolt (2014). they conducted a study on sexually abused and found that they had received more emotional support from their parents to better cope with the abuse. The worst part about struggling and being frustrated is feeling like we're

alone and no one understands. But this table demonstrates a positive vibe in happiness with children who could share their feelings because problem shared is a problem halved. So hereby the result justifies that these rehabilitation centers act as a social support system where they are cared for, has assistance available from other people (colleagues, Social workers, professional social workers etc.) , and most popularly, that each and every child of the institution is part of a supportive social network.

Hence, hypothesis "there will be a significant difference in happiness and self-concept based on the belief of having someone to share their feelings" is partially accepted.

Table no:02

ANOVA with respect to age groups.

Variables		Sum of squares	df	Mean square	F
Self- concept	Between groups	2312.12	2	1156.06	3.59*
	Within groups	21541.07	67	321.50	
	Total	23853.20	69		
Happiness	Between groups	1879.77	2	939.88	1.70
	Within groups	37036.80	67	552.78	
	Total	38916.58	69		

*significant at 0.05 level of significance.

From the above table the calculated 'F' value of self-concept 3.59 is in between the table value and is significant at 0.05 level. So, there is a significant difference in self-concept based on age group. The calculated 'F' value for happiness is 1.70 which is lower than the table value. So, there is no significant difference in happiness. So here the hypothesis "There will be a significant difference in happiness and self-concept based on age group is partially accepted.

The results of group mean analysis given below:

Table No:03

Post hoc test of self-concept

Age group	N	Subset for alpha = 0.05	
		1	2
Above 17	16	102.75	
15 to 17	27	111.11	111.11
Up-to 14	27		117.85
Sig.		0.127	0.217



As per the table self-concept is more among age group up to 14. They kept statistically significant difference with above 17 group. The table revealed that the higher group (above 17) obtained a low score in self-concept than other groups. As defined by Baumeister (1999) the self concept is The individual's belief about himself or herself, including the person's attributes and who and what the self is. When relating the result of this table with above definition it is believed that as the child is getting older and matured the 'very incident' (sexual

molestation) is haunting them for their entire life span. It is universally accepted fact that the number of unreported sexual abuse cases are always higher than the reported ones. And this result is leading to the very conclusion that majority of marital adjustment problems, personality disorders, depression, suicides have been rooted in sexual abuse or molestation. As discussed in the introduction part sexual abuse can cause a multidimensional defect in the child and this statement is exemplified through this table.

Table no:04

ANOVA with respect to education.

Variables		Sum of squares	df	Mean square	F
Self-concept	Between groups	1121.43	2	560.71	1.653
	Within groups	22731.76	67	339.28	
	Total	23853.20	69		
Happiness	Between groups	4662.02	2	2331.01	4.55*
	Within groups	34254.56	67	511.26	
	Total	38916.58	69		

*significant at 0.05

From the above table the calculated 'F' value for self-concept is 1.653 which is lower than the table value. So, there is no significant difference in self-concept based on their education. The calculated 'F' value for happiness is 4.55 which is higher than the table value and is significant at 0.05 level. So, there is a significant difference in happiness based on their education. The hypothesis "There will be a significant difference in happiness and self-concept based on educational qualification" is partially accepted.

But the table also reveals that happiness of sexually abused female adolescents vary based on their education.

The results of group mean analysis given below:

Table No: 05

Post Hoc test of happiness

Education	N	Subset for alpha=0.05	
		1	2
Above 12	2	125.50	
10 to 12	24		160.16
7 to 9	44		169.72
Sig		1.00	0.493

The table reveals that happiness is low among girls having +2 and above level of education. They keep statistically sig-



nificant difference with other two groups. lower educational groups did not vary each other and they have higher level of happiness. It is because as children become more conscious over the dreadful experience they came across and tend to develop several irrational feelings and attitude on their self and life. The aftermath of all these mental process prevent them from experiencing common joys and mirth of live events.

Table no:06

Correlation of happiness and self-concept.

Self-concept	Happiness
	0.468**

** significant at 0.01 level.

As per this table self-concept is related with happiness. The relation is positive and significant at 0.01 level which means that when self-concept increases happiness also increases and vice versa. It is because when there is a development in the self concept of children they become capable of understanding their strengths and limitation which obviously contribute a rich inner self. Thus children might be able to tackle their challenges in daily life and become happy over life .

At the same time being happy in life is to be self - realistic and self realization is achieved through the development of self concept. This is the way both factors are interconnected in children.

Conclusion

The foremost intention of the study was to examine the happiness and self-concept of sexually abused female adolescents. The study could reveal the very fact that the victims who had someone to share their feelings showed higher level of happiness. At the same time it is also found as the age increased the self concept also decreased. The victims as well demon-

strated lower happiness as their education amplified. The study is significant as well as beneficial to the professional social workers, clinical psychologists, psychiatrists, teachers, doctors and parents to understand the victim's inner reflections and thought process.

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WOMEN ENTREPRENEURSHIP AND ECONOMIC UPLIFTMENT: A CASE STUDY WITH SPECIAL REFERENCE TO PALAI MUNICIPALITY

Jovana Pramod

Abstract

Entrepreneur is an Economic agent who plays a vital role in the economic development of a country. Economic development of a country refers to steady growth in the income levels. Traditionally, an entrepreneur has been defined as a “person who organize and manages any enterprise, especially a businessmen”. While women are starting more business than men, they find it harder at the outset to grow their business and access venture capital than men entrepreneurs in our country. Most women business owners in Indian organization were either housewives or fresh graduates with no previous experience of running a business. Thus women business owners were in traditionally women oriented businesses like –garments, beauty care and fashion designing which either does not require any formalized training or are developed from a hobby or an interest into a business. The present study in concerned with intent to analysis the present situation of women entrepreneurship. In the present areas women are coming in front and taking up the enterprises. It increases the status of women as well as promote for the economic development of

country and household income. It empowers the women.

Key words: Empowerment, Women, Entrepreneurship, Business, Interest

OBJECTIVES

- To study how women entrepreneurship helps to generation of employment
- To study how women entrepreneurship improve their status
- To study how does it leads to income generation
- To provide solution to various problems faced by women entrepreneurship

STATEMENT OF THE PROBLEM

The problem selected for the study is about the socio-economic impact made by the women entrepreneurs in the society and the changes occurred to them when they started the business and whether it was effective or not and the problems faced by them.

METHODOLOGY

The methodology adopted to carry out the study contest are of the following:



● **DATA COLLECTION**

For the purpose of study, primary and secondary data are used. The primary data was collected directly from the enterprises led by women, centered in Palai municipality, using a structured interview schedule. The secondary data was collected from Newspaper, Internet, journal and other publications.. The data has been collected from Pala municipality and from 25 respondents.

● **TOOLS FOR ANALYSIS**

The data collected through interview schedule, were tabulated and analyzed using various statistical tools and mathematical techniques, pie diagrams, graphs, charts and tables. They are used for analyzing the data in a simplified and attractive manner.

REVIEW OF LITERATURE

J.S Saini and B.S Rathore [2001] in their book 'Women Entrepreneurship: theory and practice' deals with entrepreneurial philosophy, where the success of women entrepreneur has been discussed. According to the authors, success of a women entrepreneur depends on the entrepreneur's willingness to hold responsibility for her own work

S.S Khanka [2009] in his book 'Entrepreneurship Development' illustrates the personal characteristics of successful entrepreneurs as hard work, desire for high achievement, high optimism, independence, foresight, better organizing capacity and innovativeness. According to the author, success of a small enterprise is, to a great extent, attributed to the success of the entrepreneur himself.

Sujatha Mukherjee [2010] in her article,

profiling the urban women micro-project women entrepreneurs in India, in the journal of 'entrepreneurship Development' draws the picture of an entrepreneur as a person who assumes the risk associated with uncertainty. According to the author, being entrepreneurial involves combining personal characteristics and financial means and resources within an environment to set up a business.

Mary Kay Copeland [2010] in her article, 'strategies of a successful women entrepreneur' has deliberated on the characteristics of a successful women entrepreneur. According to author, the behavior and personality characteristics that leading resources have found in effective and successful women entrepreneurs are- self confidence, risk bearing capacity, discerning power, creativeness, resilience, tenacity and courage.

Women Entrepreneurship

A woman entrepreneur is a woman who initiates, organizes and runs a business enterprise of her own or with the support of a group of like minded people. Female population who chooses to venture into industrial activities are Women entrepreneurs. The government of India defines a Woman entrepreneur's enterprise as one which is owned and controlled by woman or women having a minimum financial interest of 51%. Just like a male entrepreneur, a Woman also explores activities, undertake risks, innovates, co-ordinate and controls, supervise and lead effectively.

There are certain innate qualities in a woman which makes her a successful entrepreneur. Her managerial skills, caring attitude and deft manners are characteristics that to be pointed out.

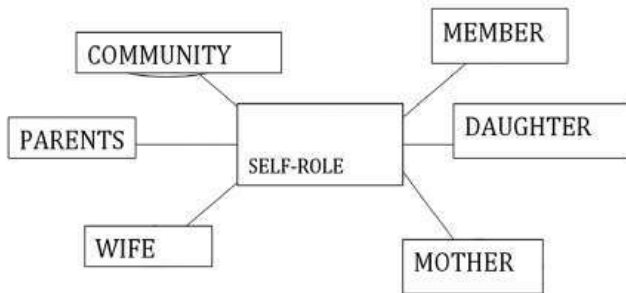


A woman becomes an entrepreneur either on account of pull factors which motivate her such as independence, self actualization, reputation etc.or an account of push factors which compelled her to take up entrepreneurship.Push factors include acute financial crisis, death of earning members etc.

ROLE OF WOMEN ENTREPRENEURS

Women and social-role interface

In the journal "A Reflection of the Indian woman in the entrepreneurial world" published by Indian institute of management (IIM), Ahmadabad defines the role of women entrepreneur in a diagrammatic way as given below.



Role of women as an entrepreneur can be explained as follows.

1. Imaginative
2. Attribute to work hard
3. Persistence
4. Ability and desire to take risk
5. Profit earning capacity

Data Analysis and Interpretation

The present study is an attempt to study the impact of Women entrepreneurship in Palai.It also sought to analyse the role of women entrepreneurs in promoting economic, social upliftment of women.

This chapter deals with analysis of data collected from Pala municipality. The main objective of this chapter is to examine the impact of women entrepreneurs in promoting women upliftment, through a sample study .All the relevant information received from the questionnaire are analysed through a special package of computer. The tabulated data was analysed and interpretations was made according to sequence of objectives. Several charts and tables were used to make interpretations easier.

PALA MUNICIPALITY

Pala is a municipal town 28 km east of kottayam in the Indian state of Kerala spread over an area of 15.93 km2. It is situated 173 km north from the state Capital Thiruvananthapuram, on the banks of the Meenachil River and is the head quarters of the Meenachil Taluk and the Pala Revenue Division. Pala connects to high ranges through Thodupuzha and KanjirapallyTaluks.

SHOPWISE CLASSIFICATION

The study was made among 25 different shops, which can be classified as;

Shopwise Classification

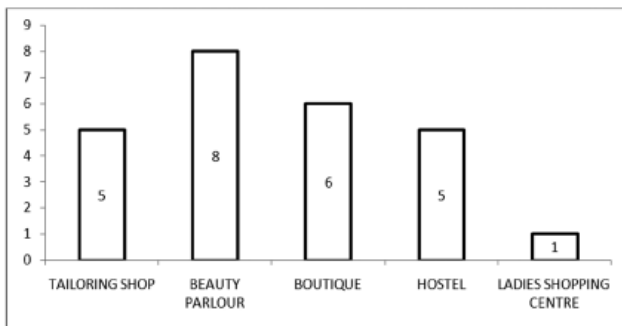
Sl. no	Type of Shop	No. of Repondents	Percentage
1.	Tailoring Shop	5	20%
2.	Beauty Parlour	8	32%
3.	Boutique	6	24%
4.	Hostel	5	20%
5.	Ladies Shopping Centre	1	4%
	Total	25	100%

Source; Primary Data



The below graph shows that 20% of the respondents were running tailoring shops and 32% of the respondents are running beauty parlours. While 24% of the respondents are running boutique and 20% of the respondents are running hostels and 4% are running ladies shopping centre.

SHOPWISE CLASSIFICATION



BRANCH WISE CLASSIFICATION

A study was also made to look whether they had further branches for their enterprises.

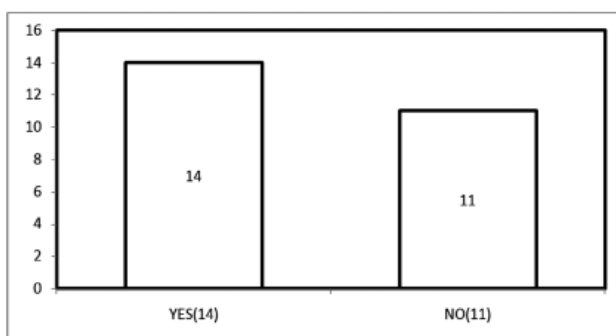
Branchwise Classification

Sl.No	Number	Percentage
Yes	14	56%
No	11	44%
Total	25	100%

Source; Primary Data

The graph below shows that about 56% of the respondents are having branches while 44% of them are not having the branches.

BRANCH WISE CLASSIFICATION



AGEWISE DISTRIBUTION

The respondents are classified in relation to their age groups. There are three class of respondents belonging to different age groups as depicted in table 3.4

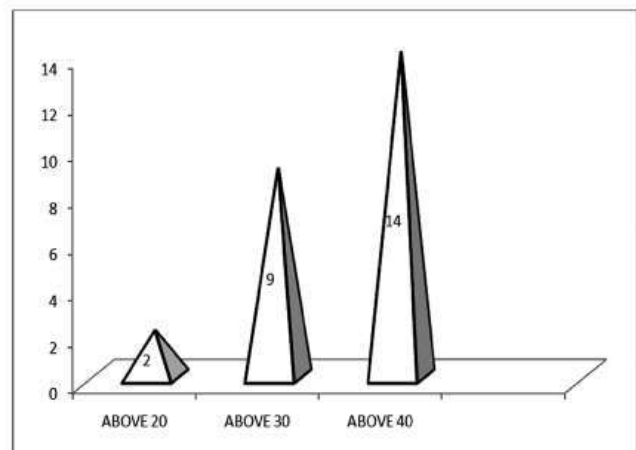
Age wise distribution

Age	No. of Respondents	Percentage
Above 20	2	8%
Above 30	9	36%
Above 40	14	56%
Total	25	100%

Source; Primary Data

The below graph shows that majority of the respondents are above 40 i.e. about 56% while 36% of the people are above 30. Only 8% people are above 20.

AGE WISE CLASSIFICATION



EDUCATIONAL QUALIFICATION WISE DISTRIBUTION

Educational qualification of the people is very much relevant in starting of enterprises. The following table illustrates the above fact.



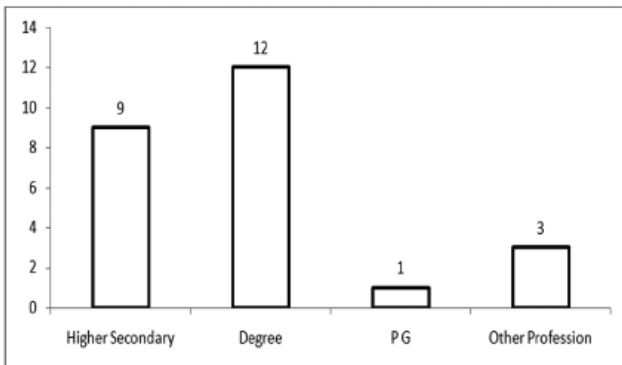
Educational Qualification Wise Distribution

Educational Qualification	No. of Respondents	Percentage
Higher Secondary	9	36%
Degree	12	48%
P.g	1	4%
Other Professions	3	12%
Total	25	100%

Source. Primary Data

The below graph shows that that 36% of the respondents have received their higher secondary education and about 48% of respondents have received their degree education.4% of the respondents has done their P.G and 12% of the people has done other professions including Nursing ,beautician courses and others

EDUCATIONAL LEVEL QUALIFICATION



MONTHLY INCOME WISE DISTRIBUTION

Income is an important factor which affects the standard of living of the people. As Income raises, the standard of living increase thereby making an increase in social and mental upliftment of women. The monthly income details of the respondents are furnished as below.

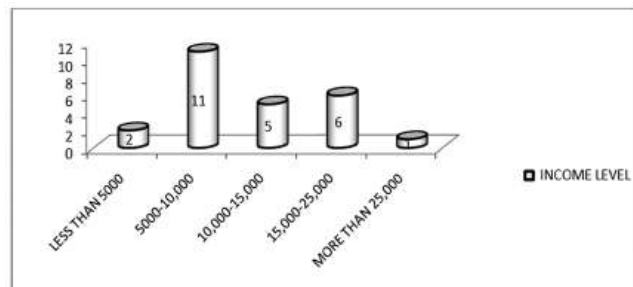
Monthly Income wise classification

Monthly Income	No. of Respondents	Percentage
Less Than 5000	2	8%
5000-10,000	11	44%
10,000-15,000	5	20%
15,000-25,000	6	24%
More Than 25,000	1	4%
Total	25	100%

Source; Primary Data

The below graph shows that 8% of the respondents are receiving less than Rs.5000 per month and about 44% of the respondents are receiving income between Rs 5000-10,000.20% of the respondents are receiving income between 10,000-15,000 and 24% of the respondents are receiving are receiving income between Rs.15, 000- 25,000 and 4% of the respondents are receiving more than Rs.25, 000.

MONTHLY INCOME WISE CLASSIFICATION



STANDARD OF LIVING, SOCIAL STATUS AND ROLE IN DECISION MAKING

As women take up new enterprises, their standard of living, social status and role in decision making improves. The following table shows their improvement in the social and political arena, after becoming an entrepreneur.



Standard of living, Social Status and Role in decision making

1. Standard of living

Standard of Living	Frequency	Percentage
Increase	25	100%
No Change	-	-
Total	25	100%

Source; Primary Data

2. Social Status

Social Status	Frequency	Percentage
Increase	25	100%
No Change	-	-
Total	25	100%

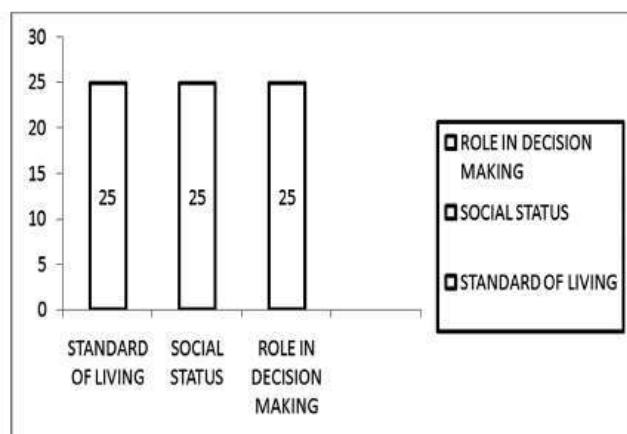
Source; Primary Data

3. Role in Decision Making

Role In Decision Making	Frequency	Percentage
Increase	25	100%
No Change	-	-
Total	25	100%

Source; Primary Data

STANDARD OF LIVING, SOCIAL STATUS, ROLE IN DECISION MAKING



Source.Primary Data

The above figure shows that the social status, role in decision making and standard of living of the women has improved due to their enterprises. Neither of the respondents commented that there hasn't been any improvement.

PROVISION OF EMPLOYMENT OPPORTUNITIES

The starting and efficient functioning of enterprises requires labourers and employers. A study was also made to analyse the provision of employment opportunities among women entrepreneurs.

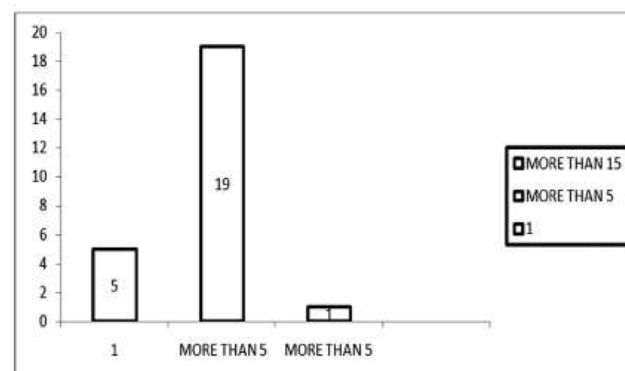
Provision of employment opportunities

Employment Opportunities	Frequency	Percentage
1	5	20%
More Than 5	19	76%
More Than 15	1	4%
Total	25	100%

Source; Primary Data

From the graph, we can analyse that about 20% of the respondents employ one person and about 76% employ more than 5 persons. Only 4% employ more than 15 persons.

PROVISION OF EMPLOYMENT OPPORTUNITIES



Source; Primary Data

WHETHER PROBLEMS FACED FROM SOCIETY

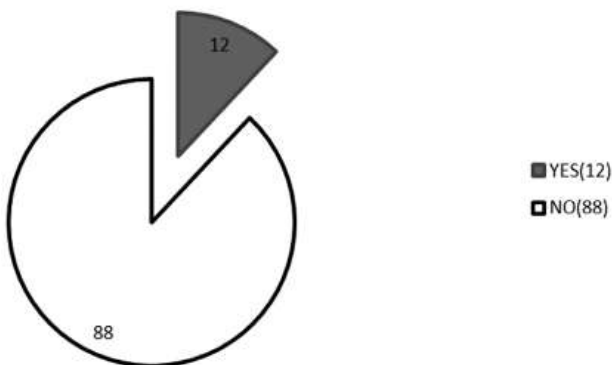
There are many factors that hinders women entrepreneurs to start their enterprises. The following table shows the above fact.

Whether problems faced

Whether Problems Faced	Fre-quency	Percent-age
Yes	3	12%
No	22	88%
Total	25	100%

Source; Primary Data

WHETHER PROBLEMS FACED



Source.Primary Data

The pie diagram shows that 88% of the respondents have not faced any problems from the society while 12% of the respondents faced problems from the society including financial crisis, lack of support and lack of much knowledge in enterprise maintaining and the lack of knowledge about the funds available etc.

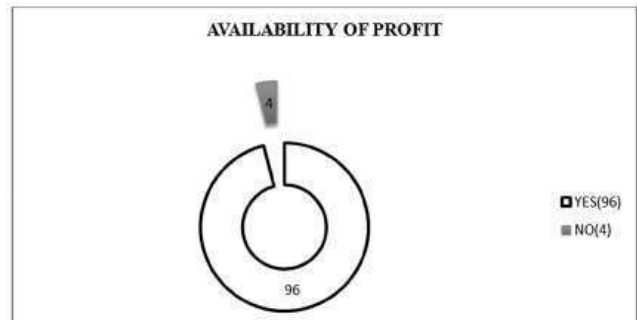
AVAILABILITY OF PROFIT

The main aim behind any enterprise is profit. If any enterprises don't receive the expected profit, it may close after some-time.

Availability of Profit

Availability of Profit	Fre-quency	Per-centage
Yes	24	96%
No	1	4%
Total	25	100%

Source; Primary Data



Source.Primary Data

The above doughnut figure shows that 96% of the respondents are receiving profit and 4% of the respondents are not receiving profit.

MEANS OF WAGES

A study was conducted to analyse how the entrepreneurs pay their wages to the employees.

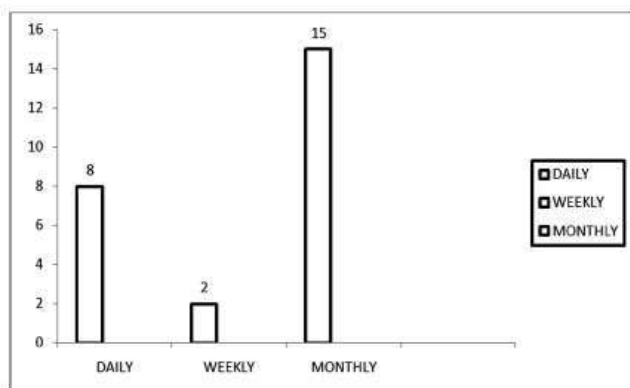
Means of wages

Means of Wages	Frequency	Percentage
Daily	8	32%
Weekly	2	8%
Monthly	15	60%
Total	25	100%

Source; Primary Data

We can analyse from the graph that 32% of the women entrepreneurs provide their employees with daily wages and 8% of the women entrepreneurs provide their employees with weekly wages while 60% of women entrepreneurs provide their wage in monthly basis.

MEANS OF WAGES



Source; Primary Data

KNOWLEDGE ABOUT LOAN FACILITIES

Knowledge about loan facilities provided by banks is an important factor in establishing and continuing an enterprise and in its development too.

Knowledge about loan facilities

Knowledge About Loan Facilities	Frequency	Percentage
Yes	12	48%
No	13	52%
Total	25	100%

Source; Primary Data

From the above table, we can understand that 48% of the respondents was aware about the loan facilities and 52% of the respondents are not aware about the loan facilities.



Source.Primary Data

AWARENESS ABOUT THE SCHEME-SAVAILABLE TO WOMEN ENTREPRENEURS

The government provides large number of schemes to promote women entrepreneurs.

Awareness about schemes to women entrepreneurs

Awareness About The Schemes	Frequency	Percentage
Yes	22	88%
No	3	12%
Total	25	100%

Source; Primary Data

AWARENESS ABOUT THE SCHEMES AVAILABLE TO WOMEN ENTREPRENEURS



Source. Primary Data

From the above pie diagram we can infer that 88% of the respondents were aware about the schemes provided by the government and 12% of the people were not aware about the schemes provided by the government.

TIME ALLOTTED FOR WORK

The women entrepreneurs have to adjust between her work and home to run her enterprise smoothly. With the study conducted, it was analysed that, all of them can manage both their work and home.

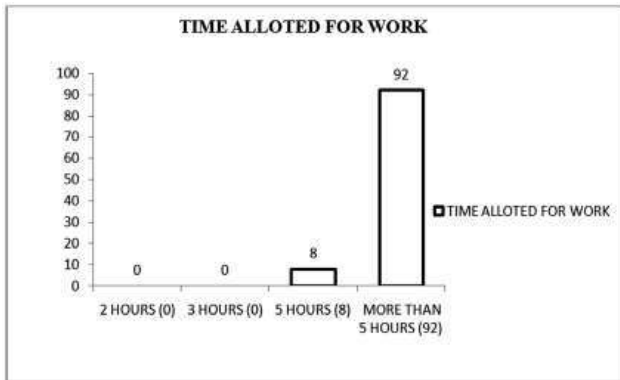


Time allotted for work

Hours Allotted	Frequency	Percentage
2 Hours	-	-
3 Hours	-	-
5 Hours	2	8%
More Than 5	23	92%
Total	25	100%

Source; Primary Data

From the above table we can analyse that 92% of the respondents spent more than 5 hours in their area of work and about 8% spend about 5 hours in their work area.



Source.Primary Data

FINDINGS AND SUGGESTIONS

The present study illustrates that most of the women ie. 32%of women were running beauty parlours among the25 respondents.In this study 56% of women are having branches so that we find that are getting profitable income.In this study we find that the majority of respondents are above the age of 40 among the 25 respondents.It is found that 48% of respondents are having degree level of education. So one of main tool of promotion of entrepreneurship is the level of education. we find that most of the women are receiving profitable income in their enterprise.This study shows that there is a huge improvement in the condition of women in the areas of standard of

living, social status and the role of decision making.Among the 25 respondents 76% women were providing employment opportunities to more than five.Among the 25 respondents 88% of women have not faced any problems from the society. The main goal of an enterprise is to obtain profit. The study found that 96% of women receiving profit from therebusiness.The majority of entrepreneurs pay the wages to the employees on monthly basis. This study inferred that 52% of respondents were not aware about the loans and concessions provided by financial institutions.The government introduced various schemes for promoting women entrepreneurship. In this study 88%of respondents were aware about the newly introduced schemes.Majority of women spend more than five hours for work daily.

Consider women as specific target group for all developmental programmes. Provide better educational facilities and also technical education to women. Vocational training should be provided Adequate training programme on management skills and leadership should be provided to women community. Skill development centres should be created to promote women entrepreneurs.Encourage women's participation in decision making.Special training should be given on achievement motivation.Making provision of marketing and sales assistance from government part by establishment of women cooperatives. Moreover proper supply of raw materials is to be ensured.Open finance cells and provide easy loans at lower interest rates. State finance corporations and financing institutions should extend purely trade related finance to women entrepreneurs. The financial institutions should provide more working capital assistance both for small



scale ventures and large scale ventures. Marketing provision of micro credit system and enterprise credit system should be given to women entrepreneurs at local level. Repeated gender sensitisation programmes should be held to train financiers to treat women with dignity.

1. Infrastructure in the form of industrial plots and sheds, to set up industries is to be provided by state run agencies. Industrial estates could also provide marketing out lets for the display and sale of products made by women.
2. A women entrepreneur's guidance cell should be setup to handle the various problems of women entrepreneurs all over the state. District industries centres and single window agencies should make use of assisting women in their trade and business guidance.
3. Involvement of nongovernmental organisation in the women entrepreneurial training programmes and counselling
4. All these remedial measures will fail unless there is a change in the social attitude. She should get support basically from her family.
5. To conduct seminars and workshops for the latest schemes that introduced by the government to support women entrepreneurship.
6. In general, women lack confidence in their strength and competence. In order to remove this family should encourage and support them.

CONCLUSION

Women constitute almost half of the total population in India. But they are not

enjoying their freedoms, equalities, privileges, on par with their male counterparts. The government of India has defined women entrepreneurs based on women participation in equity and employment of a business enterprise. Accordingly a women entrepreneur is defined as an enterprise owned and controlled by a women having minimum financial interest of 51% of the capital and giving at least 51% of the employment generated of the enterprise to a women. In this study we collected sufficient information from the Pala municipality and we conducted a sample survey among 25 women entrepreneurs. In this survey we could understand that a women enterprise or a women entrepreneur can provide employment opportunities to the society and she can change the prevailing social concepts about a women entrepreneur. It can be said that today we are in a better position where in women participation in the field of entrepreneurship is increasing at a considerable rate. Women sector occupies nearly 45% of the Indian population. At this juncture, effective steps are needed to provide entrepreneurial awareness, orientation and skill development programmes to women. The role of women entrepreneur in economic development is also being recognized and steps are being taken to promote entrepreneurship. Though there are several factors contributing to the emergences of women as entrepreneurs, the sustained and coordinated effort from all dimensions would pave the way for the women moving into entrepreneurial activity thus contributing to the social and economic development of the members of the family and thereby gaining equality and equal importance for themselves.



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COMPARISON OF DOCKING POTENTIALS OF DIFFERENT ANTI-ALZHEIMER DRUGS ON MOLECULAR RECEPTORS

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ABSTRACT

Computational techniques have been recently evolved as an efficient medicinal tool for the identification and treatment of various diseases. With this background, a study was carried out to compare the docking potentials of different anti-alzheimer drugs on molecular receptors. In this work, 1EVE is considered as acetyl cholinesterase inhibitor and donepezil, galantamine, memantamine and lovodopa as drugs. The interactions between 1EVE protein and drugs were analysed using molecular docking studies. *Mucuna pruriens* is a natural herb used in Ayurvedic medicine for the treatment of Parkinson's disease. The major phytochemical present in *Mucuna pruriens* is lovodopa. Among four drugs, lovodopa is found most effective. The methodology can be efficiently utilized to find out novel drugs for Alzheimer's disease.

Key words- *anti-alzheimer drugs; donepezil, galantamine; memantamine; and lovodopa*

Introduction

Alzheimer disease (AD) is an irreversible, progressive neurodegenerative disorder or

dementia that destroys our memory and other metal functions. Dr Alois Alzheimer found out this disorder which is nowadays known as Alzheimer disease (AD). AD is most commonly affected by older adults, but it can also affect people in their 30s or 40s (early-onset form). It is a most common form of dementia, a progressive brain dysfunction, and leads to gradually increasing restriction of daily activities. Dementia is most common among the elderly population and it is a lifelong progressive neurodegenerative disease of the Brain. AD is characterized by more than just memory loss; it also results in other cognitive and Behavioral symptoms that progressively impair function in activities of daily living.

The main symptoms of AD are loss of forming new memory, speech disorder, mood swings, disruption of executive functions (decision making), memory loss, metal confusion, and eventually death is occurring. In AD, the whole brain size shrinks so that the tissue has increasingly decreased nerve cell and connection. The main reasons for AD's are the formation of senile plaques and neurofibrillary tangles in brain. Other common neurologic



presentations include changes in language ability (e.g.:- anomia, progressive aphasia), impaired visuospatial skills, impaired executive function. The actual reason for Dementia is still unknown.

There are no drugs or treatments that can cure AD completely. However, medicines have been developed for an AD that can slow down their progression, or temporarily deduce symptoms. But there is much need of new drugs due to their side effect. Currently, the U.S. Food and Drug Administration approved five drugs which are used to treat AD symptoms. Donepezil, galantamine, and rivastigmine (three of available drugs) are belongs to "cholinesterase inhibitors".

Molecular Docking is a tool in computer-assisted drug design and development. It involves the interaction of two or more molecules to give a stable adduct. Molecular docking predicts the three-dimensional structure of any complex based on binding properties of ligand and target. It generates different possible adduct structures that are ranked and grouped together using scoring function in the software. Based upon total energy of the system, docking simulations predict optimized docked conformer. The main aim of molecular docking is to attain ligand-receptor complex with optimized conformation possessing less binding free energy. We can predicted binding free energy (ΔG_{bind}), there by provides additional clues about the nature of various kinds of interactions leading to the molecular docking.¹ The widely used molecular docking softwares are auto dock v1.5.6, auto dock4 2.6, dockvision, gold, flexidock etc.

Molecular docking and three-

dimensional quantitative structure-activity relationship (3D-QSAR) studies on β -Secretase analogues can be performed to explore the inhibitory mechanism since β -Secretase is an important protease in the pathogenesis of Alzheimer's disease. The Lamarckian Genetic Algorithm (LGA) was applied to locate the binding orientations and conformations of the peptidomimetics with the β -secretase. A good correlation between the calculated binding free energies and the experimental inhibitory activities suggests that the identified binding conformations of these potential inhibitors are reliable.²

Fragment based QSAR and molecular docking technique can be used effectively in the development of dual inhibitors against Alzheimer's disease -amyloid cleavage enzyme (BACE-1) and acetylcholinesterase (AChE), being important for AD progression, have been considered as promising drug targets. Consideration of the lead molecules as prospective drugs for the effective dual inhibition of BACE-1 and AChE. The GQSAR model provides site-specific clues about the molecules where certain modifications can result in increased biological activity. This information could be of high value for design and development of multifunctional drugs for combating AD.³

Molecular docking programs use scoring functions to estimate the binding energetics of the predicted ligand-receptor complexes. The energy variation, due to the formation of the ligand-receptor structure, is given by the binding constant (K_d) and the Gibbs free energy (ΔG_L). Prediction of the binding energy is performed by evaluating the most important physical-



chemical phenomena involved in ligand-receptor binding, including intermolecular interactions, desolvation and entropic effect.

Auto Dock Tools (ADT) is a package of automated docking tools and excellent resource to engage biochemistry students in computational studies. It is frequently used, fast and available free of charge from the Scripps Research Institute. Aside from generating binding energies in these docking studies, the position of the ligand in the host's binding site can be visualized. And hence is considered as an efficient molecular docking technique for drug design and delivery. By ADT it is found that among the available AChE PDB entries one can find the empirical crystallographic structure of tacrine in complex with *Torpedo californica* AChE (1acj). The human and *Torpedo* sequences are 59% identical, and the global structural alignment of alpha carbons (1acj vs. 1b41) has an RMS of 1.21 Å (526 alpha carbons, Swiss PDB Viewer Magic Fit).⁴

Computer models serve as valid alternatives to experiments related to drug development which involves assessment of absorption, distribution, metabolism and excretion. SwissADME web tool gives free access to a pool of fast yet robust predictive models for physicochemical properties, pharmacokinetics, drug-likeness and medicinal chemistry friendliness, among which in-house proficient methods such as the BOILED-Egg, iLOGP and Bioavailability Radar. The iLOGP implemented in SwissADME corresponds to Model9 of the seminal publication, which was trained on 11,993 molecules ($r=0.72$, $MAE=0.89$, and $RMSE=1.14$ against experimental $\log P$). 5-fold crossvalidation

ensured robustness ($q^2CV=0.52$, $MAE_{CV}=0.89$, and $RMSE_{CV}=1.14$) and external test benchmarks showed the excellent predictive power and extended applicability domain compared to well-established methods.⁵

The ligand-based drug design is used when the structure of the receptor is unknown, but when a series of compounds have been identified that exert the activity of interest. It is represented as a collection of functional groups in three-dimensional space that is complementary to the geometry of the receptor site.

AutoDock Vina is an open-source program for doing molecular docking. It was designed and implemented by Dr. Oleg Trott in the Molecular Graphics Lab at The Scripps Research Institute. Auto Dock Vina significantly improves the average accuracy of the binding mode predictions. AutoDock Vina has been tested against a virtual screening and was found to be a strong docking program. For its input and output, Vina uses PDBQT files format used by AutoDock. PDBQT files can be generated and viewed using MGL Tools.

Procedure

The current work was aimed to identify the best possible targets of new drug molecule for AD using auto dock vina programme. For this purpose, the databases of various ligands were prepared using **PyMol**, which is done by taken 3-D crystallographic structure of targeted protein from protein data bank in pdb format and open this protein using PyMol and remove unwanted ligands and water molecules and add hydrogens into appropriate sites of protein. Similarly, the ligand prepared by taken drug structure

from Pubchemdatabase in sdf format and is converted to pdb format using open babel software. Then open the drug and protein using **MGL TOOLS** and add polar hydrogen atoms and saved in PDBQT format separately. In the last step, analysis of binding sites and co-ordinates of receptors are taking place by following steps are opening of receptors as pdb files in **Discovery Studio** and receptor binding sites defined and grid co-ordinates(X,Y,Z) account. Then docking process run using **Autodock vina**, once the process was complete, the binding energy of ligand binding to the receptor will be obtained and which is the best pose. Then which is saved in PDBQT format. Subsequently, the output is opened in **Discovery Studio** and identifies different non-bonded interactions. Analysis of result was carried out by differentiating binding affinity towards protein.

RESULTS AND DISCUSSION

The binding sites in the protein have the following co-ordinates:-

Site number	X-coor- dinate	Y-coor- dinate	Z-coor- dinate
I	1.712	65.376	65.887
II	15.212	49.626	6.637

1. Donepezil

3-D Structure of Donepezil is shown in Fig. 1

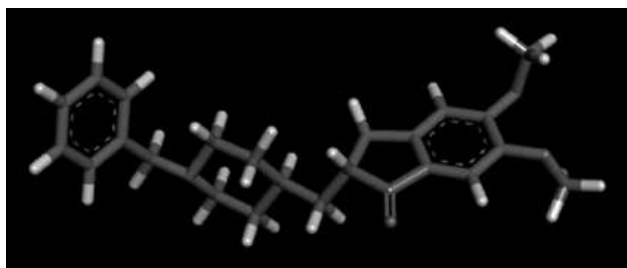


Fig. 1 The 3-D crystal structure of donepezil

The docking of the downloaded drugs in the active site of AChE showed good binding affinities which showed comparable values with already established drugs.

Ligand	Docking score (Kcalmol ⁻¹)
Donepezil	-10.5

Lowest root mean square deviation valued (rmsd) confirmations is taken as the docking score. Smaller the value of rmsd, greater the docking power. Normally the value lower than -8 is considered as good drug. Here Donepezi has excellent binding capacity. Interactions between Donepezil with AChE receptor is shown in Fig 2.

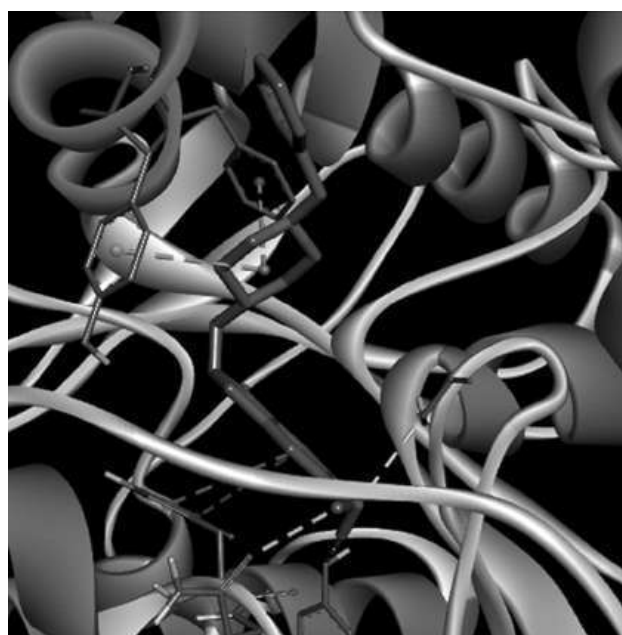


Fig. 2 3-D image showing the docking of the drug donepezil with AChE receptor.

The drug interaction with protein residues is clearly visible from the 3-D images. The 2D-images showed the types of interactions of the drug donepezil with AChE receptor (Fig. 3).The main points observed

1. The absence of green dotted line shows there is no conventional H-bonding.

2. The most common interaction is vander Waals interactions
3. π - π interactions are denoted by dark pink dotted lines
4. Light pink lines explain π -alkyl type interactions.

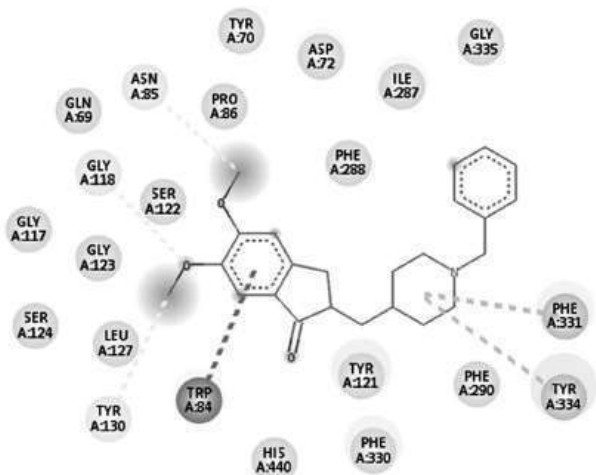


Fig.3 2-Dimensional image depicts interaction between protein-receptor moieties

2. Galantamine

3-D Structure of Galantamine is shown in Fig. 4

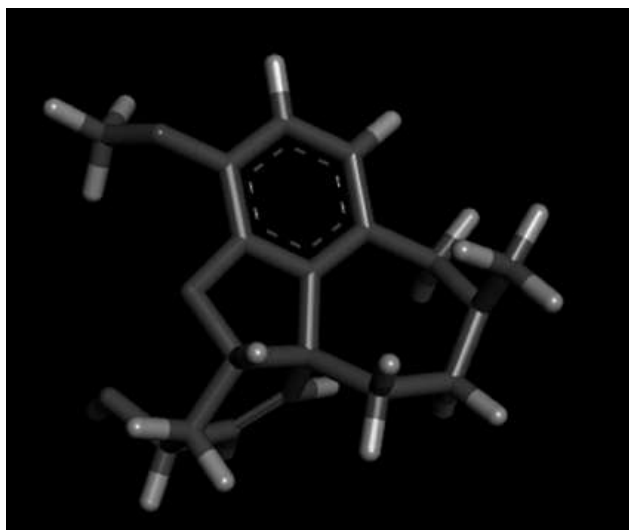


Fig. 4 3-D Structure of Galantamine

Docking score or binding energy of Protein and Galantamine is -9.7 Kcal mol⁻¹

Interactions between Galantamine and AChE receptor is shown in Fig. 5. The 2-D image depicts the interactions more clearly (Fig. 6).

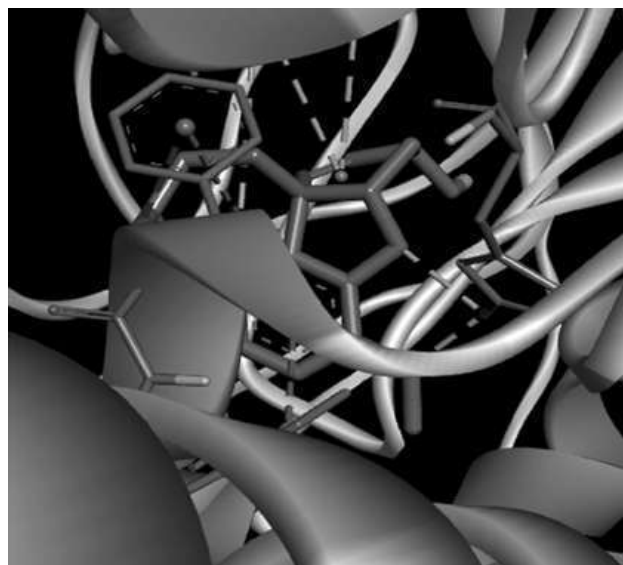


Fig. 5 Interactions between Galantamine with AChE receptor

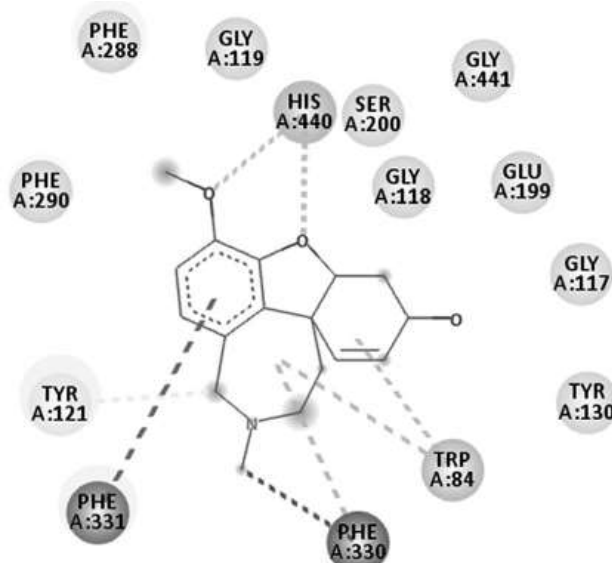


Fig. 6 2-Dimensional image depicts interaction between protein-receptor moieties (Galantamine)

The main points observed

1. The green dotted line shows there is strong H-bonding.
2. The vander Waals interactions are observed as light green centres

3. Carbon-hydrogen bond is observed.
4. π - π interactions are denoted by dark pink dotted lines
5. Light pink lines explain π -alkyl type interactions.
6. π -sigma type interactions are also observed

3. Memantamine

The docking score is $-7.8 \text{ K cal mol}^{-1}$

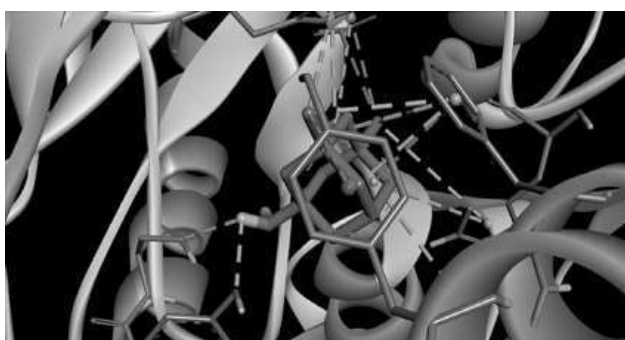


Fig. 7 Interactions between Memantamine with AChE receptor

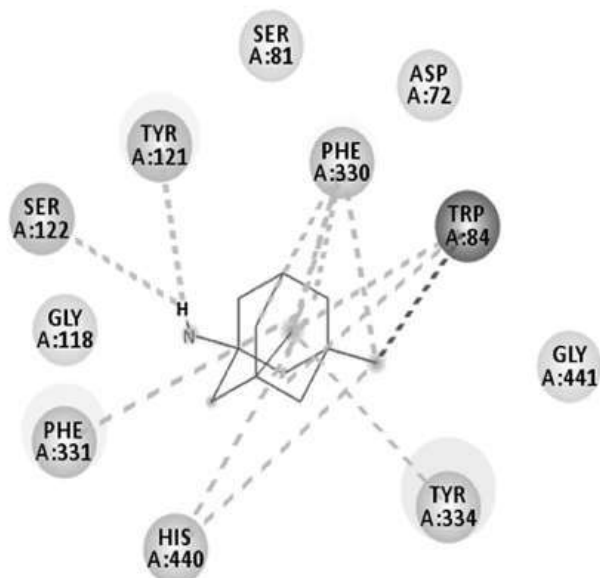


Fig. 8 2-Dimensional image depicts interaction between protein-receptor moieties (memantamine)

The main interactions

1. Strong Conventional H-bonds
2. Only four vander Waals forces

3. one π -sigma interactions
4. A number of π -alkyl interactions are observed

4. Lovodopa

Mucuna pruriens is a tropical legume native to Africa and tropical Asia and widely naturalized and cultivated. *Mucuna pruriens* is a natural herbal supplement used in Ayurvedic medicine, an ancient practice from India, that lowers stress, reduces anxiety, improves focus, boosts the libido, and elevates mood. *Mucuna* is used for the treatment of Parkinson's disease. One of the major chemical constituent of *Mucuna pruriens* is lovodopa. The crystal structure of lovodopa is given in Fig.9

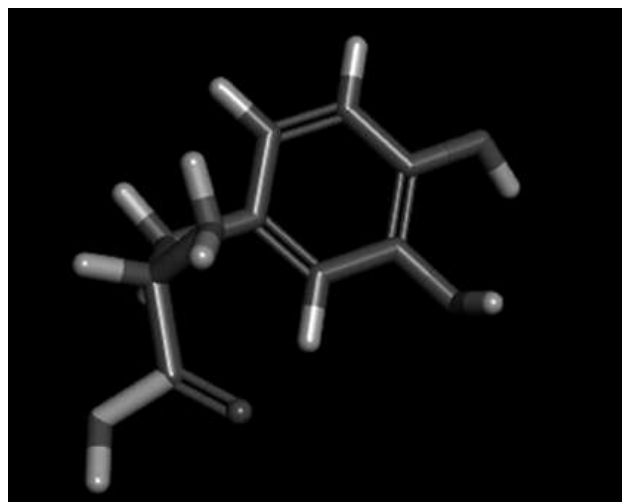


Fig. 9 The crystal structure of lovodopa

Docking score= -7.1

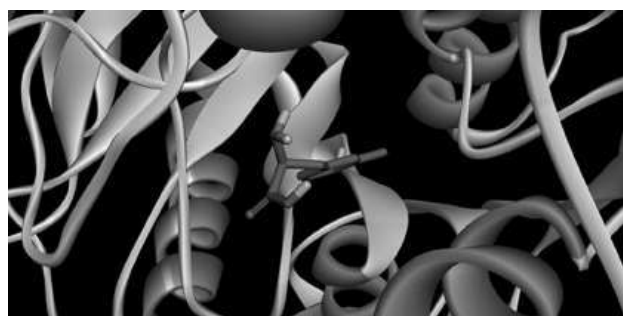


Fig. 10 Interactions between lovodopa with AChE receptor

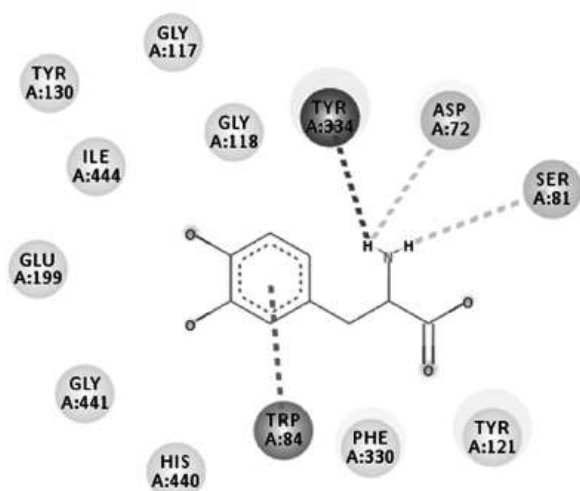


Fig. 11 2-D image showing the interactions between L-DOPA with AChE receptor

The interactions are mainly van der Waals interactions, conventional H-bonding, π - π interactions. There also found some unfavourable interactions

Comparison of docking effect

Ligand	Docking score (Kcalmol ⁻¹)
Donepezil	-10.5
Galantamine	-9.7
Memantine	-7.8
L-DOPA	-7.1

The docking score shows the efficiency of the drug. Here we can find that L-DOPA has excellent efficiency.

Conclusions

The docking of the active site of acetylcholinesterase with drug Donepezil is established using computational tools. Computational methods were found to be efficient in rational drug designing considering the number and strength of non-covalent interactions involved. The analysis of the interactions between protein residues and drug molecule shows a van der Waals type attractions. The methodology

can be utilized efficiently to find out novel drugs for Alzheimer's disease.

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MORPHOLOGICAL AND MECHANICAL DEPICTION OF SEMI- INTERPENETRATING POLYMER NETWORKS OF SBR -PMMA SYSTEMS

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Abstract

A classic set of Semi-Interpenetrating polymer networks (S-IPNs) has been fabricated using the judicious selection of a pair of thermoplastics and an elastomer with effective interpenetration between them. S-IPNs based on styrene butadiene rubber (SBR) and poly [methyl methacrylate]- (PMMA) have been synthesized by sequential polymerisation technique. This synthesized low cost S- IPN can be promisingly employed as a toughened plastic with co-continuous morphological pattern. The different mechanical properties of S-IPNs are investigated in detail. Morphological analysis of S-IPNs through SEM provides clear insight of their component distribution in it. This protocol of characterization in S- IPN can definitely act as a platform for designing of new toughened plastic with low cost and facile fabrication protocol.

2.1. Introduction

Multi polymeric systems have explicit role in the broad canvas of material science.¹ Interpenetrating polymer networks (IPNs) are a special type of polymer blend with specific features and potential applications.² IPNs are defined

as networks where two components are cross-linked but not to each other.³ Sequential polymerization, simultaneous polymerization and latex blending methods are the common protocols⁴ employed in the manufacture of IPNs. The path for blending of two cross-linked polymers can be effectively achieved through IPN synthesis.⁵ The dual cross-linked nature⁶ of both the components in IPN performs their own specific features over the morphological features. Blend ratio, crosslink density of each network, size, shape and distribution of phase, domain sizes of components, overall composition and interfacial tension are the major factors in engineering the ultimate properties of IPN.⁷ Both the components of IPN are in cross-linked fashion, it is represented as full-IPN.⁸ If one component exists in linear style, the resultant system is called semi-IPN.⁹ The cross-linked phase of semi-IPN usually exists as continuous phase.¹⁰

A number of articles had been present in the literature dealing mechanical analysis^{11, 12} as the central theme in blend characterization.¹³ Articles of IPNs with mechanical properties ¹⁴



as the primary subject are limited in number.¹⁵ Mathew *et al.*¹⁶ successfully explained the morphology, mechanical properties and failure-topography of semi-interpenetrating polymer networks based on natural rubber and polystyrene.

In this chapter, a novel set of semi-IPN membranes have been prepared from poly methyl methacrylate (PMMA) and styrene butadiene rubber (SBR) by adopting sequential polymerization protocol. PMMA is a transparent thermoplastic with low cost and is widely employed for different applications. SBR is a very important all-purpose, low cost synthetic rubber. By the judicious interpenetration of SBR and PMMA by sequential polymerization technique, we have prepared a series of low-cost semi-IPN based membranes.¹⁷ The properties and morphology of S-IPNs can be tuned and engineered by changing the composition and crosslink density of the SBR and PMMA phases.

The morphology of the S-IPNs was analyzed with transmission electron microscopy, scanning electron microscopy, atomic force microscopy and confocal Raman imaging. The detailed interpretation of mechanical behavior of S-IPNs supported with morphological results and theoretical predictions are the key highlight and novelty of this chapter.

2.2. Materials and Methods

2.2.1. Styrene butadiene rubber (SBR)

Styrene butadiene rubber (SBR) is one of the chief and cheap synthetic general-purpose elastomers. SBR has wide range of applications in tyre and non-tyre fields. Styrene butadiene rubber (Synaprene 1502) with 23.5% styrene content was used for this study had been supplied by Indian

Synthetic Rubber Limited (ISRL) through Appollo Tyres, Chalakudy. Cold emulsion polymerized SBR has been employed for this study.

2.2.2. Methyl methacrylate (MMA) monomer

Methyl methacrylate (MMA-99%) monomer used in the experiment was purchased from Sigma-Aldrich, India contains ≤ 30 ppm methyl Ether of Hydroquinone (MEHQ) as inhibitor. The monomer was made inhibitor free by washing it with 2% sodium hydroxide (NaOH) followed by distilled water and was dried using anhydrous calcium chloride (CaCl₂) before carrying out the experiment.

2.2.3. Preparation of semi-IPNs

Cured SBR sheets of definite weight and of thickness (2mm) with specific density values (0.950 g/cc for ¹S₁₀₀, 0.953 for ²S₁₀₀ and 0.956 for ³S₁₀₀) were immersed in a homogeneous mixture of MMA (with density 0.936 g/cc), BPO and DVB (the inhibitor free MMA monomer containing 1% BPO as initiator and 0, 2, 4 and 6% of DVB based on the MMA content) for different time intervals. SBR/PMMA semi-IPNs have been prepared by without using DVB. Here polymerization was carried out in the absence of cross linker for PMMA. SBR strip of 10×3cm dimension is immersed in MMA mixture taken a glass petri dish. To get an equilibrium distribution of MMA monomer in the matrix, swollen samples were kept at 273 K for three hours. These SBR sheet was kept in between two stainless steel plates inside an oven at 353K for 16 h for polymerization. Afterwards, the rubber sheet was vacuum dried to constant weight.



2.2.4. Representation of IPNs and semi-IPNs

The IPNs and semi-IPNs can be represented as $^a\text{SBP}_c\text{D}_d$. (a indicates weight of DCP per 100 grams of SBR rubber, S indicates SBR rubber, B stands for BPO as the initiator for polymerization of

PMMA, P represents PMMA, c indicates weight percentage of PMMA, D stands for Divinyl benzene [DVB], d corresponds to wt. % of DVB content). The composition of different IPNs and semi-IPNs employed for different characterization can be summarized as follows.

Table 2.1: Composition of IPNs and Semi-IPNs

Representation	DCP (Phr)	PMMA: SBR (Wt. %) in IPN	DVB(wt.%)	Type of semi-IPN
1SBP30D0	1	30:70	0	Semi-IPN
1SBP50D0	1	50:50	0	Semi-IPN
1SBP70D0	1	70:30	0	Semi-IPN

2.3. Characterization methods for semi-IPNs

2.3.1. Tensile properties

The mechanical properties of the samples Tensile strength (TS) and elongation at break (EB %) were studied using universal testing machine in accordance with ASTM D 412-16 and with ASTM D 638. The instrument used was Tinius Olsen HT50kT UTM. The experiments were conducted for dumbbell shaped samples with gauge length of 25 mm at a cross head speed of 50mm/min at room temperature to rupture by an electro mechanical machine equipped with a 5 kg load cell.

2.3.2. Hardness

The Shore A hardness was measured using a Durometer for the semi-IPNs and IPNs according to ASTM D-2240 test method.

2.3.3. Density

The density of the samples was measured

at room temperature using the hydrostatic technique according to ASTM D-792.

2.3.4. Scanning electron microscopy (SEM)

The morphology of IPNs, composites and IPN composites were studied using JOEL-JEM 2010 model scanning electron microscope. The samples were cryogenically fractured, sputtered with gold and examined under microscope.

2.4. Results and discussion

2.4.1. Mechanical properties

Mechanical analysis is one of the important tools in S-IPN characterization. The various factors affecting the tensile properties of S-IPNs can be summarized as follows.

2.4.1.1. Effect of blend ratio

The blend ratio in S-IPN has major role in engineering the mechanical properties. The stress-strain curves for IPNs are shown in the Figure 2.1.

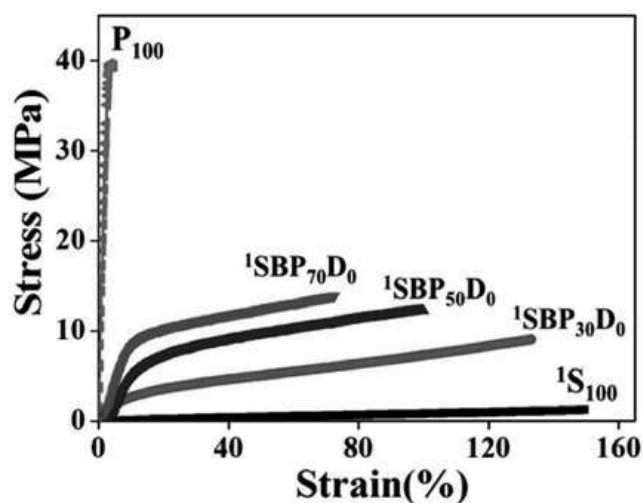


Figure 2.1: Stress-strain curves for S-IPNs.

The deformation pattern of each S-IPN under an applied stress is clear from the above figure. The deformation tendency of SBR ($^1S_{100}$) is of typical elastomer in nature. On the addition of PMMA, the deformation pattern changes. The gradual change from

the rubbery to the plastic nature can be clearly visualized, as we moving from 30 to 70 wt. % of PMMA in the stress-strain curve. S-IPN with 70% PMMA ($^1SBP_{70}D_0$) shows the typical plastic nature and the IPN with 70% SBR ($^1SBP_{30}D_0$) shows a rubbery nature. For samples where the PMMA content is greater than or equal to 50%, a yield point was observed.

When the PMMA content goes above 50%, the stress-strain curves show distinct elastic and inelastic regions. In the elastic region, yielding was observed. On increasing the plastic content, the rubbery nature decreases and a necking tendency characteristic of plastics appears. The brittle type behavior was shown by pure PMMA (P_{100}). The effect of blend ratio on mechanical properties of IPN can be summarized in the Table 2.2.

Table 2.2: Effect of composition on mechanical properties semi-IPNs (D0 series)

Composition	Density (g/CC)	TS (MPa)	EB (%)	Young's Modulus (MPa)	Hardness Shore A (± 3)
$^1S_{100}$	0.95 \pm 0.01	1.24 \pm 0.3	149 \pm 12	1.74 \pm 0.1	42
$^1SBP_{30}D_0$	1.01 \pm 0.02	7.06 \pm 0.5	133 \pm 11	3.50 \pm 0.2	76
$^1SBP_{50}D_0$	1.04 \pm 0.02	12.25 \pm 0.6	99 \pm 6	15.16 \pm 0.25	80
$^1SBP_{70}D_0$	1.09 \pm 0.02	13.85 \pm 0.7	74 \pm 4	22.34 \pm 0.85	83
P_{100}	1.19 \pm 0.04	39.6 \pm 1.3	3.5 \pm 0.6	2166.12 \pm 8.34	-

2.4.2. Morphological characterization

There are various protocols and factors in morphological characterization of IPNs and semi-IPNs. They had been explored in detail and are summarized here. In this report, we present the analysis of a series of full IPNs and semi-IPNs with different compositions, cross-link densities and attempt has been made to correlate these morphological observations with mechanical performance.

2.4.2.1. Effect of blend ratio in S-IPN

The effect of blend ratio on behavior of S-IPN can be explained by the following SEM images. Figure 2.2 (A-F) shows SEM images of semi-IPNs with same cross-link density for both components and having different PMMA concentrations ranging from 0 to 70 wt.%. All the six samples show phase separation with different morphologies clearly depicting the quantitative influence of second

component on the morphology developed during S-IPN synthesis. Fig. 2.2(A) depicts the SEM images of neat SBR ($^1S_{100}$) and 2.2(B) narrates the S-IPN (with 30 wt. % of PMMA). It shows sea-island like morphology, i.e. PMMA phase is dispersed in the continuous SBR matrix. Here PMMA exists as small domains but SBR and PMMA phases are separated. Figure 2.2 (C) represents S-IPN with 40% PMMA content. Here the number and size of PMMA domains are increased while keeping the two phases separated and follows dispersed morphology. Figure 2.2 (D) depicts S-IPN with 50:50 blend ratio with tendency of PMMA domain to undergo distended phase. As further enhancement in PMMA concentration

occurs, they show gradual gradation from dispersed system morphology to co-continuous morphology (with 70 wt. % of PMMA) through more or less dual phase morphology (with 60 wt. % of PMMA).

In S-IPNs, the first synthesized phase (here cross-linked SBR) forms more continuous phase. The second component in S-IPN has an important role in designing the morphology of resultant system.¹⁸ It is crystal clear from Figure 2.2. At 70 wt. % PMMA content, both phases become co-continuous. This can be clearly visualized from Figure 2.2(F). The enhancement in tensile strength and in storage modulus of IPN with increase in PMMA content is well supported by this SEM analysis.

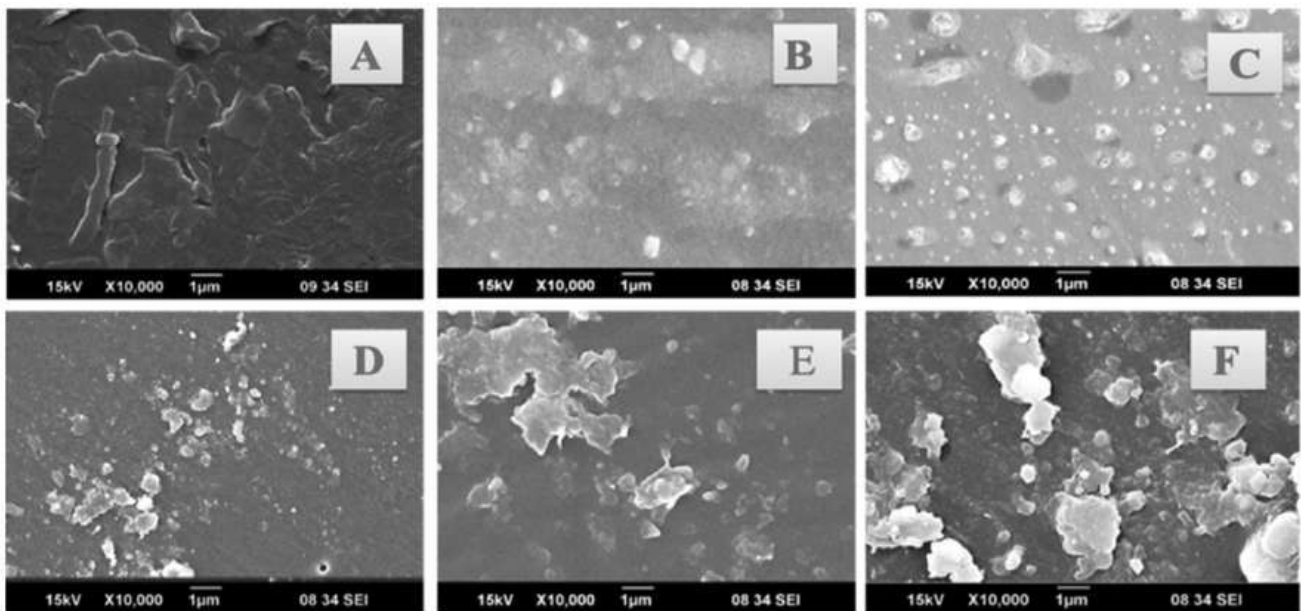


Figure 2.2: Scanning Electron micrographs of (A) Neat SBR($^1S_{100}$) (B) $^1SBP_{30}D_0$ (C) $^1SBP_{40}D_0$ (D) $^1SBP_{50}D_0$ (E) $^1SBP_{60}D_0$ and (F) $^1SBP_{70}D_0$

According to a theory developed by Sperling, "in the case of sequential S-IPN, polymer II which is formed in a swollen network I, constitutes a spherical core and is in a contracted state, while polymer I surrounds the core and is in

an expanded state. This clearly depends on the concentration of the second component and when it increases and reaches a certain limit, polymer II also becomes continuous as polymer I".¹⁹ This situation of co-continuous morphology



is also established in our S-IPN system with 70wt. % of PMMA. This fact was supported by Figure 2.2 C. In this stage, PMMA domains undergo interlinking and lead to larger domain size while maintaining co-continuous features. In S-IPNs, the phase synthesized first forms the more continuous phase and control the morphology. S-IPN with 30% PMMA shows a fine structure with PMMA domains dispersed all over SBR matrix. As the concentration of PMMA rises, the size of PMMA domains also increases and found to form clusters of large domains surrounded by very small domains. S-IPN with PMMA concentration 50% or above (${}^1\text{SBP}_{50}\text{D}_0$ and ${}^1\text{SBP}_{70}\text{D}_0$) showed higher miscibility when compared to S-IPNs with PMMA concentration < 50%. These effects can be visualized in the following scheme.



Figure 2.3: Schematic representation showing the effect of concentration of second component in morphology of resultant S-IPN, (A) S-IPN with low PMMA content, (B) moderate PMMA content and (C) high PMMA content

24. Conclusion

New classes of semi-IPN multi component polymeric systems were developed from SBR and the methyl methacrylate monomer by the sequential method via in-situ polymerization. These specialized blends have a very ordered and compact arrangement of the two phases. The effective and low-cost polymer blend formed from SBR and PMMA by the interpenetration technique having a wide range of mechanical properties starting

from reinforced rubber to toughened plastic. It is found that in all cases as the PMMA content increases the tensile strength, density, modulus and hardness increase. The EB % values decrease due to decrease in the elasticity of the material with a decreasing SBR content. It is also concluded that the system shows a continuous morphology above 50% PMMA with enhancement of properties. As the PMMA content in S-IPN enhances, the distance between two adjacent PMMA distribution decreases and resulted in more homogenous, close packed morphology.

The effects of blend ratio and cross-linking in SBR and PMMA phase were analyzed by different morphological techniques like SEM. Morphological analysis confirmed that as the % of PMMA content in IPN enhances system show gradual gradation from dispersed island morphology to co-continuous morphology. Morphological characterization protocols provide an efficient route for the differentiation of IPNs from semi-IPN. These studies prove that component I and II have their own roles for tuning the morphology of resultant IPNs. Cross-linker content of SBR and PMMA phases have prominent role in ultimate properties of S-IPN. There is no chemical interaction between SBR and PMMA in S-IPN.

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COMPACT HMSIW BANDSTOP FILTER WITH COUPLED VERTICAL LOOPS

Anju P Mathews, Praveen Joseph

Introduction

The vertical loop with slit is a new approach to the conventional resonator structures [3] in connection with SIW. In order to limit the loop size [4], conductor strip separated by a nonconductor region with vias on either side is placed vertically in the top and bottom surface of the Half Mode Substrate Integrated Waveguide (HMSIW). The bandpass filter design topologies of the embedded vertical loops are studied in the previous section.

The bandstop filter using HMSIW coupled vertical loop is studied in this section. The filter is fabricated on Rogers RT 5880 laminate ($\epsilon_r=2.2$, $h=0.79$ mm) with 33×13 mm² overall dimension. A narrow stop-band is realized in the proposed structure. The structure is fabricated using standard photolithography process.

Geometry

The HMSIW loop filter is fed using microstrip line with a tapering for impedance transformation. The HMSIW section is edge coupled to vertical loop with slit. The top and bottom structure topology is shown in Fig. 5.24 (a) and (b) respectively. The geometry of the slitted loop is shown

in Fig. 5.24 (c). The filter parameters and the loop parameters are shown in Tables 5.7 and 5.8 respectively.

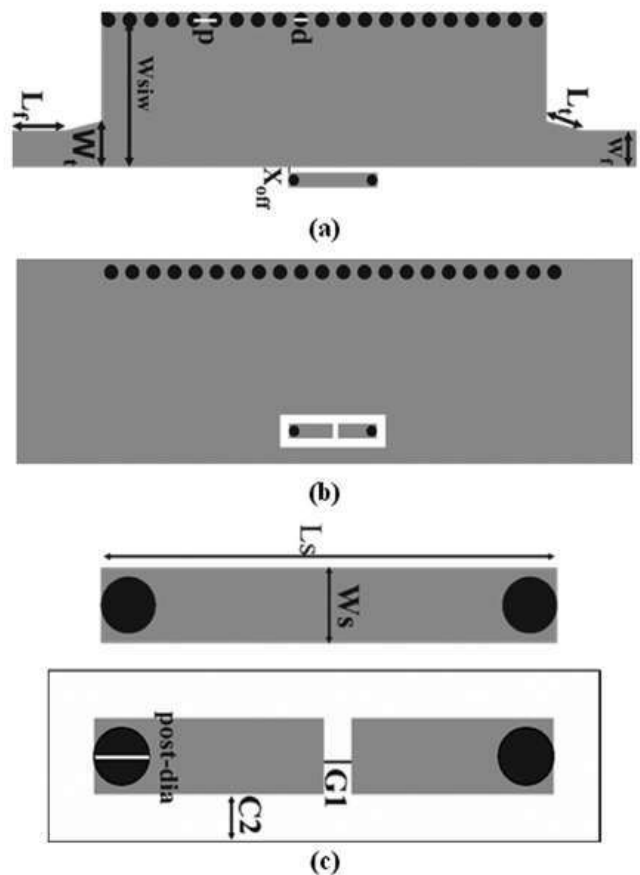


Fig. 5.24. (a) HMSIW Bandstop Filter with Vertical Loop with slit (top) (b) HMSIW Bandstop Filter with Vertical Loop with slit (bottom) (c) Enlarged View of Vertical Loop with slit

Table 5.7. Filter Parameters
Filter Parameters (mm)

Lt	Wt	Lf	Wf	Wsiw	p	d	Xoff
2	3	3	2	8.4	1.2	0.8	0.2

Table 5.8. Loop Parameters
Loop Parameters (mm)

Ls	Ws	C2	G1	Post dia
5	0.8	0.5	0.3	0.8

Design Evolution

The HMSIW coupled with vertical loops are designed and simulated. A loop without slit is placed near the magnetic wall of HMSIW and no remarkable excitation is found as shown in Fig. 5.25. A slit introduced at the ground portion of the loop affects the loop excitation and a narrow stopband is observed as shown in Fig. 5.26. The stopband bandwidth can be increased by increasing the number of loops involved in the design as given in Fig. 5.27.

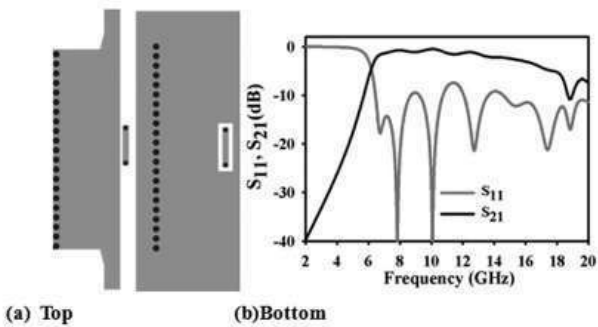


Fig. 5.25. (a) Loop Orientation (b) S-Parameters

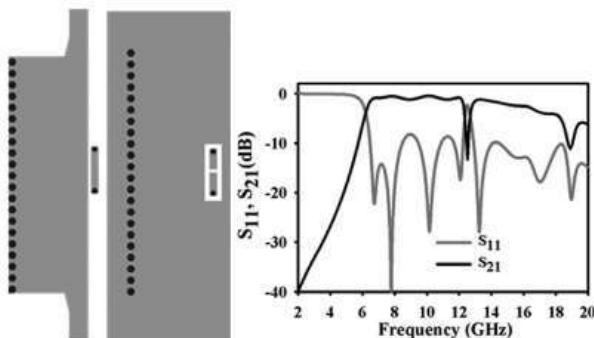
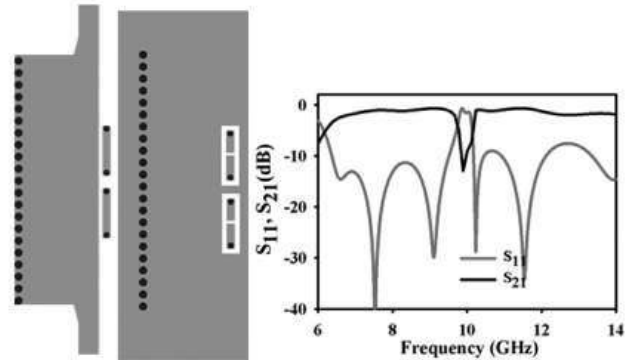


Fig. 5.26. (a) Loop with slit at the bottom plane (b) S-Parameters



Top (b) Bottom

Fig. 5.27. (a) HMSIW with two loops (b) S-Parameters

5.3.3 Simulation and Analysis

The frequency dependence of various loop parameters are studied in this section. The loop parameters such as loop width (Ws), gap (C2) and slit separation (G1) shifts the frequency to higher range with the increase in the parameter as shown in Fig. 5.28 (c), (d), (e), (f), (i) and (j) respectively. An increase in parameters like loop length (Ls) and Xoff shifts the frequency to the lower range as given Fig. 5.28 (a), (b), (g) and (h).

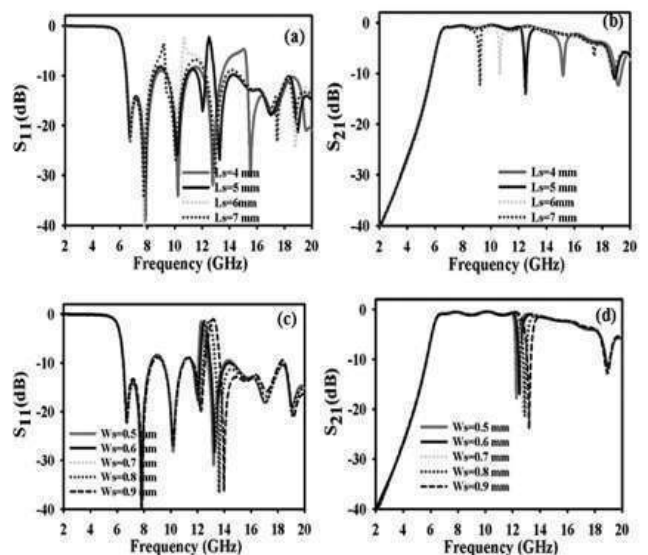


Fig. 5.28. Parametric Simulations of (a) Loop Length (Ls) - S₁₁ (b) Loop Length (Ls) - S₂₁ (c) Loop width (Ws) - S₁₁ (d) Loop width (Ws) - S₂₁

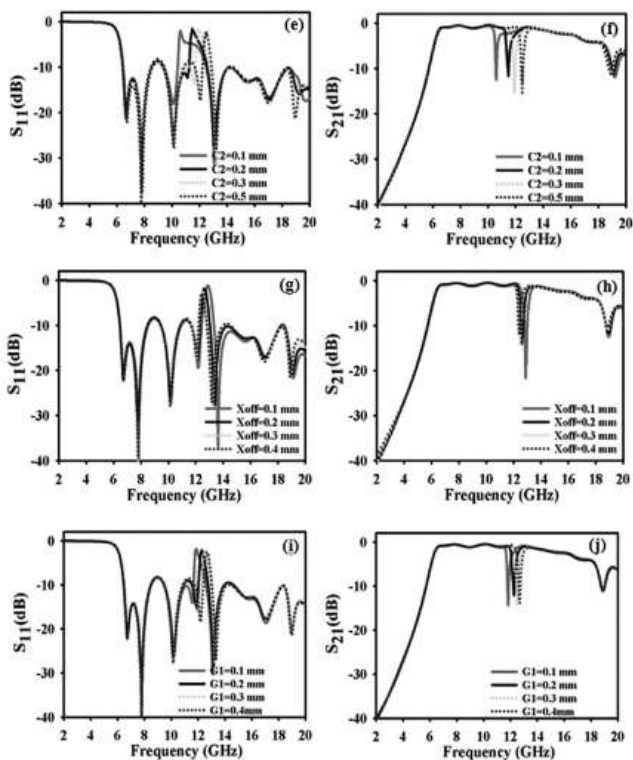


Fig. 5.28. Parametric Simulations of (e) Gap(C2) - S_{11} (f) Gap(C2)- S_{21} (g) Xoff- S_{11} (h) Xoff- S_{21} (i) Slit Width (G1)- S_{11} (j) Slit Width (G1)- S_{21}

Fabrication and Measurement

The Fig. 5.29 shows the photograph of the fabricated filter with the SMA connectors. Standard photolithography is used for the fabrication process and the S parameter measurements are taken using Rohde & Schwarz ZVB20 vector network analyzer. The measured result in comparison with the simulated results are shown in Fig. 5.30. A small frequency shift is observed in the measurement result, which may be caused due to the fabrication inaccuracies of the tiny featured loop in the filter structure.



Fig. 5.29. Photograph of Fabricated Filter (a) Top (b) Bottom

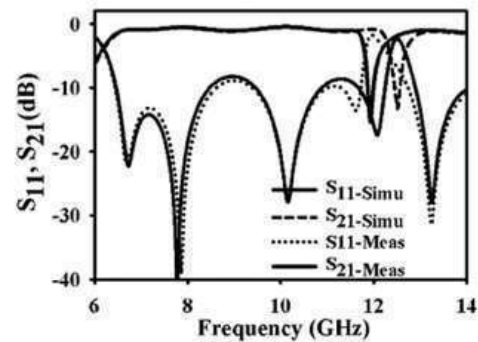


Fig. 5.30. Insertion and Return Loss Characteristics

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TERPOLYMERIZATION OF ANHYDRIDES AND LACTIDE WITH PROPYLENE OXIDE AND CARBON DIOXIDE USING COBALT SALEN CATALYST AND DOUBLE METAL CYANIDE CATALYST

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Abstract

One pot terpolymerization of CO₂, PO and cyclic anhydrides or lactide were performed using salen cobalt complex and double metal cyanide catalyst. Glass transition temperature (T_g) was found to be higher by incorporating phthalic anhydride to poly propylene carbonate back bone. The added amount of PA was fully incorporated on polymer chain. Improved thermal property prevents the agglomeration of polymer resin during summer season. Aliphatic polyesters found various applications because of biodegradability and bio compatibility. A new DMC catalyst prepared using H₃Co(CN)₆ giving consistent carbonate fraction and activity were used for terpolymerization for incorporating third monomer. Cyclic anhydrides and lactide were employed to incorporate as third monomer on poly(propylene carbonate-co-propylene oxide). Resulting polymer were characterized using ¹H NMR, ¹³CNMR, GPC and DSC.

Introduction

The increasing concentration of carbon dioxide in atmosphere, influences climate

changes resulting in global warming is currently a discussing subject in media, politics and science¹. Carbon dioxide can be utilized to prepare biodegradable polycarbonate by coupling with epoxides. The pioneer work for this alternating copolymerization of CO₂/propylene oxide was introduced by Inoue in 1969². A highly active and efficient catalyst was discovered which shows high turnover frequency (TOF, 16000 h⁻¹), molecular weight (M_n 300000) and high selectivity (>99%)³. A continuous process pilot plant was constructed for the commercial production of polypropylene carbonate⁴. The main demerit of resulting polypropylene carbonate (PPC) is its low glass transition temperature (T_g). The T_g of 40°C is too low to use for commercial utilization⁵. In summer at more than 40°C PPC pellets agglomerates to form a cluster and retracts commercialization of this attractive polymer. In order to improve thermal and mechanical properties of copolymer researchers are putting third monomer in CO₂ and PO or CHO copolymerization⁶. Terpolymerization of CO₂, epoxides and anhydrides results in terpolymers having improved thermal



and mechanical properties⁷. In this work we were able to increase the T_g of PPC by incorporating phthalic anhydride in to the polymer back bone.

Double metal cyanide (DMC) catalysts reported in early 1960s for the ring opening polymerization (ROP) of epoxide were inexpensive, easily prepared and superior to base catalysts⁸. For the past decades several improvement were observed on DMC catalysts⁹. However the catalyst performance fluctuates due to washing with tBuOH, water and it is sensitive to preparation process. Washing was carried out to remove K⁺ ions since it substantially affects catalysts activity¹⁰. Carbonate fraction (f_{CO_2}) using conventional DMC catalyst was found to be low in the range of 10- 40 mol%¹¹. Combining both Catalysts DMC and salen Co(III) complex we were able to achieve a carbonate fraction up to 64 %^{5a}. We reported a highly active new DMC catalyst prepared using $H_3Co(CN)_6$ which gives carbonate fraction consistently 60-65 % and do not fluctuates on its performance¹².

Aliphatic polyesters find biomedical application in drug delivery vesicles, bone screws, suture wire because of biocompatibility and biodegradability¹³. Polyesters can be synthesized by terpolymerization of CO_2 , epoxides and lactones or anhydrides^{6-7, 14}. Terpolymerizations using CO_2 , Cyclohexane oxide (CHO) and lactide were reported with zinc complexes¹⁵. One pot solution terpolymerization using CO_2 , CHO and maleic anhydride (MA) with heterogeneous double metal cyanide catalyst was also reported^{14a}. A polymer supported double metal cyanide catalyst was also employed for incorporating

third monomer in CO_2 epoxide terpolymerization^{7, 16}. Here in this report we used our highly active new double metal cyanide catalyst to incorporate third monomer like lactide and other anhydrides by terpolymerization.

Experimental

General Remarks. CO_2 gas (99.999% purity) was dried through storage in a column of molecular sieves 3A at a pressure of 30 bar. Propylene oxide (PO) was dried by stirring over CaH_2 and then vacuum-transferred to reservoir. All reagents were purchased from Aldrich and purified by recrystallization before use. 1H NMR (400 MHz) and $^{13}C\{^1H\}$ NMR (100 MHz) spectra were recorded on a Varian Mercury Plus 400 instrument. The gel permeation chromatograms (GPC) were obtained in $CHCl_3$ at 35 °C using a Waters Millennium apparatus with polystyrene standards. The T_g data were determined from a second heating at a heating rate of 10 °C/min with DSC (Differential Scanning Calorimetry) using Thermal Analysis Q10.

A typical procedure for $CO_2/PO/PA$ terpolymerization using Salen Co(III) complex. A bomb reactor (~50 mL) was assembled inside a glove box after charging with a magnetic bar, catalyst 1 (3.0 mg, 1.8 μ mol), PO (10.4g, 179 mmol), phthalic anhydride (1.0 g, 6.75 mmol) and 4 mg ethanol. The CO_2 gas was pressurized (23 bar) at room temperature, and the reactor was then immersed to touch the bottom of oil bath maintained at the temperature of 70 °C. After induction time (1 hour) the pressure started to decrease. The polymerization was performed until the pressure drop was 5-6 bar for full conversion. Because of stirring problem, the maximum pressure drop was ~6 bar

at which ~7-8 g of polymer were isolated. After the polymerization, the reactor was cooled to room temperature using an ice bath, and CO₂ gas was released. All volatiles were removed by rotary evaporation, and the isolated polymer was stored in a vacuum oven at 120 °C to completely remove propylene carbonate.

A typical procedure for CO₂/PO terpolymerization using DMC Catalyst and lactide or anhydride. A bomb reactor (~50 mL) was assembled inside a glove box after charging with a magnetic stirring bar, PO (10.0 g, 170 mmol), DMC catalyst (5.0 mg), and an optional monomer anhydride or lactide. The CO₂ gas was pressurized at room temperature, and the reactor was then immersed with out touching the bottom of oil bath maintained at the desired temperature of 90 °C. After induction time, the pressure started to decrease. The polymerization was performed until the pressure drop was 5-6 bar. Because of stirring problem, the maximum pressure drop was ~6 bar at which ~7-8 g of polymer were isolated. After the polymerization, the reactor was cooled to room temperature using an ice bath, and CO₂ gas was released. All volatiles were removed by rotary evaporation, and the isolated polymer was stored in a vacuum oven at 120 °C to completely

remove propylene carbonate.

Results and Discussion

Terpolymerization of CO₂, PO, PA using salen Co(III) complex. Terpolymerization with anhydrides is an attractive way to improve thermal and mechanical properties of polypropylene carbonate. We have demonstrated preparation di and triblock polymers through immortal polymerization using salen Co(III) complex^{4a}. Phthalic anhydride is the suitable third monomer in this terpolymerization as aromatic ring in the polymer back bone enhances the Tg of resulting polymer. 500mg of PA in polymerization increases the Tg by 2°C (Entry 3 Table 1). But on increasing the amount of PA to 1g could not increase the Tg further (Entry 4 Table 1). But on adding small amount of ethanol raises the Tg up to 5°C With 1g PA which indicates that a small amount ethanol is necessary as chain transfer agent for the full incorporation of PA. The key of terpolymerization mechanism includes the chain transfer or chain terminating ethanol enables the formation narrow distributed polypropylene carbonate end capped with hydroxyl group. The hydroxyl end group of polypropylene carbonate ring opens the cyclic anhydride and results in PA incorporated terpolymer.

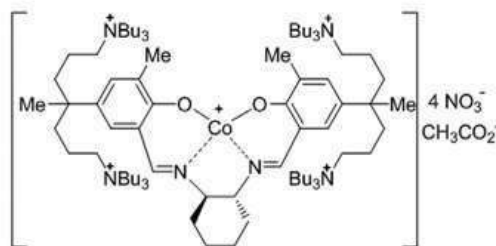
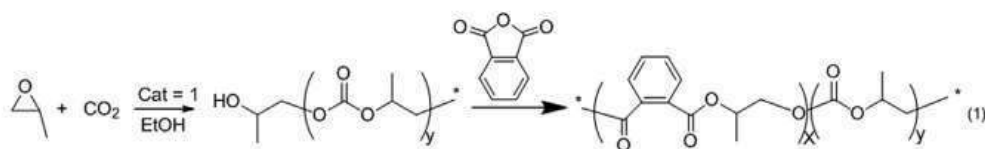



Table 1 CO₂/PO terpolymerization results by catalyst 1 using phthalic anhydride.a

Entry	PA (g)	Ethanol (mg)	Yield ^b (g)	Selectivity ^c	T _g ^d (°C)	M _n ^e	M _w /M _n ^e	f _{CO₂} ^c	f _{PA} ^c	Wt of PA from NMR (g) ^c
1	-	0	6.5	0.96	39.6	288900	1.47	1.00	0	0
2	0.25	0	6.5	0.96	39.7	258600	1.45	0.98	0.02	0.16
3	0.50	0	6.5	0.97	41.8	452200	1.38	0.97	0.03	0.24
4	1.00	0	6.0	0.96	41.2	303700	1.48	0.93	0.07	0.62
5	0.50	4.0	5.0	0.97	42.5	10600	1.14	0.95	0.05	0.35
6	0.80	4.0	5.5	0.96	44.1	216000	1.46	0.92	0.08	0.60
7	0.90	4.0	5.7	0.96	45.0	146300	1.21	0.92	0.08	0.63
8	1.00	4.0	6.5	0.96	44.8	85000	1.12	0.92	0.08	0.73
9	1.25	4.0	7.0	0.96	45.9	139500	1.25	0.90	0.10	0.97
10	1.50	4.0	7.0	0.96	44.1	92800	1.20	0.87	0.13	1.24

^aPolymerization conditions: PO (10.4 g, 170 mmol), Catalyst 1 (3.0 mg), CO₂ (30 bar), Temperature (70 °C), Induction time (1.0 h), Polymerization time (2.5 h). ^bYield after removal of propylene carbonate. ^cSelectivity, Weight of PA, carbonate and polyester fraction determined by 1H NMR spectroscopy. ^dDetermined on DSC. ^eDetermined on GPC using a polystyrene standard.

The terpolymerizations were carried out at 70°C by touching the bottom of bomb reactor in oil bath. Phthalic anhydride and catalyst are highly soluble in PO and PO acts as both solvent and monomer for this polymerization. CO₂/PO copolymerization is strictly alternating copolymerization using salen cobalt catalyst. Most of the metal salen catalyst gave high activities and selectivities for CO₂/PO copolymerization. To get an insight of incorporation terpolymerization were carried out with varying amount of PA. From 1H NMR it was clear that all added PA monomer were incorporated with reasonable discrepancies. Similar experiments conducted with lactide, caprolactone, maleic anhydride and other

cyclic anhydrides were not found to be working even in the presence of ethanol.

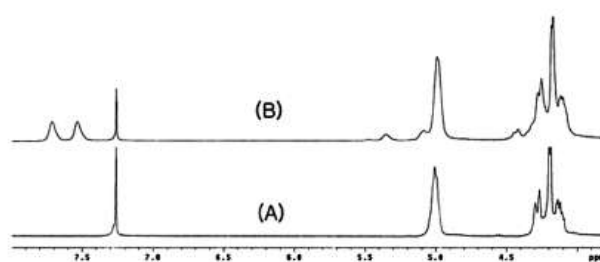


Figure 1 The 1H NMR spectrum of (A) PPC (Entry 1 of Table 1), (B) (Entry 8 of Table 1)

Polymer Characterization: The terpolymer were characterized by 1H NMR, 13C NMR, GPC and DSC. The polymerizations were carried out to reach full conversion by giving 2.5 hour reaction time except the CO₂/PO Copolymerization (Entry 1



of Table 1). The peak at 7.5 and 7.7 ppm represents 4 aromatic protons of PA. The peak at 5.3 ppm and a shoulder close to 5 ppm and 4.4 ppm indicates insertion of PA into polymer back bone. The percentage of PA incorporated can be calculated from NMR justifies the added amount during polymerization and can be calculated from NMR by the following way.

$$\text{PA (polyester) \%} = [(A_{7.4-7.8}/4)]/[(A_{5.2-5.5} + A_{4.8-5.2})/3]$$

$$\text{PC(polycarbonate) \%} = 100\% - \text{PA\%}$$

¹³C NMR peaks at 166 ppm, 132 ppm, 131 ppm and 128 ppm also supports the incorporation of phthalic groups on PPC back bone. As the amount PA increases incorporation also increases as PA solubility is pretty high in PO. DSC gives single T_g and GPC data also supports genuine terpolymer.

Preparation of low-molecular-weight PA/PO/CO₂ terpolymer using varying

amount of ethanol. It is clear from our studies that small amount of ethanol is necessary to ring open the phthalic anhydride for insertion into polymer back bone. Darensbourg used small amount of water to make triblock copolymer from PO, CO₂ and lactide¹⁷. Ethanol is used as a traditional chain transfer agent in our polymerization as water kills our catalyst and blocks polymerization, even small amount of water increases the induction time. Initially we tried the polymerization in the absence of ethanol but we could not find considerable increase in T_g as the amount of PA increases. The slight amount of increase in T_g in the absence of ethanol is attributed to moisture content in our polymerization condition. As the amount of ethanol increases the Molecular weight decreases from 85000 (Entry 1 of Table 2) to 18700 (Entry 5 of Table 2). The decrease in T_g from 44.9°C to 42.7°C is due to the lowering of molecular weight.

Table 2 CO₂/PO/PA terpolymerization results by Salen Cobalt complex in presence of varying amount of ethanol.a

Entry	Ethanol (mg)	Yield ^b (g)	Selectivity ^c	T _g ^d (°C)	M _n ^e	M _w /M _n ^e	f _{CO₂} ^c	f _{PA} ^c	Wt of PA from NMR (g) ^e
1	4.00	6.5	0.96	44.8	85000	1.12	0.91	0.09	0.78
2	10.0	5.3	0.96	44.3	40000	1.09	0.90	0.10	0.73
3	14.0	6.2	0.96	45.0	37100	1.11	0.90	0.10	0.86
4	18.0	7.7	0.96	43.7	30500	1.01	0.93	0.07	0.77
5	24.0	6.0	0.96	42.7	18700	1.07	0.90	0.10	0.83

^aPolymerization conditions: PO (10.4 g, 170 mmol), Phthalic anhydride (1 g, 6.75 mmol), Catalyst 1 (3.0 mg), CO₂ (30 bar), Temperature (70 °C), Induction time (1.0 h), Polymerization time (2.5 h). ^bYield after removal of propylene carbonate. ^cSelectivity, Weight of PA, carbonate and polyester fraction determined by 1H NMR spectroscopy. ^dDetermined on DSC. ^eDetermined on GPC using a polystyrene standard.



The thermal property of polymer increases due to incorporation of phthalic groups. The terpolymer shows better Tg the CO₂/PO copolymer. The Tg of terpolymer is 5°C higher than the copolymer (Entry 8 of Table 1). Thus the agglomeration of PPC pellets can be prevented and which enhance the commercialization of this attractive polymer.

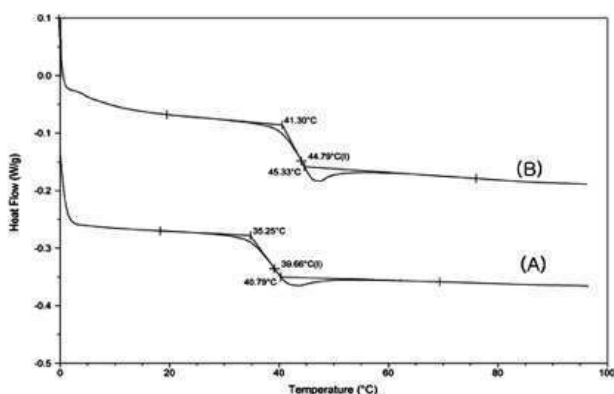
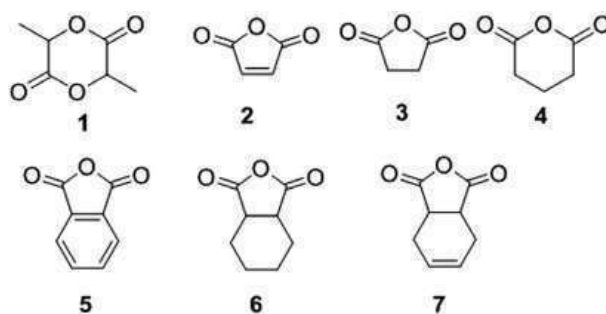


Figure 2 DSC Curves (A) PPC (Entry 1 of Table 1), (B) (Entry 8 of Table 1)

Terpolymerization using double metal cyanide catalyst by the addition of lactide and various cyclic anhydrides as third monomer.

Double metal cyanide catalysts for the copolymerization of PO and CO₂ to produce poly(propylene carbonate-co-propylene oxide) has been thoroughly investigated¹⁸. It has also been reported for the copolymerization of CS₂/epoxides¹⁹ and cyclic anhydrides/epoxides²⁰. Recently we reported a new DMC catalyst

[ZnCl]⁺² [HCo(CN)₆]²⁻•[CH₃OH] prepared using H³Co(CN)₆ which is superior to conventional DMC catalyst in terms of carbonate linkage and activity¹². Here we report terpolymerization using new DMC catalyst, CO₂ and PO with



lactide (3,6-dimethyl-1,4-dioxane-2,5-dione (1) and various anhydrides like maleic anhydride (MA) (2), succinic anhydride (SA) (3), glutaric anhydride (GA) (4), phthalic anhydride (PA) (5), 1,2-cyclohexane dicarboxylic anhydride (CDA) (6) and cis-1,2,3,6-tetrahydrophthalic anhydride (TPA) (7).

The polymers having random structures with ether linkages are obtained by this terpolymerization and shows relatively broad molecular weight distribution. The new DMC catalyst is a hydrogenated form and it contain proton play key role for giving high catalyst performance without fluctuation. It is a cationic coordination catalyst and the mechanism of this reaction is considered to be cationic coordination mechanism.

Table 3. CO₂/PO terpolymerization results by [ZnCl]⁺² [HCo(CN)₆]²⁻•[CH₃OH] in the feeding of third monomer^a

entry	DMC Catalyst (mg)	monomer (0.01 mol)	Yield ^b (g)	Selectivity ^c	T _g ^d (°C)	M _n ^e	M _w /M _n ^e	f _{CO₂} ^c	f _{ester} ^c	f _{ether} ^c
1	5	-	7.0	0.93	9	41000	2.1	0.62	-	0.38



2	5	1	8.0	0.93	15	17800	2.0	0.60	0.10	0.30
3	5	2	6.7	0.90	8	10900	3.0	0.53	0.09	0.38
4	10	3	9.9	0.93	5	32500	2.3	0.55	0.13	0.32
5	10	4	7.7	0.95	-3	9300	1.7	0.52	0.15	0.33
6	10	5	9.0	0.93	13	18000	1.9	0.53	0.11	0.36
7	10	6	9.6	0.97	14	19800	1.9	0.62	0.10	0.28
8	10	7	8.8	0.96	16	28600	2.4	0.60	0.10	0.30

^aPolymerization conditions: PO (10.0 g, 170 mmol), Temperature (90 °C), Induction time (1.0 h), Reaction time 2h, CO₂ pressure (30 bar). ^bYield after removing propylene carbonate. ^cSelectivity, carbonate, ether and polyester fraction determined by 1H NMR spectroscopy. ^dDetermined on DSC. ^eDetermined on GPC using a polystyrene standard.

Characterization of polymers. The terpolymers obtained are characterized by 1H NMR, ¹³C NMR, GPC and Tg. The 1H NMR spectrum of terpolymer (Entry 2 of Table 3) shows characteristic peaks of lactide incorporation at 5.18 ppm and 1.5 ppm and could not find lactide homopolymerization peaks. The ¹³C NMR spectra shows peak at 169 ppm is the CO₂ peak of lactide unit, CH-O peak near to CO₂ and other lactide related peak were observed between 70-73 ppm. DSC gives single Tg 15°C. From NMR 10 mol % of lactide was found to be incorporated.

An extra absorption peak of 1H NMR spectrum at 6.2 ppm (-CH=CH-) shows the presence of MA unit in terpolymer (Entry 3 of Table 3). A peak at 5.2 ppm supports its incorporation. Other characteristic peak includes 1.3 ppm, 3.5 ppm, 4.2 ppm and 4.9 ppm. The ¹³C NMR peaks at 129 ppm and 164 ppm also indicates that MA terpolymerize or insert into terpolymer backbone. GPC and DSC data also supports it is a genuine terpolymer. The peaks at 2.6

ppm and 5.1 ppm indicates the presence of succinic anhydride incorporation in ¹H NMR spectrum (Entry 4 of Table 3). The ¹³C NMR peaks at 171 ppm and 29 ppm also ensures SA incorporation. DSC and GPC data also supports these terpolymers are genuine terpolymer not mixtures.

The ¹H NMR peaks at 5.1 ppm, 2.3 ppm and 1.9 ppm supports the terpolymerization of glutaric acid in the terpolymer (Entry 5 of Table 3) whereas ¹³C NMR peaks at 172 ppm, 33 ppm and 19 ppm also supports the GA incorporation. The glass transition temperature is low -3°C because of CH₂ groups in polymer backbone. Molecular weight also low (Mn 93000). The aromatic hydrogens of Phthalic anhydride were observed at 7.7 ppm and 7.4 ppm of 1H NMR spectrum of terpolymer (Entry 6 of Table 3). The peak at 5.2-5.4 ppm also ensures the terpolymerization of phthalic groups. The ¹³C NMR peaks at 166 ppm, 131 and 128 ppm also ensures PA incorporation.



The ^1H NMR peaks at 5.1 ppm, 2.8 ppm, 1.9 ppm and 1.7 ppm shows CDA incorporation (Entry 7 of Table 3). The ^{13}C NMR peaks at 172 ppm, 42.5 ppm, 26.2 ppm and 23.7 ppm also ensures CDA incorporation. The ^1H NMR peaks at 5.6 ppm, 5.1 ppm, 3.0 ppm, 2.5 ppm and 2.3 ppm supports the incorporation of TPA in terpolymer back bone (Entry 8 of Table 3). The ^{13}C NMR peaks at 172 ppm, 124 ppm, 39.3 and 25.4 ppm shows TPA incorporation.

The carbonate fraction was not found to be altered much during terpolymerization. Caprolactone gives poor selectivity for terpolymerization (0.78) for terpolymerization with DMC catalyst. The Tg of terpolymers depends on ether linkage and molecular weight. Glutaric anhydride gives lowest Tg among all terpolymers due to flexible aliphatic unit. Single Tg and DSC curve also supports these terpolymers are genuine not a mixture of copolymers or terpolymers. CO_2 and third monomer could not homopolymerize nor copolymerize under the reaction conditions. So the terpolymerization is competitive alternating of PO with CO_2 and PO with third monomer.

Conclusion. Incorporating phthalic groups improves thermal property of polypropylene carbonate. A rise in Tg of 5°C is enough to prevent agglomeration PPC pellets and enhance commercialization of this attractive polymer. A small amount of ethanol is used to ring open phthalic anhydride and influences is incorporation. The new DMC catalyst identified as $[\text{ZnCl}]^{+2}[\text{HCo}(\text{CN})_6]^{2-} \cdot [\text{CH}_3\text{OH}]$ shows good catalytic performance towards the terpolymerization of third monomer like lactide and various anhydrides. The cationic

coordination catalyst results in polymer having random structure and relatively broad molecular weight distribution. The glass transition temperature depends on ether linkage and molecular weight

Acknowledgments

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THEORETICAL INVESTIGATIONS ON MOLECULAR GEOMETRY AND CHARGE TRANSFER INTERACTIONS ANALYSIS IN A $[H_2PIP]Cd_2Cl_6(H_2O)_2$

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Abstract

Theoretical characterizations of piperazine attached chlorocadmate complex are carried out using geometrical optimization and natural bond orbital analysis. The charge transfer from the metal atom to the amine group of the molecule is evident from the natural bond orbital analysis. The intermolecular interactions such as N-H...Cl, O-H...Cl, C-H...Cl give stability in the molecule.

Keywords: Density Functional Theory, Normal Coordinate analysis.

Introduction

Piperazine derivatives such as 1-Amino 4-methylpiperazine [1], 1-(m-(trifluoromethyl)phenyl) piperazine [2], monohydrate piperazine hydrogen phosphate [3] have nonlinear optical activity. Piperazine is an organic compound which consists of a six-membered ring containing two nitrogen atoms at opposite positions in the ring. Piperazine conformations are differ as chair, half-chair, boat, twist boat and envelope forms. Above these conformations, Hendrickson proposed that chair is most stable and chair-chair inter link have the most stable transition state [4],[5]. The center metal exhibits a variety of coordi-

nation numbers in the Cd(II) complexes. The coordination of Cd²⁺ cation is basically present only in polymeric chlorocadmate (II), although a variety of stoichiometry's are possible to form chains by face, edge, or vertex sharing in CdCl₆ octahedra [6],[7]. Piperazine categorized as building blocks in drug discovery due to its pharmacological properties [8],[9]. It have a broad range of applications in pharmaceuticals as antimicrobial, anti-tubercular, anticonvulsant, antidepressant, anti-inflammatory, cytotoxic, anti-malarial, antirhythmic, antioxidant and antiviral activities etc.

In the present crystal, the investigations on optimized geometry, orbital charge transfer interaction, intra and inter molecular interactions are used by theoretical methods.

Computational Details

The DFT study has been carried out with a new hybrid exchange correlation functional level using the B3LYP [17] with the standard basis set 3-21G(d,p) level [18] through Gaussian 09W software package [19]. The appraisal of intra, inter molecular interactions, donor - acceptor energy relations of the complex were adopted from the NBO analysis using the



NBO 5.0 program in Gaussian 09W software package [21].

Result and Discussion

Optimized Geometry of the complex $[H_2pip]Cd_2Cl_6(H_2O)_2$

The optimized structure of monomer is given in figure 1 and its parameters are tabulated in table 1. The bonds N_6-H_{17} , $O_{21}-Cd_{22}$, $Cl_{25}-Cd_{27}$, and $Cd_{27}-O_{30}$ have difference in bond length above 0.05\AA between monomer and observed XRD data. Also, due to this change in bond length, there arises slight deviation at its corresponding bond angle and dihedral angle. The dimer structure shows deviation in bond N_6-H_{17} (elongate), $Cd_{22}-Cl_{24}$, $Cd_{27}-Cl_{29}$ (shorten) with difference in bond length $\sim 0.06\text{\AA}$. Comparing with monomer, the dimer structure is more close to the experimental single crystal XRD data. The C-C-N ring angles of the piperazine are varied as 111° and 109° . This reveals that piperazine

of the present compound shows the most stable chair confirmation. The hydrogen bonded distance of the intra and inter molecular interactions in this complex which expands ($N_3-H_{12}\cdots Cl_{57}$, $O_{21}-H_{19}\cdots Cl_{55}$, $C_{36}-H_{45}\cdots Cl_{24}$) and compress ($N_{35}-H_{43}\cdots Cl_{29}$, $C_5-H_{16}\cdots Cl_{55}$, $C_{34}-H_{42}\cdots Cl_{24}$, $N_{35}-H_{43}\cdots Cl_{28}$, $C_{34}-H_{41}\cdots Cl_{29}$, $N_6-H_{17}\cdots O_{21}$, $N_{38}-H_{49}\cdots O_{53}$) within the Van der Waal radii (3.06\AA) in reference with observed data are entered in table 4. These interactions describe the coordination and sharing of edges of five Cl^- ions and one water molecule in the octahedral zigzag infinite extension of the $Cd(II)$. All the above interactions confirm that the dimer molecule has more structural stability than monomer molecule. The nitrogen atom of piperazine ($C_4N_2H_{12}$) act as acceptor forms hydrogen bonds to the terminal Cl atom. Most of the bond parameters of dimer structure using basis set B3LYP/3-21G is matched with its experimental bond parameters.

Table 1: Optimized bond lengths, bond angles and dihedral angles of $[H_2pip][Cd_2Cl_6(H_2O)_2]$ by using B3LYP/3-21G(d,p) in comparison with the XRD data.

Bond length	Monomer	Expt	Bond angle	Monomer	Expt	Dihedral angle	Monomer	Expt
	(\AA)	(\AA)		($^\circ$)	($^\circ$)		($^\circ$)	($^\circ$)
C1 -C2	1.53	1.52	C2 -C1 -N6	109.30	111.38	N6 -C1 -C2 -N3	-57.52	-53.92
C1 -N6	1.51	1.51	C2 -C1 -H7	112.49	109.94	N6 -C1 -C2 -H9	-177.41	-172.26
C1 -H7	1.09	1.08	C2 -C1 -H8	108.80	111.93	N6 -C1 -C2 -H10	58.39	64.68
C1 -H8	1.09	1.08	N6 -C1 -H7	108.53	106.73	H7 -C1 -C2 -N3	63.09	64.17
C2 -N3	1.54	1.51	N6 -C1 -H8	108.40	107.16	H7 -C1 -C2 -H9	-56.79	-54.17
C2 -H9	1.09	1.08	H7 -C1 -H8	109.25	109.53	H7 -C1 -C2 -H10	179.00	-177.23
C2 -H10	1.09	1.08	C1 -C2 -N3	109.64	108.34	H8 -C1 -C2 -N3	-175.72	-173.86
N3 -C4	1.56	1.52	C1 -C2 -H9	111.97	109.94	H8 -C1 -C2 -H9	64.39	67.81
N3 -H11	1.03	1.02	C1 -C2 -H10	109.57	112.50	H8 -C1 -C2 -H10	-59.81	-55.26
N3 -H12	1.03	1.02	N3 -C2 -H9	108.03	108.44	C2 -C1 -N6 -C5	61.58	47.91
C4 -C5	1.52	1.52	N3 -C2 -H10	105.97	107.42	C2 -C1 -N6 -H17	-170.16	164.44
C4 -H13	1.09	1.08	H9 -C2 -H10	111.47	110.08	C2 -C1 -N6 -H18	-54.98	-80.97

C4 -H14	1.09	1.08	C2 -N3 -C4	111.56	110.79	H7 -C1 -N6 -C5	-61.43	-72.10
C5 -N6	1.52	1.52	C2 -N3 -H11	109.13	113.33	H7 -C1 -N6 -H17	66.84	44.43
C5 -H15	1.09	1.08	C2 -N3 -H12	110.18	110.30	H7 -C1 -N6 -H18	-177.99	159.02
C5 -H16	1.09	1.08	C4 -N3 -H11	108.31	109.38	H8 -C1 -N6 -C5	-179.97	170.63
N6 -H17	1.17	1.05	C4 -N3 -H12	109.55	108.47	H8 -C1 -N6 -H17	-51.71	-72.84
N6 -H18	1.06	1.02	H11 -N3 -H12	108.02	104.29	H8 -C1 -N6 -H18	63.47	41.75
H17 -O21	1.38	1.59	N3 -C4 -C5	109.02	108.16	C1 -C2 -N3 -C4	55.79	63.91
H19 -O21	1.00	0.97	N3 -C4 -H13	106.54	107.27	C1 -C2 -N3 -H11	175.43	-172.71
H20 -O21	1.01	0.97	N3 -C4 -H14	108.45	106.99	C1 -C2 -N3 -H12	-66.12	-56.21
O21 -Cd22	3.95	2.56	C5 -C4 -H13	110.70	112.74	H9 -C2 -N3 -C4	178.05	-176.81
Cd22 -Cl23	2.53	2.59	C5 -C4 -H14	112.05	110.70	H9 -C2 -N3 -H11	-62.30	-53.42
Cd22 -Cl24	2.67	2.78	H13 -C4 -H14	109.89	110.72	H9 -C2 -N3 -H12	56.14	63.07
Cd22 -Cl25	2.54	2.66	C4 -C5 -N6	109.55	111.48	H10 -C2 -N3 -C4	-62.38	-57.86
Cd22 -Cl26	2.62	2.58	C4 -C5 -H15	107.50	111.67	H10 -C2 -N3 -H11	57.26	65.52
Cl24 -Cd27	2.80	2.75	C4 -C5 -H16	113.09	110.73	H10 -C2 -N3 -H12	175.71	-177.98
Cl25 -Cd27	2.85	2.71	N6 -C5 -H15	107.79	106.54	C2 -N3 -C4 -C5	-55.91	-64.02
Cd27 -Cl28	2.54	2.68	N6 -C5 -H16	108.42	107.19	C2 -N3 -C4 -H13	63.59	57.85
Cd27 -Cl29	2.54	2.57	H15 -C5 -H16	110.37	109.03	C2 -N3 -C4 -H14	-178.17	176.70
Cd27 -O30	2.29	2.22	C1 -N6 -C5	111.37	115.85	H11 -N3 -C4 -C5	-176.04	170.35
O30 -H31	1.01	0.97	C1 -N6 -H17	113.13	106.21	H11 -N3 -C4 -H13	-56.55	-67.78
O30 -H32	1.00	0.96	C1 -N6 -H18	106.80	113.16	H11 -N3 -C4 -H14	61.70	51.07

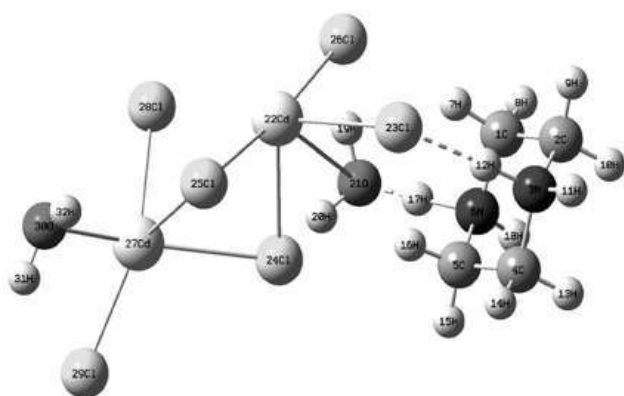


Fig.1. Atomic number scheme used in optimized geometry of $[H_2pip]Cd_2Cl_6(H_2O)_2$ monomer molecule.

Natural Bond Orbital Analysis

The natural bond orbital analyses describe the intra and inter molecular charge transfer (ICT) interaction causing stabi-

lization of the molecule (Table 2). The $\sigma^* \rightarrow \sigma^*$ orbital interaction observed between donor $Cd_{54}-Cl_{56}$ and acceptor $O_{53}-Cd_{54}$ bond is occurs with highest stabilization energy 1846.30 KJ/mol. The lone pair (LP) interaction LP (2) $O_{21} \rightarrow \sigma^*(N_6-H_{17})$ and the $\sigma \rightarrow \sigma^*$ orbital interaction $\sigma(O_{53}-Cd_{54}) \rightarrow \sigma^*(N_{38}-H_{49})$ confirms the presence of N-H...O intermolecular interaction with energy 314.47 and 198.50 KJ/mol respectively. The LP (2) $Cl_{28} \rightarrow \sigma^*(N_{35}-H_{43})$ and LP (2) $Cl_{61} \rightarrow \sigma^*(N_3-H_{11})$ confirms the contribution of the N-H ... Cl interactions 180.70 and 104.46 KJ/mol. The electron charge transfer from $\pi(Cd_{59}-Cl_{60})$ to $\sigma^*(H_{52}-O_{53})$ bond orbital reveals the evidence of the occurrence of O-H...Cl interaction. The crystal chemistry of chlorocadmates



(II) is confirmed through the $\sigma \rightarrow \sigma^*$ orbital mutual interactions of Cd-Cl bonds. The simple tetrahedral anions CdCl_4^{2-} is formed by the $\sigma \rightarrow \sigma^*$ orbital interactions which is mutually with four bonds such as, $(\text{Cd}_{27}-\text{Cl}_{24})$, $(\text{Cd}_{27}-\text{Cl}_{25})$, $(\text{Cd}_{22}-\text{Cl}_{24})$, $(\text{Cd}_{22}-\text{Cl}_{25})$ and are serves as the backbone of chain polymers. These hydrogen bonding network involving organic cations together with chlorocadmates (II) forms panoply

of the columnar stacks of chains which stabilizes the whole crystal with great stabilization energy. The overall natural bond orbital analysis reveals that the H...Cl hydrogen bonded intermolecular interaction has more contribution in the present complex than other hydrogen bonded intermolecular interactions to maintain its stability.

Table 2: Second order perturbation theory analysis of Fock matrix in NBO basis of $[\text{H}_2\text{pip}][\text{Cd}_2\text{Cl}_6(\text{H}_2\text{O})_2]$.

Donor (i)	ED(i)	Acceptor (j)	ED(j)	E(2) KJ/mol	E(j)-E(i)	F(i,j)
	(e)		(e)		a.u.	a.u.
$\sigma^*(\text{Cd } 54 - \text{Cl } 56)$	0.1106	$\sigma^*(\text{O } 53 - \text{Cd } 54)$	0.1238	1846.30	0.03	0.32
$\sigma^*(\text{Cd } 54 - \text{Cl } 57)$	0.1039	$\sigma^*(\text{Cd } 54 - \text{Cl } 56)$	0.1106	359.69	0.10	0.26
$\sigma^*(\text{Cl } 24 - \text{Cd } 27)$	0.1116	$\sigma^*(\text{Cl } 25 - \text{Cd } 27)$	0.0736	343.19	0.01	0.09
LP (2) O 21	1.8418	$\sigma^*(\text{N } 6 - \text{H } 17)$	0.1476	314.47	0.82	0.22
$\sigma(\text{O } 53 - \text{Cd } 54)$	1.8899	$\sigma^*(\text{N } 38 - \text{H } 49)$	0.1217	198.50	0.92	0.19
$\sigma^*(\text{Cd } 54 - \text{Cl } 57)$	0.1039	$\sigma^*(\text{O } 53 - \text{Cd } 54)$	0.1238	197.37	0.14	0.21
LP (3) Cl 28	1.8512	$\sigma^*(\text{N } 35 - \text{H } 43)$	0.1303	180.70	0.56	0.14
$\pi(\text{Cd } 59 - \text{Cl } 60)$	1.9004	$\sigma^*(\text{H } 52 - \text{O } 53)$	0.0797	112.96	0.61	0.12
LP (3) Cl 61	1.9003	$\sigma^*(\text{N } 3 - \text{H } 11)$	0.0831	104.46	0.61	0.11
$\sigma(\text{C } 1 - \text{H } 8)$	1.9808	$\sigma^*(\text{C } 2 - \text{N } 3)$	0.0222	16.58	0.74	0.05
$\sigma(\text{C } 1 - \text{H } 8)$	1.9808	$\sigma^*(\text{C } 5 - \text{N } 6)$	0.0218	10.30	0.76	0.04
$\sigma(\text{C } 2 - \text{H } 9)$	1.9812	$\sigma^*(\text{C } 1 - \text{N } 6)$	0.0229	17.21	0.77	0.05
$\sigma(\text{C } 4 - \text{H } 14)$	1.9802	$\sigma^*(\text{C } 2 - \text{N } 3)$	0.0222	10.05	0.73	0.04
$\sigma(\text{C } 4 - \text{H } 14)$	1.9802	$\sigma^*(\text{C } 5 - \text{N } 6)$	0.0218	17.71	0.76	0.05
$\sigma(\text{C } 5 - \text{H } 15)$	1.9775	$\sigma^*(\text{C } 1 - \text{N } 6)$	0.0229	10.89	0.74	0.04
$\sigma(\text{C } 5 - \text{H } 15)$	1.9775	$\sigma^*(\text{N } 3 - \text{C } 4)$	0.0237	17.29	0.72	0.05
$\sigma(\text{N } 6 - \text{H } 17)$	1.9799	$\sigma^*(\text{C } 1 - \text{C } 2)$	0.0135	10.26	0.94	0.04
$\sigma(\text{H } 19 - \text{O } 21)$	1.9970	$\sigma^*(\text{N } 6 - \text{H } 17)$	0.1476	15.41	1.05	0.06
$\sigma(\text{H } 20 - \text{O } 21)$	1.9959	$\sigma^*(\text{N } 6 - \text{H } 17)$	0.1476	10.59	1.07	0.05
LP (2) O 21	1.8418	$\sigma^*(\text{N } 6 - \text{H } 17)$	0.1476	314.47	0.82	0.22
LP (2) O 21	1.8418	$\sigma^*(\text{H } 20 - \text{O } 21)$	0.0814	13.52	0.82	0.05
LP (1) O 21	1.9228	$\sigma^*(\text{Cd } 22 - \text{Cl } 23)$	0.0808	27.30	0.45	0.05
LP (1) O 21	1.9228	$\sigma^*(\text{Cd } 22 - \text{Cl } 24)$	0.1195	48.27	0.44	0.06



LP (1) O 21	1.9228	$\sigma^*(\text{Cd } 22 - \text{Cl } 25)$	0.0862	13.36	0.46	0.03
LP (1) O 21	1.9228	$\sigma^*(\text{Cd } 22 - \text{Cl } 26)$	0.0836	13.94	0.44	0.03
LP (2) O 21	1.8418	$\sigma^*(\text{Cd } 22 - \text{Cl } 24)$	0.1195	10.47	0.64	0.04
LP (2) O 21	1.8418	$\sigma^*(\text{Cd } 22 - \text{Cl } 25)$	0.0862	10.76	0.67	0.04
LP (3) Cl 26	1.9185	$\sigma^*(\text{N } 6 - \text{H } 18)$	0.0674	70.25	0.61	0.09
$\sigma^*(\text{Cd } 22 - \text{Cl } 23)$	0.0808	$\sigma^*(\text{H } 20 - \text{O } 21)$	0.0814	22.27	0.74	0.06
LP (3) Cl 23	1.9072	$\sigma^*(\text{H } 20 - \text{O } 21)$	0.0814	87.09	0.52	0.09
$\sigma^*(\text{Cd } 22 - \text{Cl } 24)$	0.1195	$\sigma^*(\text{Cd } 22 - \text{Cl } 25)$	0.0862	12.14	0.57	0.04
$\sigma^*(\text{Cd } 22 - \text{Cl } 25)$	0.0862	$\sigma^*(\text{Cd } 22 - \text{Cl } 24)$	0.1195	14.57	0.57	0.04
$\sigma^*(\text{Cl } 24 - \text{Cd } 27)$	0.1116	$\sigma^*(\text{Cl } 25 - \text{Cd } 27)$	0.0736	31.40	0.65	0.06
$\sigma^*(\text{Cl } 24 - \text{Cd } 27)$	0.1116	$\sigma^*(\text{Cd } 27 - \text{Cl } 28)$	0.0834	27.21	0.63	0.06
$\sigma^*(\text{Cl } 24 - \text{Cd } 27)$	0.1116	$\sigma^*(\text{Cd } 27 - \text{Cl } 29)$	0.0618	13.57	0.60	0.04
$\sigma^*(\text{Cl } 24 - \text{Cd } 27)$	0.1116	$\sigma^*(\text{Cd } 27 - \text{O } 30)$	0.0751	16.24	0.77	0.05
$\sigma^*(\text{Cl } 25 - \text{Cd } 27)$	0.0736	$\sigma^*(\text{Cl } 24 - \text{Cd } 27)$	0.1116	40.82	0.64	0.07
$\sigma^*(\text{Cl } 25 - \text{Cd } 27)$	0.0736	$\sigma^*(\text{Cd } 27 - \text{O } 30)$	0.0751	56.73	0.77	0.09
$\sigma^*(\text{Cd } 27 - \text{Cl } 28)$	0.0834	$\sigma^*(\text{Cl } 24 - \text{Cd } 27)$	0.1116	30.86	0.62	0.06
$\sigma^*(\text{Cd } 27 - \text{Cl } 28)$	0.0834	$\sigma^*(\text{Cd } 27 - \text{O } 30)$	0.0751	42.91	0.76	0.08
$\sigma^*(\text{Cd } 27 - \text{Cl } 29)$	0.0618	$\sigma^*(\text{Cl } 24 - \text{Cd } 27)$	0.1116	30.77	0.64	0.06
$\sigma^*(\text{Cd } 27 - \text{Cl } 29)$	0.0618	$\sigma^*(\text{Cd } 27 - \text{O } 30)$	0.0751	21.39	0.77	0.06
$\sigma^*(\text{Cd } 27 - \text{O } 30)$	0.0751	$\sigma^*(\text{Cl } 24 - \text{Cd } 27)$	0.1116	15.70	0.73	0.05
$\sigma^*(\text{Cd } 27 - \text{O } 30)$	0.0751	$\sigma^*(\text{Cl } 25 - \text{Cd } 27)$	0.0736	51.67	0.74	0.09
$\sigma^*(\text{Cd } 27 - \text{O } 30)$	0.0751	$\sigma^*(\text{Cd } 27 - \text{Cl } 28)$	0.0834	50.49	0.72	0.08
$\sigma^*(\text{Cd } 27 - \text{O } 30)$	0.0751	$\sigma^*(\text{Cd } 27 - \text{Cl } 29)$	0.0618	14.44	0.69	0.04
$\sigma(\text{O } 30 - \text{H } 31)$	0.0151	$\sigma^*(\text{Cd } 27 - \text{Cl } 28)$	0.0834	11.22	0.90	0.05
LP (2) Cl 23	1.9682	$\sigma^*(\text{Cd } 22 - \text{Cl } 24)$	0.1195	11.30	0.33	0.03
LP (2) Cl 23	1.9682	$\sigma^*(\text{Cd } 22 - \text{Cl } 26)$	0.0836	13.86	0.34	0.03
LP (3) Cl 23	1.9072	$\sigma^*(\text{Cd } 22 - \text{Cl } 25)$	0.0862	12.31	0.37	0.03
LP (2) Cl 26	1.9691	$\sigma^*(\text{Cd } 22 - \text{Cl } 23)$	0.0808	10.47	0.36	0.03
LP (2) Cl 29	1.9693	$\sigma^*(\text{Cl } 24 - \text{Cd } 27)$	0.1116	13.36	0.41	0.03
LP (3) Cl 29	1.9588	$\sigma^*(\text{Cl } 25 - \text{Cd } 27)$	0.0736	11.60	0.45	0.03
LP (3) Cl 29	1.9588	$\sigma^*(\text{Cd } 27 - \text{Cl } 28)$	0.0834	10.13	0.43	0.03
LP (1) O 30	1.9755	$\sigma^*(\text{Cl } 24 - \text{Cd } 27)$	0.1116	18.46	0.61	0.05
$\sigma^*(\text{Cd } 22 - \text{Cl } 24)$	0.1195	$\sigma^*(\text{Cd } 22 - \text{Cl } 23)$	0.0808	29.10	0.02	0.03
$\sigma^*(\text{Cl } 24 - \text{Cd } 27)$	0.1116	$\sigma^*(\text{Cl } 25 - \text{Cd } 27)$	0.0736	343.19	0.01	0.09
$\sigma^*(\text{Cl } 24 - \text{Cd } 27)$	0.1116	$\sigma^*(\text{Cd } 27 - \text{O } 30)$	0.0751	16.91	0.13	0.07
LP (1) Cl 24	1.9727	$\sigma^*(\text{C } 34 - \text{H } 42)$	0.0264	11.64	1.20	0.05
LP (1) Cl 28	1.9910	$\sigma^*(\text{N } 35 - \text{H } 43)$	0.1303	14.24	1.01	0.05



LP (3)Cl 28	1.8512	$\sigma^*(N 35 - H 43)$	0.1303	180.70	0.56	0.14
LP (1)Cl 56	1.9784	$\pi^*(Cd 59 - Cl 60)$	0.10245	20.43	0.96	0.06
LP (3)Cl 56	1.8523	$\pi^*(Cd 59 - Cl 60)$	0.10245	51.00	0.6	0.077
LP (1)Cl 61	1.9861	$\pi^*(Cd 59 - Cl 60)$	0.10245	10.84	0.99	0.046
LP (1) O 62	1.9698	$\pi^*(Cd 59 - Cl 60)$	0.10245	24.07	0.52	0.05

Conclusion

Semi-organic molecule $[H_2pip]Cd_2Cl_6(H_2O)_2$ is optimized by B3LYP/3-21++G(d,p) basis set. From this geometry, it is found that the molecular model recovered from B3LYP/3-21++G(d,p) in this study being the best representation of the actual molecular structure. Theoretical studies using optimized geometry and NBO gives information mainly about the interatomic properties, intermolecular interactions and charge transfer.

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FABRICATION OF REDUCED GRAPHENE OXIDE- β -CYCLODEXTRIN-COPPER OXIDE COMPOSITE MODIFIED ELECTRODE FOR TYRAMINE DETECTION

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Abstract

A simple and novel electrochemical sensor was developed to determine tyramine based on the reduced graphene oxide- β -cyclodextrin-copper oxide composite modified gold electrode (rGO- β -CD-Cu₂O/AuE). The reduced graphene oxide provide stable matrix and a large surface area for the fabrication of the sensing interface while the Cu₂O nanoclusters dramatically promoted the current of tyramine on the electrode. β -cyclodextrin can form inclusion complexes with tyramine molecule via non-covalent interactions. FTIR, XRD, scanning electron microscopy and electrochemical methods were used to characterize the rGO- β -CD-Cu₂O composite.

1. Introduction

Tyramine is a naturally occurring trace amines derived from the amino acid tyrosine (Fig 1.1). Tyramine act as a catecholamine releasing agent. Notably, it is unable to cross the blood – brain barrier, resulting in only non-psychoactive peripheral sympathomimetic effects following ingestion. Tyramine occurs widely in plants and animals and is

metabolized by various enzymes including monoamine oxidases [1]. In foods it is often produced by the decarboxylation of tyrosine during fermentation. Evidence for the presence of tyramine in the human brain has been confirmed by postmortem analysis.

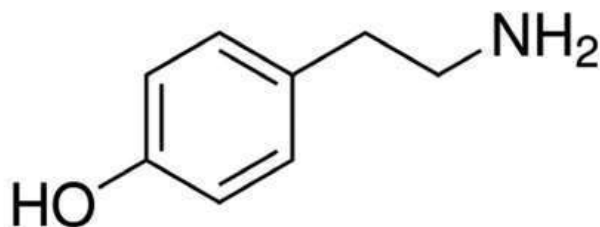


Fig 1.1 Structure of tyramine

Electrochemical sensors and biosensors have recently found extensive applications in diverse industries. Many analytical instruments used in environmental, food, pharmaceutical, or clinical laboratories and also most of the commercial point-of-care devices work using chemical sensors or biosensors, as a whole or a basic part. Graphene is one of the most promising materials that holds great promise for potential applications in many technological fields because of its high surface area, low cost, and high conductivity.



Cyclodextrin (CDs) with their largely hydrophobic cavities of variable size and numerous ways of chemical modification are the subject of intensive electrochemical research including both their behavior in homogeneous solutions and in thin films attached to the electrode surfaces. Therefore, CDs are employed in electrochemical sensing devices for the determination of selected analytes. Macrocyclic host such as β -cyclodextrin (β -CD) as functional molecule not only can effectively disperse graphene and meanwhile can bring in new and enhanced functions. Therefore, various macrocyclic hosts modified graphene organic-inorganic nanohybrids have attracted considerable attention recently in electrochemical sensing field. Cuprous oxide (Cu_2O) has been considered as a promising candidate for electrochemical sensors due to their low cost and significant catalytic activities [2]. Here we developed an electrochemical sensor for the detection of tyramine using rGO- β -CD- Cu_2O modified gold electrode.

2. EXPERIMENTAL

2.1 Materials and methods

Monosodium phosphate and disodium phosphate were obtained from SRL. β -CD purchased from Sigma Aldrich.

Several techniques were used to characterize rGO- β -CD- Cu_2O composites and they include Fourier Transform Infra Red (FT-IR), scanning electron microscopy (SEM), X-ray Diffractometry (XRD) and cyclic voltammetry (CV). In the present work Perkin Elmer FT-IR was used with a frequency range of 400-4000 cm^{-1} . Scanning electron microscopy (SEM) images were obtained with a JEOL-JSM-6390A SEM. Bruker AXS D8 Advance for

X-ray diffraction studies. Electrochemical measurements were performed using a SP300 electrochemical workstation, Bio-Logic Science Instruments SAS (Germany).

2.2. Synthesis of copper oxide nanoclusters

Microwave assisted treatment of Fehling's solution and plant extract used to synthesize Cu_2O nanoclusters. The obtained Cu_2O nanoclusters were characterized by various techniques. [3]

2.3 Synthesis of graphene oxide from pristine graphene

Graphite oxide was synthesized from graphite powder by modified Hummer's method [4]. 2.0 g of graphite powder was added into 100 mL concentrated H_2SO_4 at room temperature. Under stirring, the mixture was cooled to 5°C using an ice bath, and the temperature of the mixture was kept to below 5°C for 30 min. KMnO_4 (8.0 g) was added gradually under stirring and cooled, so that the temperature of the mixture was not allowed to reach 10°C . 100 mL distilled water was added into the mixture, stirred for 1 hr and further diluted to approximately 300 mL with distilled water. 20 mL of 30% H_2O_2 was added to the mixture to reduce the residual KMnO_4 . The solid was filtered, washed with 5% HCl aqueous solution (800 mL) to remove metal ions and with distilled water until the pH was 6. The resulting graphite oxide (GO) was dried at 45°C for 24 hr [32].

2.4 Synthesis of Exfoliated Graphite Oxide (ExGO)

Aqueous colloids of ExGO were prepared by dispersing 1.0 g GO into 500 mL of distilled water by ultrasonication



and centrifugation for 2 hr to remove any unexfoliated GO. The ExGO was dried at 45°C for 24 hr.

2.5 Preparation of reduced graphene oxide and β -cyclodextrin composite (rGO- β -CD)

About 0.01 g rGO and 0.32 g β -cyclodextrin were mixed with 100 mL water and sonicated for 1 hr. After that 1 mL hydrazine and 7 mL ammonia solution were added to the above solution and kept in water bath for about 4 hr with constant stirring. It was washed with double distilled water until it became neutral. Then it placed in hot air oven for 12 hr.

2.6 Synthesis of rGO- β -cyclodextrin- Cu_2O composite

0.75 g of rGO- β -CD nanocomposite and 0.75 g of Cu_2O nanoclusters were mixed in 100 mL water and it was kept in water bath for about 10 hr with constant stirring. It kept in a hot air oven at 80°C for 24 hr.

2.7 Electrochemical measurements

A platinum wire and an Ag/AgCl (saturated KCl solution) electrode were used as auxiliary and reference electrodes, respectively. Modified gold electrode used as the working electrode. CV measurements were carried out in 100 mM PBS at 100 mV s^{-1} . Nyquist plots of faradic impedance were carried out in the same electrolyte.

2.8 Fabrication of the electrochemical sensor

Gold electrode (AuE) with diameter of 3 mm was treated sequentially with 0.3 and 0.05-mm alumina powder and chamois leather. AuE was cleaned by ultrasonication in ethanol and double-distilled water for 5 min. Finally, the

electrode was washed with Milli-Q water. A 0.7 mL portion of the solution of rGO- β -CD- Cu_2O , was mixed with 60 μL of 5 wt% Nafion solution by ultrasonication for a few seconds. 3 mL of the ink was dropped on the surface of the clean gold electrode with a micropipette and then dried at room temperature. Similarly rGO/ β -CD/AuE was fabricated. All electrochemical experiments were carried out at 25°C.

3. RESULTS AND DISCUSSION

3.1 Characterization of rGO- β -CD- Cu_2O nanocomposites

3.1.1 FT-IR spectroscopy

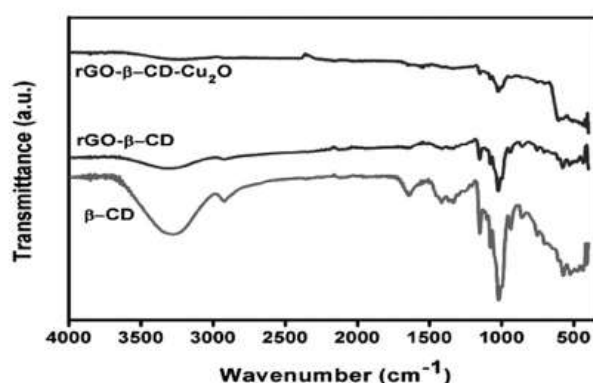


Fig. 3.1 FTIR spectrum of β -CD, rGO- β -CD, rGO- β -CD- Cu_2O

The structural evaluation of the nanocomposite was performed using FT-IR. Figure 3.1 shows that GO and rGO- β -CD samples possess hydrophilic O-H group (3010–3650 cm^{-1}) on their surfaces, thus ensuring their good dispersibility in water. A stretching vibration of CH between 2830 and 2950 cm^{-1} was obtained in the spectra. Furthermore, aromatic C=C stretching modes at 1630, 1671 and 1642 cm^{-1} belongs to rGO and rGO- β -CD. The characteristic stretching vibrational modes of C=O (1731 cm^{-1}), C-O (1219 cm^{-1}) and C-O (1051 cm^{-1}) bonds were observed in rGO- β -CD spectrum. After modification

with Cu_2O , the other characteristic peaks were shifted in position [2]. The Cu-O bond which is nearly at 615 cm^{-1} shifted to 610 cm^{-1} due to the presence of rGO- β -CD.

3.1.2 X-ray diffraction studies

The crystalline nature and structure of the synthesized nanocomposites were investigated with XRD analysis.

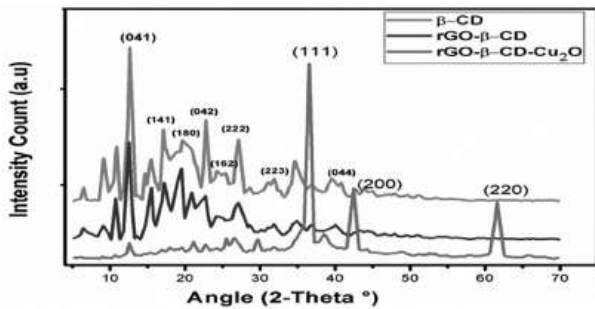


Fig. 3.2 XRD pattern of β -CD, rGO- β -CD, rGO- β -CD- Cu_2O

The XRD pattern of cyclodextrin indicates high crystallinity in cyclodextrin due to the characteristic sharp peaks at (041), (141), (180), (042), (162), (222), (223), and (044) (Fig. 3.2). The characteristic peaks of β -cyclodextrin reduced in the presence of reduced graphene oxide. The sharp peak at 37° of rGO- β -CD- Cu_2O indicated the (111) plane of Cu_2O nanoclusters. The peaks at 42.73° and 61.62° were representing the planes of Cu_2O at (200) and (220) respectively.

3.1.3. Scanning Electron Microscopy (SEM)

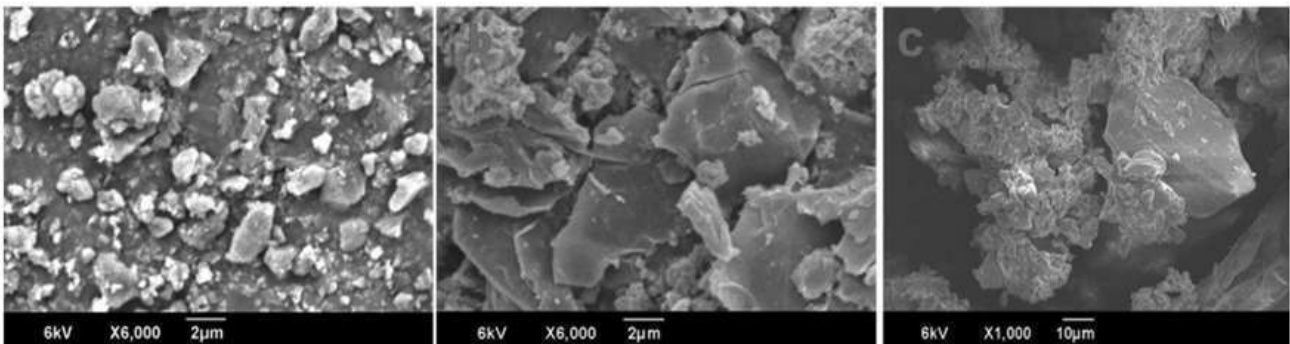


Fig. 3.3 Scanning electron micrograph of (a) β -CD, (b) rGO- β -CD, (c) rGO- β -CD- Cu_2O .

Other peaks were merged with the peaks of rGO- β -CD. These XRD patterns confirm the formation of rGO- β -CD- Cu_2O composite.

From the SEM images it was clear that β -cyclodextrin appeared as irregular-shaped crystals (Fig 3.3a). In Fig. 3.3b, graphene oxide sheets strongly attached with small fragments of β -cyclodextrin randomly gave rGO- β -CD. The β -cyclodextrin crystals appeared as it was grow on the graphene oxide sheets. The Cu_2O nanoclusters- adhered on β -CD-rGO composite displayed in Fig. 3.3c. Morphological characteristic of synthesized composite was affirmed by SEM.

3.2 Electrochemical detection studies

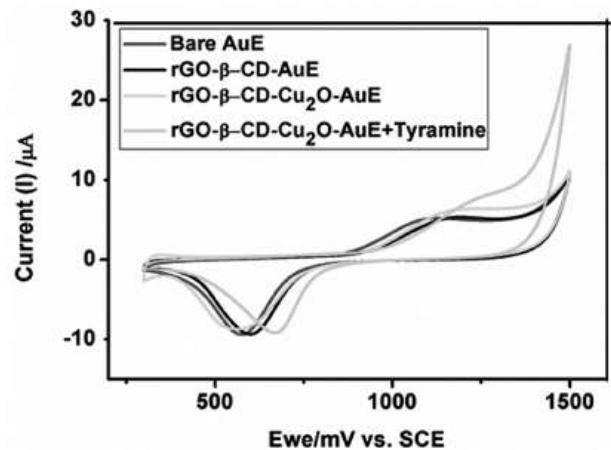


Fig. 3.4 Cyclic voltammogram behavior of tyramine, phosphate buffer (pH 4.0) bare gold electrode, rGO- β -CD-AuE, rGO- β -CD- Cu_2O -AuE in the absence and presence of tyramine $1.0 \times 10^{-3}\text{ M}$; scan rate: 100 mVs^{-1} .



The electrochemical behavior of 1 mM tyramine in a 100 mM pH 4.0 phosphate buffer solution was investigated using cyclic voltammetry at a scan rate of 100 mV s^{-1} exhibits a well-defined irreversible anodic peak. The results are shown in Fig. 3.4. The voltammogram of bare gold electrode exhibit small amount of current due to slow electrodic process. rGO- β -CD modified electrode shown slightly increased both oxidation and reduction current owing to the high conductivity and large surface to volume ratio of rGO and β -CD. rGO- β -CD- Cu_2O brought up a shift in redox peaks. The reason for the better performance of the rGO- β -CD- Cu_2O could be attributed to the high conducting property of Cu_2O and electronic structure. In the presence of tyramine, the modified electrode have improved redox current. Here, reduced graphene oxide sheets and Cu_2O provide high conductivity and β -CD enables the formation of inclusion complex with tyramine molecules.

3.2.1 Effect of pH

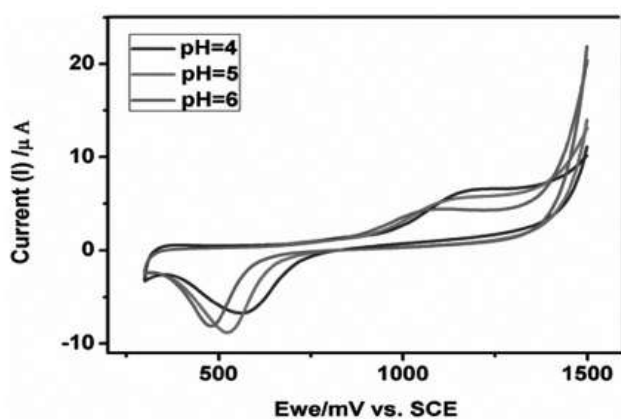


Fig. 3.5 Cyclic voltammogram obtained for 1.0 mM tyramine in buffer solution at different with potential scan rate: 100 mVs^{-1}

The electrochemical responses of tyramine in 100 mM PBS with different pH values at a scan rate of 100 mVs^{-1} were studied. The peak current was highest at

pH 4, as seen in (Fig. 3.5). Thus, pH 4 PBS was used for the determination of tyramine and for further experiments. However, with increase in the solution pH, the peak potentials shifted to less positive values upto pH 7.0. Gold electrodes are very weak chemisorbers due to filled d-orbitals, yet display a higher electroactivity towards drugs oxidation. The electrocatalytic behavior of gold is highly complex. The catalytic component of gold electrode is believed to be hydrous gold oxide, AuOH , which is formed by the chemisorption of hydroxide anions to the gold surface. This effect is more pronounced at higher pHs, and occurs in the region of premonolayer oxidation of the gold surface.

3.2.2 Effect of scan rate

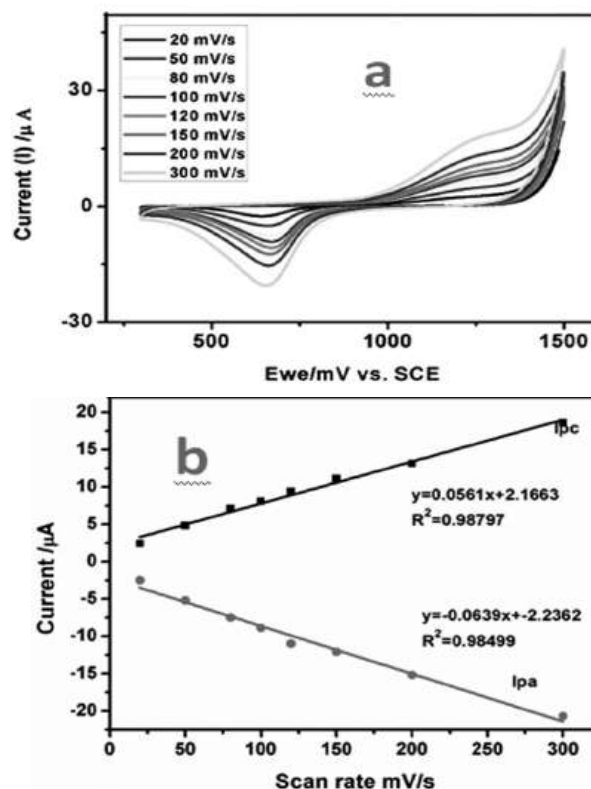


Fig. 3.6 a) Cyclic voltammograms of 1.0 mM tyramine in buffer solution at pH 4 at different scan rates (20, 50, 80, 100, 120, 150, 200, 300) mVs^{-1} , b) dependence of the peak current on the scan rate

The electrochemical behaviours of tyramine at different scan rates were studied at pH 4 by CV (Fig.3.6 a). The dependence of the peak intensity I_p (μA) upon the scan rate (ν) (Fig. 3.6 b) were carried out to assess whether the process on gold electrode was under diffusion or adsorption-controlled. The influence of the square root of the scan rate on the peak current showed a linear relationship between 20 to 300 mVs^{-1} and the equation can be expressed as follows:

$$I_p = 0.056 \nu^{1/2} + 2.166; R^2=0.987$$

$$I_{pc} = -0.063 \nu^{1/2} - 2.236; R^2=0.984$$

Suggesting that the oxidation of tyramine at $rGO-\beta-CD-Cu_2O$ is an adsorption-controlled process.

3.3 Electrochemical impedance spectroscopy (EIS) characterization

The electron-transfer kinetics and diffusion characteristics can be determined from the shape of the impedance spectrum. The semicircular portion obtained at higher frequencies corresponds to an electron transfer-limited process. The electron transfer characteristics were interpreted by using the Randle's equivalent circuit.

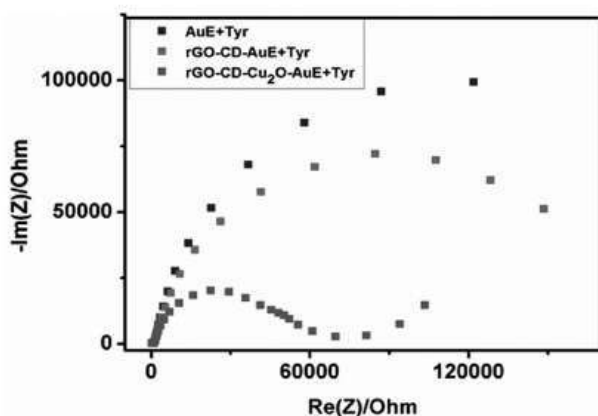


Fig. 3.7 Electrochemical impedance spectroscopy of modified electrodes. (a) Bare AuE, (b) $rGO-\beta-CD-AuE/Tyr$, (c) $rGO-\beta-CD-Cu_2O Au E/Tyr$ in 100mM pH 4.0 PBS.

As shown in Fig. 3.7, the Nyquist plot of the bare gold electrode displays a well-defined, enlarged semicircle with an electron transfer resistance (R_{ct}). Compared with the bare gold electrode, the diameter of the semicircle in the Nyquist plot of the $rGO-\beta-CD$ decreases dramatically (magenta curve). The electrode modified by $rGO-\beta-CD-Cu_2O$ film exhibits a much lower resistance and the Nyquist plot of the electrode shows a nearly straight line. It is consistent with previous study, which indicates that the Cu_2O nanoclusters are an excellent conducting material and could act as tiny conduction centers to promote the electron transfer. The results of the impedance change during the electrode modification, provide an evidence for the successful immobilization of the $rGO-\beta-CD-Cu_2O$ composite on the electrodes. These results also prove that the $rGO-\beta-CD-Cu_2O$ could improve the electron transfer rate between the electrode and tyramine, which is consistent with the CV results shown in Fig 3.7.

4. Conclusion

A novel, sensitive and effective electrochemical sensor for the sensing of tyramine was developed using $rGO-\beta-CD-Cu_2O$ composite. The tailored $rGO-\beta-CD-Cu_2O$ composite was characterized by using FT-IR, SEM, XRD techniques and its electrocatalytic nature were studied using CV and EIS. The $rGO-\beta-CD-Cu_2O$ composite modified gold electrode was an excellent platform for the detection of tyramine. The electrochemical behavior of tyramine was detected using cyclic voltammetry and electrochemical impedance spectra. Electrochemical responses of tyramine at different pH values



are also calculated. It is found that at pH 4.0 tyramine gives high electrochemical responses. This method can be applied for real samples also.

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GREEN AND GENTLE SYNTHESIS OF CUO NANOPARTICLES USING *PIMENTA DIOICA* UNDER OPTIMISED CONDITIONS

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Abstract

The scientific community is in search for new methods for the synthesis of metallic nanoparticles. Green synthesis has become a vast developing area of new research groups. These days biogenic methods are considered to be a safer alternative to usual physical and chemical methods for nanosynthesis due to their environment friendly nature. Here we adopt a plant mediated green synthesis of CuO nanoparticles using the fruit extract of maluspumila an easily available fruit. This is an eco-friendly and low cost method. The formation of CuO nanoparticles were confirmed by their change of colour to light green due to the phenomenon of Surface Plasmon Resonance. The green synthesized nanoparticles were characterized by UV-visible spectroscopy IR spectroscopy.

1. Introduction

Nanotechnology is a brainchild of modern fundamental science. It is a very complicated professional area, uniting the efforts of professionally qualified chemists, physicists, mathematicians, material scientists, computer scientists, and so on. Nanotechnology is manipulation

of matter on an atomic, molecular, and supramolecular scale. The earliest widespread to the particular technological goal of precisely manipulating atoms and molecules for fabrication of macro scale products, also now referred to as molecular nanotechnology. In nanotechnology, a particle is defined as a small object that behaves as a whole unit with respect to its transport and properties. A nanoparticle is an ultrafine particle with at least one dimension between 1-100 nanometers. Within this size all the properties (chemical, physical and biological) changes in fundamental ways of both individual atoms/molecules and their corresponding bulk. Nanotechnology has the potential to create many new materials and devices with a vast range of applications, such as in medicine, electronics, energy and environment. Tremendous growth in these expanding technologies had opened applied frontiers and novel fundamentals.

Nanoparticles are of great scientific interest as they are in effect, a bridge between bulk materials and atomic or molecular structures. A bulk material should have constant physical properties regardless of its size, but at the Nano-



scale size-dependent properties are often observed. Thus, the properties of materials change as their size approaches the Nano scale. For bulk materials larger than one micrometer (or micron), the percentage of the surface is insignificant in relation to the volume in the bulk of the material. Nano sized particles are quite unique in nature because Nano size increase surface to volume ratio and also its physical, chemical, and biological properties are different from bulk material. Nanoparticles show different properties such as quantum confinement, surface plasma resonance (SPR), decrease in melting temperature which are directly related to the crystal lattice of the nanomaterial.

There are several methods of creating nanoparticles, including gas condensation, attribution, chemical precipitation, ion implantation, pyrolysis and hydrothermal synthesis. In attribution, macro and micro scale particles are ground in ball mill, a planetary in a ball mill, or other size reducing mechanism. The resulting particles are classified to recover nanoparticles. The biological synthesis of nanoparticle is a challenging concept which is very well known as green synthesis. The biological synthesis of nanomaterial can solve environmental challenges like solar energy conservation, agricultural production, catalysis, electronic, optics, and biotechnological area. Green synthesis of nanoparticles are cost effective, easy, eco - friendly, nontoxic, large scale when compared to the chemical methods which are costly as well as emit hazardous by-products which can have some deleterious effect on the environment.

In this work, leaf extracts of *Pimenta dioica* were used for the generation of

copper oxide nanoparticles. The leaf extracts generated from *Pimenta dioica* have strong fungicidal and bactericidal properties. In addition it also has acaricidal, nematocidal, anticancer, antioxidant and deodorizing properties. All these properties make the leaf extracts generated highly resistant to spoilage and they can be stored for up to three months even in contaminated areas quite safely. However not all leaf extracts from other plant sources stay for so long. This property of *Pimenta dioica* makes it extremely useful for industrial nanoparticle synthesis where long term storage of leaf extract is possible. Besides its use as a spice and flavor, allspice has been used for various gastrointestinal illness, rheumatism, and neuralgia. The leaf extracts also have antiseptic, anesthetic, and several other medical properties. In order to exploit all the above mentioned benefits of bioinspired synthesis along with those provided by nanotechnology, CuO nanoparticles were generated from the leaf extracts of *Pimenta dioica*. The rate of nanoparticle synthesis was very high, which justifies the use of plants over microorganisms in the biosynthesis of metal nanoparticles through greener and safer methods [22].

2. Experimental

2.1 Materials

Cupric acetate solution, Leaves of *Pimenta Dioica*, All aqueous solutions were prepared using distilled water.

2.2 Preparation Of *Pimenta Dioica* Leaves Extracts

Pimenta Dioica leaves were collected from the local region and are displayed in figure 3.1. They were washed and cleaned with distilled water and dried with water

absorbent paper. Then it was crushed with mortar. It is dispensed in 100 ml of distilled water and heated in a water bath for 15 minutes at 70-80°C. The extract was then filtered using Whatman No.1 filter paper. The filtrate was collected in a clean and dried beaker and was stored.

2.3 Synthesis Of Copper Oxide Nanoparticle

During the synthesis of Copper oxide nanoparticles both the precursor and the reducing agent were mixed in a clean beaker in 1:1 proportion. For the reduction of Cu^{2+} , 4 ml of leaf extract was mixed to 4 ml of freshly prepared 0.01M $\text{Cu}(\text{CH}_3\text{COO})_2$ solution with constant stirring at 70-80°C. Within a particular time there is a change in colour was observed by nanoparticles so prepared.

3. Results And Discussions

3.1 Colour Change

In this study, *Pimenta Dioica* leaf extract was used to produce copper oxide nanoparticles. The colour of the reaction solution changed from light brown to dark brown when the extract is mixed with 0.01M copper acetate solution in 1:1 ratio, which indicated the formation of CuO nanoparticles (Figure 4.1). This colour change was obviously due to the excitation of surface Plasmon resonance in the metal nanoparticles, indicating the formation of CuO nanoparticles. *Pimenta dioica* leaves contain proteins, lipids, vitamins A, B1, B2 and C. Moreover, *Pimenta dioica* leaf is rich in chemicals such as eugenol, β -caryophyllene, α - humulene, 1,8-cineone. Most of these compounds are polyphenolic bioactive constituents called eugenol that contribute substantially to its unique colour and flavour and are

responsible for the formation of CuO nanoparticles.

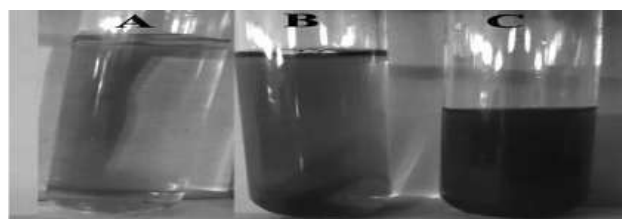


Figure 4.1. Tube A - Copper acetate solution, Tube B - *Pimenta Dioica* leaf extract, Tube C - Copper oxide nanoparticle synthesized solution.

3.1 Characterization of Copper Oxide Nanoparticles

UV-Vis spectroscopy was used to confirm the formation of CuO nanoparticles from *Pimenta Dioica* leaf extract. Figure 4.2 shows the UV-visible spectra of the synthesised CuO nanoparticles. The dispersion of CuO nanoparticles displays intense colours due to the SPR absorption. The surface of a metal is like plasma having free electrons in the conduction band near the surface of the nanoparticles. Electrons are limited to specific vibration modes by the particles' size and shape. Therefore metallic nanoparticles have characteristic absorption spectrum in UV-Vis region. The Plasmon band in the absorption spectrum at 273 nm is due to the CuO nanoparticles prepared by green method. The presence of a peak in the region indicated the formation of CuO nanoparticles as reported earlier in another study.

Characterization of Copper Oxide Nanoparticles

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Therefore metallic nanoparticles have characteristic absorption spectrum in UV-Vis region. The Plasmon band in the absorption spectrum at 273 nm is due to the CuO nanoparticles prepared by green method. The presence of a peak in the region indicated the formation of CuO nanoparticles as reported earlier in another study.

The characteristic IR spectrum of copper oxide Nano-particles is illustrated in figure 4.3. The FTIR spectrum of plant-mediated CuO nanoparticle shows that the absorption band at 3280 cm^{-1} corresponds to the hydroxyl (OH) functional group in alcohols and phenolic compounds. The sharp absorption peaks were observed in the range of 1700–1000 cm^{-1} . The IR band around 1611.2 cm^{-1} can be assigned to aromatic bending of alkene group (C=C). Sharp peak at 1342.3 cm^{-1} is attributed to the deformation vibration of the C–H band of alkane (CH₃ and CH₂) group. Absorption peak at 1038.0 cm^{-1} corresponds to the stretching vibration of C–O group of primary and secondary alcohols (C–O). These different bands arise from the capping materials in the plant extract that are responsible for the reduction of copper ions to copper oxide nanoparticles. Appearance of the peak at 1639 cm^{-1} indicates the stretching vibration of the Cu–O bond of copper (II) oxide nanoparticles. The present IR spectrum is well consistent with that of CuO reported in earlier studies.

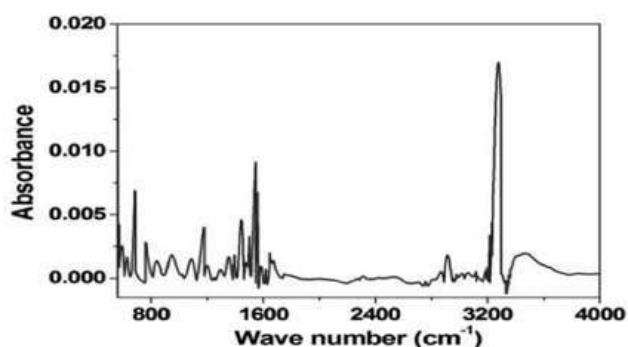


Figure 4.3. FTIR spectrum of the CuO nanoparticles.

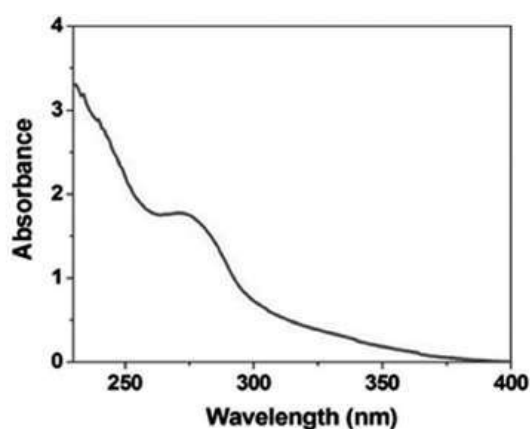


Figure 4.2. UV-visible spectrum of the CuO Nanoparticles.

Copper Oxide Nanoparticle Formation At Different Experimental Conditions.

Volume Ratio Of Extract And Copper Acetate

The formation of copper oxide nanoparticles depends on the ratio of extract/copper acetate (v/v). The UV-Visible spectrum of copper oxide nanoparticles at different extract/copper acetate ratios are displayed in figure 4.4. The maximum absorption was observed at 1:1 ratio, but by increasing the ratio to 1:2 and 1:3 v/v, the absorption decreased. A red shift was observed on increasing the volume of the copper acetate from 1:1 to 1:4. The accurate position of SPR band could differ depending on the size, shape

and capping agent, among other individual properties of the nanoparticles.

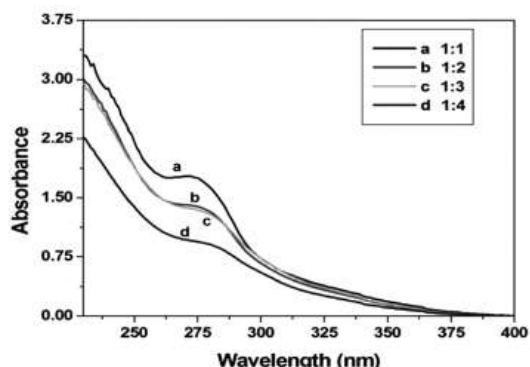


Figure 4.5. UV-visible spectra showing the effects of *Pimenta dioica* leaf extract concentration on the formation of CuO nanoparticles.

Effect Of Concentration Of The Extract

The effect of concentration on the formation of CuO nanoparticles was studied by varying the concentration of extract from 2 % to 8 %. Figure 4.5 displays the formation of CuO nanoparticles on varying the *Pimenta Dioica* leaf extract concentration. Maximum absorption was found for a concentration of 6%. Further increase in concentration did not have much impact on absorption. So the concentration of extract should be kept at the maximum value of 6 % for synthesis.

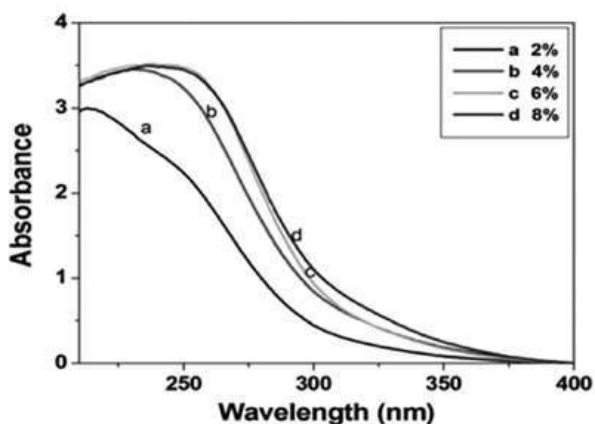


Figure 4.5. UV-visible spectra showing the effects of *Pimenta dioica* leaf extract concentration on the formation of CuO nanoparticles.

Effect of Temperature

Temperature is one of the important physical parameter affecting on the synthesis of CuO nanoparticles. Figure 4.6 shows the UV-Visible spectra of CuO nanoparticles prepared at different temperatures (400C, 500C, 600C and 700C). It was observed that the absorbance increases with increasing temperature. Increased reaction temperature led to a rapid reduction rate of the copper ions and the subsequent homogeneous nucleation of copper nuclei allowing for the formation of copper oxide nanoparticles with small size.

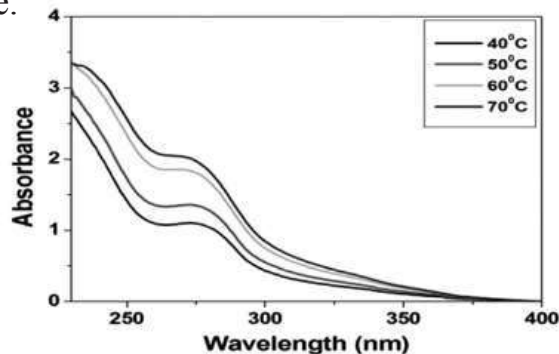


Figure 4. 6. UV-visible spectra showing the effect of temperature on the formation of CuO nanoparticles.

In this study we have synthesized copper oxide nanoparticles using plant extracts. It is the simplest, rapid, eco-friendly, non-pathogenic, economical protocol and providing a single step technique for the biosynthesis process. The nanoparticles are stable in aqueous medium for a long time without any aggregation. The characterization of nanoparticles was conducted using UV-Visible and FTIR spectroscopic techniques. Colour changes occurs due to surface plasmon resonance during the reaction within the ingredients present in the *Pimenta dioica* leaf extract, results in the formation of copper oxide Nano particles which is confirmed by



UV-Visible spectrum. The reactions were carried out at different conditions were optimized in order to get the CuO nanoparticles.

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GREEN SYNTHESIS OF CITRIC ACID FOR THE STUDY OF SURFACE DIRECTING PROPERTY OF CITRIC ACID ON ZnO; Cu²⁺ NANOPHOSPHORS AND HYDROXYLATION OF BENZOPHENONE WITH MODIFIED ZnO; Cu²⁺

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Abstract

The search for new sources of biosurfactants has been attracted the interest of many researchers. In this background a study was carried out to synthesize citric acid from lemon peel by green method. Pure citric acid is obtained from lemon peel using alkali extraction, acid precipitation and is followed by evaporation of filtrate. Citric acid is used as surface directing agent in the synthesize of ZnO:Cu²⁺ nanophosphors by chemical technique based on coprecipitation method. The use of citric as SDA produce surface modified ZnO:Cu²⁺ nanophosphors. The hydroxylation of benzophenone by modified ZnO:Cu²⁺ nanophosphors as photocatalyst to 2-hydroxybenzophenone is examined. This work aims at synthesizing citric acid from natural source to use it as an SDA on nanophosphors and to study the photocatalytic activity of nanophosphors using an eco friendly and low cost approach.

Keywords : Citric acid, SDA, ZnO:Cu²⁺ nanophosphors, Hydroxylation

1. Introduction

Surfactants are the most versatile products of the chemical industry. They

are utilized in every industrial area ranging from household detergents to drilling muds and food items to pharmaceuticals. They are amphiphilic molecules and are thus absorbed in the air, water interface. At the interface, they align themselves so that the hydrophobic part is in the air and hydrophilic part is in water. This will cause the decrease in surface or interfacial tensions. The substances that shows surface activity is called by several names-surface active agents, surface active compounds and surface active agent (surfactant). Surface active substance and surface active compounds are almost identical. They are substances affecting the surface or interfacial properties in the widest sense. Surfactant is the compound that dramatically lowers the surface tension of water and forms aggregates like micelles in aquos media.

Exciting characteristic features of nanomaterials in contrast to their bulk phase require shape control of morphologies at the nanometre scale. Surfactants, a unique class of surface active molecules, possess remarkable ability to control crystal growth and direct it in shape and size controlled manner. The fine tuning of the



desired morphologies can be achieved by controlling the surfactant architecture as well as its self-assembly behaviour. Since the advancement in nanotechnology, the nanometallic surface with clear atomic packing in different crystal lattice planes has become tremendously important in terms of surface adsorption, surface passivation, shape control effects and surface plasmon effects. All these properties are dramatically affected in the event of surface adsorption. Surfactants have proven to be the best shape directing agents in the synthesis of nanomaterials, which is primarily related to the surface adsorption of surface active molecules on different crystal planes of nucleating centres, thus controlling the overall shape.

In this work, ZnO;Cu²⁺ nanophosphors are prepared by using citric acid as SDA by coprecipitation method. Various distinct morphologies of the nanostructures can be obtained by varying the composition of citric acid.

2. Experimental

2.1 Preparation of citric acid

Lemon peel washed thoroughly with water to remove the soluble particles. Transferred to a R.B flask and refluxed for 2 hour using distilled water. Collect the extract from it. Add 0.1M NaOH solution until the pH become 9. Filter the solution. Add 100 ml 0.25 M CaCl₂ solution to the above filtrate and boil for 10-15 minutes. Filter the solution and wash the precipitate with hot water. Add 15% H₂SO₄ solution to the obtained precipitate, Stir well the mixture. Again filter the solution. Collect the filtrate and make evaporate it to 80 °C until the volume is reduced to 60ml. Filter the final solution .The remaining

filtrate were evaporated to 80°C. After the evaporation the remaining white crude crystalline precipitate were collected and dried.

2.2 Synthesis of ZnO:Cu²⁺ using citric acid as SDA

Synthesizing of uncapped ZnO:Cu²⁺: 0.5 M zinc acetate and 0.01 M copper acetate were taken in 100 ml of methanol and dissolved while continuous stirring for 2 hour at room temperature (solution A). Simultaneously 0.14 M KOH solution was prepared in 100 mL of methanol with refluxing through water condenser with constant stirring for 2 hour at 50 °C (solution B).

Then the solution A and B were mixed with constant stirring for 2 hour. Final solution was allowed to cool at room temperature and aged overnight. This solution was centrifuged and washed several times to remove unnecessary impurities. The obtained precipitate was placed in a vacuum oven for 24 hour at 50°C to get white powders of ZnO;Cu²⁺. Similar procedure was followed for synthesis of citric acid capped ZnO:Cu²⁺ samples. Prepare different samples by varying the concentration(0.5M,1M, 2M and 3M) of citric acid in the solution. The synthesized nanophosphores were further calcinated at 100 °C for 4 hour.

2.3 Hydroxylation of benzophenone using modified ZnO:Cu²⁺ nanophosphors

0.25 g of benzophenone, 1mL of isopropyl alcohol and 0.5 g of modified (0.3M citric acid treated) ZnO:Cu²⁺ were mixed together. The slurry in a petridish was dried in air and dry mass was kept under UV light, 15W (at a distance 3 cm from light source) for 12 h of

photoactivation (high-power UV light removed the adsorbed moisture and hence water splitting was not observed and no hydroxylation of benzophenone took place). The photoproduct was separated by centrifugation with 5 mL ethanol. The residue was washed and dried to obtain 2-hydroxybenzophenone. The photoproduct was characterised using UV-Vis. spectroscopy.

3. Result & Discussion

- Citric acid extraction from lemon peel
- Synthesised ZnO:Cu²⁺ by coprecipitation method using citric acid as surface directing agent.
- characterized ZnO:Cu²⁺ using , uv-visible spectroscopy, XRD, FTIR and TGA.
- The photocatalytic activity of ZnO:Cu²⁺ were studies by using it in the reduction of benzophenone

3.1 Characterzation Techniques

3.1.1 FTIR studies

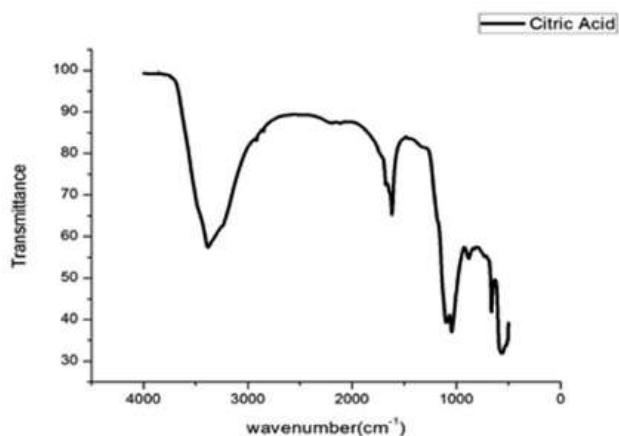


Fig 1.

The synthesised citric acid were characterised by FT-IR spectroscopy (Fig 1). There is a broad peak at 3380 and 3040 cm⁻¹ corresponds to the stretching vibration

O-H and C-H bond respectively. The peaks at 1210 and 1620 cm⁻¹ corresponds to the symmetric and anti-symmetric stretches of the carboxylate group of citric acid.

FTIR is also used for the characterisation of ZnO:Cu²⁺ with different concentration of citric acid (Fig 3).

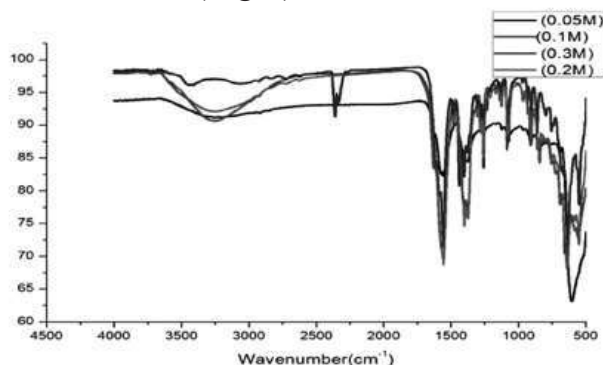


Fig 3

The peak at 547 cm⁻¹ is assigned to the stretching frequency of Zn-O bond. The broad absorption peaks around 3455 cm⁻¹ and 1150 cm⁻¹ are attributed to the normal polymeric O-H stretching vibration of H₂O in Cu-ZnO lattice which may due to the moisture in sample. Another sharp peak at 1597 cm⁻¹ is attributed to H-O-H bending vibration, which is assigned to small amount of H₂O in ZnO nanocrystals.

3.1.2 X-ray diffraction studies

The synthesised ZnO;Cu²⁺ by coprecipitation method using citric acid as SDA is characterised by XRD analysis. The figure(2) below shows the XRD peaks of the nanosphors.

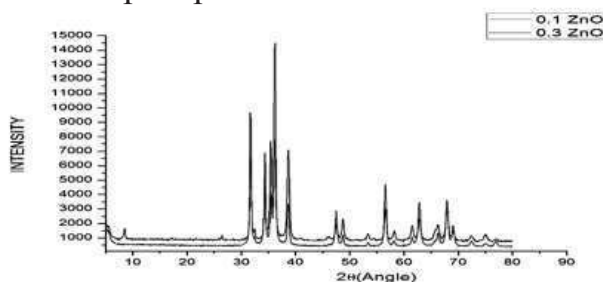


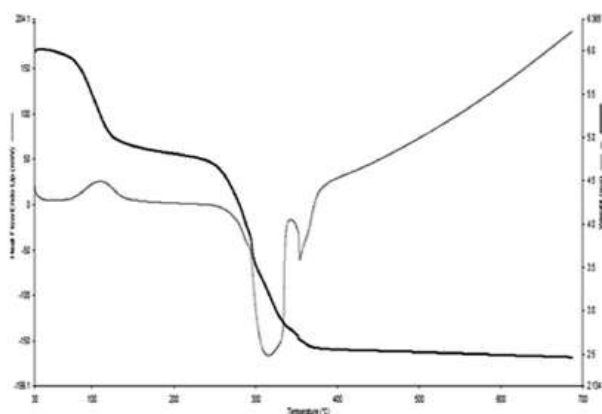
Fig 2.



The fig 2. for ZnO:Cu²⁺ nanophosphors synthesized at room temperature show broad peaks at the positions 32.21°, 34.50°, 36.55°, 47.50°, 56.50°, 63.10°, 66.37° and 67.90°, which are in excellent agreement with standard JCPDS file for ZnO (JCPDS 36-1451, a=b= 3.249Å and c=5.206Å) and can be indexed as the hexagonal wurtzite structure of ZnO. The intensity of peaks is higher for 0.3 M concentration of citric acid when compared to 0.1 concentration.

3.1.3 Thermogravimetric Analysis

Thermal stability of the nanophosphor



was carried out using TGA and was performed using Perkin Elmer, Diamond TG/DTA instrument. All the measurement were performed under inert atmosphere. The sample was heated from room temperature at a heating of 20 °C. From the TGA analysis of (Fig:12a) ZnO:Cu²⁺ 0.1M CA, it is seen that the decomposition temperature at 90 to 100°C corresponds to decomposition of water. The decomposition temperature of CA range is 250-300 °C and the compound become stable at 380 °C. The weight loss is 60.77 % as seen in the fig:12a.

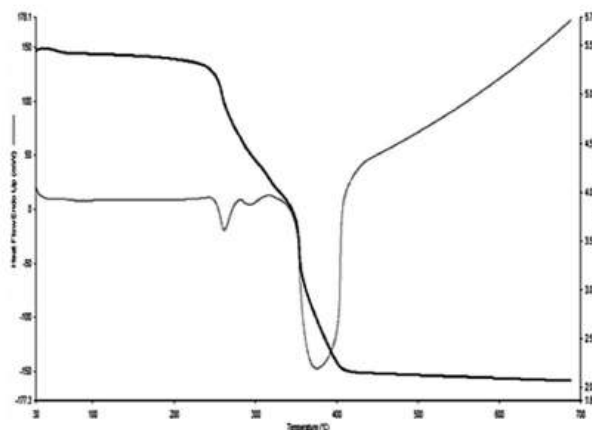


fig:12a Analysis of 0.1M citric acid (as SDA) ZnO:Cu²⁺ nanophosphor, 0.3 M citric acid (as SDA) ZnO:Cu²⁺ nanophosphor

In fig:12b, the decomposition temperature of 240-300°C corresponds to the decomposition of citric acid and become stable at 400 °C. The weight loss is 65.46% as calculated from the TGA analysis (fig:12b).

3.1.4 Hydroxylation of benzophenone

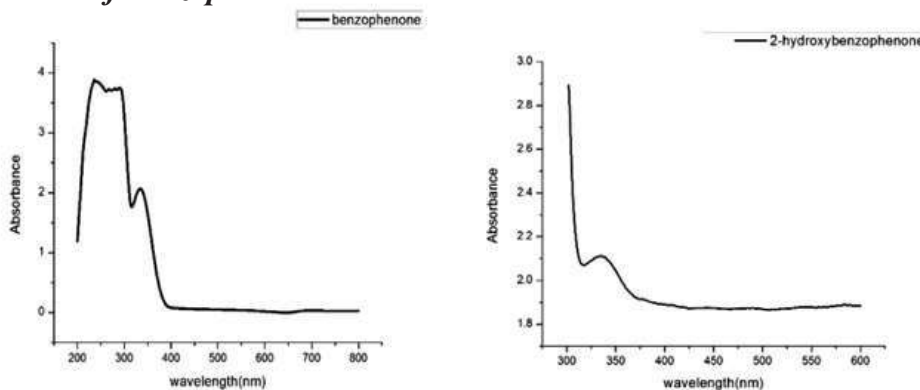


Fig. 4 a) UV-vis. spectroscopy of benzophenone **b)** 2-hydroxybenzophenone



The photocatalytic activity of modified ZnO;Cu²⁺ nanophosphors is examined by UV-Vis spectroscopy (Fig.4a). Benzophenone shows absorption peak at 236 nm in isopropyl alcohol before the reaction, and after the reaction a new peak appeared at 337 nm. Explicitly, 2-hydroxybenzophenone shows absorption maxima at 337 and 260 nm (Fig. 4b). These wavelengths are in good agreement with the absorption maxima of authentic 2-hydroxybenzophenone.

4. Conclusion

The low-cost coprecipitation method was used to synthesize ZnO;Cu²⁺ with varying the composition of citric acid as SDA. Citric acid is synthesised by green method from natural source lemon peel. The best surface modified ZnO;Cu²⁺ nanophosphors is obtained at 0.3 M concentration of citric acid which is the SDA. The hydroxylation of benzophenone is tested with the modified catalyst and the formation of 2-hydroxybenzophenone is confirmed from the UV-Vis. absorption spectrum. Hydroxylation of benzophenone using modified ZnO;Cu²⁺ catalyst is an effective, low cost and an eco-friendly approach. This work explore the possibilities for using citric acid as Surface Directing Agent for producing modified ZnO;Cu²⁺. The surface modified ZnO;Cu²⁺ improves its photocatalyst activity for the hydroxylation of benzophenone.

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DERIVATISATION OF CARBOXYLIC ACIDS : PHTHALIMIDOMETHYL ESTERS

* Jijamol M.P. and Prof.T.M.Jose #

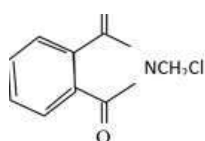
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Abstract

Quantitative organic analysis and identification of an unknown compound is an integral part of most organic chemistry laboratory courses. On chemical basis, the final step in the confirmation of a specific compound requires the preparation of one or two crystalline derivatives. For organic carboxylic acids, the main options are amides, anilides and the ester derivatives (4-nitrobenzyl and 4-bromophenacyl esters). The first two derivatives normally involve the preparation of acid chloride followed by reaction with appropriate amine. Improved procedure for the preparation of esters of type mentioned above has been reported. One of the drawback of 4-nitrobenzyl bromides and 4-bromophenacyl bromides is that they are expensive and therefore not routinely used in laboratories. In addition, the reagent may be undergoing partial hydrolysis during esterification.

Here, used another reagent for the esterification of carboxylic acids. The reagent used for esterification was an N-(chloromethyl)phthalimide(NCP).



Key Words: NHP, NCP

Introduction

Related to the carboxylic acid and to each other are a number of chemical families known as functional derivatives of carboxylic acids: acid chlorides, anhydrides, amides and esters. These compounds in which the -OH of a carboxyl group has been replaced by -Cl, -OOCR, -NH₂ or -OR. Like the acid to which it is related, an acid derivative may aromatic or aliphatic, substituted or unsubstituted; whatever the structure of the rest of the molecule, the properties of the functional group remain essentially the same.

Here we used the reagent for the esterification of carboxylic acid is N-(chloromethyl)phthalimide(NCP).

Experimental Methods

1. Preparation of N- (Hydroxymethyl), Phthalimide (Nhp)



Procedure

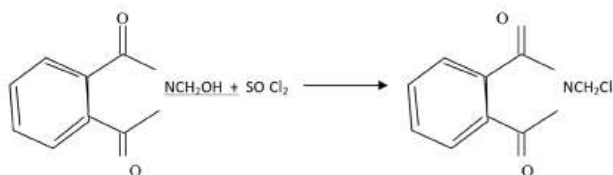
Add finely powered phthalimide (2.0g) to a solution of formalin (37-40%) in a round



bottom flask. Attach a water condenser and reflux the mixture for four hours. Filter the solid and washed with cold water. Crystallize the product from hot benzene. Yield of crystallized sample is 2g (84%). Melting point is 148°C. Solubility – Sparingly soluble in CCl_4 . Moderately soluble in ether, highly soluble in most other solvents.

II. Preparation of N - (Chloromethyl) Phthalimide (Ncp)

N-(chloromethyl) phthalimide is made by as following equation.



1. NHP 2. Thionyl chloride 3. Benzene

Procedure

Heat a mixture of N- (Hydroxy methyl) phthalimide (1.2 g) and little excess of freshly distilled thionyl chloride (5-6ml) under reflux using water condenser for 30 minutes. Remove the excess thionyl chloride with addition of benzene and distillation (thionyl chloride co distilled with benzene). Crystallise the residue from benzene.

Yield of the crystallised sample = 0.8g (62%)

Melting point = 132 °C

Solubility - freely soluble in chloroform, acetone, ethanol etc and insoluble in water.

III. Preparation of Phthalimdomethyl Esters of Carboxylic Acid

The esters are obtained as follows.



Reagents

Benzoic acid, NCP, triethyl amine, acetone

Procedure

Phthalimidomethyl benzoate

Dissolve benzoic acid (0.05g), NCP(0.100 G) in acetone (10 ml) and add triethyl amine (1ml). Reflux the solution for an hour. Distill the solvent, preferably under reduced pressure and add water to the residue. Collect the solid product by filtration, wash with aqueous sodium carbonate followed by cold water. Dry the residue and crystallize from acetone-hexane.

Melting point -108° C

Similar procedure is used for the preparation of ester of following acids

(A) Phthalimidomethyl orthochlorobenzoic acid

Melting point = 145°C

(B) Phthalimidomethyl cinnamate

Melting point = 151°

Representative sets of acids were subjected to esterification and the results are presented in the table

Sl. No	Acid	Melting point	Derivative melting point
1	Benzoic acid	121	108
2	O-Chlorobenzoic acid	155	145
3	Cinnamic acid	133	151

RESULTS AND DISCUSSION

The esterification reaction occurs under simple conditions using acetone as solvent and triethylamine reagent. Reflux one hour in a water bath. The yields of esters are in the range of 70-80%. The phthalimidomethyl esters are



white crystalline solids, stable at room temperature and drying conditions (100 °C). They melt sharply and do not decompose at their melting points. They are readily soluble in benzene, chloroform, acetone, ether and alcohol and insoluble in water and hexane. The best way to crystallise these is to dissolve them in an organic solvent and add hexane or petroleum ether. Laboratory reagent grade acetone and triethylamine can be used, though conversions are lower as compared to the purified and dry solvent. The presence of water in the acid also decreases the yield of the esters. A noteworthy observation is that the phenols and alcohols do not react under the condition used here, to form phthalimido methyl esters, however, amines form N-alkyl derivatives. For example, piperidine forms (N-phthalimidomethyl) piperidine. Results of this work indicate that NCP is useful reagent for derivatisation of carboxylic acids. The reagent offers many advantages over other alkylating agents.

(1) It is easily obtained from phthalimide in high yields. (2) It is a stable substance and can be stored without any special precautions (3) All carboxylic acids give solid esters in good yield (4) The esterification reaction is straight forward and no byproducts are formed. A little excess of acid is used into ensure that all NCP is used up. We have not investigated the mechanism esterification

IR Spectra

a. Imides are part of five membered rings such as phthalimide have C=O band at 1790-1735 and 1745-1680 cm^{-1} , The lower frequency band is more intense.

The cyclic imides do not have the 1505 cm^{-1} , C-N-H band.

b. Carboxylic acids: Carboxylic acids show a very strong band for the C=O group that appears in the range of 1730-1700 cm^{-1} , simple aliphatic acids in the dimeric form. This band is shifted to lower frequencies with conjugation to a C=C or phenyl group. The O-H stretch appears in the spectrum as a very broad band extending from 3400 to 2400 cm^{-1} . This broad band centres on about 3000 cm^{-1} and partially obscures the C-H stretching bands if this very broad O-H stretch band is seen, along with the C=O peak, it almost certainly indicates the compound is a carboxylic acid.

c. Esters (Phthalimidomethyl Esters): Esters show a very strong band for the C=O group that appears in the range of 1750-1735 cm^{-1} for simple aliphatic esters when it is conjugated to a C=C OR phenyl group. On the other hand, conjugation of a C=C or phenyl group with the single bond oxygen of an ester leads to an increased frequency from the range 1300-1000 cm^{-1} . Ring strain moves the C=O absorption to a higher frequency in cyclic esters. In phthalimido methyl esters an additional phthalimido group with ester group.

Analysis of IR spectra

A. N-(chloromethyl)phthalimide
The peak at 1750 cm^{-1} due to the presence of a carbonyl group

1. The peak at 1398.30 cm^{-1} due to the presence of C-N bond stretching vibration
2. The peak at 553.53 cm^{-1} due to the presence of C-Cl stretching vibrations
3. The peak at 943.13 cm^{-1} due to the aromatic C-H out of plane bending



B. Carboxylic acids

(a). Cinnamic acid (b). Benzoic acid (c). O-Chloro benzoic acid

1. The peaks at 1685.67cm^{-1} , 1755.1cm^{-1} and 1697.24cm^{-1} , are due carboxylic acid C=O stretching
2. The peaks at 921.12cm^{-1} , 916.12cm^{-1} , 912.27cm^{-1} are due to O-H out of plane bending
3. The peaks at the range $2677-3818.79\text{cm}^{-1}$ due to OH stretching vibration, strong H – bonding. Also it overlaps with C-H stretching absorption
4. The peaks at range 1315cm^{-1} C-O stretching vibrations

C. Phthalimido methyl Esters

(a). Phthalimido methyl cinnamate
(b) Phthalimido methyl benzoate (c). Phthalimido methyl O-chloro benzoate

1. The peaks at 1724.24cm^{-1} , 1743.53cm^{-1} and 1755.10cm^{-1} are due to the presence of C=O, stretching vibrations in ester.
2. The peak at 1190cm^{-1} range due to the presence of C-O stretching vibration.

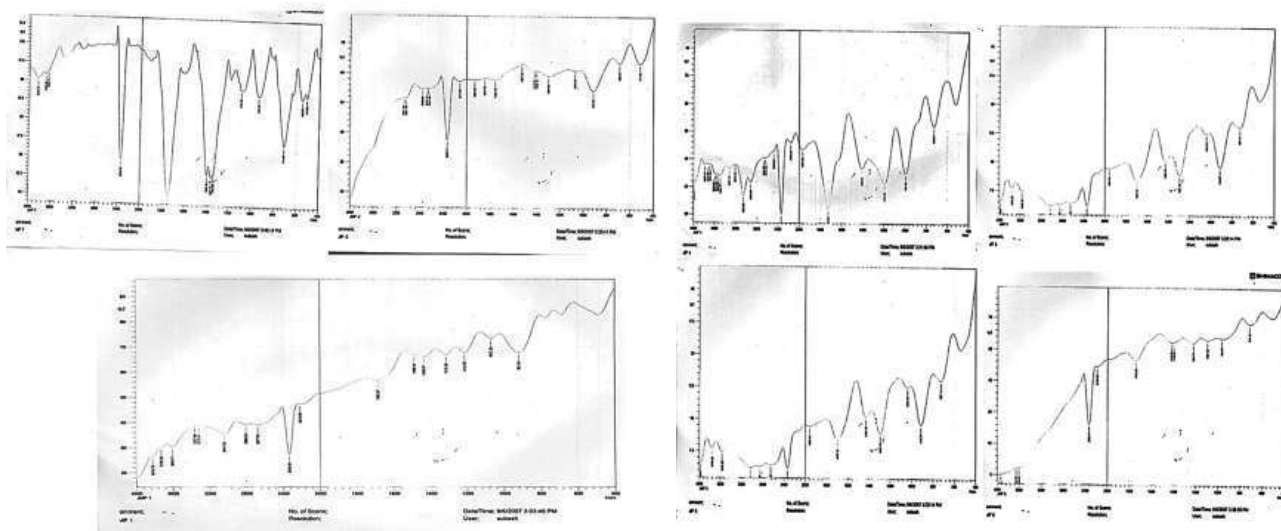
3. The peaks at 1400cm^{-1} range due to the presence of N-C bond stretching.

4. The peaks at range $2800-3200\text{cm}^{-1}$ C-H stretching vibrations.

CONCLUSION

The result of this work indicate

1. NCP is a reagent for derivatisation of carboxylic acids
2. The experiments described here offer an opportunity to reinforce a few concepts in organic chemistry course, namely nucleophilic addition of an amine to carbonyl is phthalimide + formaline –N-(Hydroxymethyl) phthalimide an important reaction to form C-N bonds and nucleophilic substitution. N –(Hydroxymethyl) phthalimide + thionyl chloride =-NCP, ie the conversion of alcohol to chloride. The sequence, phthalic anhydride –phthalimide –N(hydroxyl ethyl) phthalimide –N-(chloromethyl) phthalimide –phthalimido methyl ester will form a good multi step synthesis. The products in each step are crystalline solids and are obtained in high yields.





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THE INCONCLUSIVE BINARY TUSSLE BETWEEN THE CREATURE AND THE CREATOR: THE ECOSOPHY IN HERMAN MELVILLE'S NAUTICAL FICTION

Roby Mathew & Dr. R. Anitha

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Nature with its various terrains occupies the background of literature where human actions, expected and unexpected are foregrounded. Herman Melville, who spent part of his youth as a whaler in whaleships, preferred to place his characters in the background of the ocean, but the actions he scripted are expected. When Captain Ahab is drowned into the unfathomable bottom of the sea as a vanquished hero in spite of his indomitable will and mastery and Ishmael the sole survivor of the crew in the ship *Pequod*, the reader is intrigued by the defeat of the protagonist at the end and the survival of the white whale. But Melville scripts down the unceasing human sagas of struggle for dominion. Who is mightier: man, or nature? Or man or God? Even when the protagonists in *Typee* and *Omoo* the prequels to *Moby Dick*, speak volumes on the heaven like landscape and simplicity of life in the exotic islands, and even resolved to settle down in such islands, they feel an invisible tie pulling them towards a capitalist environment where 'live with what you have' is discarded and 'live for more' is embraced. The locale of the nautical fiction is as expansive as the ocean to include the islands and the bizarre existence of

the natives. The ecological exploitation of the savages by the civilized occupies the subtext of many of Melville's novels. The white whale through whom nature holds her sovereignty over the creatures is identical with the *Aswamedha*, the horse ritual which was prevalent in ancient India. It is no wonder that the ecosophy of Melville is perceptible in attributing the sovereignty to nature rather than to man, but the tussle is perpetuated between Ishmael and the white whale.

Key words: foregrounding, ecosophy, ecology, autonomy

Being born with a silver spoon in his mouth in 1819 in New York, Herman Melville experienced the comfort, luxury and safety of a well to do family. But the comfort lasted only for a short period of time which eclipsed with the death of his father who was a prosperous merchant. The demise of his father shook him violently that he had to do away with his formal education and took to sea as a sailor at the age of twenty on a merchant ship and later on a whaler named *Acushnet* of which he rightly remarked in *Moby Dick*, his magnum opus as, "A whale ship was my Yale College and my



Harvard” (Melville 93). His harrowing experience on whaling ships and voyage in the unchartered seas accounted for his novels which became posthumous success and made him the forerunner of American fiction. In fictional works too there are hidden facts which account to one's social and religious upbringing, ideology, cultural underpinnings, familial relationship, expressed and suppressed desires, political leniency, racial prejudice and economic status.

Nautical fiction is literally described as a genre of literature which focuses on the relationship between human beings and the sea with the setting in the sea or near the sea. Though nautical fiction was in vogue in various parts of the world, the American nautical fiction had its forerunner as James Fenimore Cooper with his *The Pilot* (1824) followed by Frederick Marryat with his *Frank Mildmay* (1829). The genre of nautical fiction got inflated with the advent of subsequent writers and their works like Herman Melville's *Moby Dick* (1851), Joseph Conrad's *Lord Jim* (1899), C.S Foster's *Hornblower Series* (1937-67) and the like. The popular acceptance of this genre is evident in the volley of books on life in the sea that hit the market. The English writer Ian McGuire with his *The North Water* (2016) revitalized this genre with its resemblance to *Moby Dick*.

In the surface of *Moby Dick*, which foregrounds the tale of revenge: the revenge between Captain Ahab and the white whale entails the revenge between human beings and nature. With the white whale sinking the ship in the sea along with the crew and their leader Ahab, the writer connotes the invincible stature of the nature. Herman Melville who spent his

youth in the sea as a whaler felt at home in the sea and either he or his characters identified the animals on land with the marine creatures and the crew in the ship. Ahab identifies the harpooners as leopards, Stubb as shark and Ahab is often identified as tiger. Ahab's crew is also identified with tigers. This nomenclature sheds light on the predatory nature of humans and other creatures. To Ahab the sea which forms two third of the earth is the darker side of the earth. Thus, he declares eternal vengeance with the sea.

Melville's initial works are inconclusive, as they offer the protagonists to resume the narrative in sequels. In addition to that, the inconclusiveness heralds the spirit of American capitalist dream. In *Typee* Tommo is transfixed by the beauty and simplicity of the island and admires the island as inhabitable save the fear of cannibalism, but he leaves the island for good. In *Omoo* which is sequel to *Typee* the narrator recounts the beauty and peaceful existence in the islands, but towards the end he leaves the island for America. In *Moby Dick* Captain Ahab who is maddened by the rage to avenge the white whale perished in the end, but Melville leaves one character intact to continue the zest for a capitalist world, which is not lulled by the simplicity of primitivism, but the ever-propelling capitalism.

The white whale has to remain unconquered at the end of *Moby Dick*, for the death of the white whale and the triumph of Captain Ahab will certainly position human beings at the center of ecology and the power to rule the world will be vested with them. Carl G. Jung in his popular book *Modern Man in Search of a Soul* justifies the ecocentric perspective



of archaic man quoting the belief of the primitive man in Africa. He narrates the belief as:

Primitive man, in Africa for instance, is still far from the glorification of human powers. He does not dream of regarding himself as the lord of creation. His zoological classification does not culminate in homo sapiens, but in the elephant. Next comes the lion, then the python or the crocodile, then man and the lesser beings. It never occurs to him that he might be able to rule nature; it is civilized man who strives to dominate nature (Jung 165).

The intriguing question that may disturb the reader towards the end of *Moby Dick* is: Why didn't Melville make Captain Ahab a victor? Captain Ahab is cast in the mould of a vanquished hero whose meticulous planning, hard gained expertise and thorough knowledge of the sea and the technical expertise went futile before the fury of nature. The ecological reason for casting Ahab as a vanquished hero might be that the fatal hubris which steered Ahab may rule the world leading to greater perils. Taxonomically, *Moby Dick* is a sperm whale which is the largest of the toothed whales and the largest toothed predator. If Captain Ahab could avenge the white whale, then human beings will occupy the center of the ecological discourse. As the initial novels of Melville portray the voyage of whale ships across the globe, the mastery of man in conquering the watery part of the world and capturing whales, the biggest mammals on earth, whereby imposing superiority on earth. Hence, the advent of a white whale is quite imperative to check the ascendancy of man on to the throne of the ultimate ruler.

Whaling was not just a lucrative economic activity. Along with finding a living in the sea, it was an adventurous feat to conquer the watery part of the world. In the chapter titled 'Nantucket' in *Moby Dick* Melville adds, "and at last, launching a navy of great ships on the sea, explored this watery world: put an incessant belt of circumnavigations round it; peeped in at Behring's Straits; and in all seasons and all oceans declared everlasting war with the mightiest animated mass that has survived the flood;" (54). The sailors set sail to the faraway places and islands from where they brought home stories of adventurous escapades, sighting strange sea creatures and strange tribes which often fascinated the Nantucketers. The prequels to *Moby Dick* namely *Typee* and *Omoo* are narratives of that vogue which fascinated the people. *Typee* narrates the protagonist and his companions being captured and imprisoned by a set of cannibals and *Omoo* narrates his wandering across the islands after his flight from the Typees. When he attempts to pen down the narratives of whaling and expeditions to far-flung islands, Melville pieces together the ecological practices of the locale, which often are associated with the religious exercises.

The locale of Melville's stories is either sea or islands surrounded by the sea. Of numerous nautical writers, D.H Lawrence found certain distinctiveness in Melville, as he comments in his essay titled 'Herman Melville's *Typee* and *Omoo*:

The greatest seer and poet of the sea for me is Melville. His vision is more real than Swinburne's, because he doesn't personify the sea, and far sounder than Joseph Conrad's, because Melville doesn't



sentimentalize the ocean and the sea's unfortunes...He was half a water animal, like those terrible yellow-bearded Vikings who broke out of the waves in beaked ships. (Lawrence 11)

It is the presence of this sea which is the backdrop of all the vengeance and masculinity which often foreshadows the ecological concerns. It is this watery world which is a realm of insecurity. When Ahab introspects in 'The Great Armada', "and when he glanced upon the green walls of the watery defile in which the ship was then sailing, and bethought him that through the gate lay the route to his vengeance, and beheld, how that through that same gate he was now both chasing and being chased to his deadly end;" (317). Ahab imagines his end through these lines. It is this world in which the position of the subject and object may flip at any moment. The ideology of the mastery of nature over culture is reiterated towards the end of *Moby Dick* as he concludes the rolling of the same sea which did so five thousand years ago.

The sea also offers another possibility of exploitation through sea routes. Ishmael notes, "they not a little correspond to the central gate way opening into some vast walled empire: and considering the inexhaustible wealth of spices, and silks, and jewels, and gold, and ivory with which the thousand islands of that oriental sea are enriched" (314) The sea which fashioned human imagination and life centuries ago has a perennial existent in human psyche as mighty, prepossessing, unpredictable and perilous. It has a flourishing existence in world literature. The horizon of human imagination found invincible creatures in this unfathomable mass of water as

Leviathan³ in the Bible, Craiken in Norse mythology and the white whale in *Moby Dick*. In classical works the sea often forms a background in which one proves one's prowess and masculinity. The female characters are seldom found as sailors in the ships rather they form the destinations as Faway in *Typee* and Yillah in *Mardi*.

The Book of Job in the Old Testament in the Bible reverberates the rhetorical questions shot at Job by God to remind him of the incomprehensible Universe which he deems to rule in and the indestructability of the Universe. The following rhetorical questions shot at Job by God at the moment of Job's disillusionment when he questions God:

- ¹ "Can you pull in Leviathan with a fishhook or tie down its tongue with a rope?"
- ² Can you put a cord through its nose or pierce its jaw with a hook?
- ³ Will it keep begging you for mercy? Will it speak to you with gentle words?
- ⁴ Will it make an agreement with you for you to take it as your slave for life?
- ⁵ Can you make a pet of it like a bird or put it on a leash for the young women in your house?
- ⁶ Will traders barter for it? Will they divide it up among the merchants?
- ⁷ Can you fill its hide with harpoons or its head with fishing spears?
- ⁸ If you lay a hand on it, you will remember the struggle and never do it again!
- ⁹ Any hope of subduing it is false; the mere sight of it is overpowering. (Job 41: 1-9)



What God asks Job in the Bible is ventured in *Moby Dick* by Captain Ahab in his diehard pursuit for the white whale. Leviathan in the Bible is deemed to be the mightiest creature of God's creation. The rhetorical questions magnify the might of the animal. In the parlance of ecology the Leviathan is analogical to the environment which exists unintelligible to human mind. This passage echoes the *Aswametham* ritual prevalent in ancient India where the horse is set free to wander through out the kingdom and the one who attempts to bridle the horse challenges the king's sovereignty. In *Moby Dick*, Captain Ahab risks his life to annihilate the white whale to claim his sovereignty, but the attempts go futile which entails the ascription of sovereignty to the Creator.

In a similar fashion *Moby Dick* is construed to be an allegory of a monomaniac hero's pursuit to conquer the indefinite world with the definite means which ultimately culminates in the destruction of the captain and the crew along with the ship. *Pequod*, the ship in which they set sail for the three-year expedition is named after the native American tribes Pequot, a set of people who became extinct in the unfurling of centuries. It definitely foreshadows the inevitable extinction of the transnational cosmopolitan crew who go in search of the white whale.

When determined to capture whales, the sea becomes a battlefield. Melville is an adept in using analogies to vivify the chase and the catch. He describes, "The compact material columns in which they had been hitherto rapidly and steadily swimming, were now broken up in one measureless rout; and like King Porus' elephants in

the Indian battle with Alexander," (318). Captain Ahab who takes after the Israelite king who led his kingdom to its doom by idolatry and wickedness, navigates the ship *Pequod* and the crew to its peril by the same wickedness and self-centeredness. Regardless of the consideration for others and their opinions, he assumes the role of a dictator who is indisputably obeyed by every member of the crew. Captain Ahab, who has been a harpooner for forty years on whaling ships, killed the first whale at the age of eighteen; left his young wife like a widow soon after the marriage, is now wedded to the white whale and is fascinated by the call of the sea.

Melville's nautical fiction, specifically *Moby Dick*, is an exemplum of the moral tussle taking place in one's mind. Melvillian characters who are destined to wander in the sea assume the role of spokespersons of the exploitation meted out towards the natives in exotic islands and on dumb brutes. The tussle is observable in various terrains in the nautical fiction. The aggression between the tribes in *Typee*, the resistance of the Typee tribe towards the white men against the latter's invasion and colonization; the conflict in the form of mutiny on the board of the ship between the captain and the crew and the predator and the prey rivalry in *Moby Dick* between the carcass of the whale and the sharks. Thus, Melvillian nautical world is an arena of incessant tussles.

The 26th chapter of *Moby Dick* 'Knights and Squires' rightly portrays the crew of *The Pequod*. The chapter opens with the nativity and religious leniency of the chief mate of the *Pequod*, Starbuck who hails from Nantucket and he is a Quaker by descent. The author reiterates the



religious label with special caution to link the environmental view of Quakers with Starbuck. Quakers believe in human beings' dominion over nature. It is further revealed when Starbuck is described in *Moby Dick* as "For, thought Starbuck, I am here in this critical ocean to kill whales for my living, and not to be killed by them for theirs; and that hundreds of men had been so killed Starbuck well knew" (96). The self-assured statement by Starbuck in *Moby Dick* gets reverberated in the present century commercial practicality of the consumerist society. The news story titled 'Outrage over killing of rare whale' on *The Hindu* dated 16 July 2018 by Reykjavik echoes the above-mentioned declaration by Starbuck in the 21st century.

The complementariness of the binary pairs forms contradictoriness in the Melvillian terrains. Serpil Oppermann in her essay 'Feminist Ecocriticism: A Post humanist Direction in Ecocritical Trajectory' points to the western perception of framing the distinct binaries of various entities which are to be subdued. She aptly remarks, "Western epistemologies have legitimated oppressive practices. It also stimulates adequate theoretical models to deconstruct the gendered dichotomies of nature/culture, body/mind, matter/discourse, and subject/object" (Oppermann 20). The dichotomy of nature/culture is pervasive in the books of Herman Melville as the major characters in *Moby Dick* wear a hue of antagonism with nature where nature is to be relegated to foreground culture. The aggravation of the nature/culture dichotomy is partially the result of the ideology of capitalism. Graham Huggan in his ecological text *Postcolonial Ecocriticism* comments on the role of representation as, "While cruelty, death or

extinction are not necessary results of the human representation of animals- many such representations are sympathetic or benign- it is difficult for animals to escape anthropocentrism because they exist in modern cultures much more in representation than in 'the real'. (Huggan 139). It is anthropocentrism which takes the center stage of representation which often relegates the ecocentrism into the oblivion. The dominant representation always sways the minor observations as it happens in *Moby Dick* where the enmity of Ahab with the white whale sways the representation of the white whale as a compendium of malice on earth.

The tussle between the complementary pair, savage and civilized is writ large in *Typee* and *Omoo*. In his works Melville takes special care to include a primitive man, either a native or aborigine to tie the knot with nature and valorize the innate simplicity and the zest for a life closer to nature. In *Moby Dick*, Melville includes Queequeg, a cannibal who comes from the South Sea Islands. In *Omoo* Melville adds a number of natives who lead a life which the narrator longed for. In *Typee* the Typee community are presented as cannibalistic and aborigines. Thus, in his influential works, Melville reiterates the role of the primitive people in binding the people to the earth. Melville meticulously places characters who follow the pagan rituals and worldviews in his works as a dichotomy for the savage and civilized poles of the world. In the essay 'Mariner's Multiple Quest' James McIntosh states, "Queequeg constructs nature as a subjective retreat, a dwelling place for his imagination in which stars are isles and one travels into death as into something familiar. In Pip's case, the sea is not just an analogue for his



terrified state of mind – though it is that – but also a landscape oppressively actual”. (Mcintosh 37).

The contradictory terrains form a sphere of tussle between the utopian and dystopian landscape and seascape. From the dystopian locale in America to the Utopian and Eden like topography in the far away South Sea Islands fascinate the writer. In *Omoo* and in *Typee*, the writer abundantly uses the word ‘Eden’. A longing for an ideal locale is vivid in the writings of Melville as it was a paradigm for the nineteenth century writers. Patrick Parrinder in his seminal essay ‘Utopia and Romance’ says:

At its high point in the late nineteenth century the utopian romance was an increasingly self-conscious genre, a narrative of love and adventure combined with the didactic or satirical portrayal of a supposedly utopian society. In utopian romances, the excitements of love and adventure are normally experienced by a visitor to utopia, not by the utopians themselves, and for good reasons (Parrinder 154).

The utopian romance which foregrounds the quest as its motif incorporates a cosmic world view. These works also suggest the distancing of geographical locations and the distancing of epochs. When in America, the industrialized community thrives on the platform of technology and unmindful exploitation of resources, in the distant locales the half-naked natives with their pagan religions and mindful coexistence with nature form part of the narratives.

In his utopian Romantic imaginations Melville shapes an Eden like valley in

the far away island. In *Omoo* Melville describes the valley as:

It is no exaggeration to say that, to a European of any sensibility, who for the first time, wanders back into these valleys – away from the haunts of the natives – the ineffable repose and beauty of the landscape is such that every object strikes him like something seen in a dream...” I thought I was walking in the Garden of Eden (102)

Paganism is pertinent to the regional ecology and the utilization of the native resources available. Graham Harvey reiterates, “Paganism is a creative tradition of honouring and celebrating the living earth” (38). Sustainable development is feasible only in the utilization and dependence of the indigenous resources available. European colonization followed by the spread of Christianity destabilized the way of life of the natives. In *Omoo* Melville observes the aftermath of European advent to Tahiti, an island in the South Seas as:

It has been said that the only way to civilize a people is to form in them habits of industry. Judged by this principle, the Tahitians are less civilized now than formerly.... Instead of acquiring new occupations, old ones have been discontinued. As previously remarked, the manufacture of tappa is nearly obsolete in many parts of the island. So, too with that of the native tools and domestic utensils; very few of which are now fabricated, since the superiority of European wares has been made so evident. (116)

Colonization affected the religious practices, food habits, dress code and the ecological perceptions to an



alarming level and this resulted in the destabilization of ecology. But Melville prioritized a life in the lap of nature when he compares a European father with a pagan one as the Typee gentleman can easily bring up their children in the cannibalistic way, while a European father struggles to feed one's hungry children. Melville repeatedly comments on the self-sufficiency of the tribe as, "the children of a Polynesian father, without troubling their parents, pluck from the branches of every tree around them" (112). Paganism is perceptible as a consciousness which incorporates respect for nature and having an ecological understanding and practice. In its manifestation, it is visible in the worship of nature. In *Omoo* Melville mentions the utilitarian attitude of the natives towards the coconut tree. He makes a mention that "Upon one of the Tonga islands, there stands a living tree revered itself as a deity" (161)

The attitudinal tussle in foregrounding either deep ecology or shallow ecology takes a subterranean stand in the narratives. The pagan natives uphold a deep ecological religiosity, while the European explorers exhibit a shallow ecological outlook. The eco-centric world view which is an amalgamation of deep ecology assumes the role to human beings as only one of the strands in the web of beings on earth. It is unlike the Old Testament observation of human beings as the stewards of nature. The eco system in which one lives is respected in all the possible ways in pagan culture. The European binary pair nature and culture which is operational as the yardstick to differentiate people and practices from one another really jeopardized the world view and social practices as natural and cultural. Peter

Barry in *Beginning Theory* observes this binary factors as, "It is obvious here that social inequality is being 'Naturalized', that is, literally disguised as nature, and viewed as a situation which is 'god-given' and inescapable, when actually it is the product of a specific politics and power structure." (Barry 244) The efforts to colonize the native kingdoms were justified by this 'white man's burden' which necessitates the Europeans to colonize the savages and civilize them in the parameters of civility framed by the civilized west.

Melville, who spent his youth both on land and in the sea, witnessed the invincibility of the natural elements: wind, water, fire, earth and void. Melville's nautical novels came to the limelight during the early part of the 19th century, the epoch breaking invention of steam engine was at its introduction in the navigation. Hence, the voyage in Melville's novels was made possible by the wind. Thus, a sailor in Melville's nautical world lived in close contact with the elements.

The arcadian life in the Typee valley is contrary to the mechanically and technically driven capitalist extractivism where nature is the abundant source of resources which may be plundered ignoring the necessity to set them aside for the posterity. Melville who witnessed the plight of the islanders who subdued themselves before the civilized Europeans who came to the islands with the mission of civilizing and converting, vivified the deterioration in his sequel titled *Omoo* which portrays the island women being contracted with Syphilis and the livelihood of the people were taken away tactically and gradually. The indigenous crafts and



artifacts were dropped by the islanders as a result of the introduction of durable foreign goods. The indigenous pagan religions were exterminated and a foreign and ecologically unfriendly religion was imposed.

The ecosophy of Herman Melville is rightly expressed in the form of regional autonomy without which the land may be ecologically plundered, about which in *Typee*, Melville admonishes the civilizing mission in the islands and looting the resources as:

The depopulated land is then recruited from the rapacious hordes of enlightened individuals who settle themselves within its borders, and clamorously announce the progress of the Truth. Neat villas, trim gardens, shaven lawns, spires and cupolas arise, while the poor savage soon finds himself an interloper in the country of his fathers, and that too on the very site of the hut where he was born. The spontaneous fruits of the earth, which God in his wisdom had ordained for the support of the indolent natives, remorselessly seized upon and appropriated by the stranger are devoured before the eyes of the starving inhabitants... (195-96)

Vulnerability always accompanies the existence of human beings on earth. Of all the terrains, the sea occupies the most vulnerable but it also lures the adventurous to its bosom as Ishmael remarks in the "Loomings" as, "If they but knew it, almost all men in their degree, some time or other, cherish very nearly the same feelings towards the ocean with me" (3). *Moby Dick* in the outer layer is the violent search of a monomaniac Captain for the white whale that ripped off his leg in one of the fatal encounters with it. But the

subtext of the Melvillian novels heralds man's encounter with the elemental forces. Captain Ahab who is blinded by his false and fatal pride challenges the elemental forces. In "The Candles" he thunders back to the fire as:

Come in thy lowest form of love, and I will kneel and kiss thee; but at the highest, come as mere supernal power; and though thou launchest navies of full-frighted worlds, there's that in here that still remains indifferent. O thou clear spirit, of thy fire thou madest me, and like a true child of fire, I breath it back to thee. (415)

Moby Dick is diachronic descriptions of the development of human beings on earth. From the worshipers of elemental forces like thunder, fire and wind to the technically skilled species who set out to tame the forces which threatened them. As the technical aids helped the Melvillian heroes to rebel against nature and a fraction of the populace remained technologically ignorant and close to nature. *Moby Dick* is not the sole antagonist in the titular novel *Moby Dick*, but the elemental forces assume the guise of antagonists cornering the protagonist on multifarious occasions. When tossed in the typhoon and struck with lightning, Captain Ahab and the crew grew helpless. In spite of being surrounded by the invincible elemental forces Ahab decides to fight back. It is perceptible in the description of Ahab by Ishmael as, "In his fiery eyes of scorn and triumph, you then saw Ahab in all his fatal pride" (424).

Melville's America was on its efforts to expand the market and extract the resources for propelling the economy. This philosophy of expansionism is subterranean in his initial works *Typee*,



Omoo and later in *Moby Dick*. The power struggle that exists between the binaries in Melville's works assumes multifarious forms like the struggle between man on land and the aquatic animals in the sea; the struggle between the savages in the unexplored islands and the civilized explorers; the struggle between the paganism and Christianity. Hence, the 'Other' is ever prevalent in the works. In the capitalist parlance nature is the store house of resources. Whether it be the land or the sea, the capitalist intention is to extract the resources. In *Moby Dick* Captain Ahab's indefatigable effort to float along different oceans in search of Moby Dick is suggestive of the desire to extract resources irrespective of topological differences.

Even after the eclipse of Herman Melville about one and a quarter century ago, the popularity of Melville outlives him through the incessant struggle that he scripted through his works. The inconclusiveness of *Moby Dick* with Ishmael, the sole crew member to be saved by the *Rachel* is destined to carry the struggle. As God asked Job in the Bible about the invincibility of the Leviathan, the Leviathan swims away calmly victorious reclaiming the sovereignty of the Creator rather than the creature. Melville foresees the doom of human beings unless they check their avarice for exploiting the world for claiming dominion over it and he encapsulates it in *Omoo* when he warns, "The palm- tree shall grow/ the coral shall spread/ But man shall cease" (118).

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RE-READING THE BINARIES OF SUBJECTIVITY, DIASPORA AND NATIONALISM: A POSTCOLONIAL STANCE ON AMITAV GHOSH'S *THE SHADOW LINES*

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Abstract

The paper focuses on how Amitav Ghosh, the diasporic Indian writer and winner of the 54th Jnanpith award, deconstructs the Metadiscourse of nationalism in his influential novel *The Shadow Lines*, through the little narratives of the nameless narrator. It is an attempt to resolve the irresolvable subjectivity issue in studies of diaspora and nationalism.

Keywords: Diasporic writing, Nationalism, Multiculturalism, Subjectivity, Uninationality.

Nationalism commands profound emotional legitimacy in modern history and is deeply entrenched in general imagination. It is born from the idea of a people's collective history that spans through a long past and racial and/or religious origins that are shared. This is especially so in the postcolonial era, where the identity question is an acute search for Third World nations seeking to claim their individuality as nations, and shed the yoke of being culturally marginalised for a substantial period of their history.

In his seminal novel *The Shadow Lines*, Amitav Ghosh explores the issues

of national borders, the discursive and historical process by which they have come about, and the resulting ironies that affect people's lives in incomprehensible ways in the postcolonial era rich with contradictions. Benedict Anderson in his *Imagined Communities: Reflections on the Origins and Spread of Nationalism* has put forward some ideas on the concept of nation that may help us better understand the convoluted worlds of Amitav Ghosh. Anderson writes, "Nationality, or as one might prefer to put it in view of the word's multiple signification – nation-ness as well as nationalism – are cultural artefacts of a particular kind" (13). He goes on to define the nation as "an imaginary political community – and imagined as both inherently limited and sovereign" (15). Thus the nation is an idea, a myth. It is a discursive construct, not a pre-existing reality. As Ernest Gellner argues in his book *Nations and Nationalism*, "nations are not inscribed into the nature of things" (49). They fundamentally are fabrications. The idea of the nation has been fabricated primarily by the West. It has arisen with the rise of industrialization and capitalism and with the collapse of religious and dynastic regimes.



Anderson investigates the mode of writing that precipitated the creation of the 'imagined community' called nation. He believes that the simultaneities of time and space, exemplified in contexts like that of the novel and the newspaper, are at the core, of the ways in which we regard ourselves as members of a national culture. Nations are narrated like novels and newspapers. Hence individuals come to consider themselves belonging to "a solid community moving steadily down (or up) in history" (26). In the twentieth century, during the numerous conflicts against colonial rule, the myth of the nation proved to be extremely powerful and profitable.

The national political boundaries that had not existed until colonisation and were often set by the colonising powers, often collaborated with anti-colonial nationalist movements. In his influential novel, *The Wretched of the Earth*, Frantz Fanon emphasizes the concept of the nation as the center of anti-colonial resistance. This is because, he says: "national consciousness and national culture are inseparable from each other, anticolonial resistance cannot succeed without them" (172). However, Fanon is of the view that it has to be replaced rapidly by a political and social consciousness once independence is attained or it might lead to what is called neo-colonialism.

Among other theoreticians, who see the myth of the nation as a productive concept, is Partha Chatterjee. In his popular book *Nationalist Thought and the Colonial World*, Chatterjee explains the origin of the nation in the West as having much to do with the universal urge for liberty and progress" (2). Many anti-colonial

revolutions sought to follow Western nationalism's revolutionary elements, which guaranteed people the political and moral rights of liberty and political self-determination.

Nationalism sought to demonstrate the falsity of the colonial claim that the backward peoples were culturally incapable of ruling themselves in the conditions of the modern world. Nationalism denied the alleged inferiority of the colonized people. (Chatterjee 30)

But a disenchantment with the conceptions of nation and nationalism has arisen in the years after the busy period of decolonization. Bruce King argues in his book *West Indian Literature*;

Where the end of the second world war brought a demand for national political independence to the forefront as a solution to the problems of the colonies, this was soon found to be an unrealistic hope as many new nations became divided by civil wars and micro nationalisms . . . (3)

Before the introduction of colonial rule, many inhabitants of colonial territories had no sense of a "deep horizontal comradeship" (Anderson 6). While the myth of the nation may serve as a powerful weapon in uniting people opposed to colonialism, it also does so by denying the uniqueness of those people that it aims to homogenise – generated from differences in gender, ethnicity, faith and culture. In his essay "Racism and Nationalism", Etienne Balibar says, "many decolonized nations have undergone the painful experience of seeing nationalisms of liberation turned into nationalisms of domination". (60)

In the discourse on nationalist representations, Homi K. Bhabha offers



one of the most potent and influential interventions. His essay “DissemiNation: Time, Narrative and the Margins of the Modern Nation” shows nationalist images as highly volatile and unstable structures that do not produce the unity they promise. Bhabha terms nation as a “major structure of ideological ambivalence within the cultural representations of postcoloniality” (309). Thus nationalist discourse according to Bhabha are “fragile, split and contradictory rather than benevolent and inclusive” (309) and must always be challenged. Several other postcolonial critics such as Tom Nairn, Hans Kohn, Elie Kedourie, and Benedict Anderson, share the view that nationalism is both an invention and a force of destruction. To quote one such scholar, Ernest Gellner: “Nationalism is not the awakening of nations to self-consciousness: it invents nations where they do not exist.” (169)

Amitav Ghosh joins the clan, as he challenges the notion of nationhood that is consolidated by the baptism of wars or oppressive state apparatus. He displays – movingly and powerfully – a nationalism, finding its limits, limits that often are the residue of those ineffable shadow lines, the boundaries of the subcontinent. The boundary that is being problematized in the novel is not that between the colonised and colonisers, but rather one that separates India. As Alter affirms; “The novel betrays no anxiety because it attempts to prove nothing and interrogates, rather than defines, the concept of a totalizing India” (13).

In their war against foreign rulers, Indian nationalism, which was the chief tool of the freedom fighters, could not even guarantee the territorial integrity of

the nation. Nationalism has modified its meaning in the Indian context, to exclude those from the other side of the border, but not everyone on this side of the paradise too could be included. Ghosh rejects the notion of nationalism that rejects all these who chose to live beyond the border.

In *The Shadow Lines*, the narrator ponders over the deadly repercussions of borders. Though he acknowledges the well-intentioned political map-makers, he is struck by the fact that “the bonds that link Calcutta and Dhaka are closer than ever” (233). ‘Shadow lines’ are only borders created by politicians. In the text, they have other resonances as the demarcation lines that distinguish coloniser and the colonised, past and the present, self and the portrait. Ultimately, they are the significant acts that establish nations of distinct identity.

The novel’s personal drama is set out on a canvas of sweeping historical events: the independence struggle and the advent of the Bengal insurgency, the English war against Hitler’s Germany, the Chinese invasion and the Indo-Pak war, the desecration of Srinagar’s Hazratbal Shrine in 1963, and the communal disturbances in Khulna and Calcutta in 1964. The movement back and forth in time and across the borders and boundaries of nations, cultures, races and communities, is not merely a structural device - it serves to image a central theme - that the lines dividing past and present are just shadows and that the reality is too vast and complex a concept to be circumscribed within historical or spatial contours. Two views of nationalism and what it means to constitute a nation contest each other throughout the novel. One is voiced clearly by the narrator’s grandmother and the other



takes the form of events that comment on this romantic view in subtler ways. The narrator's grandmother upholds the belief in a united people fighting for freedom and autonomy and constituting a nation held together by blood. The grandmother of the narrator upholds the belief of an united people battling for independence and sovereignty and creating a community held by blood together. "For her, somebody like Ila, the offspring of a metropolitan education and circling between India and London, is an enigma because she escapes categorization, and a traitor because she bought freedom, "for the price of an air ticket (87). She protests:

Ila has no right to live there ... everyone who lives there has earned his right to be there with blood ... They know they are a nation because they have drawn their borders with blood ... war is their religion. That is what it takes to make a country. Once that happens, people forget they were born this or that, Muslim or Hindu, Bengali or Punjabi. They become a family born of the same pool of blood. That is what you have to achieve for India; don't you see ...? (76)

In this regard, Novy Kapadia in her essay titled "Imagination and Politics in Amitav Ghosh's *The Shadow Lines*", comments, "In her conversation she (Thamma) reveals an alarming prospect, that feelings of nationalism can only develop through the process of war and sustained bloodshed" (204).

Ila later calls this a war-mongering fascist ideology but the narrator sees a pitiful side to this kind of thinking: a deep-seated bitterness at the yearning for middle-class values of "unity of nationhood and self-respect and national

power" (Gosh 77). The narrator's view is however insightful in explaining people's need for the national myth, and how the force of nationalism commands its appeal, although Ghosh, along the same line of argument made by Anderson, would be the first to reveal its shaky foundations.

Most of the events taking place in the text work against the concept of a nation. In his effort to de-mystify this conception, the writer begins with the notion of the national boundary. He puts across the perspective that in modern days, a boundary supposedly uniting those who are inside it as well as separating them from those who are others, divides rather than it unites. The author shows this in several instances, one of which is through the use of allegory: the partitioning of the grandmother's original home. This partition went through the house in an arbitrary manner not making architectural sense, but making the absurd claim of equality and fairness to both sides. For example, it went through a door, a chest of drawers and their father's name-plaque outside. Hind Wassef opines:

This seems to be reminiscent of the India-Pak border, the outcome of the 1947 partition, which was relatively arbitrary, but laying the same claim to fairness in that the land was divided according to the majority religion in a particular administrative district. (9)

The definition of 'shadow lines' is built in reference to this boundary, to connote arbitrariness and artificiality. The narrator, his family, and the past he is attempting to rebuild are also terrified by this border – more than any border between India and Britain.



The author also reveals the futility of this partitioning in providing any real solution to the disputes, for he tells us they had all longed for this division

. . . but once it had actually happened instead of the peace they had so much looked forward to, they found that a strange, eerie silence had descended on the house. It was never the same again after that; the life went out of it. (Ghosh 21)

He believes that national boundaries de-humanize societies because they reject the reality of human and political plurality that exists in any community.

Thus, national borders are made to assert a distinction between self and others, often at a point of crisis. After the partition, people highlight the gaps between themselves and the newly-formed outsiders, as a mechanism of demonising the other. The grandmother's construction of the elaborate web of stories of the "upside down house" (122) on the other side, illustrates this. Then these ideologies of distinction are so instilled in the minds of the people and the community's culture that while the conflicts may be long forgotten, people bear the partition walls in their minds:

. . . they had grown so thoroughly into the habits engendered by decades of hostility that none of them wanted to venture out into the limbo of reconciliation. They liked the wall now; it had become a part of them. (Gosh 22)

From allegory the text moves into reality and demonstrates how partitions come to affect people's lives in ways that are difficult to comprehend. In 1964, as Tha'mma plans to fly to Dhaka, she wonders if she would be able to "see the

border between India and East Pakistan from the plane" (151). When her son laughs and asks her if she thought that the border was a long black line with green on one side and scarlet on the other, like it was in a school atlas," (151) she says:

. . . surely there's something - trenches perhaps, or soldiers, or guns pointing at each other . . . But if there aren't any trenches or anything, how are people to know? I mean, where is the difference? And if there's no difference, both sides will be the same. (151)

Displacement then gives rise to a daunting series of insider-outsider combinations that we witness from the uncertainty of the grandmother. Firstly, she cannot comprehend how her place of birth came to be at odds with her nationality. Like Ila, she finds that she is herself now beyond categorization. As she is informed of what has become of her house and her family, she also learns that she is an alien in her home town. Her uncles have "scattered" (156) all over the Middle East, in Bangalore and other places, and her house has been taken over by Indian Muslim refugees, who are insiders as far as partition has made Dhaka into a Muslim city – but outsiders as they are homeless refugees. When her son points to the historical fact that they also came as refugees to Calcutta, she is intolerant of the word and says ". . . we are not refugees. We came long before partition" (129).

Once in Dhaka, Tha'mma tries to persuade her senile old uncle to leave the decrepit surroundings he lives in, to move to India where she believes he belongs to. However, the old man refuses to move because:



Once you start moving, you never stop. That's what I told my sons when they took the trains. I said: I don't believe, in this India - Shindia. It's all very well, you're going away now, but suppose when you get there, they decide to draw another line somewhere? What will you do then? Where will you move to? (Ghosh 215)

The logic of the nation-state in the subcontinent requires partition to be read as a single, inevitable, original act, one that must never be replicated so citizenship and national boundaries would be automatically, magically co-extensive in a post-partition, post-independence India, but the act of partition itself, as the old Jethamoshai argues, suggests otherwise. Borders and boundaries, shadow lines etched on maps, maintain political distance, but teach the inevitability and even absoluteness of socio-cultural differences across nations, even more firmly. Suvir Kaul, in this regard, comments, "lines on the map are the handwork of administrators and cartographers, and they do not mark much more than the will of the state." (288)

In fact, the maps are beguiling. They tell that the people of the adjacent countries are different, while the truth is altogether otherwise. East Pakistan and West Bengal cannot be separated by any lines, because they have the same culture, the same language and the same food habits. People living in two countries have blood relations. How can they be separated from each other? The novelist has tried to bring this point home to the readers. The narrator draws circles on the maps to discover that the places, generally believed to be far and distant, are not so distant. A circle of 1200 miles in radius, he finds, will cover more than half of the world population:

Beginning in Srinagar and travelling anti-clockwise, it cut through the Pakistani half of Punjab, through the tip of Rajasthan, and the edge of Sind . . . It was a remarkable circle: more than half of the mankind must have fallen within it. (Ghosh 231)

The child who had once believed that distance separates, that it is a corporeal substance . . . that across the border there exists another reality" (Ghosh 233); has by the end of the novel had some of these certainties shattered. Bartholomew's Atlas is for him, no longer a safe guide to a neatly compartmentalized world; The solid lines that separate countries turn into a glass by which we may examine the world and in doing so, it becomes obvious that Chiang Mai in Thailand is closer to Calcutta than New Delhi is, Chengdu in China is closer than Srinagar is. He is disillusioned as to the artificial and imagined nature of the division of borders. The text is a complex allegory that challenges the basis and foundations of this division of borders. As Meenakshi Mukherjee comments:

The material world represented by maps has not changed, nor is it suggested that immigration queues, customs barriers and visa regulations can be wished away, but the defamiliarizing perspective in *The Shadow Lines* initiates an interrogation of the organizing principles of division. (267)

Amitav Ghosh asserts that these boundaries are imagined, by political leaders and political ideologues and their imagining are fraught with incongruities. These incongruities in the construction of national borders de-humanize communities because they negate the reality of human and political diversity which is present in any culture. In an interview Ghosh remarks:



When (one) comes under pressure, the first response is to say the problem can be solved by division . . . An absolutely unpolitical culture is an impossibility. It's enormously important for us to think of multi-ethnic states, because every state is multi-ethnic. (Wassef 89)

As always, Ghosh is not only at pains to demonstrate the porousness of geographical borders, but also the artificiality of a range of binary categorizations of culture and of human psyche. "Shadow Lines" of the title are the borders that divide people and Ghosh establishes that these boundary lines are artificial and constructed realities.

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ESTABLISHING IDENTITY: SPACE, GENDER AND PATRIARCHY IN ANITA NAIR'S *LADIES COUPÉ*

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At potentially dangerous spaces, women set their own agendas to seize the right to live their own lives. The oppressive set of cultural norms limits the destinies of women in both public and private spaces. The gender discrimination is the foundation for the social inequality between men and women. Women are facing unjust social and sexual exploitation based on the cultural construct. The established gender roles prohibit women to have access to leadership and decisive roles in family and society. They are trapped within marital struggles, economic problems, gender discriminations, Poverty, frustration, sexual abuse, etc. Virginia Woolf's *A Room of One's Own* speaks for the literal and figural spaces of women in a patriarchal system. These spaces are still governed by the values of patriarchal structures and institutions. A never ending quest for female space and identity is possible in the sociocultural patriarchal setting of India. As Clara Nubile has suggested, Indian women are "doomed to carry the social burden and cultural humiliation of generations" (30).

Exposed to the routine forms of patriarchal oppression, the women being plunged into traditional silence and

submission is constantly intervened in many of the novels written by Indian women writers. Among the contemporary women writers, Anita Nair occupies a prominent place in championing the women causes through her exemplary novels. *Ladies Coupé* (2001), her second novel, depicts various social, cultural, economic, physical and psychological challenges that the women characters undergo in a male-dominated society. Through her striking women characters in the novel, she presents how women living in orthodox and conservative families feel inhibited to raise their voice against the immediate aggressive dominance of male in their space.

Akhila, the 45-year-old spinster heroine in the novel sets out to break free from the conservative Tamil Brahmin upbringing bound to her. She starts her journey "Dreaming escape and space. Hungry for life and experience" (Nair 2). She is certain that she won't let her family use her anymore. Ahkila's desire to settle her question of her own space is answered through the train journey she takes to Kanyakumari. Through this most exciting and liberating experience, she gets to enjoy things outside her narrowly



prescribed world and moves beyond the ascribed identity of a silent, timid person. She rethinks and revisions the cultural prescriptions that inscribe the submission and passivity upon a woman's mind and body. The psychological transformation of Akhila happens, as Felsky observes, "gradually through a steady accumulation of insights into the structures of power governing relationships between men and women" (131). Trapped by patriarchal systems, Akhila finds her journey to Kanyakumari provides a space to recount her past and allows her a choice whether to be a passive woman according to the expectations of the society or an active woman with an autonomous identity.

Akhila's desire for freedom and identity is supplemented with the narratives of the passengers in the coupé. Being caught in the male-dominated, restricted space, the women in the coupé pass veracious judgment of the constrained society. All these stories are about the action taken by them to overcome the oppressions inherent in the traditional patriarchal world but suggest the limits which continue to restrict their development of autonomy and self-fulfillment. Instead of liberating themselves and going against the norms, they find ways to negotiate with the existing male dominated society and thereby enjoying the benefits of protective patriarchal system.

Devoting each chapter of the novel to one of the woman's story, Anita Nair tries to solve the eternal problematic question: Can a Woman stay single and happy at the same time? Janaki, an old woman, Margaret Paulraj, a School teacher, Sheela, a fourteen-year-old girl, Prabhavati, a perfect home maker, and Marikolunthu,

the most victimized of all were her co-passengers. Anita Nair vividly portrays various constraints that these women face in a patriarchal society due to financial instability, sexual harassment, unrequited love, social dependence etc. Though each one is different from one another in their social status and financial conditions, they undergo psychological trauma in their life due to dead sense of inhibitions and rigid code of conduct imposed on them in a male-dominated orthodox society.

Janaki, the eldest of all, blindly accepts the patriarchal understanding that woman is inferior to man. Her life shows how patriarchal control is unavoidable in the life of a woman. Still, long after being a queen of the household chores, at a certain age, even after adjusting herself with the changing relationships, she dreams on living an independent life of her own. She says, "Women like me end up being fragile. Our men treat us like princess . . . I think I was tired of being this fragile creature" (23).

Being sensitive to patriarchy is the very first step to the path of liberation. The fourteen-year-old Sheela is able to perceive things beyond her age. She finds her father starts scolding her for the very same things that he used to delight in her when she was a child. She is the only one who understands the wishes of her grandmother and fulfills it during her last rites. It is her mental maturity that relieves her of the bitterness of sexual harassment by her friend's father. She develops a sense of selfhood and individuality against the patriarchal mistreatment.

Margaret Shanthi, the Chemistry teacher is inhibited by her husband Ebenezer Paulraj who is also the Principal of the



school in which she is working. Instead of her desire to take PhD, she is forced to take B.Ed. Her own sense of beauty is marred when she is directed to shorten her long hair. Against her expectations, she is compelled to abort her first baby. Though she obliges to all his orders, the injustices imposed on her mind and body gradually makes her hate him and takes revenge in a subtle way. "I had no other recourse but to show him what the true nature of water is" (96). She kills his ego by feeding him with fatty foods and making him lethargic and obese.

Yet another passenger journeying in the same compartment is Prabhadevi. She is born to a rich family and brought up as a perfect woman suitable for a home maker. She is trained to be a good cook, good designer, a good singer and a perfect needle worker. After her marriage with Jagadish, a jewellery owner, she feels a vacuum in her life. The unending waiting for things to happen in her nuclear family makes her disappointed. On her trip to New York, she wanted to be like the women there. She notices, "Their lives were ruled by themselves and no one else." (177). Her new interest in the western culture and styles and her emancipatory pride in her beauty end up with the sexual advancement of Pramod. Shocked by the vulnerability of a woman's existence, she recoils to stay within the safety of family life. At last she empowers herself by learning swimming, a craving she had for a longtime, without anyone's help – empowerment from within.

From time immemorial, men have been using sexual violence as a means to manipulate control over women. Among the co-passengers of Akhila, Marikolunth

is the only humble, peasantry woman. After the death of her father she is sent to Chettiyar's family as a maid. She falls prey to the sexual violence when Murgesan, a relative of that family rapes her. After long suffering and humiliation, she gives birth to a child. Frustrated, she refuses to take up the burden of looking after the child and leaves to Velloor for a job. At another point in her life, she is again forced to work at Chettiyar's house and this time, Sujatha's husband Sridhar takes sexual advantage of her. When her physical condition weakens, she sets out for Kancheepuram to meet Murugesan. In order to repay the money that is borrowed for her operation, she sends her son Muthu to work in his factory. It is only her emotional stability that keeps her stay alive in a life of poverty, frustration, ignorance, and loneliness.

The minor characters in the novel, Akhila's school friend Karpagam and colleague Catherine Webber, too break the larger frame of patriarchy that denies personal freedom to women. They are portrayed as courageous women who break the shackles of patriarchy and strive for self-definition.

Akhila is symbolic of all those who are in a quest for female self and liberated selfhood in a patriarchal world. Akhila's journey to Kanyakumari brings about a radical change in her attitude towards sex, social roles and marital relationship. She realizes that the ability to live alone is not the real question; it is the living as a woman in a patriarchy. Even though Akhila crosses the threshold of self-discovery, her final decision is to re-establish her contact with her former lover, Hari; to find dreams and happiness rather than suppressed



desires. She finally decides, “to leave for the railway station. To wrest the reins of her life back, she thinks, looking at her return train ticket” (276).

Anita Nair succeeds in projecting the crisis of the social norms by delineating the difficulties that are faced by the traditional Indian women in relation to men. Shedding away the fear of facing the consequences of establishing selfhood, her characters counteract the established patriarchal ideologies and oppressive tendencies that surround them. They are in constant quest for their female space within the complexity and contradictions of society and finally discover the inner strength to assert their autonomy and agency.

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THE GREAT INDIAN LANGUAGE ISSUE: DO WE HAVE A SOLUTION?

Abhilash

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It has always been a confusing thing for everyone to comprehend. When two Indians – let us say, one from Kerala and one from the neighbouring state of Tamilnadu – meet, what language do they use for communication? Of course, English! English, the language of the coloniser; the language of the English people and the U.S.! The same language which unites the whole of India. The language which politicians often look at with contempt. And use at their own convenience to arouse a regional language sensitivity to gain more popularity.

India has a long list of languages. The Eighth Schedule to the Indian Constitution contains a list of 22 scheduled languages. It is also home to hundreds of other languages, many of them used as mother tongue by various people. Hindi is only first among equals, which is the mother tongue of about forty percent of the population. I do not conceal the fact that Bengali, Marathi, Telugu and Tamil have more than 50 million speakers each. With more than 30 million speakers, Malayalam also is not far behind. In the case of English, about one and a half billion people speak English, of which only 360 million are native speakers.

In the case of a language being used as mother tongue, Hindi exceeds English by a large margin.

In 2018, The Indian Express reported that there are 121 languages in India which are spoken by ten thousand people or more, and that there is a total of 19500 mother tongues spoken in India. The news was published in relation with the analysis of a census conducted that year. The report further says:

There are 121 languages which are spoken by 10,000 or more people in India, which has a population of 121 crore, it (the census) said. The Registrar General and Census Commissioner, India, said since a household may consist of persons related by blood or of unrelated persons or a mix of both, it is absolutely necessary to ask every person about her or his mother tongue. It was required because the mother tongue of each member of a household need not necessarily be the same — these may be different for different members in the household.

No other country in the world has such an issue to face. Since we are told about this from childhood onwards, we



do not feel surprised at this problem. But for an outsider, it is really amusing to see people in India communicate to each other in a foreign tongue. The history of the multiplicity of languages in India can be traced back to the various empires as well as the small kingdoms that ruled India in the past. When India got freedom in 1947, there was an attempt to unite the country by declaring Hindi as its official language. Even today, non-Hindi states have to teach Hindi at schools, though it has not helped the national integration in any considerable manner. Instead, we find English taking over the responsibility of linking India. Hindi is still the most spoken language in India. However, we find many states consider Hindi as exerting dominance over them.

English, however, enjoys a better reputation throughout India. In Hindi States as well as Non-Hindi states, English Medium schools are always considered better places to educate children. English is the only language in the prestigious institutes of higher education. There is no choice possible here. Whenever the common man thinks about a child achieving higher positions in career, English language competency is a compulsory background for it in his dreams. So English medium schools flourished all across India. Consider the case of Kerala. Most of the students who perform better in the field of professional courses have an English background, whether taught at schools or acquired on his own. In a state like Kerala where the level of education is so high, English became a precious commodity to perform well in interviews for both in-state as well as foreign jobs. So when it comes to the case of the education of a child, even the least

educated parent prefers a school where knowledge in English can be acquired.

Recently, we notice a reversal policy from the part of the state governments. For example, the Government of Kerala has decided to make Malayalam the only language of official communication. Though I do not doubt the genuine interest to promote mother tongue in the state, I wonder whether a state like ours can afford to do it. Malayalam is the language of our culture, our history. But consider the population density of Kerala and the percentage of youth who get higher education. It has been a long tradition in Kerala for the educated youth to seek employment outside Kerala, a large number of it being in foreign countries. People who work in Western countries and the Middle East has contributed a lot for the economic stability of the small state of Kerala.

What if we pull down English and insist on using mother tongue? First of all, Keralites now use many words from English as part of their daily vocabulary. This is mostly irrespective of their educational levels. This happens as the majority are educated and use sophisticated words in English in many casual contexts. When this standardised language is used in visual media, it reaches all. A deliberate attempt to reverse this trend will only take us back to the times where the divide between the social classes was very wide. The truth is that we do not know the Malayalam equivalents for many words like office, restroom, bill, receipt, bus shelter, ticket, football, shoes, restaurant, etc. If we try to find out and use the dictionary meanings of these terms, our language will appear only awkward. In fact, some Keralite



news papers are coining new Malayalam equivalents for some words, the success of which we cannot say anything at present.

What I am concerned about is the consequences of these. Knowledge of a global language is nothing to be ashamed of, in the first place. We no longer have to consider it as the language of the coloniser or the language of oppression. In fact, it is a powerful weapon we have got in our hands. It is the key to the vast expanse of knowledge of the world. In these times of internet and globalisation, any attempt to hold on to a small part of the world will be a barrier to the growth of any promising child from India. Internationally, Indians usually outperform in any field which needs intelligence and reasoning. Though China emerges as a world power, the greatest barrier for their growth is lack of English communication skills. Even as they try to improve this situation, it will take a long time to bring in any noticeable change. Instead of implementing a compulsory mother tongue drive, what the Indian states should do is to put more importance in English teaching.

Multilingualism in this sense – mastering mother tongue as well as the universal language – is a practical and viable option in many ways. Scientists opine that it helps in better communication skills, heightened linguistic recognition, superior executive functioning and multi-tasking. It even helps in fighting dementia. It broadens one's mind and provides multiple perspectives. Benefits of multilingualism practices in education include the creation and appreciation of cultural awareness, adds academic and educational value, enhances creativity, adjustment in society and appreciation of local languages.

The greatest advantage of this for the Indians will be putting an end to the class divisions. Now English is the language of the elite classes, just like Sanskrit was once. In interviews, candidates fail if they fail to speak fluently in English. Once we go abroad, whatever we know can be used only with fluency of the link language. This is true even if you visit a country as a tourist. Can you even think of an all-India tour, without having English communication skills? Unless English competency is ensured to all kinds of students, the so-called Convent School kids will always take away whatever opportunities are there. One can definitely argue that a candidate can get to a good position by applying for the government sector jobs. But the numbers? We cannot ensure jobs for all in our own place. We will have to look at jobs outsourced by western countries. Even giving tutorials online can generate income. Then let us prepare them for global opportunities. Isn't it a necessary thing we should do?

Mother tongue is one's own language, and they will learn it at any rate. Our school syllabus, if followed genuinely, will provide enough material for the students to learn regional language. Moreover, the learner watches movies in that language, reads newspapers in the language, and much more. There is no real threat at all for the nourishment of one's mother tongue. Those who wish to become advanced learners in that language can still do it. There is no question of neglecting anything. I am pointing at a practical solution which may ensure a better future for the coming generations. Change is the only thing without change. There will be changes in our social life and culture in the future. After all the attempts to promote regional



culture and heritage, one cannot stop our youngsters from watching Hollywood movies and visiting KFC stores. Let us try to make changes positive, instead of sensitising any issue unnecessarily.

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THE FADING CRIES: AN ECOCRITICAL APPROACH TO SELECTED ANIMAL POEMS

Jissmon K. J.

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Kottayam.

Since the ages of great philosophers like Aristotle and Plato the relationship between human beings and other fellow inhabitants of earth has been treated as a consecrated one. Man is inexplicably interlinked to nature like a child to its mother. The crux of ecocritical or ecological arguments can be found as this. But the present day scenario portrays a picture just as the opposite of what has been considered sacred. The recent activities of humankind give us nothing but a clear cut picture of the malice that has befallen upon nature and other living creatures due to the careless, selfish and money-minded nature of human beings. The fauna is now at the verge of extinction, their very existence being threatened and their rights are denied. It is due to these concerns that certain writers began to move their pen for the sake of animals, the real owners of earth. Serious discussions have been made regarding these issues and a wide range of theories has been formulated. By the end of the second half of the twentieth century the issues regarding nature and its conservation became focal point on which later developments were built. It is from this impetus that the new modes of writings and representations came into

being in the realm of literature. Eminent writers like William Rueckert, Cheryll Glotfelty, Rachel Carson and so on took up the issue and brought it to the forefront. It appears that William Rueckert was the first one to use the term “ecocriticism” in 1978. Rueckert, by using the term “ecocriticism,” speaks about a kind of intrinsic and inevitable relationship between nature and literature, the very way nature is addressed and treated in various forms of writing. Cheryll Glotfelty in her introduction to *The Ecocriticism Reader: Landmarks in Literary Ecology* (1996) says that “ecocriticism is the study of the relationship between literature and the physical environment” (Glotfelty xviii). Here, the subjects such as nature and literature are taken as overlapping, interdisciplinary ones:

Ecocriticism defines itself as a practice of reading literature from an earth-centered (rather than human centered) perspective. There is also an activist dimension to ecocriticism: at least part of the reason ecocritics want to discuss the centrality of nature in literature is to raise awareness more generally about the need for concern and indeed action with regard to the environment. (Buchanan 143)



The ecological aspects and issues are now studied in relation to literature by placing them within the wider milieu of culture. It is only by juxtaposing these two areas that one can address the anti-environmental attitudes that humankind inflicts upon nature nowadays. We often forget the fact that there is no existence for us without the existence of the remaining flora and fauna. It was from this impetus that the notion of deep ecology came into being. Deep ecology views human being just as “one” among the many other inhabitants of this earth. It exhorts for a paradigm shift where the human being is placed “among” the rest rather than “above” them. The shift must be made from an anthropocentric to a more ecocentric or biocentric one. The ecocritical writers always objurgate the fellow human beings for their cruel attitude toward nature. The poets have always considered the nature as a superior phenomenon to which we all belong. The poems by Robert Wrigley, Robert Pack and Chad DeNiord portray the oppressing attitudes and deeds of humankind upon earth and its remaining inhabitants.

The Cries Are Fading

The American poets Robert Wrigley, Chad DeNiord and Robert Pack in their poems always speak about the profound relationship between man and nature. In their poems they always praise nature and mark human beings place in it. The poem “Little Deaths” Wrigley presents before us the malice that humans inflict upon the nature and other living beings. The title of the poem itself reveals the seriousness of the issue discussed. Here, the word “little” is placed with the word “death.” This oxymoron also points out the general

human attitude. For the “mighty” creations, like what we call ourselves, death or even extinction of the rest of the living beings is of “little” importance or of no importance at all. The poem pictures humans as the superior, supreme authority that controls all other living beings. The way the poet details about the deaths of those little creatures like bugs, moths, frogs and rabbits is intriguing. The poet accounts the “killing” process of these creatures as if it is a noble act. The moths in the first stanza are tossed in the stove for it entertains the poet. Then he speaks about the ill fated bugs and the broken grasshopper whose deaths are nothing but mediocre ones. The cruel act of man can be seen when Wrigley writes:

In the woods behind their summer camp
Pentacostal kids crucified frogs
to the trees. Three nails
and a sapling trunk, little fish-belly
amphibious Jesus. Once
I shot a turtle, green lump under
duckweed, (15-20)

Here, one can quote from Shakespeare without much ease as to say the humans “kill” the other creatures “for their sport” (Bloom 41). The picture gives a clear example of an anthropocentric point of view. The speaker in the poem is the dictator who has got the authority to define the lives of other living beings. M.H. Abrams, in his *A Glossary of Literary Terms* (1957), defines anthropocentrism as an array of ideas which are:

oriented to the interests of human beings, who are viewed as opposed to and superior to nature, and as free to exploit natural resources and animal species for their own purposes. (Abrams 97)



This is the prevailing attitude the poet maintains in the poem. The “deaths” of animals are insignificant in this paradigm. The poem ends in such a way that it embraces the chaos which is going to end in a phase where no one is feared of death anymore. This means the fact that the deaths and killings have become a norm and the acts of “little deaths” will continue forever. The complete transformation of man into a kind of monster is clear when the poet says that:

into a cool rocky pool on Potlatch Creek,
we insisted on total immersion,
as though it were a baptism,
as though afterward death were nothing to fear. (27-30)

The words “immersion” and “baptism” means the act of complete submission to and submersion in evildoings and humans’ later transformation into a complete monster that has the ability to mark the doom of earth and its inhabitants. In the last stanza the poet proclaims his love for violence and cruelty and ends the poem in another act of “murder” of four crawdads. He is curious to see who is going to die first, whether it is he or the crawdads. The sacred relationship between humans and animals is no longer a matter to be concerned. The apocalypse is now at hand. Human has indeed become the real murderer and he rejoices in the “little deaths” of his fellow beings. The poem ends as:

I have my own ideas about that,
my own crawl sense of who’ll die first,
and how. Those four crawdads we caught.
(31-33)

In Chard DeNiord’s “Confessions of a Bird Watcher” the poet takes us into the

stark realities of the modern world where man-made buildings stand as a symbol of death. The poet witnesses the “dying” act of those birds which strike against the windows and die. The buildings stand as a metaphor for human evil. The poems clearly depict the evildoings of humans upon animal lives. The birds, unfamiliar of the modern buildings and constructions, fly against them. These buildings are new and strange to them. The poem shows how manmade structures disrupt the balance of the ecosystem and pose a threat to the existence of other living beings, especially for birds. The birds are attracted by the feeder which is placed outside, but when they fly towards it they mistake the glass for air and break their necks:

I have sat at my window now for years and
watched a
hundred birds
mistake the glass for air and break their
necks,
wondering what to do,
how else to live among them and keep my
view. (9-13)

It is quite clear that the poet knows about the impending doom of those birds. He is well aware of the hidden dangers that the building poses. Yet he is not ready to change anything to save those little birds and he also loves to watch them beside the feeder. He is the one who really attracts them. Here, a kind of complicated relationship can be seen. The human becomes the lifesaver and the destroyer. The poet says he knows that the windows are the reason for their deaths and he is the one who attracts them with seeds in the feeder and water in the bath. But he only feels sorry for them.



What sign to post on the sill that says,
 “Warning, large
 glass window.

Fatal if struck. Fly around or above but
 not away.

There are seeds in the feeder and water
 in the bath.

I need you, which is to say, I’m sorry
 for my genius as

the creature inside

who attracts you with seeds and watches
 you die

against the window

I’ve built with the knowledge of its
 danger to you.

With a heart that rejects its reasons in
 favor of keeping

what it wants:

the sight of you, the sight of you.” (17-
 28)

The warning sign that he wants to post can also be regarded a kind of justification which he makes to justify his own brutal acts. The poet knows about the hidden danger but he also loves the sight of those birds. What we need to understand is the inevitability of a change of perspective. The poem calls for a reanalysis of the relationship between man and nature from a deep ecological point of view. The birds and other living beings have the right to live in this earth like we humans have. The proponent of deep ecological studies Fritjof Capra in his *The Web of Life* (1996) defines the idea as

seeing the world as an integrated whole rather than a dissociated collection of parts. It may also be called an ecological view, if the term ‘ecological’ is used in a much broader and deeper sense than usual.

Deep ecological awareness recognizes the fundamental interdependence of all phenomena and the fact that, as individuals and societies, we are all embedded in (and ultimately dependent on) the cyclical process of nature. (Capra 6)

The humans must be taught this fact that he or she is just a part of that cycle and if the uniformity of the cycle is disrupted it will eventually leads to catastrophe.

It is the fact that man draws his inspiration from nature. Whenever he looks at nature, he feels relieved and it helps him dwell in serenity. The poem “Eagle” by Robert Pack portrays the image of an eagle whose impending doom is at hand and praises over its majestic beauty as well as laments over its imminent extinction. The poet bemoans over this terrible fact. In the beginning of the poem he introduces the eagle drifting around her nest. Like in “Confessions of a Bird Watcher” the poet here knows that the creature is at the verge of extinction. He also acknowledges the fact that this ill fate is due to the human activities and nothing else. Pack opens the poem as:

At dusk, I see an eagle’s silhouette
 Drifting around her distant nest,
 And think how close to stark extinction
 She has come, the ultimate defeat,
 Contingent on some human whim (1-5)

What is purposefully forgotten is the interconnectedness of humans and nature. By destroying nature we are destroying ourselves. Man is a part of nature, an ineluctable part, and the aftermaths of his evil deeds towards nature will definitely be reflected upon himself. The poet now accepts this fact that he feels a kind of



calmness when he looks at nature. The sight of the eagle makes his mind composed.

With a kind of love because
She helps me almost to forget myself,
I watched her tilted wings glide off and lift,
Swooping in some smooth current (16-19)

The lines clearly portray the intricate bonding between man and nature. The fact that the poet transcends himself when he is with nature, savoring the beauty of her, amounts to this bonding with nature. Man's profound relationship with nature is highlighted here. In Brihadaranyaka Upanishad this relation is seen as the most pure and sacred one. The last stanza of the poem speaks about how the poet attains transcendence when he sees the majestic flight of the eagle.

And so I try to think myself released
From thinking of myself
By fixing on the eagle's dips and swerves
Around their nest, my mind filled with their forms,
The angles of their silhouettes, their curves. (31-35)

What we need to note here is the redeeming acts of nature. The irony is that the eagle helps to restore the poet's lost serenity and soothes his mind even when it is in the midst of extinction.

Conclusion

WE STAND NOW where two roads diverge. But unlike the roads in Robert Frost's familiar poem, they are not equally fair. The road we have long been travelling is deceptively easy, a smooth superhighway on which we progress with great speed, but at its end lies disaster. The other fork

of the road – the one “less travelled by” – offers our last, our only chance to reach a destination that assures the preservation of our earth. (Carson 277)

says Rachel Carson in her epoch making work *Silent Spring* (1962). Even though Carson is talking about the harmful effects of pesticides on nature and the need to put a halt on that, the lines can be attributed to a wide range of environmental issues which call for attention. Considering all the anti-environmental acts of human beings what is expected now is a deviation from the long travelled roads of exploitation and destruction to a new less travelled one of conservation and care, not only of earth but also of all its inhabitants. People should be made to think from a deep ecological point of view where he or she should treat himself or herself as a minion of the other inhabitants of this mother earth. We are not the focal point anymore. The paradigm is changed, if not, it should be changed. The poems clearly depict the evildoings of humans upon animal lives and nature and the need to save and conserve it. It is to the poets' outcry that we must lend our ears. It is high time we shifted our paradigm from an anthropocentric to a more ecocentric one.

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ONENESS AND BOUNDARIES OUT OF THIN AIR: CULTURAL IMAGINATION AND ITS RELEVANCE (OR IMPACT?)

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Abstract

The purpose of this paper is to share ideas regarding the concept of Cultural imagination and its impact. The term 'imaginary' implies a set of morals, rules, signs and institutions using which people try to belong to the fantasised social community they have created for themselves. This idea can be traced back to the book 'The Imaginary: A Phenomenological Psychology of Imagination' by Jean Paul Sartre in 1940. The theoretical term Cultural Imaginary is a product of different hypothesis that prevailed in Latin American and Hispanic countries. Cultural Imaginary is comprised of the findings of Stuart Hall about culture and Benedict Anderson's concept of 'imaginary'. Cultural Imaginary is the act of the migrant community imagining a culture of their own, in a dimension neither here nor there. Some argue that nations themselves are imagined communities, because most of the people living in a nation will never interact with each other, still they have the sentiment of oneness. It is this nationalistic feeling that produces culture, along with the notion that it should be used as a medium to share the feeling of collectiveness. The

influence of such an imagined community is to be explored using relevant works like 'Imagined Communities', 'The World of Lucha Libre' and many more.

Keywords: cultural imagination, nationalism, Jean Paul Sartre, Stuart Hall, Benedict Anderson

Content

Albert Einstein called the intuitive or metaphoric mind a sacred gift. He added that the rational mind was a faithful servant. It is paradoxical that in the context of modern life we have begun to worship the servant and defile the divine. (Bob Samples 1976 p.26)

It is generally believed that Einstein said these words because intuition paves way to the fluidity of thoughts and imaginative capacity is the main factor in brewing self-confidence in individuals. Max Haiven explains the connection between imagination and value as follow:

We rely on our imaginations to give us a coherent sense of experience, of reproductive cooperation, of the world around us. How a person imagines their relations shape what and who they value. Meanwhile, their values, in effect, shape



their imaginations. In other words, their cultural values determine what they think is important and the types of behaviors and attitudes that they believe will allow them to achieve their desires; how they ascribe meaning to the world. (Haiven 2014, loc. 963)

But imagination can be used to manipulate others who never had the privilege or resource to think for themselves from external invasion of any sort. This is the exact reason why European colonization was a tremendous success in the past centuries. The 'Whites' who valued their 'own kind' as superior to the oriental, were able to set foot on the lands of the 'coloured', and they were able to convince the natives that their culture, language and literacy level was far below the required quality, an invisible measuring scale set up by the Europeans to make them look like gods in front of the non-whites. Thus the soon to be colonized people valued themselves as inferior to their new 'liberators'. This is where it all began. In the novel *The Brief Wondrous Life of Oscar Wao* by the Dominican American writer Junot Díaz, there is a motif of destruction and death, which the narrator terms 'fukú'. It is a curse that was unleashed on the Caribbean by the colonizers without intention:

They say it came first from Africa, carried in the screams of the enslaved; that it was the death bane of the Tainos, uttered just as one world perished and another began; that it was a demon drawn into creation through the nightmare door that was cracked open in the Antilles. Fukú americanus, more colloquially, fukú—generally a curse or doom of first kind, specifically the Curse and Doom of the New World (OW1).

It is also explained in the novel that zafa is the "one way to prevent disaster from coiling around you, only one surefire counterspell that would keep you and your family safe." (OW2). This could be understood as the necessity for decolonization for 'curing' their land from the curse of pseudo-liberation by the colonizers. In order to achieve that, it was mandatory for the natives, not just of Latin America, but of all the colonies that existed to give themselves a value as equals to the Europeans, so that they could conjure the bravery and determination to rebel for their freedom. We all know what happened next.

Post –Independence era for the former colonies brought forward new challenges which were quite unexpected. Different post colonial nations had different obstacles to come across depending upon the category they belonged to. It would be fair to say that it is the people of the Latin American countries and the Caribbean Islands who had to endure new traumas even after the reign of the Europeans, as if invisible threads were still being tied upon them like a puppet. Initially Caribbean Islands were populated by Amerindians from different groups of Kalinago and Taino. But after the islands regained their freedom it was possible to witness a hybrid society which could be roughly classified as Afro-Caribbean, who were the descendants of the African slaves, White Caribbean, whose ancestry had its roots from Europe, and Indo-Caribbean. Their hybrid nature along with the mixture of multiple languages and cultures forced upon them a sense of rootlessness, since they are not able to identify themselves to a particular nation. This is where the role of imagination comes in again.



During pre-colonial times, if imagination was used to feel superior about oneself (like the Europeans) or to discover the value of oneself to strive against injustice (like the colonized), now the purpose of imagination is to create a virtual sense of belonging with the piece of land the hybrid post colonial mass are currently residing. Professor Hector Pearla of University of California stated about Latin American as a community that is imagined, one that is “socially constructed through narratives, myths of origins, symbols, rituals, and collective memory, imagined by people who see themselves as a part of that group” (Pearla 45). It is this sense of identity and how culture is able to reinforce it that contributes to the imaginary.

There are several instances of how these hybrid nations pick up or adopt a cultural activity that originally belongs to their native place of one of their ancestors. Heather Levi, an American anthropologist, in her book *The World of Lucha Libre: Secrets, Revelations, and Mexican National Identity* explains how the use of mask by a Luchador is a means to establish a cultural tie to the Mexican indigeneity. Luchadores use masks to create an imaginary with the masks used for certain ceremonies by the native people of Latin America:

The Luchadore's appeal to mainstream audiences in Latin America resulted in the creation of an imaginary through which, both high and low cultures were able to relate to one another. This reproduction of the indigenous culture and the identification with the Mexican identity create a cultural imaginary. (Levi 66)

Alicia Camacho, a prominent professor in American Studies, observes that the migrant workers from Latin America to

the U.S are always in a desperate attempt to cling on to this sense of nationality. She believes this is Cultural Imaginary in its epitome. They claim to do this so that they do not lose their identity as Latinos. According to her culture is: merely a detached set of ideas but rather the means by which people work through their connections, and create a sense of relatedness to a particular time, place and condition. Because of the loss of sense of belonging, the cultural imaginary is one that helps define identity and meaning in a setting of neither belonging here or there. (Camacho 29).

Coming back to *The Brief Wondrous Life of Oscar Wao*, we can see Yunior, one of the narrators, saying:

It might have been a consequence of our being Antillean (who more sci-fi than us?) or of living in the DR.. and then abruptly wrenchingly relocating to New Jersey.. You really want to know what being an x-man feels like? Just be a smart bookish boy of color in a contemporary U.S. ghetto. Mamma mia! Like having bat wings or a pair of tentacles growing out of your chest. (Díaz 83)

Here Yunior is talking about a factual historic event, where people migrated from Antilles to the U.S. Sci-fi characters from cartoons and comic books are mentioned here because these fictional characters have super human abilities and hence, they always stand out from the crowd. Yunior is facing the same problem because he is coloured and he stands out from the whites in the U.S. But unlike the adoration the superheroes receive, Yunior is of the opinion that the Americans treat them with contempt. In such scenarios where the new home is very un-homely,



diasporic migrants have to choose but to take up the culture of their new land. That is the only way they can blend in. This is where the ability to imagine and prepare oneself to embrace the new circumstances become prominent.

We could see ideas of similar sentiment in the poem *The Schooner Flight* by Derek Walcott:

I had a sound colonial education
 I Dutch, nigger, and English in me
 And either I'm nobody or I'm a nation.
 I had no nation now but the imagination.

Cultural imaginaries are created in a social realm in order to quench the thirst for the sense of belonging of certain sects. Cloths, dance form, food, be it anything, are constructions of the society to identify what it means to be an element of a group. These constructs and the associated imaginaries help to establish the sense of oneness and meaning to a community. Since a thought is given meaning that only makes sense inside particular cultural restrictions, it is the product of imagination and hence applicable only to that group.

Benedict Anderson, an Irish Political scientist, on the other hand sheds light from a different angle on cultural imaginary; an important aspect which actually answers the basis of different kinds of political conflicts. For Anderson, a nation itself, whether or not it has a colonial background as the land of the colonizer or the land of the colonized, is an imagined community. "It is imagined because most members of said community will never meet or hear from other members of this community, yet each has in their minds the image of their communion."

(Anderson 49). It is this idea of nation as a community that provides and produces culture, and therefore the oneness. The situation in India is a suitable example to showcase the virtual or hollow nature of nationalism of any nations for that matter. India is a country with diverse culture and language. Even the slogan of India is "unity in diversity". But this is something that is achieved using force or artificial means. There is no logical sense in feeling united with the millions of people that we do not know. But this is achieved to a large extent through different means like hereditary, majestic historical evidences etc. Everyone forgets the fact, or the political powers invisibly hanging over us makes us forget, that the boundaries that a nation share is man-made and it has nothing but political agendas. If a section of China becomes part of India, then should we start feeling the same sense of oneness with the new arrivals? This is where the reality of the situation strikes. People imagine that they have some sort of tie with their land, and they are trained to believe that every other nation and its people are somehow not as good as them.

Chris Kyle is professional Navy sniper who got famous after his success in a combat in Iraq where he killed 160 terrorists (he claims that he killed 95 more, but the data is not confirmed). In 2012, he published a memoir titled *American Sniper: The Autobiography of the Most Lethal Soldier in U.S. Military History*. He says:

I loved what I did. I'm not lying or exaggerating to say it was fun. On the front of my arm I had a crusader cross inked in. I wanted everyone to know that I was a Christian. I had it put in red for blood. I



hated the damn savages I'd been fighting. I always will. (Kyle 9)

A movie American Sniper (2014) was made based on this book and it was a huge success. But the fact is disturbing because the movie spread islamophobic message that everyone involved with Muslim religion or Arab nations are terrorists. Thus this is what imagination can do to human civilization if not used properly.

But we could conclude on an optimistic note because by now it is clear cultural imaginary is a psychological product of the people. Thus it could be deconstructed and a brand new structure could be erected eradicating all these problems. After an abundance of reworking on what we consider as our culture and why we cling on to it, nation leaders can actually enlighten their people about a global sense of belonging rather than a national one. Thus people all over the world would feel united with no political boundaries to separate them. Thus culture then could be perceived as different ways of living, wearing cloths and eating. A united world with so many options for everything!

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AN INTRODUCTION TO ROBERT M. PRISIG'S ZEN AND THE ART OF MOTORCYCLE MAINTENANCE

Melvin Shaji Mathew
.....

Zen and the Art of Motorcycle Maintenance is a philosophical novel written by American philosopher Robert M. Pirsig. Philosophical fiction has become very popular. Works like *Sophie's World*, *Wittgenstein's Mistress*, *Infinite Jest*, *The Monk Who Sold His Ferrari* have become international best sellers. *Zen and the Art of Motorcycle Maintenance* set the precedence of this trend in the 70s when it became an international bestseller and the most popular philosophical book of all time. What is the reason behind the popularity of philosophical fiction? The primary reason is that fiction is the best medium for teaching philosophy, which is infamous for being dull and formidable. Another reason for the popularity of philosophical fiction is that when teen fiction and soap operas flood the market, philosophical fiction provides insight into the process of existence in a lucid form. But renowned Oxford philosopher and author Iris Murdoch refutes this idea. According to her, philosophy calls on the analytical mind to solve conceptual problems in an austere, unselfish, and candid language whereas literature with the help of imagination shows something mysterious, ambiguous, and particular about the world. For her the appearance

of philosophy in her works is purely an inconsequential appearance of what she happened to know. She remarked:

If I knew about sailing ships I would put in sailing ships,". And in a way, as a novelist, I would rather know about sailing ships than about philosophy. (http://www.nytimes.com/2011/01/23/books/review/Ryerson-t.html?_r=0)

The relation between philosophy and literature is not a cordial one. Philosophy always distrusted literature and the quintessential example of this hostility is that of Plato who was fearful of the ability of literature which he termed as the greatest falsehoods to disrupt an individual's quest for truth. Hence, he proposed the banishment of artists from his model state. The reason for this conflict is :

Philosophy is written for the few; literature for the many. Philosophy is concerned with the general and abstract; literature with the specific and particular. Philosophy dispels illusions; literature creates them. Most philosophers are wary of the aesthetic urge in themselves. It says something about philosophy that two of its greatest practitioners, Aristotle and Kant, were pretty terrible writers. (<http://>



www.nytimes.com/2011/01/23/books/review/Ryerson-t.html?_r=0)

Novelists with a philosophical background like Rebecca Newberger Goldstein and David Foster Wallace have different views. For Wallace, fiction offered a way to capture the emotional mood of a philosophical work. According to him, the goal of a philosophical text is not to make an abstract philosophy accessible by simplifying ideas for the lay audience, but “to figure out how to recreate a reader’s more subjective reactions to a philosophical text”. Fiction is subjective and novelists like Iris Murdoch wish to keep the subjectivity of the novel from the influence of philosophy’s objective search for truth. Rebecca Newberger Goldstein says that the way we tackle intellectual problems depend upon who we are as individuals and embedding a philosophical debate in imagined human stories can convey key aspects of intellectual life. It makes one not only understand a conceptual problem but also “feel” the problem.

He was born in Minneapolis, Minnesota. He skipped several grades -due to his IQ of 170- and enrolled at the Blake School in Minneapolis and finally entered the University of Minnesota at the age of fifteen to study biochemistry. Pirsig thought of arriving a unified theory, which explain everything in the universe. While working on experiments, Pirsig realised the existence of numerous tenable hypotheses. His attempt to tone them down resulted in the generation of an unlimited number of workable hypotheses. This made him question the entire scientific practice, which he concluded as an inherent limitation. Eventually, Pirsig lost interest in his studies and was expelled from the university. He enlisted in the US army and was stationed in South Korea. After

his discharge from the army, he earned a Bachelor of Arts in Eastern Philosophy and then joined the Banaras Hindu University in India for a Master’s in Eastern Philosophy. He studied philosophy and journalism at the University of Chicago. In 1958, he joined the Montana State University and taught creative writing. He suffered a nervous breakdown and was institutionalised between 1961 and 1963. He was diagnosed with schizophrenia and was treated with electroconvulsive therapy.

One might not understand the dilemma Pirsig faced while conducting experiments. It is a philosophical problem, which is described by Jules Henri Poincare. Jules Henri Poincare, was a French philosopher of science and mathematics as well as a distinguished scientist and mathematician. Poincare believed in the role of intuition in a proper constrictive foundation for mathematics. He believed that logic is a system of truth and mathematicians can use it to check a proof, but they must use intuition to create a proof. According to Poincare the aim of science is to predict or to create hypotheses, which has to be continually tested. For Poincare, a scientific hypothesis which was proved untenable can still be very useful for it implies the fact that we have neglected or misunderstood some element, thus gives us an opportunity to discover the existence of an unforeseen aspect of reality. He suggests that a scientist can make any number of hypotheses for which he must choose a suitable few. Pirsig failed to formulate a criterion according to which he can select few hypotheses for serious experimentation.

Zen and the Art of Motorcycle Maintenance is a philosophical novel first published in 1974. According to Guinness Book of Records 121 publishers rejected it more than any other bestselling book.



It is about Pirsig's trip on his bike with his son Chris and his friends John and Sylvia, from Minnesota to California. On his way, Pirsig ponders about his past—his philosophical journey and calls his past self 'Phaedrus', who is a character in Plato's dialogues.

Pirsig wanted the idea of Quality he formulated to become a topic of metaphysical study but it did not. Philosophers simply ignored it. Most of the people who read Pirsig's books claimed that they did not understand his idea of Quality.

For someone who doesn't have any training in Philosophy reading *Zen and the Art of Motorcycle Maintenance* is a difficult task. Hence it required multiple readings of the primary source to fully understand it. The book is divided into four sections, in each of which Pirsig discusses many heterogeneous concepts to formulate Quality, which is a concoction of all these concepts. The in-congruency one might feel while reading the dissertation is due to the form the primary source. The first four chapters of the dissertation is the analysis of the four chapters of the book and the final one is the conclusion the researcher has arrived at.

The first section of *Zen and the Art of Motorcycle Maintenance* is about the conflict between romanticism and classicism. Pirsig did not want to cut any new channels of consciousness, he wanted to dig deeper in to the old ones. He portrays John and Sylvia as romantics who distance themselves from technology. Pirsig considers himself a proper classicist because he loves technology— he takes care of the motorcycle all by himself. Whereas, John and Sylvia hate it. They love the joy of bike riding but possess deep aversion to the technology that makes it possible. Pirsig considers this kind romanticism as

ingratitude towards technology. There has been many anti-technologists known by the name "beatnik" and "hippie" and these kind of anti-system people will continue to emerge but they won't become a popular movement. Pirsig considers John and Sylvia's attitude as self-defeating and feels sorry for them. They were living with technology without having anything to do with it. Pirsig is trying to explore the duality between what man is, from what man does. The aversion of technology or the present system is an unfulfilling response according to Pirsig. His attempt is to formulate an idea, which incorporates all dualities into a positive whole.

For Pirsig:

Buddha, the Godhead, resides quite as comfortably in the circuits of a digital computer or the gears of a cycle transmission as he does at the top of a mountain or in the petals "flower. To think otherwise is to demean the Buddha, which is to demean oneself. (Pirsig 17)

Pirsig questions the objective existence of scientific laws. He equates the law of gravity proposed by Isaac Newton with the idea of ghosts— a belief Native Americans still maintain. Every scientific concept like mass, energy, etc. reside in one's mind so does theories. The problem scientists are stuck with is that of the 'mind'; they cannot escape its predominance over everything they do.

Like ghosts logic and numbers exist in the mind but that doesn't make it bad but, it is the way everything works. Most people fail to understand this truth and condemn others with different belief system as unscientific. Laws of logic and mathematics are human inventions, like the idea of ghosts.

Pirsig divides the human understanding into the classical and the romantic. A



classical understanding views the world in terms of the underlying form whereas the romantic one sees it in terms of immediate appearance. If one shows a romantic a diagram of a machine it is unlikely that he would show any interest. Romantics value what they perceive. But if the same blue print is shown to a classical person the diagrams, shapes and the complexities of the underlying form would fascinate her.

Romantic mode is imaginative, creative, inspirational and intuitive. Feelings or emotions get primacy. According to Pirsig:

“Art” when it is opposed to “Science” is often romantic. It does not proceed by reason or by laws. It proceeds by feeling, intuition and esthetic conscience. In the northern European cultures the romantic mode is usually associated with femininity, but this is certainly not a necessary association.” (Pirsig 63)

Romanticism was manifested in many ways such as Sentimental Romanticism, Philosophical Romanticism, Individualistic Romanticism and Nationalistic Romanticism. Leon Rosenthal in his book *Romanticism* describes who who a romantic person is:

A Romantic person was first of all sensitive and someone on whom logic and pure ideas has little impact. It was a knowledge person whose actions were based on intuition: as a statesman, he would obey a generous or imaginary impetus; as a writer or poet his thinking was taking shape in images. (Rosenthal 37)

The classic mode proceeds by reason. Pirsig opines that in European cultures it is associated with a “masculine”. Motorcycle riding is romantic but maintenance is purely classic. Although superficial ugliness is associated with classic mode it is not necessarily so. Classic aesthetic is often too subtle hence the romantics often fail to notice it.

ssarily so. Classic aesthetic is often too subtle hence the romantics often fail to notice it.

The classic style is straightforward, unadorned, unemotional, economical and carefully proportioned. Its purpose is not to inspire emotionally, but to bring order out of chaos and make the unknown known. It is not an esthetically free and natural style. It is esthetically restrained. Everything is under control. Its value is measured in terms of the skill with which this control is maintained. (Pirsig 64)

To a romantic the classic mode appears dull, awkward and boring for the priority is given not to the immediate appearance but to the harmonies function of the whole. But for a classical person the romantic appears frivolous, irrational, erratic, untrustworthy, interested primarily in pleasure-seeking and shallow. Everybody belongs to either of these two modes. No one is willing to see and understand the other. This attitude resulted in the huge split between classical culture and romantic counter-culture.

One of the reasons for the popularity of *Zen and the Art of Motorcycle Maintenance* is due to its unique form. After its success many philosophical texts with varying levels of complexity were published. What sets *Zen and the Art of Motorcycle Maintenance* apart from those works is that it marked the inception of a new philosophical school. One can equate it with Lyrical Ballads of Wordsworth and Coleridge, which was a radical break from the prevalent forms of literature and perception of art. It is true that though *Zen and the Art of Motorcycle Maintenance* became the ‘most popular’ philosophical book it did not result in a cardinal change in the branch of philosophy. This paradox is due to the fact that like every avant-garde work, academicians were and still are



critical of *Zen and the Art of Motorcycle Maintenance* but, due to its lucid form, it gained immense popularity among the public. It is one of the first philosophical books which a lay person can read and understand by him/herself. The radicalness of the form is just a foreshadow of the content which attempted to formulate a philosophical melting point of the west and the East.

In the traditional Western thought there is a duality in objectivity, reason, logic, dialectic and subjectivity, emotion, imagination, intuition, rhetoric. The former terms are considered as scientific or empirical while the latter are assumed to be artistic devoid of rationality.

Pirsig's philosophical endeavour begins with the identification of the one of the most pronounced duality that exists in the society namely-classicism and romanticism. Classicism understands the world in terms of the underlying form whereas romanticism is concerned with the immediate appearance. Classic mode is rational, logical and hence scientific whereas the romantic mode is imaginative, creative, inspirational, and intuitive. When the classic mode functions on reason the romantic mode works on the basis of immediate feelings or emotions. According to Pirsig, riding a motorcycle is a romantic idea but maintaining it is a classic one. Throughout history, there existed a conflict between classicism and romanticism. To a romantic, the classic mode appears dull and awkward for the priority is given to harmony instead of the immediate appearance. For a classic person, romantic appears erratic, irrational, untrustworthy, and shallow. This conflict led to the split between classic culture and romantic counter cultures. To resolve this conflict Pirsig formulated the concept of quality.

The idea of Quality is also similar to the concept of Tao, which cannot be

understood, in a conceptual form but, only through living experiences of everyday life. Tao is the primordial essence and the underlying natural order of the cosmos whose presence is testified by the existence of the universe. Quality is the immediate experience, which is in a continual changing flux. This is why it is impossible to define Quality.

Quality is not a thing. It is an event. It is the event at which the subject becomes aware of the object... The Quality event is the cause of the subjects and objects, which are then mistakenly presumed to be the cause of the Quality! (Pirsig 226)

Quality is a perception of the world, which accepts both the romantic and the rational. Thus, unifies irrational sources of wisdom like intuition and creativity with rational sources such as science, reason and technology. Intuition and creativity are rationally inexplicable. According to Pirsig the combination of rationality and romanticism can enhance the quality of life.

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Moolamattom

ആമുഖം

മലയാളസാഹിത്യചരിത്രത്തിൽ ആദ്യ ഖണ്ഡകാവ്യമായി രേഖപ്പെടുത്തിയിരിക്കുന്നത് ഏ.ആർ.രാജരാജവർമ്മയുടെ മലയാളിലാസമാണ്. അതിനും 33 വർഷങ്ങൾക്കു മുമ്പുള്ള കൃതിയായ അനസ്താസ്യായുടെ രക്തസാക്ഷിത്വം, ആദ്യഖണ്ഡകാവ്യം എന്ന സ്ഥാനത്തിനു യോഗ്യമാണോ എന്നും, എന്തുകൊണ്ട് സാഹിത്യചരിത്രത്തിൽ നിന്നും പ്രസ്തുത കൃതി തഴയപ്പെട്ടു എന്നുമുള്ള അന്വേഷണമാണ് ഈ പ്രബന്ധം.

സാഹിത്യചരിത്രങ്ങളെല്ലാം ഖണ്ഡകാവ്യ പ്രസ്ഥാനങ്ങളുടെ ഉത്ഭവ-വികാസങ്ങളെ പത്തൊൻപതാം നൂറ്റാണ്ടിൽ സാമൂഹിക-സാംസ്കാരിക- ധൈഷണിക രംഗങ്ങളിലുണ്ടായ ഉണർച്ചിനോടു ബന്ധപ്പെടുത്തിയാണ് ചർച്ച ചെയ്യുന്നത്. മലയാളഖണ്ഡകാവ്യങ്ങളെപ്പൊതുവെ പ്രാചീന ഖണ്ഡകാവ്യമെന്നും ആധുനിക ഖണ്ഡകാവ്യമെന്നും രണ്ടായി തരംതിരിക്കാറുണ്ട്. സംസ്കൃത കാവ്യ നിർമ്മാണരീതി അനുകരിച്ചുകൊണ്ട് രൂപംകൊണ്ട ഖണ്ഡകാവ്യങ്ങളെ പ്രാചീന ഖണ്ഡകാവ്യം എന്നു പറയുന്നു. എന്നാൽ 20-ാം നൂറ്റാണ്ടിന്റെ ഉദയത്തോടുകൂടി രൂപപ്പെട്ട ആധുനിക ഖണ്ഡകാവ്യങ്ങൾ മാതൃകയാക്കുന്നത് ആംഗലഭാഷാ കാവ്യങ്ങളെയാണ്. നവോത്ഥാനപ്രവണതകളോടു ബന്ധപ്പെട്ടു വളർന്നുവന്ന കാല്പനിക പ്രസ്ഥാനത്തിന്റെ ഭാഗമാണ് മലയാളത്തിലെ ആധുനിക ഖണ്ഡകാവ്യങ്ങൾ. ഭാവതീവ്രത,

ആത്മനിഷ്ഠത, വികാരപരത, വ്യക്തിപരത, ആദർശാത്മകത, ആവിഷ്കരണത്തിലെ ആർജവം തുടങ്ങി ഇന്നു ഖണ്ഡകാവ്യങ്ങളുടെ ലക്ഷണമായി വിവക്ഷിക്കപ്പെടുന്നവ ആധുനിക ഖണ്ഡകാവ്യങ്ങൾക്കു മാത്രം യോജിച്ചവയാണ്.

സാമാന്യലക്ഷണം: ഖണ്ഡകാവ്യത്തെ പൗരസ്ത്യസാഹിത്യത്തിൽ നിർവ്വചിക്കുന്നത് ഇപ്രകാരമാണ്.

അല്പാക്ഷരമസന്ദിഗ്ദ്ധം
സംസാരം സർവതോന്മുഖം
സ്തോഭക്ഷോഭകരം വാക്യം
ഖണ്ഡകാവ്യം പ്രചക്ഷതേ

പഴയകാല ഖണ്ഡകാവ്യങ്ങൾ മഹാകാവ്യത്തിന്റെ ഒരു സംക്ഷിപ്തരൂപമായിരുന്നു. അതിനാൽ, ആധുനിക ഖണ്ഡകാവ്യങ്ങൾക്ക് ഈ നിർവചനം പൂർണ്ണമായി ചേരില്ല. സാഹിത്യമേന്മയുള്ള ആധുനിക ഖണ്ഡകാവ്യങ്ങളെ കണക്കിലെടുത്ത്, അവയുടെ സാമാന്യ സ്വഭാവം വ്യക്തമാക്കേണ്ടതുണ്ട്.

ആധുനിക ഖണ്ഡകാവ്യങ്ങളുടെ ഇതിവൃത്തം പുരാണകഥയോ, ചരിത്ര സംഭവമോ, കല്പിതമോ ആകാം. കഥാപാത്രത്തിന്റെ വൈകാരിക അനുഭൂതികൾക്ക് ഇവിടെ ഏറെ പ്രാധാന്യമുണ്ട്. ഔചിത്യപൂർവ്വം ആവിഷ്കരിക്കുന്നതാണ് ഖണ്ഡകാവ്യങ്ങളുടെ സംവിധാന ക്രമം. വർണ്ണനകളും അലങ്കാരപ്രയോഗങ്ങളുമുണ്ടാകും. അവ അനുഭൂതികൾ ഉള്ള



വാക്കുന്ന വിധത്തിലാണ് ക്രമീകരിക്കുന്നത്. എൻ.പി. പണിക്കർ ആധുനിക ഖണ്ഡകാവ്യങ്ങളെ നിർവചിക്കുന്നത് ഇപ്രകാരമാണ് 'നാതിദീർഘവും നാടകീയവും അഥവാ കാവ്യാത്മകവുമായ പ്രതിപാദ്യം, ഭാവതീവ്രതയും ഭാവനാത്മകതയും രൂപസരളതയുമാർന്ന പ്രതിപാദനം, ഔചിത്യഭാസുരമായ അലങ്കാര പ്രയോഗവും വർണനയും, പൊതുവെ കാല്പനിക പ്രഭാവലയിതമായ അന്തരീക്ഷം എന്നിവയെല്ലാമാണ് ലഘുകാവ്യങ്ങളെ ആധുനിക ഖണ്ഡകാവ്യങ്ങളുടെ മുൻനിരയിൽ എത്തിക്കുന്നതിന് സഹായിക്കുന്ന സവിശേഷതകൾ.'¹

മലയവിലാസം: മലയാളസാഹിത്യത്തിൽ പൊതുവേ ആദ്യഖണ്ഡകാവ്യമായി പരിഗണിക്കുന്നത് ഏ.ഡി. 1895 (കൊല്ലവർഷം 1070) -ൽ ഏ.ആർ രാജരാജവർമ്മ രചിച്ച മലയവിലാസത്തെയാണ്. അതിനാൽ, ഖണ്ഡകാവ്യങ്ങളുടെ മാർഗദർശകനായി അദ്ദേഹത്തെ പരിഗണിച്ചു കാണുന്നു. 24 ശ്ലോകങ്ങളുള്ള ഒരു ലഘുകാവ്യമാണ് മലയവിലാസം. മദിരാശിയിൽനിന്നും തിരുവനന്തപുരത്തേക്ക് യാത്ര ചെയ്യുന്നതിനിടയിൽ കണ്ട സഹ്യപർവ്വതം കവി മനസ്സിൽ ഉളവാക്കിയ അനുഭൂതികളുടെ ആവിഷ്കരണമാണ് മലയവിലാസം. വിവിധ സാഹിത്യ ചരിത്രങ്ങൾ മലയവിലാസത്തെ പ്രതിഷ്ഠിക്കുന്നത് എപ്രകാരമാണെന്നു വിലയിരുത്തേണ്ടത് അനിവാര്യമാണ്.

കേരളസാഹിത്യചരിത്രത്തിൽ ഉള്ളൂർ, ഏ.ആറിനെ അവതരിപ്പിക്കുന്ന ഭാഗത്ത് മലയവിലാസം എന്ന കൃതിയെക്കുറിച്ച് പറഞ്ഞു പോരുക മാത്രമാണ് ഉള്ളൂർ ചെയ്യുന്നത്. ഉള്ളൂർ സാഹിത്യചരിത്രം എഴുതിയ കാലഘട്ടത്തിൽ ഏ.ആറിന്റെ കൃതി പുതിയതായതിനാലാകാം ഇങ്ങനെ പ്രതിപാദിച്ചു പോരുക മാത്രം ചെയ്തിരിക്കുന്നത്. മലയവിലാസം എന്ന കൃതിയിലൂടെയാണ് മലയാള ഖണ്ഡകാവ്യപ്രസ്ഥാനങ്ങളുടെ ആരംഭം എന്നു സമർത്ഥിച്ചുകൊണ്ടാണ് 'കൈരളിയുടെ കഥ'യിൽ എൻ.കൃഷ്ണൻപിള്ള എഴുതുന്നത്. '1895-മാണ്ട് അദ്ദേഹം എഴുതിയ മലയവിലാസം എന്ന കൃതിയാണ്, കഴിഞ്ഞ അറുപതു

കൊല്ലമായി വളർന്നു പുഷ്പിച്ചു ഫലിച്ച ആധുനിക കാവ്യവല്ലരിക്ക് വിത്തു പാകിയത്. പർവ്വതവും നദിയും കടലും കായലുമൊക്കെ വർണ്ണിക്കുന്ന കവിതകൾ നമുക്ക് മുൻപും ഉണ്ടായിട്ടില്ലേ? പിന്നെ എന്താണ് ഈ കവനത്തിനു പുതുമ? ഒരു വസ്തുവിനെ കാണുമ്പോൾ കവി ഹൃദയത്തിൽ ഉളവാകുന്ന അനുഭൂതികളുടെ ആവിഷ്കാരമാണത്"².

'മലയാള സാഹിത്യചരിത്രം കാലഘട്ടങ്ങളിലൂടെ' എന്ന എരുമേലി പരമേശ്വരൻപിള്ളയുടെ ഗ്രന്ഥത്തിൽ 'എ.ആർ രചിച്ച മലയവിലാസം ഖണ്ഡകാവ്യപ്രസ്ഥാനത്തിൽപ്പെട്ട ആദ്യകൃതിയായി പരിഗണിക്കാം'³ എന്നു ചേർത്തിരിക്കുന്നു. പത്മന രാമചന്ദ്രൻ നായർ എഡിറ്റു ചെയ്ത സമ്പൂർണ്ണ മലയാള സാഹിത്യചരിത്രത്തിൽ കവിതയുടെ ഭാഗം കൈകാര്യം ചെയ്തിരിക്കുന്നത് ഡോ. ഡി. ബഞ്ചമിനാണ്. 'കാല്പനികതയുടെ ആരംഭകാലത്ത് ചെറുതെങ്കിലും ശ്രദ്ധേയമായ രണ്ടു കൃതികൾ പരാമർശിക്കേണ്ടതുണ്ട്. ഏ.ആർ. രാജരാജവർമ്മയുടെ മലയവിലാസവും വി.സി.ബാലകൃഷ്ണപണിക്കരുടെ വിശ്വരൂപവും'⁴. ഇങ്ങനെ മലയവിലാസത്തെ കാല്പനികതയുടെ ആരംഭദശയിലുണ്ടായ കൃതിയായി പരിഗണിക്കുന്നതു കാണാം. ഖണ്ഡകാവ്യങ്ങളെക്കുറിച്ച് സമഗ്രമായി അന്വേഷിക്കുന്ന പ്രൊഫ. എം.പി.പണിക്കരുടെ മലയാള ഖണ്ഡകാവ്യങ്ങൾ ഒരു പഠനം എന്ന പുസ്തകത്തിൽ, മലയവിലാസത്തിന് സാഹിത്യചരിത്രങ്ങൾ പൊതുവെ നൽകി പോരുന്ന സ്ഥാനത്തെ വിമർശിക്കുന്നുണ്ട്. ഏ.ആർ. വിരചിച്ച 'മലയവിലാസം' ആധുനിക ഖണ്ഡകാവ്യങ്ങൾക്ക് നാദികുറിച്ചു എന്നൊരു ധാരണയുണ്ട്. എന്നാൽ ഇതു മുഴുവൻ ശരിയാണോ എന്നാണ് സംശയം.⁵ ആത്മനിഷ്ഠമായ ആവിഷ്കരണമാണെങ്കിൽ കൂടി ആധുനിക ഖണ്ഡകാവ്യത്തിന്റെ പ്രത്യേകതകളിൽ പലതും ആ കാവ്യത്തിനവകാശപ്പെടാനില്ല. തീവണ്ടിയിൽ സഞ്ചരിക്കുമ്പോൾ അദ്ദേഹം കണ്ട കാഴ്ചകളെയാണ് മലയവിലാസത്തിൽ പകർത്തിയിരിക്കുന്നത്.

'കുതിച്ചുപായും കടുവാക്കിടാങ്ങളും മദിച്ചുമണ്ടും കളഭപ്രവീരരും



കളിച്ചു വാഴുന്നൊരു കാനനങ്ങളോ-
ലസഹ്യനാം നീ സഹ്യനാണു പോൽ⁶

എന്നു സഹ്യപർവതത്തെ നോക്കി പാടുന്ന കവി പാരമ്പര്യരീതിയിൽനിന്നും വേറിട്ടുനിൽക്കുന്നു. ഇതിവൃത്തത്തിന്റെ പ്രധാനഭാഗത്തിനു കൂടുതൽ പ്രാധാന്യം നൽകി ഭാവതീവ്രതയോടെ അവതരിപ്പിക്കുവാൻ ഏ.ആറിനു സാധിച്ചിട്ടില്ല. അതുകൊണ്ടാണ് ലക്ഷണമൊത്ത ഖണ്ഡകാവ്യം എന്ന സ്ഥാനം മലയവിലാസത്തിന്റെ സ്ഥാനത്ത് കുമാരനാശാന്റെ വീണപൂവിനു നൽകപ്പെടുന്നത്.

അനസ്താസ്യായുടെ രക്തസാക്ഷിത്വം

കാവ്യരചനാപശ്ചാത്തലം: ചാവറയച്ചൻ അനസ്താസ്യായുടെ രക്തസാക്ഷിത്വം രചിക്കുന്നത് 1862-ലാണ്. അതായത് കേരളപാണിനി മലയവിലാസം രചിക്കുന്നതിനു 33 വർഷം മുൻപ്. 150 വർഷങ്ങൾക്കുമുമ്പ് മലയാള ഭാഷയിൽ ഒരു ഖണ്ഡകാവ്യം നിർമ്മിക്കുവാൻ ചാവറയച്ചനെ പ്രേരിപ്പിച്ച ഘടകങ്ങൾ സാമൂഹികവും ആദ്ധ്യാത്മികവുമാണ്. ശുദ്ധമായ ഭാഷ അപ്രാപ്യമായിരുന്ന കാലത്ത്, സംസ്കൃതാതിപ്രസരമില്ലാതെ സാധാരണക്കാർക്ക് സ്വീകാര്യമായ ഒരു സാഹിത്യസംസ്കാരം വളർത്തുക എന്നത് ഈ കാവ്യരചനയുടെ പ്രഥമോദ്ദേശ്യമാണ്. അതിനാലാണ് തികച്ചും ലളിതമായ ഭാഷയിൽ കാവ്യം രചിക്കപ്പെട്ടിരിക്കുന്നത്.

ഇതിവൃത്തസ്വീകരണം: പുരാണകഥകളും ഇതിഹാസങ്ങളും സാഹിത്യകൃതികളുടെ രചനക്ക് ഇതിവൃത്തമായി സ്വീകരിച്ചുപോന്ന ഒരു കാലഘട്ടത്തിലാണ് ഈ കൃതിയുടെ രചന. ഇതിവൃത്തവും, ഭാഷയും സാധാരണക്കാർക്ക് സുഗ്രാഹ്യമായിരിക്കണം എന്ന് ചാവറയച്ചൻ നിർബന്ധമുണ്ടായിരുന്നു. അതിനാലാണ് പാശ്ചാത്യസാഹിത്യ-മതഭാഗത്തുനിന്നും ലളിതമായ ഒരു ഇതിവൃത്തം അദ്ദേഹം സ്വീകരിച്ചത്.

ഇതിവൃത്തത്തെ ഇങ്ങനെ സംഗ്രഹിക്കാം. എ.ഡി. മൂന്നാം നൂറ്റാണ്ടിൽ വലേറിയൻ ചക്രവർത്തി റോമിൽ ഭരണം കൈയേറ്റു ക്രൈസ്

തവരെ നിഹനിക്കുവാനും ജനങ്ങളെയെല്ലാം ജൂപ്പീറ്റർ ദേവന്റെ ആരാധകരാക്കുവാനും പരിശ്രമിച്ചു. ചക്രവർത്തിയുടെ മതമർദ്ദനത്തിനും വിഗ്രഹപൂജയ്ക്കും സഹായം ചെയ്തത് പ്രോബാ എന്ന മന്ത്രിപുംഗുവനായിരുന്നു. അക്കാലഘട്ടത്തിൽ സോഫിയാ എന്ന ഒരു കന്യാസ്ത്രീ ഒരു മഠം നടത്തിയിരുന്നു. സുന്ദരിയായ അനസ്താസ്യ എന്ന പെൺകുട്ടി മഠത്തിൽ അംഗമായി. അവളെ മന്ത്രി കൊട്ടാരത്തിലേക്കു പിടിച്ചുകൊണ്ടുപോയി. ഈശ്വരവിശ്വാസം ഉപേക്ഷിക്കണമെന്നും ജൂപ്പീറ്റർ ദേവനെ ആരാധിക്കണമെന്നും മന്ത്രി ആവശ്യപ്പെട്ടു. അതിനു പ്രതിഫലമായി സമ്പത്തും രാജ്ഞിപദവും നൽകാമെന്നും മന്ത്രി വാഗ്ദാനം ചെയ്തു. പക്ഷേ അനസ്താസ്യ അതെല്ലാം തള്ളി കളഞ്ഞു. ക്രിസ്തുവിനു വേണ്ടി ആത്മാർപ്പണം ചെയ്യുവാൻ അവൾ തയ്യാറായി. മന്ത്രി അവളെ ക്രൂരമായി ഉപദ്രവിച്ചു. തടവറയിൽ നിന്നും ദൈവസ്തുതി പാടിയ അവളുടെ നാവ് മന്ത്രി അറുത്തു കളഞ്ഞു. മരണം മൂന്നിൽ കണ്ടുനിന്ന അനസ്താസ്യ സമീപം നിന്നിരുന്ന സിറിലോസ് എന്ന ചെറുപ്പക്കാരനോട് ദാഹജലം ആംഗ്യഭാഷയിൽ ആവശ്യപ്പെട്ടു. അയാൾ ജലം പകർന്നു നൽകി. അനസ്താസ്യയേയും അവൾക്കു ജലം നൽകിയ യുവാവിനേയും പ്രോബാ നിർദ്ദയം വധിച്ചു. തനിക്കുവേണ്ടി വീരചരമം വരിച്ച ആ രണ്ടു പേരുടേയും ആത്മാക്കളെ ദൈവം മോക്ഷത്തിലേക്കു നയിച്ചു.

ഭാഷാപരമായ സവിശേഷതകൾ: കവിത സാധാരണക്കാരനു കൂടി ആസ്വദിക്കുവാൻ പര്യാപ്തമാകണം എന്ന പക്ഷക്കാരനാണ് ചാവറയച്ചൻ. 19-ാം നൂറ്റാണ്ടിൽ ഉടലെടുത്ത കവിതകളെ സംബന്ധിച്ചിടത്തോളം അവ പലതും സാധാരണക്കാരനു അപ്രാപ്യമായിരുന്നു. ലളിതവും എളുപ്പത്തിൽ ഗ്രഹിക്കുവാൻ കഴിയുന്നതുമാണ് ചാവറയച്ചന്റെ ഭാഷ. സംസ്കൃതഭാഷ അദ്ദേഹത്തിനു വശമുണ്ടായിരുന്നു. എന്നാൽ, കൂടുതൽ ദുർഗ്രഹമായ സംസ്കൃതപദങ്ങളെ ഒഴിവാക്കി സാധാരണക്കാരന് ഒറ്റവായനയിൽ മനസ്സിലാക്കുവാൻ പര്യാപ്തമായ ഭാഷയിലാണ് അദ്ദേഹത്തിന്റെ കാവ്യ



രചന. 'അനസ്താസ്യായുടെ രക്തസാക്ഷിത്വം' എന്ന ഖണ്ഡകാവ്യത്തിൽ ഈ സവിശേഷത ഏറെ പ്രകടമാണ്. എദുക്കനാത്ത്, സെനാത്തുമാർ, നായകജാതന്ത്രിയുഗം തുടങ്ങിയ ചുരുക്കം ചില ദുർഗ്രഹപദങ്ങൾ മാത്രമെ ഈ കൃതിയിൽ ഉപയോഗിച്ചിട്ടുള്ളൂ.

ശൈലി: മനുഷ്യമനസ്സിന്റെ ആദർശശുദ്ധി, അർപ്പണ ബോധം, ഈശ്വരവിശ്വാസം, സഹവർത്തിത്വം ഇവയെല്ലാമാണ് കാവ്യം മുൻപോട്ടു വെക്കുന്ന സന്ദേശധാരകൾ. അത് ഉജ്ജ്വലമായി പ്രതിപാദിക്കുവാനും പരിപാലിക്കുവാനും പര്യാപ്തമായ ഭാഷയും ശൈലിയുമാണ് ചാവറയച്ചൻ ഉപയോഗിച്ചിരിക്കുന്നത്.

കന്നി തന്റെ ദേഹമൊക്കെ ചീന്തിയവർ പൊളിച്ചിട്ടു ചിന്നിവീഴും ചോരകൊണ്ടു കുതിർത്തു ഭൂമി വെള്ളിപ്പോലെ വെളുത്തുള്ള കന്നി തന്റെ പല്ലുകളെ വല്ലിയൊരു ചുറ്റികയാൽ തല്ലി വീഴിച്ചു'

ചക്രവർത്തിയുടെ ആജ്ഞ അനുസരിപ്പിക്കുവാൻ ശ്രമിക്കുന്ന മന്ത്രിയോടുള്ള അനസ്താസ്യായുടെ മറുപടി ഇപ്രകാരമാണ്.

നിന്റെ ദാനം ത്യജിക്കുംപോൽ നിന്റെ ക്രൗര്യം ക്ഷമിപ്പാനായ്

എന്റെ നാഥൻ സർവ്വശക്തി തന്നിടും ദയാൽ⁸

രചനാരീതി: മന്ത്രി പുംഗുവൻ മുന്നിൽ നിൽക്കേ, പ്രശാന്തമായി മകൾക്ക് അന്ത്യോപദേശം നൽകുന്ന സോഫിയായെ അവതരിപ്പിക്കുന്നത് ശ്രദ്ധേയമായ ഒരു വാങ്മയചിത്രമാണ്. എത്രയും വേഗം രാജാവിന്റെ പക്കലേക്ക് നീ ചെല്ലുക എന്നു സോഫിയാ പറയുമ്പോൾ അത് ചക്രവർത്തിയെക്കുറിച്ചാകുമെന്ന് മന്ത്രി കരുതുന്നു. എന്നാൽ മണവാളനായ രാജാവായി സോഫിയ പറയുന്നത് ക്രിസ്തുവിനെയാണ്. ചക്രവർത്തിയുടെ ആജ്ഞപ്രകാരം അനസ്താസ്യായോടു പോകുവാൻ പറയുന്ന ഈ രംഗം വളരെ നാടകീയമായിട്ടാണ് കവി അവതരിപ്പിച്ചിരിക്കുന്നത്.

'സ്നേഹമേറും മകളേ നിൻ ഭാഗ്യമേറും മണവാളൻ

ദാഹമോടെ വിളിക്കുന്നു വേഗമായ്പ്പോക

പൂർവ്വകാലേ നിൻകരത്തെ നീട്ടി ദിവ്യദാഹമോടെ

മാറിടത്തിലണച്ചൊരു രാജനെ ഓർക്ക നിൻമണത്തെ മുടിപ്പാനായ് വെൺമയോടെ ധരിത്രിയിൽ

ഭംഗിയേറും കൊടി ഏന്തി വൻഗിരിയേറി മെച്ചമേറും കിരീടത്തെ വച്ചുചൂടി ശിരസിനെ അർച്ചനയായണച്ചു തൻ ജീവനും കൂടെ'⁹

ഈശ്വരവിശ്വാസം ഉപേക്ഷിച്ച് ചക്രവർത്തിയുടെ ഇംഗിതം നിറവേറ്റിയാൽ രാജ്യത്തെ സമ്പത്തു മുഴുവൻ സ്വന്തമാക്കാമെന്നുള്ള ചടുലവാക്കുകൾ കൊണ്ട് മന്ത്രി അവളെ പ്രലോഭിപ്പിക്കുന്നു. ഈയവസരത്തിൽ വളരെ തന്മയത്വത്തോടെയാണ് അനസ്താസ്യ മറുപടി പറയുന്നത്.

'ലോകഭാഗ്യം സമർപ്പിക്കാൻ ദാഹമില്ല മമ ചിത്തേ

കോലഹലമായ ശിക്ഷാ ഭീതിയുമില്ല'¹⁰

വിവിധ മുഹൂർത്തങ്ങളിലെ വൈകാരിക ഭാവങ്ങളെ അവതരിപ്പിക്കുവാൻ ചാവറയച്ചൻ സവിശേഷമായ സിദ്ധിയുണ്ടായിരുന്നു. മന്ത്രിയുടെ ക്രൂരഭാവം അവതരിപ്പിക്കുന്നത് ശ്രദ്ധിക്കുക.

'ക്രൂരഭാവം നടിച്ചവൻ ചുണ്ടു രണ്ടും ചുമപ്പിച്ചു ക്രോധവീര്യാൽ മുഖം സൂര്യമേഘമായ് മുടി' ¹¹

ചുരുങ്ങിയ വാക്കുകളിലാണ് കവി ഇത് അവതരിപ്പിച്ചിരിക്കുന്നത്. പക്ഷേ, മന്ത്രിയുടെ രൗദ്രഭാവം വായനക്കാരനു പകർന്നു നൽകുവാൻ കവിക്ക് സാധിച്ചിട്ടുണ്ട്. ആസ്വാദക മനസ്സുകളിൽ വേദന ഉളവാക്കും വിധത്തിലാണ് അനസ്താസ്യ നേരിടേണ്ടി വന്ന ദുരന്തങ്ങളേയും പീഡനങ്ങളേയും അവതരിപ്പിച്ചിരിക്കുന്നത്.

'കന്നി തന്റെ ദേഹമൊക്കെ ചീന്തിയവർ പൊളിച്ചിട്ടു

ചിന്നിവീഴും ചോരകൊണ്ടു കുതിർന്നു ഭൂമി'

'മാതൃതന്റെ മാറിൽനിന്നും പാൽകുടിച്ച തോർത്തിടാതെ



മാനഹീനാൽ അറുപ്പിച്ചു മുലകളെയും¹²
വേദനയിലും ഈശ്വരന്റെ അപദാനങ്ങൾ വാ
ഴ്ത്തിയ അനസ്താസ്യയുടെ നാവ് അറുത്തു
മാറ്റി;

‘കഷ്ടമയ്യോ ശിഷ്ട നാവു പിഴുതു വേരാൽ
ശുദ്ധവായിൽ നിന്നുടനേ കൊച്ചൊരാറെന്ന
തുപോലെ

രക്തധാര പുറപ്പെട്ടു, നനച്ചു സർവ്വം¹³

വ്യത്നം: നതോന്നതവൃത്തത്തിലാണ് ഖണ്ഡ
കാവ്യം രചിച്ചിട്ടുള്ളത്. കൂട്ടനാട്ടിൽ ജനിച്ചുവള
ർന്ന ചാവറയച്ചൻ വഞ്ചിപ്പാട്ടിന്റെ താളം പ്രിയ
ങ്കരമാണ്. സംസ്കൃത വൃത്തങ്ങൾ സുപരിചി
തമായിരുന്നിട്ടും ദ്രാവിഡവൃത്തമാണ് തിക
ഞ്ഞ ഒരു മാതൃഭാഷാഭിമാനിയായ അദ്ദേഹം
സ്വീകരിച്ചിരിക്കുന്നത്. കാവ്യത്തിന്റെ വൃത്ത
ഭംഗി ശ്രദ്ധിക്കുക. നതോന്നതയുടെ ലക്ഷണം
താഴെ ചേർക്കുന്നു.

‘ഗണം ദ്വ്യക്ഷരമെട്ടെണ്ണമൊന്നാം പാദത്തിൽ,
മറ്റതിൽ

ഗണമാറര, നില്ക്കേണം

രണ്ടുമെട്ടാമതക്ഷരേ ഗുരുതന്നെയെഴുത്തെല്ലാ
മിശ്രീലിൻ പേർ നതോന്നത’

‘പാപി/കൾക്കു/രക്ഷ/ചെയ്വാൻ/
നിന്നു/നീ പൂ/ജിച്ച/പോലേ/ (എട്ടു ഗണം,
സർവ്വ ഗുരു)

പാപി/യാമെൻ/ജീവ/പൂജ/
പൂർത്തി/യാൽ ഏൽ/ക്ക/’ (ആറര ഗണം,
സർവ്വ ഗുരു)

‘അനസ്താസ്യയുടെ രക്തസാക്ഷിത്വ’
ത്തിന്റെ രചനാസവിശേഷതകളെ ഇത്തര
ത്തിൽ പരിശോധിക്കുമ്പോൾ ഈ ഖണ്ഡ
ഡകാവ്യം ഉത്തമമായ ഒരു കാവ്യമാണെന്ന്
വ്യക്തമാകുന്നു. ഖണ്ഡകാവ്യങ്ങളുടെ നിർ
വചനങ്ങളും ലക്ഷണങ്ങളും ഈ കൃതിയിൽ മ
നോഹരമായാണ് സമ്മേളിച്ചിരിക്കുന്നത്. ആറു
സർഗ്ഗങ്ങളിൽ കുറവുള്ള കാവ്യങ്ങളെ ഖണ്ഡ
ഡകാവ്യങ്ങളെന്ന് സംസ്കൃതത്തിൽ നിർ
വചിക്കാറുണ്ട്. ചാവറയച്ചന്റെ ഖണ്ഡകാവ്യം
ഇതുമായി പൊരുത്തപ്പെട്ടു പോകുന്നു. 91

ഈരടികൾ മാത്രമുള്ള ഒരു ലഘുകാവ്യമാ
ണിത്. സോഫിയായുടെ കന്യകാലയം, രാജ
കൽപന, യാത്രാ മംഗളം നേരുന്നൂ, അനസ്
താസ്യയുടെ മറുപടി, പീഡനങ്ങൾ തുടങ്ങു
ന്നു, കന്യകയുടെ ധീരത എന്നിങ്ങനെ ആറു
ഭാഗങ്ങളായി ചാവറയച്ചൻ ഈ ഖണ്ഡകാ
വ്യത്തെ വിഭജിച്ചിരിക്കുന്നു.

ആധുനിക ഖണ്ഡകാവ്യത്തിൽ ഇതിവൃ
ത്തം പുരാണകഥയോ കൽപ്പിതമോ ആകാം.
അതുമല്ലെങ്കിൽ അവയുടെ മിശ്രമാകാം. ഉദാ
ഹരണമായി വള്ളത്തോളിന്റെ ‘അച്ഛനും മക
ളും’ എന്ന ഖണ്ഡകാവ്യത്തിൽ ‘മിശ്ര’രൂപം
കാണാം. ശകുന്തളയുടെ കഥ പുരാണ പ്രസി
ദ്ധമാണ്. എന്നാൽ വിശ്വാമിത്രൻ ശകുന്തളയെ
കാണുവാൻ ആശ്രമത്തിലെത്തുന്നത് കവി
ഭാവനയും. ചാവറയച്ചന്റെ ഇതിവൃത്തം പു
രാണകഥയാണ്. ഗ്രീക്ക്, ലത്തീൻ തുടങ്ങിയ
ഭാഷകളിൽ പ്രചരിച്ചിരുന്ന കഥകൾ വിഭിന്ന
മാണ്. ഈ കഥകളുടെ ചരിത്രപരമായ പ്രാ
ധാന്യം തെളിയിക്കുവാനോ നിഷേധിക്കുവാ
നോ മതിയായ രേഖകളില്ല. ഒരു പുരാണകഥ
എന്ന മട്ടിൽ പ്രചരിച്ചിരുന്ന കഥ വിദേശഭാ
ഷാപണ്ഡിതൻ കൂടിയായിരുന്ന കവി തിരി
ച്ചറിഞ്ഞ് കവിധർമ്മം ചേർത്താണ് കാവ്യം
ചിത്രപ്പെടുത്തിയിരിക്കുന്നത്.

ഇതിവൃത്തത്തിലെ സുപ്രധാനഭാഗത്തിന്
മിഴിവു നൽകി അപ്രധാന ഭാഗങ്ങൾ ചുരു
ക്കി ആവിഷ്കരിക്കുന്നവയാണ് ആധുനിക
ഖണ്ഡകാവ്യങ്ങൾ. ‘സമഗ്രമായ ജീവിതത്തി
ന്റെ എല്ലാ ഭാഗങ്ങളിലുമായി ചിതറുന്നതിനു
പകരം അതിന്റെ ഒരു ഭാഗത്ത് കവിപ്രതിഭ
ഉറച്ചു നിൽക്കുമ്പോൾ ഒരു ഖണ്ഡകാവ്യം
രൂപമെടുക്കുന്നു.’¹⁴ കാവ്യത്തിൽ അനസ്താ
സ്യ എന്ന തരുണീമണിയുടെ ജീവിതകഥ
മുഴുവനും അവതരിപ്പിക്കുന്നുണ്ടെങ്കിലും അ
വളുടെ ജീവിതത്തിലെ സുപ്രധാന ഭാഗങ്ങൾ
ക്ക് മിഴിവ് നൽകിക്കൊണ്ടാണ് കാവ്യരചന.
ചക്രവർത്തിയുടെ ആജ്ഞാപാലിക്കാതെ നില
കൊള്ളുന്ന അനസ്താസ്യയ്ക്ക് നേരിടേണ്ടി
വരുന്ന ക്രൂരമർദ്ദനങ്ങളും അവളുടെ മരണവു
മാണ് സുപ്രധാനമായി അവതരിപ്പിക്കുന്നത്.
എന്നാൽ അവളുടെ ജീവിതകഥ - സോ



ഫിയയുടെ ആശ്രമത്തിൽ പ്രവേശിക്കുന്ന തൊക്കെ കവി സൂചിപ്പിച്ചു പോരുന്നുമുണ്ട്.

ഉപസംഹാരം

ഭാഷാപരമായും ഇതിവൃത്തപരമായും ലക്ഷണാപരമായും പരിശോധിക്കുമ്പോൾ, രൂപത്തിലും ഭാവത്തിലും ഒരു ഉത്തമ ഖണ്ഡകാവ്യമാണ് അനന്താസ്യായുടെ രക്തസാക്ഷിത്വം എന്നത് വ്യക്തമാണ്. എങ്കിൽപ്പിന്നെ, എന്തുകൊണ്ട് സാഹിത്യചരിത്രങ്ങളുടെ നവീകരിച്ച പതിപ്പുകളിൽ ഈ തിരുത്തൽ രേഖപ്പെടുത്തുന്നില്ല എന്നത് പ്രായോഗികചോദ്യമായി ബാക്കി നിൽക്കുന്നു. മറ്റു പലരെയും പോലെ സാഹിത്യചരിത്രത്തിൽനിന്നും ചാവറയച്ചൻ ഒഴിവാക്കപ്പെട്ടു എന്നത്, പലവിധകാരണങ്ങളാൽ സംഭവിച്ചുപോയ ദുർഭാഗ്യകരമായ ഒരവസ്ഥ മാത്രമാണ്. സാഹിത്യചരിത്രങ്ങളിലെ ഇടമോ, കാവ്യപാരമ്പര്യത്തിലെ സ്ഥാനമോ, കാവ്യലോകത്തേക്കുള്ള പ്രവേശനമോ അദ്ദേഹത്തിന്റെ വിദൂരലക്ഷ്യങ്ങളിൽപോലും ഉണ്ടാകാതിരുന്നതിനാൽ അതിനായുള്ള ശ്രമവും ഉണ്ടായില്ല; മറ്റാരും അക്കാലത്ത് അതിനായി മുനിട്ടിറങ്ങിയതു മില്ല. 1987 ൽ അന്നത്തെ രാഷ്ട്രപതി ആർ. വെങ്കട്ടരാമൻ ചാവറ തപാൽ സ്റ്റാമ്പ് പുറത്തിറങ്ങിയതും, 2006 ൽ ചാവറയച്ചന്റെ സാഹിത്യസംഭാവനകളെ ആദരിച്ച് അദ്ദേഹത്തിന്റെ ഛായാചിത്രം കേരള സാഹിത്യ അക്കാദമി ഹാളിൽ അനാച്ഛാദനം ചെയ്തതും 2014-ൽ കേരളസാഹിത്യ അക്കാദമി, ഇടയനാടകങ്ങൾ എന്ന കൃതി പ്രസിദ്ധീകരിച്ചതും, 2015 ൽ അക്കാദമികതലത്തിൽ നവോത്ഥാന നായകനിരയിൽ ചാവറയച്ചനെ ഉൾപ്പെടുത്തിയതു മൊക്കെ ചരിത്രത്തോട് നീതി പുലർത്തുന്നതിന്റെ ശുഭോദർക്കകരമായ സൂചനകളായി കരുതാം.

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പക്ഷിയുടെ മണം സൃഷ്ടിക്കുന്ന സ്ത്രീ

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അവർണനീയമായ ശക്തി സ്വരൂപത്തിന്റെ മുർത്തിഭാവമാണ് സ്ത്രീ. എല്ലാ പ്രകൃതി ശക്തികൾക്കും സ്ത്രീരൂപം കല്പിച്ചു ആരാധിക്കുന്നവരാണ് ഭാരതീയർ. 'സ്ത്രീ' മഹത്തായ ശക്തിയുള്ള മഹിളയായും എല്ലാവർക്കും ആശ്രയവും അഭയവും നല്കുന്നവനിതയായും ഈ പ്രപഞ്ചം മുഴുവൻ നിറഞ്ഞു നിൽക്കുന്നു

ലോകപ്രശസ്ത കവയത്രിയും മലയാളത്തിന്റെ പ്രമുഖ കഥാകാരിയുമാണ് മാധവിക്കുട്ടി. സ്ത്രീയുടെ ശക്തിയെ തിരിച്ചറിയാനും അംഗീകരിക്കാനും തയ്യാറായ ഒരു സമൂഹത്തിനു മുൻപിൽ ഈ കഥാകാരി അവതരിപ്പിക്കുന്ന സ്ത്രീ കഥാപാത്രങ്ങൾ വളരെയധികം സവിശേഷത അർഹിക്കുന്നതാണ്. മാധവിക്കുട്ടിയുടെ കഥാപാത്രങ്ങൾ പീഡനങ്ങൾ അർഹിക്കുന്നവരും ഉള്ളിന്റെയുള്ളിൽ അതിനെതിരെ ശക്തമായി പ്രതികരിക്കുന്നവരുമുണ്ട്. 'പക്ഷിയുടെ മണം' എന്ന കഥയിലൂടെ ലൈംഗികതയുടെയും മരണത്തിന്റെയും മുന്നിൽ ഒറ്റപ്പെട്ടുപോയ സ്ത്രീയുടെ അവസ്ഥയാണ് കഥാകാരി അവതരിപ്പിക്കുന്നത്. മൃത്യുവും, രതിയും അടിച്ചേല്പിക്കുന്ന പീഡനങ്ങളിൽ തളർന്നു വീഴുന്ന നായികയിലൂടെ ആധുനിക ഇന്ത്യൻ സ്ത്രീത്വത്തിന്റെ ദൈന്യവും, നിസഹായതയുമാണ് പ്രകടിപ്പിക്കുന്നത്.

കൊൽക്കത്ത നഗരത്തിലെ ഒരു വ്യവസാ

യ സ്ഥാപനത്തിൽ ജോലി തേടിയെത്തിയ ഒരു സ്ത്രീക്കുണ്ടായ അനുഭവമാണ് ഈ കഥ. ടെക്സ്റ്റൈൽ ഇൻഡസ്ട്രീസിന്റെ ഓഫീസ് അന്വേഷിച്ചു നടന്ന നായിക അവസാനം dying (മരണം ഏർപ്പാടാക്കി കൊടുക്കുന്ന സ്ഥലം) എന്ന ബോർഡ് തൂക്കിയ ഒരു വലിയ മുറിയിൽ എത്തിച്ചേരുന്നു. അവിടെ അവൾ കണ്ടത് കുതിരയുടെ മുഖം പോലെ, നീണ്ട മുഖമുള്ള കനത്ത രോമങ്ങൾ വളർന്നു നില്ക്കുന്ന ശക്തമായ കൈകളുള്ള, മരിക്കുവാൻ ഏർപ്പാടാക്കിക്കൊടുക്കുന്ന ഒരു മനുഷ്യനെയാണ്. അവിടെ നിന്നും രക്ഷപ്പെടാനാവാതെ അവൾ വീർപ്പുമുട്ടുന്നു.; അസ്വസ്ഥയാകുന്നു; ഒടുവിൽ അടഞ്ഞ വാതിലിനു പിന്നിൽ തളർന്നു വീഴുന്നു.

'അവൾ വാതില്ക്കൽ മുട്ടി തുടങ്ങി; അയ്യോ എന്ന് ചതിക്കുകയാണോ?

അവൾ ഉറക്കെവിളിച്ചു ചോദിച്ചു; ഞാനെന്തു കുറ്റമാണ് ചെയ്തിട്ടുള്ളത്? അവളുടെ തേങ്ങൽ കുറച്ചു നിമിഷങ്ങൾക്കു ശേഷം അവസാനിച്ചു. അവൾ ക്ഷീണിച്ചു തളർന്ന്, വാതിലിന്റെ അടുത്ത് വെറും നിലത്ത് വീണു''

സ്ത്രീ പാരതന്ത്ര്യത്തെ സൂചിപ്പിക്കുകയാണ് നായികയുടെ മുന്നിൽ അടഞ്ഞ വാതിൽ. വിലക്കുകൾക്കും വിലങ്ങുകൾക്കും മുന്നിൽ നിസഹായയാകാൻ വിധിക്കപ്പെടുകയാണ് ഇവിടെ. സ്ത്രീത്വം നിരപരാധിയും നിഷ്കള



കമെങ്കിലും സ്ത്രീ എന്നും പുരുഷനിർമ്മിത സാമൂഹ്യ വ്യവസ്ഥിതിൽ വഞ്ചനയ്ക്കും പീഡനങ്ങൾക്കും വിധേയയാകുന്നു. 'പക്ഷിയുടെ മണം' എന്ന കഥയിലെ സ്ത്രീ കഥാപാത്രത്തിലൂടെ പുരുഷമേധാവിത്ത സമൂഹത്തിൽ സ്ത്രീയുടെ ദാരുണവും, നിന്ദ്യവുമായ അവസ്ഥയാണ് മാധവിക്കുട്ടി വ്യക്തമാക്കുന്നത്. വാതിലിനു സമീപം വെറും നിലത്തു വീഴുന്ന നായിക നിസഹായവും നിരാലംബവുമായ സ്ത്രീത്വത്തിന്റെ പ്രതീകമാണ്. കീഴടങ്ങലും വിധേയത്വവും മാത്രമേ അവൾക്ക് കരണീയമായുള്ളൂ. കൈവിരലുകളിൽ നീണ്ട രോമങ്ങളുള്ള കുതിരയുടെ മുഖമുള്ള ചെറുപ്പക്കാരൻ മരണത്തിന്റെ പ്രതീകമാണ്.

'അതെ സ്നേഹത്തിന്റെ പരിപൂർണ്ണത കാണിച്ചു തരുവാൻ എനിക്കു മാത്രമേ കഴിയുകയുള്ളൂ. എനിക്കു നീ ഓരോന്നോരോന്നായി കാഴ്ച വയ്ക്കും "ചുവന്ന ചുണ്ടുകൾ, ചാഞ്ചാടുന്ന കണ്ണുകൾ, അവയവ ഭംഗിയുള്ള ദേഹം" എല്ലാം ഓരോ രോമകുപങ്ങൾ കൂടി നീ കാഴ്ചവയ്ക്കും, ഒന്നും നിന്റെ തല്ലാതാവു. പക്ഷെ എല്ലാമായിത്തീരും'2

മഞ്ഞ നിറവും പക്ഷിയുടെ മണവും മരണത്തിന്റെ പ്രതീകമാണ്. മരണത്തിന്റെ മുന്നിൽ ചെന്നുപെടുമ്പോൾ പുരുഷനിലുള്ള വിശ്വാസം അവൾ ഉപേക്ഷിക്കുന്നില്ല.

മുറിയുടെ വാതിൽ തുറക്കുന്നതിൽ പരാജയപ്പെടുന്ന അവൾ മുനിലിരിക്കുന്ന

ചെറുപ്പക്കാരനിൽ പ്രതീക്ഷയർപ്പിക്കുന്നു.

'ദയവു ചെയ്ത് ഇതൊന്നു തുറന്നു തരു' അവൾ പറഞ്ഞു; 'എനിക്ക് വീട്ടിലേക്ക് പോവണം എന്റെ കുട്ടികൾ കാത്തിരിക്കുന്നുണ്ടാവും, അയാൾ തന്റെ വാക്കുകൾ കേട്ട്, ക്രൂരചിന്തകൾ ഉപേക്ഷിച്ച് തന്നെ സഹായിക്കുവാൻ വരുമെന്ന് അവൾ ആശിച്ചു.'3

'എന്നാൽ അയാൾ വീണ്ടും വീണ്ടും വിസ്മയിപ്പിക്കുകയും ചെയ്യും. വീണ്ടും വീണ്ടും അവളെ നോക്കി ചിരിച്ചു'4 പുരുഷരൂപത്തിൽ മരണത്തെ ചിത്രീകരിക്കുന്ന കഥാകാരി പുരുഷനിർമ്മിത സാമൂഹ്യവ്യവസ്ഥകൾക്കെതിരെയുള്ള വിധിയെഴുതുകയാണ് ചെയ്യുന്നത് .

കഥാകാരി സ്ത്രീ മനസിന്റെ സങ്കീർണ്ണതകളെ സൂക്ഷ്മമായി ചിത്രീകരിക്കുകയാണ് ഈ കഥയിലൂടെ. പുരുഷന്റെ പരിലാളനയും, സ്നേഹവും, ആശ്രയവും ആഗ്രഹിക്കുന്ന സ്ത്രീ കഥാപാത്രങ്ങൾ മാധവിക്കുട്ടിയുടെ കഥകളിൽ നിറഞ്ഞു നില്ക്കുന്നു. മരണത്തിന്റെ മുന്നിൽപ്പെടുമ്പോഴും പ്രതിഷേധത്തിന്റെ ശബ്ദങ്ങളൊന്നും കേൾപ്പിക്കാതെ കുട്ടികളെയും കുടുംബത്തെയും കുറിച്ച് വിലപിക്കുന്ന നായികയെയാണ് ഈ കഥയിൽ കാണാൻ സാധിക്കുന്നത്. 'പക്ഷിയുടെ മണം' എന്ന കഥയിലെ നായിക കഥാപാത്രം ഫെമിനിസ്റ്റുവാദികളുടെ ചിന്താധാരയുമായി ഒരിക്കലും പൊരുത്തപ്പെടുന്നില്ല. അവബോധ മനസിലൂടെ മരണത്തെ കാണുകയും, ബോധമനസിൽ അവൾ പ്രകടിപ്പിക്കുന്ന മാതൃത്വവും മാധവിക്കുട്ടിയുടെ സ്ത്രീ സങ്കല്പത്തെയാണ് സൂചിപ്പിക്കുന്നത്.

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‘अक्षयवट’: एक विश्लेषणात्मक अध्ययन

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समकालीन हिन्दी साहित्य में आज की ज़िन्दगी को संपूर्ण रूप में देख सकते हैं। आधुनिक काल की लोकप्रिय और सर्वाधिक शक्तिशाली विधा हैं उपन्यास। समय के अनुसार उपन्यास का स्वरूप बदलता रहा है। प्रारंभिक उपन्यास का लक्ष्य शुद्ध मनोरंजन था। लेकिन आधुनिक उपन्यास में मानव जीवन के विराट संघर्ष और स्वप्न को रूपायित करने की क्षमता पायी जाती है।

नासिरा शर्मा

नासिरा शर्मा हिन्दी गद्य साहित्य की विभिन्न शाखाओं पर हस्ताक्षर डालनेवाली प्रतिभाधनी लेखिका हैं। निम्न मध्य वर्ग झेलनेवाले दलित समस्या, भूख की तीव्रता, बेरोज़गारी, जल समस्या आदि सब समस्याओं को अपने उपन्यासों में चित्रित करने का सफल प्रयास नासिरा जी ने किया है। उन्होंने न केवल समस्याओं का वर्णन किया है, अपितु उनका समाधान भी प्रस्तुत किया है। सामाजिक, राजनैतिक, धार्मिक क्षेत्रों पर उनकी लेखनी कार्यरत है। उनके व्यक्तित्व और कृतित्व में आधुनिकता और परंपरा का सामंजस्य मौजूद है।

अक्षयवट

सन् २००३ में इलाहाबाद की पृष्ठभूमि पर लिखा गया उपन्यास है अक्षयवट। नासिरा शर्मा ने इस उपन्यास में इलाहाबाद शहर की सांस्कृतिक घरोहर, पुलिस द्वारा होनेवाले अत्याचार, भ्रष्टाचार, बेरोज़गारी, युवा आक्रोश आदि मुद्दों को विशेष रूप से उजागर किया है। इलाहाबाद में जन्मी नासिरा जी ने उस शहर के आज के पतन को देखकर बहुत दुखी हैं। “अक्षयवट का जो मामला था वो कई सालों से बह रहा था। बारह सालों में वो नॉविल.... इन बारह सालों में क्या गाँव, क्या अमेरिका, क्या एशिया... सब जगह की जवान नस्लों को बड़ा परेशान देखा मैंने, तो ‘अक्षयवट’ तो था मेरे जेहन में”^१।

अक्षयवट उपन्यास का मुख्य पात्र है ज़हीर। जब ज़हीर चार माह का था तब इलाहाबाद के सांप्रदायिक दंगों में उनके पिता की मृत्यु हुई। दादी और माँ ने उनका पालन पोषण किया। ज़हीर पढाई में निपुण और होशियार लडका था। जब एक दिन वह कॉलेज में आता है तब कॉलेज की एक घटना से उसकी ज़िन्दगी बदल आती है। विश्वविद्यालय की परीक्षा में नकल करने के झूठे आरोप में उसे दो वर्ष के लिए निष्कासित कर दिया जाता है। उस कॉलेज के अध्यापक लोग उसकी सच्चाई और ईमानदारी से परिचित हैं। लेकिन नकल करनेवाला छात्र अन्य प्रोफेसर का संबन्धी है। इसलिए उसे बचाने के लिए ज़हीर को बलिवेदी पर चढा दिया है। इस घटना से निराश होकर ज़हीर पढाई छोड़कर छोटे-मोटे काम में लग जाता है। अंत में एक दूकान खोलकर वह अपनी दादी और माँ की देखभाल करता है।

इलाहाबाद शहर के समाज में फैली विभिन्न विकृतियों और प्रशासन की भ्रष्टता को ज़हीर और उसके मित्र गण - रमेश, वसंत, मुरली, जगन्नाथ और सलमान दूर करने का प्रयास करते हैं। फलतः इनको अनेक समस्याओं और कष्टताओं को सामना करना पड़ता है। ज़हीर अपनी अधूरी पढाई को पूरा करके अध्यापक बन जाता है। इसके अलावा लोक कल्याण के लिए काम भी करते हैं।

अक्षयवट में चित्रित समस्याएँ

यौन शोषण

वर्तमान समय में स्त्री का अनेक रूपों में यौन शोषण होता है। महानगरों में युवतियों को अपने जाल में फँसाकर उन्हें शोषण करनेवालों की संख्या बढ़ते जा रहे हैं। युवतियों की अश्लील फोटो लेकर उन्हें ब्लैकमेल किया जाता है। प्रस्तुत उपन्यास में इस घृणित कार्य का पर्दाफाश हुआ है। एक पुलिस वाला इस संबन्ध में कहते हैं, ‘इन बातों ने तो इलाहाबाद जैसे शहर की लड़कियों को लगभग बर्बाद कर डाला है। अभी साल पहले हमने दो ब्यूटी पार्लर्स पर



छापे मारकर लड़कियों को बर्बाद की थी। फैशन शो के नाम पर लड़कियों को पकड़कर जबरदस्ती ब्लू फिल्मों बनायी जाती है।”२

भ्रष्टाचार

भ्रष्टाचार ऐसी समस्या है जिसके कारण हमारे देश की प्रगति अवरूद्ध होती है। अब जीवन के हर एक क्षेत्र में भ्रष्टाचार व्याप्त है। सी. पी. श्रीवास्तव जी के अनुसार “भ्रष्टाचार का प्रवाह उद्दाम वेग के साथ बह रहा है और इसने लोगों को स्वच्छ प्रशासन से वंचित तथा विकास के मार्ग को अवरूद्ध कर दिया है। ...भ्रष्टाचार ने वास्तव में एक महामारी का रूप ले लिया है और अधिकांश नौकरशाही, पुलिस, न्यायपालिका और राजनीतिक सत्ता सब इसकी लपेट में हैं।”३

अक्षयवट उपन्यास में इस समस्या की सटीक अभिव्यक्ति हुई है। उपन्यास का एक पात्र है रामस्वरूप सिंह। वह पुलिस विभाग में होनेवाले भ्रष्टाचार के बारे में ऐसे कहते हैं, “पुलिस की जात का तो तुम जानते हो, दरोगा हरपाल सिंह हरामी है। खाये - पिये के आगे ओका कुछ और सूझत नाही है। टाकुर का लौण्डा बोटल-बोटल देय - दिलाय के और मुट्ठी गर्म कर सच्चाई दवाय दीस।”४ पुलिस का कर्तव्य समाज की रक्षा करना है। यही पुलिस जब अपना कर्तव्य भूल गया तो जनता का जीवन दूभर हो जाता है। अक्षयवट उपन्यास का इन्स्पेक्टर त्रिपाठी अच्छे- अच्छे शरीफ लोगों को वह घण्टे भर में देश का सबसे नामी गुण्डा करार दे सकता था। यही नहीं, उस आदमी को स्वयं यह अहसास दिला देता कि वह एक मुजरिम है। उसकी मामूली हरकत कानून की नज़र में आती है और धारा जल, जुर्माना और घर की कुर्की तक पहुंच सकती है। वह कहता भी था, कि जब नाव पर बैठकर हमारी विरासत वाले इस शहर में जिसको चाहते थे, पकड़ बुलाते थे। हम तो थाने में बैठे हैं। अच्छे- अच्छों की पुलपुली ढीली कर देते हैं।”५

पुलिस व्यवस्था का चित्रण करते हुए नासिरा जी लिखती हैं कि, “इलाहाबाद शहर में ही नहीं बल्कि पूरे हिन्दुस्तान में पुलिस दो फाक हो चुकी है। एक वह जो अपनी सत्ता का गलत इस्तेमाल करती है और भोले, सीधे, शरीफ नागरिकों की जीना हराम कर देती है। दूसरी वह जो कानून की रखवाली करती है, जनता की सेवा में अपनी जान गँवा देने में गर्व का अनुभव करती है।”६

बेरोजगारी

नासिरा शर्मा के उपन्यासों में आर्थिक बोध के विविध आयाम परिलक्षित हैं। वर्तमान समय में बेरोजगारी युवाओं के समक्ष बड़ी समस्या बनकर खड़ी है। कई युवक ऐसे हैं जो अपने देश में रोजगार न मिलने के कारण विदेश जाकर नौकरी करते हैं। जब वे विदेश से लौटते हैं तब भी यहाँ कुछ करने योग्य नहीं रहते। ऐसा त्रासद जीवन व्यतीत करनेवाला एक युवक का चित्रण अक्षयवट

उपन्यास में नासिरा ने जी बखूबी किया है। वह ‘पराए देश नहीं जाना चहता, मगर मजबूर है। जब आया था तब भरी थी। ...मगर पिछले तीन महीनों में घर और घरवालों की ज़रूरत पूरी करते-करते पहले घड़ियें एक - एक कर बिकी, ट्रांज़िस्टर, थरमस कंवल और अब बुलेट भी बिक गई। खाली हाथ विदेश गया था भरे हाथ देश लौटा था। अब सब कुछ खर्च कर फिर वही खाली हाथ वापस जा रहा है।”७ प्रस्तुत उपन्यास का और एक पात्र है रमेश। वह सुशिक्षित है किन्तु बेरोजगार। उसकी माँ को यही चिंता है कि कब उसे नौकरी मिलेगी? रमेश की नौकरी के लिए माँ ज्योतिषी, टोने - टोटेक, तावीज़ आदी बातों अन्जाम देती है।

बालमज़दूरी

जब किसी कारणवश बच्चा परिश्रम कर धनोपार्जन करता है, उसे बाल मज़दूरी कहते हैं। सरकार ने बालमज़दूरी रोकने के लिए कई कड़े कानून बनाए हैं। कारगर सिद्ध नहीं हुए हैं। आज भी होटलों, दूकानों, मिलों में बालक बालिकाएँ मज़दूरी करते हैं।

अक्षयवट उपन्यास का जगन्नाद भी ऐसा एक पात्र है जो पिता की मृत्यु के बाद घर की ज़म्मेदारी अपने कंधे पर उठाते हैं। वह खुद कहते हैं, “नौ लोगों का भोजन जुटाने के लिए मैं उसी स्कूल के सामने छोले, मूंगफली भी बेचता था, जहाँ पढता था फिर होटल में काम भी किया। मार खायी, गाली सुनी, रात को रोया भी मगर हार हार नहीं मानी। मेरी इस दौड़ में कुछ वर्षों बाद बहन भाई भी शामिल हो गये।”८

उपसंहार

नासिरा शर्मा जी ने सामाजिक बोध से युक्त उत्तरशती की प्रभावी लेखिका हैं। सामाजिक, आर्थिक एवं राजनीतिक बोध से संबंधित तमाम पहलुओं को नासिरा जी ने निरभयता से अभिव्यक्ति की है। वे अपने साहित्य के माध्यम से समाज की अनेक ज्वलंत समस्याओं को उजागर करने में सक्षम दीखती हैं।

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डॉ.शंकर शेष के नाटकों मेंसमकालीनपारिवारिकयथार्थ

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प्राचीन काल से ही समाज में सामूहिक परिवार का अस्तित्व रहा है। भारतीय संस्कृति में सदैव परिवार को महत्वपूर्ण स्थान मिला है। व्यक्ति के निर्माण का प्राथमिक दायित्व परिवार पर होता है इसलिए दूसरे किसी समूह की अपेक्षा परिवार का प्रभाव सामाजिक जीवन पर अधिक पड़ता है। व्यक्ति के निर्माण का प्राथमिक दायित्व परिवार पर होता है। परिवार सगे संबंधियों से पूरित एक ऐसी संस्था है जिसके रीति-रिवाज़, सभ्यता एवं संस्कृति, आचरण एवं व्यवहार लगभग समान होते हैं। परिवार मानव समूह की आधारभूत इकाई है। कहा जा सकता है कि परिवार एक ऐसी सामाजिक संस्था है जहाँ से मनुष्य अपने सामाजिक जीवन की शुरुआत करता है सामाजिक जीवन का मूल परिवार में ही निहित होता है।

मानव विकास के साथ-साथ पारिवारिक जीवन में भी परिवर्तन लक्षित होने लगे हैं, नवीन आवश्यकताओं नवीन परिस्थितियों एवं सामाजिक संबंधों का प्रभाव परिवार पर पड़ा है। डॉ शंकर शेष के नाटकों में इसी समकालीन पारिवारिक जीवन हमें दिखाई देते हैं। उनके नाटक साहित्य में अंकित पारिवारिक संबंधों, उनमें उपस्थिति तनावों एवं विघटन आदि को निम्नलिखित शीर्षकों के अन्तर्गत विश्लेषित किया जा सकता है

1. स्त्री-पुरुष संबंधों में तनाव

रत्नगर्भा में डॉ.शंकर शेष ने इला और सुनील के जीवन संघर्ष को प्रस्तुत किया है। सुनील एक प्रसिद्ध डाक्टर है। यश और नाम पाने की उसकी प्रबल आशा है। उसकी पत्नी इला अपने जेवर भेजकर सुनील को हार्ट स्पेशलिस्ट और सर्जन बनाने के लिए विदेश भेजती है। अपने पति के लिए कुछ भी त्याग करने में इला को दूसरी बार सोचने की ज़रूरत नहीं है। सुनील विदेश में पत्नी के प्रेम से एकनिष्ठ रहकर शिक्षा प्राप्त करता है। इला भी सुनील के न होते हुए भी उसे अपने आस-पास महसूस करती है। इसके बीच घर में स्टोव फटकर इला का चेहरा जल जाता है। वह कुरूप हो जाती है। इला नहीं चाहती कि सुनील की पढ़ाई में किसी प्रकार की बाधा उत्पन्न हो इसलिए वह सुनील से इस दुर्घटना के बारे में नहीं कहती है। सुनील

विदेश से आता है तो इला को देखकर घबरा जाता है लेकिन वह इला के प्यार के प्रति वह फिर से आकृष्ट हो जाता है। वह सोचता है इला ने सुनील को विदेश भेजने के लिए अपना सब कुछ त्याग दिया है। इसलिए उसे इला की ख्याल करना चाहिए। लेकिन बाद में वह जगदीश जैसे खल नायक के चाल में पड़कर इला से घृणा करने लगता है। इला के प्रति सुनील के प्रेम, विश्वास, प्रणय आदि उसके प्रति घोर विरोध में बदल जाता है वह शराब पीने, हुआ खेलने तथा वेश्यालय जाने लगता है सुनील का व्यक्तित्व नष्ट हो जाता है। उसकी आर्थिक स्थिति भी बुरी हो जाती है। कर्ज वापस माँगने के लिए लोग घर आते जाते हैं। जगदीश बताता है कि संकटों से बचने के लिए उसे इला की हत्या करनी होगी बीमा के पचास हजार रुपये के लिए सुनील इला की हत्या करने तैयार हो जाता है लेकिन इला की बहन माया सचेत होकर इला की रक्षा करती है। इतना होने पर भी इला सुनील को क्षमा करती है। आखिर इला और सुनील के जीवन पर निर्णय लेने के काम नाटककार प्रेक्षक पर छोड़ देता है।

रत्नगर्भा नाटक का पूरा कार्यव्यापार एक उच्च-मध्यवर्गीय परिवार के ड्राइंगरूम में ही घटता है। इस नाटक में आज की भौतिकवादी जीवन दृष्टि और आदर्श के संघर्ष की पृष्ठभूमि में नर-नारी के संबंधों को रूपायित करने का प्रयास किया गया है। अर्थ और आदर्श के बीच संघर्ष और इस पृष्ठभूमि में पति-पत्नी के परस्पर संबंधों का विश्लेषण करना ही इस नाटक का मूल स्वर है। व्यक्तिगत अहं की तुष्टि एवं सुखोपभोग ही सुनील के जीवन को बर्बाद करनेवाली स्थिति का कारण है। सुनील पूँजीपती न होकर सुविधानुसार प्राप्त हो गई पूँजी और भोगविलास की सब-संस्कृति के दो स्तरों में संक्रमित रहने वाला दयनीय उच्च मध्यवर्गीय चरित्र है।

दुर्घटना के कारण विकृत चेहरा बन गयी इला की दयनीय अवस्था का चित्रण इसमें हुआ है। आधुनिक पति सुनील अपनी पत्नी इला के बाह्य सौंदर्य से ही आकर्षित होता है बाह्य सौंदर्य नष्ट हो जाने पर वह इला की आंतरिक सौंदर्य को भी नकार देता है। अमानवीय और अनैतिक होना उसके लिए कोई अर्थ नहीं रखता शंकर शेष 'इला' के माध्यम से यह बताना चाहता है कि आधुनिक



युग में नारी भले ही कितनी आधुनिक और सुशिक्षित क्यों न हो, परंतु आज भी उसपर पति का अंकुश है। इला विवश है उनका दांपत्य जीवन केवल बाह्य सौंदर्य की कमी के कारण बिगड़ गई है, नीरस और अशांति फैल गई है। इला की बहन माया सुनील को शंका की दृष्टि के देखती है और उसके विरोध में आवाज उठाती है क्योंकि वह जानती है कि कमजोर जब चरित्रवान होने का ढोंग करता है तो खतरनाक हो सकता है।

रत्नगर्भा में शंकर शेष ने बनावटी जीवन भोगने वाले प्रतिष्ठित लोगों पर कहकर व्यंग्य किया है 'जीवन की वास्तविकता से दूर नारी के बाह्य सौंदर्य पर रझने वाले इस वर्ग की नियति अभिशाप है जो कभी अपनी अलग पहचान नहीं बना पाती।' ¹ बनावटी जिंदगी जीने-भोगने वालों द्वारा घटित समस्याओं का चित्रण प्रस्तुत नाटक में हुआ है।

श्रीमती सुनीता मंजनबैल ने इस नाटक के बारे में कहा है कि 'आलोच्य नाटक में पति-पत्नी संबंधों के टूटने के सभी प्रमुख कारण, जैसे-आपसी अविश्वास, काम-वासना की अपूर्ति अर्थ की हवस और तीसरे व्यक्ति का आगमन की ओर संकेत करते हुए इस समस्या का चित्रण किया है। नाटक के अंत में 'भ्रमभंग' होने के पश्चात् दुखी और असमंजस से घिरी इला को दिखाकर नाटककार १ समस्या को और गहन बनाता है।' ² इला अपने पति को मनुष्य बनाने के लिए अपनी जान तक कुर्बान करने के लिए तैयार हो जाती है। यही तो भारतीय नारी की विडंबना है कि वह अपने आदर्श चरित्र के कारण पति को समर्पित हो जाती है।

डॉ.शंकर शेष के सर्वप्रथम प्रकाशित नाटक बिन-बाती के दीप में उन्होंने स्त्री पुंश्रु संबंधों को नए धरातल पर रखकर दांपत्य जीवन को अधिक असली रूप में अंकित करने का प्रयास किया है। नाटककार ने इस नाटक के द्वारा इस तथ्या का उद्घाटन किया है कि नैतिक-अनैतिक मान्यता काल-सापेक्ष और व्यक्ति सापेक्ष होता है। जीवन में अतिरिक्त महत्वाकांक्षा की धुन सवार होनेवाले व्यक्ति के चारित्रिक पतन के साथ भारतीय नारी का आदर्श रूप भी शंकर शेष ने इस नाटक में उजागर किया है।

शिवराज औसत श्रेणी का कवि तथा लेखक है। लेकिन वे कविताएँ अच्छे कंठ से गाते थे, कवि सम्मेलनों में बुलाए जाते थे। उसके कंठ ने ही विशाखा को उसकी ओर खींच लाया था उसने विशाखा से विवाह करने का निश्चय किया लेकिन उसके परिवार के सदस्य और दोस्त उसके विरोध में खड़े हो गए प्रश्न यह था कि विशाखा की माँ के आँखों की रोशनी नहीं थी। 'सारा समाज जानता था। सब यही सोचते थे कि धतूरे के पेड़ पर धतूरे का फूल उगेगा, लडकी माँ पर जाएगी।' ³ पर शिवराज विचलित नहीं हुआ, वहतो ऐसे हिंदुस्तानी आदमी है जो निडर है। उनका प्रेम सूर्य के प्रकाश की भाँति शादी में परिणत हुआ।

विशाखा भी साहित्यिक है, लेखिका है। उसकी कहानियाँ श्रेष्ठ

पत्रिकाओं में छपती थी। वह अपना प्रथम उपन्यास लिखकर पूरा करती है कि वह अंधी हो जाती है। शिवराज को स्वप्न में भी अनुमान नहीं था कि ऐसा हो जाएगा। उसके स्वप्न अंधकार की कड़ में समा गए, उसकी कविता की निर्झरणी सूख गई। आदर्श और सत्ते प्रेमी शिवराज को मोह का क्षण ग्रस ही लेता है। बचपन से पालित पोषित शिवराज की महत्वाकांक्षा का सर्प अपना फन निकालकर फूत्कारने लगता है। ⁴ उसने विशाखा के उपन्यास को अपने नाम से छपवाया। रातों रात वह हिंदी साहित्य जगत का श्रेष्ठ लेखक बन जाता है। यश की भूख ने उसे बेईमान बना करवाता है। विशाखा द्वारा लिखे गये सारे उपन्यासों को अपने नाम नाम के साथ उसे रूपया भी बहुत मिला। मकान, गाड़ी, टेलीफोन, टाइपिस्ट सब मिल गया। अंधी विशाखा उसके लिए सोने का अंडा देनेवाली मुर्गी बन गई।

टाइपिस्ट के रूप में आयी मंजू को शिवराज ने धन और विवाह का प्रलोभन दिखाकर अपने वश कर लेता है। दोनों मिलकर विशाखा के सामने एक बनावटी दुनिया बना देते हैं। झूठी प्रशंसा सुनवाकर विशाखा को और लिखने की प्रेरणा देता है। शिवराज विशाखा के अंधेपन से ऊबे हुए थे लेकिन विशाखा समझती है कि अंधी की लाठी बन गया है। वह शिवराज के बचपन के मित्र आनंद को शिवराज के घिनौने कृत्य और साजिश का पता चलता है। उसने विशाखा के सामने सब सत्य खोलता है। लेकिन विशाखा शिवराज के अपराध की क्षमा करती है। शिवराज आत्मग्लानि से चीख उठता है।

प्रतिभाशून्य शिवराज स्वार्थी तथा अतिरिक्त महत्वाकांक्षी है। यही कारण से उसके चारित्रिक अधःपतन हो जाता है। टाइपिस्ट मंजू का कहना है कि शिवराज सबसे खतरनाक अदमी है। उसमें रूपयों के साथ नाम कमाने की धुन भी सवार हो गई है। इसलिए आदर्शवान, निडर हिंदुस्तानी होते हुए भी शिवराज की वर्तमान दुरवस्था हो गया है। शिवराज खुद बोलता है कि 'मेरी इस यश की भूख ने मुझे बेईमान बना दिया।' ⁵ शिवराज ने एक क्षण के मोह में, प्रसिद्धि की भूख में अपना स्वर्ग खो दिया। उसकी दुर्घटना की साथी है मंजू। जब शिवराज गलती कर चुके थे तभी मंजू उसके जीवन में आयी थी उसे भी अपनी गलतियों का एहसास है लेकिन वह आर्थिक विवशता में गिरी हुई थी। अपने परिवार को उठाने के लिए ही वह शिवराज की साथ दिया था शिवराज विशाखा के उपन्यास चुराते रहे और मंजू उसका विश्वास चुराती रही। विशाखा और शिवराज के बीच तनाव को पैदा करने में मंजू भी एक कारण है

नटवर शिवराज की हरकत के समान बातों को अनजाने में अपने नाटक कथावस्तु के रूप में कहता है तो वह उसे बकवास कथावस्तु कहता है। की 'शिव सुनी है, पर जो अपनी पत्नी को धोखा दे वह नीच है, पापी है।' ⁶ नटवर द्वारा नाटककार ने जीवन के कड़वे, मिठे सत्य को अभिव्यक्त करता है।

आनंद द्वारा ही विशाखा के सामने शिवराज के कारनामों का



पर्दाफाश होता है और वह विशाखा को सत्य से परिचित होने का एक अंतर्दृष्टि प्रदान करता है। डॉ. प्रकाश जाधव ने लिखा है 'शिवराज द्वारा विशाखा के उपन्यास अपने नाम पर छापना उसे अनैतिक एवं अन्यायकारी लगता है। मंजु को चाहकर भी, उसकी अंधी महत्वाकांक्षा के कारण वह उसे ठुकरा देता है'¹⁷ उसका व्यक्तित्व अस्वाभाविक रूप से आकर्षक दिखाई देता है।

'बिन बाती के दीप' नाटक में शंकर शेष ने अंधेपन की समस्या के मुद्दों पर वर्तमान पति-पत्नी के बीच की संघर्ष तथा मध्यम वर्गीय नारी की लाचारी और आर्थिक विषमता को चित्रित किया है। नैतिकता और अनैतिकता के बीच पैर फिसल गये अतिरिक्त महत्वाकांक्षी लोगों की विसंगतियों पर प्रकाश डालने वाला नाटक है बिन बाती के दीप।

घरौंदा नाटक की शुरुआत मोदी एण्ड मोदी कंपनी के दफ्तर के माहौल से होता है। सुदीप जो इस नाटक का नायक है कंपनी के क्लर्क है और बड़े बाबू, मिश्रा, सोडावाला आदि उसके साथ दफ्तर में काम करता है। कंपनी के मालिक है मोदी, जो अर्धे उम्र के है। छाया जो नायिका है टाइपिस्ट के पद पर नई नियुक्ति हुई है। उसकी शक्ल मोदी की स्वर्गीय पत्नी से मिलती जुलती है। इसी कारण ही मोदी ने उसको नौकरी दी थी।

बड़े बाबू पहले ही दिन छाया को कागज़ का पुलिंदा देकर शाम तक टाइप करने को कहता है। सुदीप छाया की मदद करता है। मोदी छाया के प्रति आकर्षित है और मोदी द्वारा उसकी तारीफ दिन-ब-दिन बढ़ती गयी। लेकिन छाया सुदीप से प्यार करती है।

सुदीप चोपड़ा, अब्दुल और गुहा के साथ एक लृज में रहता है। यह छाया से कहता है कि वह शादी इसलिए नहीं कि क्योंकि बीवी को रखने के लिए जगह नहीं है। उसका अपना घर नहीं है। छाया कहती है कि हर महीने थोड़ा थोड़ा बचाकर मकान थरादेंगे। लेकिन सुदीप उसको समझाता है कि उनकी समस्या गरीबी है और वे कभी मकान के लिए पचास हजार नहीं इकट्ठा कर सकता। चाल में ही रहने पड़ेगा। लेकिन छाया सुदीप को धीरे धीरे बँधाता है कि एक-एक पैसे बचाकर फ्लैट खरीदेंगे। सुदीप भी इसका साथ देने को राजी हो जाता है।

महीनों बाद सुदीप का ग्रेड प्रमोशन हो जाता है। वह बड़ा क्लर्क बन जाता है। मकान के लिए प्रयत्न जारी रखता है। लेकिन उनके सब प्रयत्न बेकार हो जाता है। मकान लेने के सब रास्ते खत्म हो देते हैं। छाया ने एक एक बूंद खून जलाकर मकान के लिए प्रयत्न किया। पहलीबार बिल्डर रूपये लेकर भाग गया। दूसरी बार उसका भाई। वह अमरिका जाने के लिए छाया की भावना पर खेला। उसके बाद मकान मालिक उनके आठ हजार रूपये हड़प कर ले गये। इसी बीच छाया के सामने मोदी ने विवाह का प्रस्ताव रखा। लेकिन छाया इस प्रस्ताव को अस्वीकार करते हुए नौकरी छोड़ने के लिए तैयार हो जाती है। लेकिन सुदीप कहता है कि खान की कर्ज देने के लिए उसे नौकरी करना ही पड़ेगा। सुदीप षड्यंत्र रचाता है कि छाया मोदी

से शादी करके उसकी मौत का इंजाम करेंगे। चूँकि मोदी दिल का मरीज है। छाया अनमना शादी के लिए तैयार हो जाती है।

छाया मोदी की खूब देखभाल करती है। उसकी तबीयत दिन-ब-दिन अच्छा होता रहा। मोदी कहता है कि छाया की पैर पड़ते ही उसके बिज़नेस में फायदा हुआ है। सुदीप अक्सर छाया से कुछ-कुछ कारण बताकर रूपए हड़प कर ले जाता है। वह खान का कर्ज चुकाता भी नहीं और छाया से उससे भी अधिक रूपये ले जाता है। आखिर जब वह छाया से मोदी की हत्या करने को कहता है तो छाया उसके लिए राजी नहीं होती उसके प्यार भरे व्यवहार से मोदी की जीने की इच्छा फिर से करवट ले रही थी। फिर भी उसे डर है कि कहीं छाया ने उसकी जायदाद के मोह में तो उससे शादी की है लेकिन धीरे-धीरे छाया और मोदी के बीच की तनाव प्यार में बदल जाता है।

2. विवाहोपरान्त प्रेम

आधुनिक युग में हम देख सकते हैं कि विवाह के उपरान्त भी स्त्री पुरुष नए प्रेम बंधन आरंभ करते हैं। आज पति-पत्नी के बीच प्रेम के बदले शारीरिक संबंध ही अधिक है संबंधों की इस नवीनता का रूप शिक्षित वर्गों में अधिक दिखाई पड़ता है। 'रत्नगर्भा' नाटक का सुनील उसके लिये अपना सब कुछ खोया पत्नि इला नियति के क्रूर हाथों का खिलौना बनने पर उसको छोड़कर उसकी बहन के साथ प्रेम का रिश्ता जोड़ना चाहता है।

'सुनील : हलो माया, यू लुकचामिंग माया, तुम स्वर्ग की परी हो. नहीं तो यह तुम्हारी बहन. (इला एकदम रुआंसी हो जाती है)'⁸

किसी अपघात में इला की सूरत विकृत हो जाने पर सुनील अन्य स्त्रियों के साथ स्वच्छंद व्यवहार करने लगता है। विलास का आनंद उठाने के लिए उसने अपनी पतिव्रता पत्नी इला के साथ मनमानी करता है।

विवाहोपरान्त प्रेम संबंध का एक और दृश्य डॉ. शंकर शेष का नाटक बिन बाती के दीप में भी उपस्थित है। प्रस्तुत नाटक का नायक शिवराज साधारण स्तर का कवि है। राष्ट्रीय स्तर के शिखर पर पहुँचने की उसकी महत्वाकांक्षा है। अपनी महत्वाकांक्षा की पूर्ति के लिए शिवराज प्रतिभासंपन्न और अंधी युवती विशाखा से विवाह कर लेता है। वह शिवराज के लिए वरदान बन जाती है।

शिवराज विशाखा के उपन्यास को अपने नाम से छपवाकर रातोंरात हिंदी साहित्य जगत का श्रेष्ठ लेखक बन जाता है। शिवराज के इस रहस्य को केवल टाइपिस्ट मंजु जानती है। इसलिए वह उसको प्यार के जाल में फँसाता है।

'शिव : मंजू, मैं तुमसे प्रेम करता हूँ मैं चाहता हूँ कि अब तुम मेरे जीवन में.....'⁹

इससे विशाखा और शिवराज के जीवन में तनाव उत्पन्न हो जाता है। उसके साथ पारिवारिक जीवन में जो अनुशासन कायम रह गया था उसका विघटन होने लगा।



3. सुविधाभोगी मनोवृत्ति

सुविधाभोगी मनोवृत्ति का विकृतरूप 'रक्तबीज नाटक' में देखा जा सकता है। नाटककार ने छोटे पुरुष को केंद्र में रखते हैं, जो बड़ा बनना चाहता है। वह अपने वर्ग से घृणा करता है और अपनी वर्गीय पहचान छुपाने की कोशिश उसमें हिंसक और अपराधीपन भरती है वह अपनी पत्नी के माध्यम से अपने बाँस का इस्तेमाल करता है और बड़ा पुरुष अपने हितों के लिए छोटे पुरुष को इस्तेमाल करता है। यथार्थ विडंबना यह है कि छोटा पुरुष बड़े पुरुष द्वारा शोषित होने को तैयार है। क्योंकि वह सुविधाओं और स्वत्व की अपनी भूख किसी भी कीमत पर शांत करना चाहता है। उसके सामने समझौते की विवशता का हथियार उसकी निश्चित नियति है और उनके लिए नीति, मूल्य नियम के कोई मायने नहीं है।

डॉ.शंकर शेष ने रक्तबीज के माध्यम से सुविधा की पूर्ति के लिए प्रयुक्त इस्तेमाल के दुनिया का चित्रण किया है समस्याओं से छुटकारा पाने के लिए व्यक्ति कुछ भी करने को तैयार है। वह अपनी जिंदगी से संतुष्ट नहीं है 'छोटा पुरुष बस इन्हीं बातों से तो छुटकारा पाने की कोशिश कर रहा हूँ, सुजाता। ये भी साली कोई जिंदगी है। पैसे-पैसे के लिए तरसो हमेशा अपने अपाहिजपन का एहसास। केवल तमाशाई भीड़ की तुच्छ सदस्यता। एक पत्ता भी कहीं न हिला सकने की विवशता की घुटना।'¹⁰ योग्यता और मेहनत से कोई काम नहीं चलता।

एक और द्रोणाचार्य नामक नाटक में लीला और कृपी के चरित्र से भी सुविधाभोगी मनोवृत्ति का पता लग जाता है। सुरक्षा और सुविधा के मोह में पढ़कर ही लीला ने अरविंद को अन्याय के रास्ते पर चलने के लिए मजबूर करता हुआ दिखाई देता है। कृपी भी सुरक्षा और सुविधा की प्रेमी है। उसने भी द्रोणाचार्य को अन्याय के विरुद्ध आवाज़ उठाने से रोका। कृपी की सुविधा भोगी मनोवृत्ति ही द्रोणाचार्य को ऋषि परंपरा से गिराकर रजपुत्रों की दासता में धकेल दिया था।

4. मध्यमवर्गीय परिवार और गरीबी

मध्यमवर्गीय परिवार का पहचानपत्र के रूप में गरीबी दिखाई दे रहा है। मध्यवर्ग की महत्वाकांक्षाएँ उच्चवर्ग के समान हैं लेकिन उनकी गरीबी के कारण वे अपनी महत्वाकांक्षा की पूर्ति करने में असफल दिखाई पड़ता है। उनको मज़दूरों से भी कम तनख्वाह मिलते हैं। 'घरौंदा' नाटक के सुदीप और छाया का भी यही हाल है। छाया की परिवार की हालत भी उनकी गरीबी के कारण पूरी तरह से विकल हो गया है। सुदीप के परिवार का विघटन इसी गरीबी के कारण हुए है। छाया और सुदीप गरीबी में उलझकर अपनी माँ को भी नकारते हैं। गरीबी के कारण निकट संबंधों को भी बोझ समझने लगा है जटिल अर्थ व्यवस्था मध्यवर्गीय परिवार को संघर्षपूर्ण मोड़ पर खड़ा कर देता है।

मोदी ने छाया के सामने शादी का प्रस्ताव इसलिए पेश किया

क्योंकि वह गरीब परिवार की लड़की है। सुदीप कहता है- 'अगर किसी लखपति की जवान लड़की उसकी औरत जैसी ही दिखाई देती तो क्या वह उस प्रकार का प्रस्ताव रखने की हिम्मत कर सकता था ? तुम्हारे सामने उसने प्रस्ताव इसलिए रखा क्योंकि तुन गरीब हो। क्या यह साजिश नहीं हो ?'¹¹ गरीबी के कारण छाया मोदी के यहां की नौकरी न ही छोड़ पाती है और न ही सुदीप से क्रसकी प्यार को शादी तक जा सकती है। अपनी इच्छा के अनुसार शादी करने के लिए परिवार को गरीबी से दूर बसाना पड़ता है। मध्यवर्गीय परिवार कभी इस गरीबी की पकड़ से मुक्त नहीं हो पाते।

डॉ.शंकर शेष के नाटकों में जहाँ भी मध्यवर्गीय परिवार का चित्रण है हुआ वहाँ मध्यवर्गीय विकराल आर्थिक व्यवस्था का ही चित्रण हुआ है। नयी सभ्यता नो नमूने नाटक में जो मध्यवर्गीय परिवार चित्र उभरता है उसका भी आर्थिक व्यवस्था संघर्षपूर्ण दिखाई देता है। इस नाटक का मुख्य पात्र कृष्ण मध्यवर्ग का प्रतिनिधि है। उसके परिवार में भी धन की अभाव है। यही मध्यवर्ग की विडंबना है। प्रथम श्रेणी में ग्रेज्युट होने पर भी कृष्ण को नौकरी नहीं मिलती धन के अभाव के कारण कृष्ण की माँ को समय पर इलाज नहीं दे सकता है और उसकी मृत्यु हो जाता है। जब उच्चवर्ग के लोग आडंबर की आड में विलासिता का जीवन बिताते हैं तो मध्यवर्गीय परिवार गरीबी के तप में चूर-चूर हो रहा है।

शंकर शेष का नाटक 'मूर्तिकार' में भी मध्यवर्ग का यही हालत है। अर्थ के अभाव में अनादी की माँ बेमौत मर जाती है। हम सकते हैं कि अर्थ के अभाव में मध्यवर्गीय परिवार का भविष्य खतरे में पड़ गया है।

5. प्रेम की नयी मान्यताएँ

प्रेम का मानवजीवन में अत्यन्त प्रमुख स्थान है पुराने जमाने में भारत में प्रेम को अत्यंत पवित्र माना है। मूल्य विघटन की इस आधुनिक युग में प्रेम संबंधी मान्यताओं में कई परिवर्तन आया है डॉ. शंकर शेष का नाटक घरौंदा में सुदीप और छाया के प्रेम का आधार भावना और भावुकता न होकर बौद्धिकता तथा जैविक आवश्यकता पर निर्भर होता दिखाई देता है। आर्थिक चक्रव्यूह में पैसा सुदीप छाया को मोदी से विवाह करने के लिए मजबूर कर देता है। लेकिन उसका इरादा यह है कि दिल का मरीज मोदी कब भी मर सकता है, उसके बाद उसका सारा जायदाद छाया के नाम पर आ जायगा और दोनों मिलकर खुशी से जीवन बिताएँगे। सुदीप अपने स्वार्थ के लिए मोदी के खिलाफ षडयंत्र रचाने के लिए अपनी प्रेमिका छाया का ही इस्तेमाल करता है। छाया जब मोदी के साथ विवाह करने से इनकार करता है तो सुदीप प्रेम की नयी मान्यता प्रस्तुत कर छाया को मोदी के साथ विवाह करने के लिए मजबूर करता है।

'छाया : लेकिन मैं तुम्हारे अलावा किसी के बारे में सोच भी नहीं सकती।

और यह पाप.....



सुदीप : पाप केवल एक धारणा है, छाया । उसकी कभी कोई स्थायी व्याख्या नहीं है। सामर्थ्य और प्रसंग ही उसके होने न होने का फैसला करते हैं । अगर मैं तुम्हें पापी नहीं समझता तो चुम फिर किसी दूसरे के प्रति जवाबदेह नहीं हो शायद । हम थोड़ा अलग होकर ही एक-दूसरे को पा सकते हैं । बस, यही एक रास्ता है । मोदी से हाँ कह दो, मैं कह रहा हूँ, जाओ हाँ कह दो । जाओ, हाँ कह दो ।¹²

आधुनिक युग में प्रेमी प्रेमिकाएँ अपने प्रेम की पूर्ति के लिए शार्टकर्ट का रास्ता अपनाता है नयी सभ्यता नये नमूने नाटक में प्रेम स्वार्थ पूर्ति का साधन मात्र दिखाई देता है प्रस्तुत नाटक का नायक कृष्ण कन्हैया मध्यवर्ग का प्रतिनिधित्व करनेवाला है कालाबाजार से पैसा कमाने वाले लखपति व्यापारी की बेटी है स्मृति कृष्ण उससे प्यार का नाटक करता है । वह स्मृति को बताता है कि वह लखपति चाचा का भतीजा है । मैं ही उसका असली वारिस हूँ । उसकी मृत्यु के बाद मुझे पाँच लाख रुपये मिलने वाले हैं फिलहाल मेरे पास फूटी कौड़ी नहीं है । कृष्ण स्मृति से पैसा लूटने के लिए उसके प्यार में लिखा हुआ नाटक दिखाया है । लेकिन भुलकृप्रसाद जो अमीर बाप का बेटा है स्मृति से प्रेम करता है मगर स्मृति उससे घृणा करती है । स्मृति को वश में करने के लिए भुलकृप्रसाद कृष्ण को स्पया देता है ।

पाश्चात्य संस्कृति की उपासित और मुक्त जीवन भोगी धरणी जो एक अमीर बाप की बेटी है कृष्ण के प्यार करता है कृष्ण भी अपने स्वार्थ पूर्ती के लिए धरणी से प्रेम का नाटक रचता है । अत्याधुनिक सभ्यता का प्रतीक धरणी अपने रूप अंगार पर अधिक ध्यान देती है । उसकी इसी कमजोरी का फायदा उठाकर कृष्ण उससे फिल्म बनाने के लिए पंद्रह हजार रुपये पाता है । धरणी से प्रेम करने वाला दूसरा पात्र है गगनबिहारी । लेकिन धरणी उससे प्यार नहीं करती है । लेकिन कृष्ण स्पयों के लिए गगनबिहारी से भी सौदा करता है । इस प्रकार सभी पात्र स्वार्थ की पूर्ति के लिए प्रेम को एक साधन के रूप में स्वीकृति करते दिखाई देते हैं ।

उपर्युक्त विवेचन के आधार पर हम कह सकते हैं कि डॉ शंकर शेष ने पारिवारिक यथार्थ को अत्यंत व्यापक फलक पर चित्रित करने का प्रयास किया है। पारिवारिक यथार्थों में विशेषतः स्त्री-पुरुष संबंधों के सकारात्मक एवं नकारात्मक दोनों अंशों का तथा मध्यमवर्गीय परिवार का डॉ शंकर शेष ने अपने नाटकों में विशिष्टता से चर्चा किए हैं । सुविधा भोगी मनोवृत्ति तथा प्रेम की नई मान्यताएँ वर्तमान परिवार का एक बड़ा अभिशाप है जिसका मूल कारण उनके नाटकों में चित्रित हुआ है । अतः कहा जा सकता है कि डॉ.शंकर शेष के नाटक अनेक पारिवारिक यथातथ्यों से ओतप्रोत है ।

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समकालीन हिन्दी साहित्य में नई प्रवृत्तियाँ एवं समस्याएँ

डॉ. षिजा ग्रेस

सहायक आचार्या, सी.एम.एस कॉलेज, कोट्टयम

संस्कृतियों की जननी भारत की समकालीन साहित्य में सामाजिक समस्याएँ, चुनौतियाँ, विसंगतियाँ, जटिलताएँ, यंत्रणाएँ आदि दृष्टिगत है। इसमें अनुभव तथा जीवन-यथार्थ प्रस्तुत है। बदलते हुए सामाजिक, आर्थिक एवं नैतिक संबंध इसका मुख्य विषय रहा है। समाज के बदलने के साथ-साथ साहित्य में भी परिवर्तन आ जाते हैं। समकालीन हिन्दी साहित्य में भी नई प्रवृत्तियाँ एवं समस्याएँ द्रष्टव्य है।

समकालीन साहित्य में विशेषकर हिन्दी साहित्य में बदलते हुए पारिवारिक, वैयक्तिक संबंधों को दर्शाया है। समकालीन साहित्यकारों ने व्यक्ति के माध्यम से समाज की हालत को सामने लाया है। इन रचनाओं में नर-नारी संबंधों में आए बदलाव, कामकाजी नारी की समस्याएँ, महानगरीय जीवन की यंत्रणा और खोखलेपन, व्यक्ति की मानसिक व्यथा, बोझिलता आदि चित्रित है।

हिन्दी साहित्य की समकालीन कहानियों में सामाजिक, आर्थिक, नैतिक संबंधों में आए बदलाव का चित्रण मिलते हैं। मानव ही इसका केंद्र-बिंदु है। डॉ. मंजुलता सिंह की राय में, “समकालीन कहानी में जीवन-सापेक्ष समस्याओं, आदर्शों की निरुद्देश्यता, मूल्यहीनता और प्रदर्शनहीनता स्वभाव और क्रियाहीन स्वभाव वाले मनुष्य का चित्रण है।”^१ इन कहानियों में यथार्थबोध अधिक झलकती है।

समकालीन हिन्दी कहानियों में सामाजिक, पारिवारिक, वैयक्तिक संबंधों में आए हुए बदलाव अत्यंत रोचक ढंग से दर्शाया है। कमलेश्वर जी की कहानी ‘मैं’ का साहब अपने घर में घुसते वक्त पुलिस ने उसे चोर समझकर पकड़ लिया। वे अपने स्वत्व को दूसरों के सामने साबित करने में असफल हो जाते हैं। अजनबी कहानी में व्यक्ति का अजनबीपन एवं अकेलापन का उल्लेख हुआ है। ‘अच्छा थीक है’ कहानी में आर्थिक तनाव में बिगड़ते पति-पत्नी संबंध को दर्शाया है।

नारी विमर्श समकालीन हिन्दी साहित्य का उल्लेखनीय मुख्य प्रवृत्ति है। साहित्य में नारी का चित्रण सर्वप्रथम पुरुष द्वारा किया गया था। महिला लेखिकाओं के उदय के संबंध में डॉ. इंदिरा गोस्वामी ने यों लिखा है, “केवल १९-वीं शती में उनकी स्थिति कुछ सीमा तक सुधरी। तब तक स्त्री का चित्रण भारतीय साहित्य में पुरुष लेखकों के द्वारा ही हो रहा था। अतः हम कह सकते हैं कि ये पुरुष लेखक ही थे जिन्होंने स्त्रियों को अपने अधिकारों के लिए संघर्ष करने एवं उन्हें समाज में समानता का स्थान दिलवाने के लिए द्वार खोले। समय के साथ-साथ महिला लेखकों ने शक्ति प्राप्त की तथा भारतीय साहित्य में अपना स्थान पाया।”^२ पुरुषप्रधान समाज में आर्थिक सत्ता का केंद्र पुरुष ही है। पितृसत्तात्मक आर्थिक व्यवस्था के कारण पिता की संपूर्ण संपत्ति का कानूनन अधिकारी पुत्र ही होता है। ‘एक स्त्री’ कविता में मंगलेश डबराल ने नारी - पीडा के हर पहलुओं को प्रस्तुत किया है:-

“सारा दिन काम करने के बाद

एक स्त्री याद करती है

अगले दिन का काम

एक आदमी के पीछे

चुपचाप एक स्त्री चलती है

उसके पैरों के निशान पर

अपने पैर रखती हुई

रास्ते भर नहीं उठाती निगाह”^३

नारी-उत्थान की बातें तो सब कहीं होते हैं, लेकिन व्यवहार के स्तर पर वह कहाँ तक पहुँचता है, इस बात पर उन्होंने जोर दिया है।

दलित साहित्य समकालीन हिन्दी साहित्य के केंद्र में प्रतिष्ठित है। दलित-चेतना का आविर्भाव नाथों और सिद्धों के साहित्य से ही



माना जाता है। कबीरदास जी दलित मुक्ति आन्दोलन के प्रारंभिक उल्लेख्य कवि है। समाज के उत्पीडित, दरिद्र शूद्र को ही दलित माना जाता है। समकालीन हिन्दी साहित्य दलित, पीडित, शोषित वर्ग को उनकी शक्तियों एवं अधिकारों से परिचित कराते हैं। पवन करण जी की कविता 'कहना नहीं आता' दलित वर्गों का प्रतिनिधित्व करती है। इसमें कवि ने यों लिखा है:-

“तुम्हें कहना नहीं आता

कहने क्यों चले आए

पहले कहना सीखो

फिर अपनी बात कहना

जिनके पास कहने को है

जो कहना चाहते हैं

जिन्हें कहना नहीं आता

मैं उनमें से एक हूँ।”

वास्तव में दलित -पीडित वर्ग को समाज के केंद्र में लाने के लिए दलित साहित्य ने अपना योगदान दिया है।

आदिवासी साहित्य भी समकालीन मुख्य प्रवृत्ति है। आदिवासी समाज व्यापक शोषण का शिकार है। शिक्षित, सभ्य समाज उनका शोषण करते हैं, आज भी आदिवासी स्त्रियों की खरीद-बिक्री जारी है, उनके साथ सामूहिक बलात्कार जैसे जघन्य अपराध होते रहते हैं। आदिवासियों की दुर्दशा को कवयित्री निर्मला पुतुल अपनी कविता में यों प्रस्तुत करती है:-

“मैं अपने इलाके के सूखे और

अकाल की चर्चा करना चाहती

हूँ आपसे-

भूख बिमारी से लडते-मरते मंगरू, बुधवा और

इलाज के लिए राशन कार्ड गिरवी रखने वाले समरू
पहाडिया की

बात करना चाहती हूँ

जड खाकर जिंदा संतालों

और चूहे पकाकर खा रहे भूखे-नंगे-पहाडियों की

बात करना चाहती हूँ

उत्तर प्रदेश के एक जनपद में पाँच हजार में बिकी

सत्रह वर्षीय सोनामुखी हासदा की बात करना चाहती हूँ मैं

मैं बात करना चाहती हूँ हिजला मेला देखकर वापस घर लौट
रही

मेलचे मूर्मु के साथ हुए सामूहिक बलात्कार की”

डॉ.मोहन जी ने व्यक्त किया है, “कवयित्री निर्मला पुतुल का अनुभव जिस सच्चाई को बयान कर रहा है, वह आदिवासी समाज के व्यापक शोषण का है। यहाँ पर स्त्री समाज पर छाये दोहरे अमानवीय खतरों पर भी निगाह रखी गई है। कवयित्री पूरे अंचल में फैले भूख और बेरोजगारी की चर्चा तो करती ही है, उसमें मरे मँगरू और बुधवा की शिनाख्त करना नहीं भीलती है।”^४ आदिवासी स्त्रियों की खरीद-बिक्री तथा बलात्कार जैसे अपराध को समाज के सम्मुख प्रस्तुत करने में समकालीन साहित्य सफल हुए हैं।

भूमंडलीकरण समकालीन हिन्दी साहित्य की मुख्य प्रवृत्ति है। इसका सबसे बड़ा खतरा आम जनता तथा उनकी अभिव्यक्तियों को अर्थहीन बना लेना है। वास्तव में भूमंडलीकरण ने हमारे स्वत्व का हनन किया है। भूमंडलीकृत समाज में विकास केवल समाज के अभिजात वर्ग तक सीमित रह गया। भूमंडलीकरण ने बाहरी परिस्थिति को परिवर्तित किया होगा, परंतु व्यक्ति की भीतरी स्थिति में कोई बदलाव नहीं आया है। डॉ.ए.अरविंदाक्षन जी के मत में, “आज की भूमंडलीकृत संस्कृति में यह एक सरल -सी सदिच्छा नहीं है। यह एक शूद्र दृष्टि है, जिसको बचाये रखने का मतलब है अमानवीय संस्कृति का प्रतिरोध।”^५ कुमार अंबुज की कविता में लिखा है:-

“यों तो मैं खुश हूँ

परन्तु मुझे शर्म आती है

अपनी समकालीन कायरता पर

मैं शब्दों से काम चलाता हूँ

परन्तु मुझे अब कुछ दूसरे हथियार भी लगेंगे” (अतिक्रमण संग्रह)

समकालीन हिन्दी साहित्य में जीवन-यथार्थ, मानवीयता, समानुभूति, सामाजिक प्रतिबद्धता आदि दृष्टिगत है। यह आने वाले पीढ़ी के लिए एक महत्त्वपूर्ण विरासत है। समकालीन साहित्य में मानवीय संसक्तियों की बहुवर्णी छवियाँ द्रष्टव्य हैं। वास्तव में समकालीन हिन्दी साहित्य निरंतर गतिशील है तथा इसकी समकालीनता मनुष्य के यथार्थ पर केंद्रित है।

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THE ROLE OF COMMUNITY BASED ORGANIZATIONS IN RURAL DEVELOPMENT

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Community Based Organisations (CBOs) have the requisite potential for bringing sustainable development to local communities in rural areas. Institutions of state and other development agencies are increasingly seeking the involvement of CBOs in conceiving, planning and implementation of rural development programmes. CBOs are generally established with the motivation and support from outside agencies such as state or other development agencies or even large NGOs. Some CBOs have also emerged independently from within local communities with the motivation and missionary zeal of indigenous community leaders. The approaches to rural development have evolved from state's 'top-down' approach through 'passive participation' to 'interactive and contributory participation' of people in the process of rural development. The approach, which strives to institutionalize people's participation through mobilization of communities, is characteristic of CBOs.

Significance and Emergence of CBO

The ultimate aim of rural development programmes have been the mitigation

of poverty, eradication of illiteracy, development in health and the consequent enhancement of the standard of living of rural population. Most of the rural development programmes in the past were exclusively conceived and designed by the ministries and departments of the government. The needs of the 'rural people' were assessed and programmes were formulated by the higher institutions of the state. There was hardly any consultation, let alone meaningful participation of rural communities. The rural development schemes/programmes were then implemented by various functionaries of the state. Most implementing agencies and their functionaries had little knowledge of the local conditions in rural areas. Above all, they usually remained less interested in the outcome of development projects or programmes. Not surprisingly, many of the earlier rural development programmes failed to achieve their objectives despite the immense investments made by the Indian state.

Later on, it was realized that people's participation is the key element for the success of rural development programmes.



Efforts were made to encourage participation but such efforts failed to bring about meaningful and sustained participation of rural people. People participated in various state sponsored rural development schemes and projects but in a very limited way, i.e., nominally and formally only. They lacked enthusiasm to participate in a sustained manner in such rural development programmes. The reason being, that people did not develop a sense of belongingness to rural development programmes. They had a feeling that ultimately they will not be the owners of the assets created by various rural development programmes. Therefore, for all practical purposes, rural development programmes mainly remained government programmes and they did not become people's programmes.

By 1980s the development practitioners realized that 'top-down' approach had failed to encourage people's participation in rural development. They realized that it was not sufficient to ask rural communities to implement such development projects as were planned by ministries or other institutions of the state. It was further realized that rural communities must be involved in local level planning for the successful implementation of rural development programmes. It made a sound sense, since having lived in the area for many generations; a rural community usually has a direct knowledge of the local conditions. Even the technically and theoretically well versed, well intentioned and sincere development functionaries of state may not have intimate knowledge of the socio-cultural and economic conditions prevalent in rural areas. It was realized within the development paradigm, that role and participation of

communities need not remain limited to the activities related to the implementation of rural development programmes. Rather, such participation must be extended beyond implementation stage whereby local communities must be assigned the responsibility-(or ownership) to maintain the assets created in the course of rural development programmes. A vast number of assets created through development efforts in rural areas usually get decaying because of neglect or subsequent lack of continuance by the development agencies. Since the local community is the direct or indirect beneficiary of rural development programmes, it is in the best interest of the community to look after assets created by such programmes.

The local community is the first to notice any faults or become aware of any damage inflicted on assets in rural areas. Thus the assets created by any development project are likely to be much better maintained by the community rather than outside development agencies or institutions of state. For such a situation to materialize, it is necessary to have an interactive participation between local communities and development agencies even during the post implementation stage of rural development programmes. The whole process involving participation of local communities during all stages of rural development programmes, viz., conception, designing, formulation, implementation and post-implementation (maintenance of assets) lays the foundations of community based approach to rural development. For institutions of state, have large NGOs and other development agencies, community based organisations have turned out to be the most suitable 'medium for bringing sustainable development in rural areas.



CBO-Approach in the- Concept of 'Ladder of Participation'

In order to understand and appreciate how the CBO-approach is different from other 1 participatory approaches. Robert Chambers (2002) has employed the concept of 'ladder of participation' as follows:

Ladder of Participation

- i) **Passive Participation:** The process of participation starts with the passive participation of the community. The villagers remain mere recipients of benefits and do not play any role. The planning and implementation of programme strictly remains in the hands of Development Agencies (DAs).
- ii) **Consultative Participation:** Villagers are consulted to obtain their opinions, but decision making remains with development agencies. Information received from communities may or may not be used in designing and implementation of the programme.
- iii) **Contributory Participation:** Beneficiaries share the cost of the projects. Contribution may be in cash or kind or in the form of labour. Sometimes this contribution is saved for the future maintenance of the assets created by the project.
- iv) **Functional Participation:** Institutionalization of community participation in the form of collective action. Institutions such as Gram Vikas Mandal, Self-Help Groups, User Groups, Forest Project Committees, etc. are formed for effective and transparent implementation of the project. Development Agencies share

all information about the project with the villagers.

- v) **Interactive Participation:** Development Agencies interact with the community intensely and build capacity of the community to take decisions about the projects. Roles and responsibilities of stakeholders such as Development Agencies (DAs) and village institutions are decided during this stage. The DAs act as facilitators and the community becomes the implementer of the programme.
- vi) **Self-Mobilization:** In this stage, the community generates awareness about its resources, problems and possible solutions. The community starts realizing its development needs. The Development Agencies provide support to the village community to link up with other agencies.

Formation of CBOs

Communitybased organisations (CBOs) are small, informal organisations based within the local communities they serve. This makes it difficult for them to interface with other stakeholders in the development sector such as donors or government agencies. Many CBOs run development programmes, sometimes through intermediary NGOs.

The process of forming a CBO may begin with a Participatory Rural Appraisal (PRA). The aim of this exercise is to understand the status of the village with reference to a particular development project and the needs and demands of the rural community. The objectives of the project may be explained, especially how its provisions will meet needs and demands of the community. A Gramsabha



meeting may be an appropriate venue for such a discussion. Considerable time needs to be invested at the motivation and mobilization stage to ensure participation which is necessary for the sustainability of development project. Whether the community agrees to form a CBO may depend on the motivating effort of a development agency. An “inspirational visit” may be arranged to the community that has successfully implemented the project. For all meetings, including the very first meeting, both the time and venue of the meeting are chosen with care. The time chosen should be convenient to all the members of the community and the venue should be a public place where everyone feels free to walk in. The CBO has to develop its rules and regulations and procedures for carrying out the activities and for conducting meetings, appointing office bearers, etc. The CBO has to be registered under the appropriate law - as a cooperative, as a society, or as public trust. To do so, it will have to have a constitution. This would require interacting with bureaucracy and preparing or obtaining the required set of documents. An agreement or a Memorandum of Understanding (MoU) is usually signed between the CBO and the Ministry or the Development Agency, which owns, controls, or manages the resource. .

Providing technical and administrative/managerial training to the CBO is an extremely important responsibility of the external agent. The training may be in the form of classroom training or hands-on practical training. It may comprise visiting another community which has successfully implemented the project. Technical training may include gauging the quality of materials to be used in

repairs or construction, ascertaining the quality of the finished structures, and taking accurate measurements etc. Administrative/managerial training may be given for writing the constitution, dealing with bureaucracy, keeping minutes of the meetings, writing the agenda of the meeting, conducting a meeting, holding elections of the executive committee or other office bearers, maintaining project bank account and keeping accounts of the CBO.

Relevance of Community Organisation for Community/rural Development

Community organisation and community/rural development are interrelated. To achieve the goals of community/rural development the community organisation method is used. According to United Nations, community development deals with total development of a developing country that is their economic, physical, and social aspects. For achieving total development community organisation is used. In community development the following aspects are considered as important. The same aspects are also considered important by community organisation. They are;

- **Democratic procedures** deal with allowing all the community members to participate in decision-making. It is possible to achieve this by community organisation. The selected or elected members or representatives are helped to take decisions. Democratic procedures help people to take part in achieving community development goals. Community organisation method permits democratic procedures for people's participation.



- **Voluntary cooperation** means that the people volunteer for their participation. For this they are convinced. They should feel that they should involve themselves in the process of development without hesitation. This attitude is supported by community organisation method. People's emotional involvement is necessary to make success of the community organisation method. If discontentment about their conditions is created, then people will volunteer for participation. Community organisation emphasizes the discontentment aspect only to make them initiate people's participation.
- **Self-help** is the basis for community development. Self-help deals with the capacity of mobilizing internal resources. Self-help is the basis for self-sufficiency and sustainable development. In community organisation self-help is emphasized. Community organisation is relevant to community development because both emphasizes the self-help concepts.
- **Development of leadership** is an important aspect in community development. Leadership deals with influencing and enabling people to achieve the goals. Community organisation also emphasizes leadership. With the help of leaders the people are motivated to participate in action. Community organisation is a relevant method to develop and use leadership. This is applicable for community development also.
- **Educational aspects** in community development means helping people to know, learn, and accept concepts of democracy, cooperation, unity, skill development, effective functioning

etc. In community organisation also the above mentioned aspects are considered very important. The process of community organisation emphasizes education of the community. Thus both are emphasizing the educational aspects for the progress of the community. Thus community organisation and community development are interrelated and mutually supportive. There are no opposing aspects in between community organisation and community development as both emphasize democratic method and self-help principles. Thus they are relevant. So in all community development programmes community organisation method is used as implementing method.

Community Organization as a Problem Solving Method

In community organisation method the community is the client. Community organisation solves the community problems and fulfills the needs of the community. Many of the community problems like social injustice, poverty, inadequate housing, poor nutrition, lack of health, lack of medical services, unemployment, pollution, exploitation, bonded labour system, illicit arrack, dowry, female infanticide, women and children trafficking, drug trafficking etc. Being solved by using community organization method. In problem solving generally there are three basic aspects. These are study, diagnosis, and treatment. First the problem has to be studied. For this, information is collected regarding the problem. From the information collected the main causes are identified. This is called diagnosis. Based on the findings, or diagnosis, a solution is evolved



that is called treatment. Problems can be solved only with involvement of people due to which resources are mobilized to solve the problems. This method is specially applicable in Indian situations, because in India a large number of people are affected by poverty or other poverty related problems which need speedy solutions.

Conclusion

Community Based Organisations (CBOs) have acquired a critical relevance in the field of rural development. Institutions of state and other development agencies are increasingly motivating and supporting local communities to form community based organisations. They impart technical and administrative skills to CBOs for their effective contribution to the process of rural development. CBOs are further encouraged to become owners/managers of assets created through rural development programmes. In fact, CBOs are seen as the most effective medium for bringing sustainable development in rural areas such as to meet the needs and bring about and maintain adjustment between needs and resources in a community, helping people effectively to work with their problems and plan to realize their objectives by helping them to develop, strengthen, and maintain qualities of participation, self-direction and cooperation and bringing about changes in community and group relationships and in the distribution of decision-making power.

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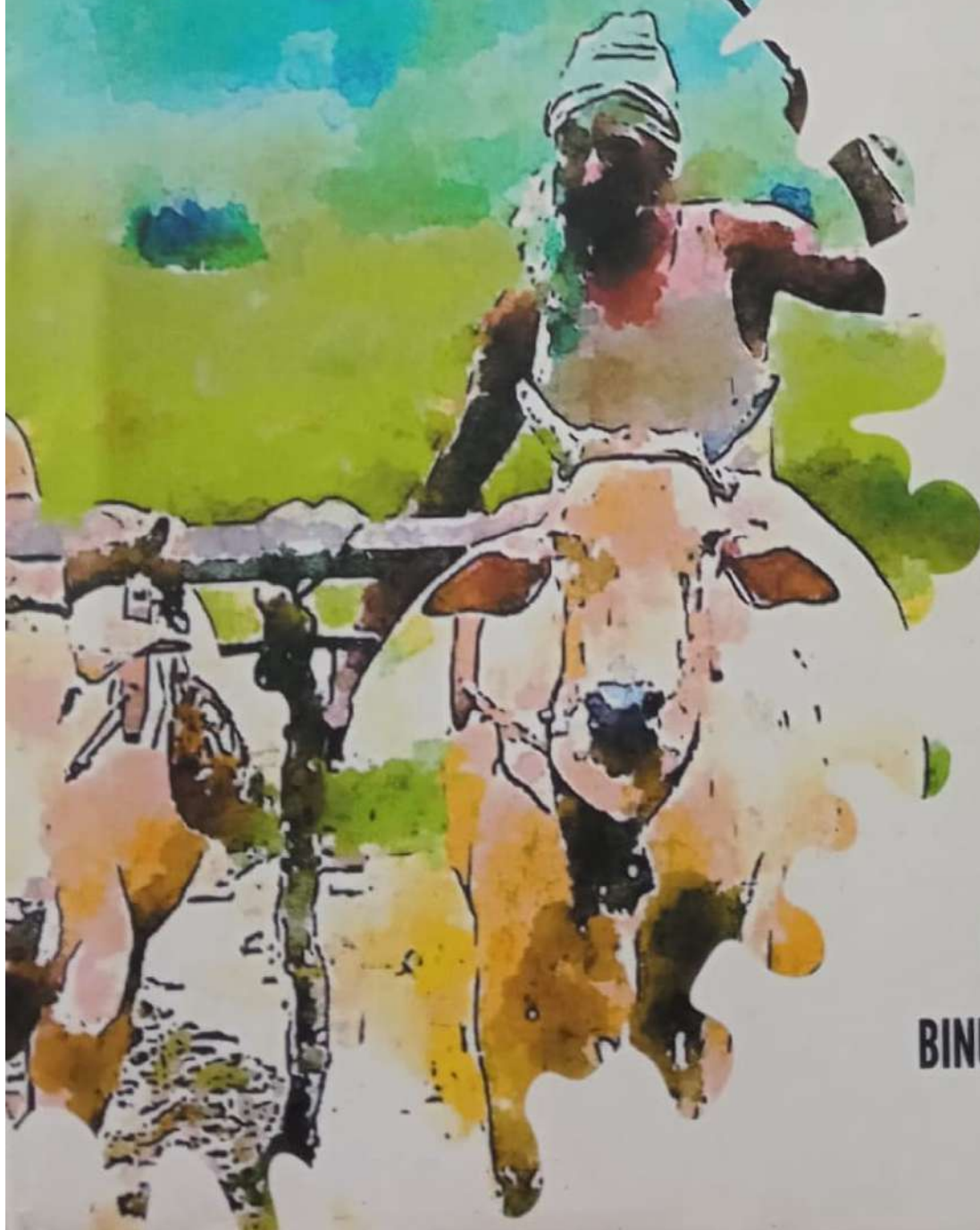




RURAL ECONOMY

OF INDIA IN THE EVE OF

COVID 19



Edited By

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CHAPTER 16

EFFECT OF MALTHUSIAN VIEW AND THE RURAL POPULATION IN THE COVID-19 SCENARIO

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ABSTRACT

Pandemic had affected the human life dating from 1350 BC. It caused high mortality rates, sweeping away millions of life. The recent Pandemic, Covid 19 has swept away 3.5 million plus (reported), and is continuing its death toll. Reverend Thomas Robert Malthus, proposed that there are two checks that limit the growth of population, i.e., Preventive check and Positive check. The paper tries to analyse, if there is any relation between the sayings of Malthus i.e., particularly, positive checks and the pandemics in the context of Covid 19 Pandemic.

Keywords: Pandemic, Preventive check, Positive check, Mortality rates, Population

INTRODUCTION

Pandemic can be defined as a form of epidemic, that affects people all around the world in a wide scale, within a small span of time. They are contagious, and affects the life of people and even surroundings. The world has experienced various forms and type of these epidemics during centuries. The most fatal epidemic that was ever recorded in history was Black death, which recorded a death toll between 75-200 million people during the 14th century.

There are several theories that states about the population growth. One of the oldest and prominent theory that establishes a point on population is made by Thomas Robert Malthus. In his book titled, "An Essay on the Principle of the Population" published in the year 1798, he explains about exponential population growth and arithemtical food supply growth.

Iridescence

of

**Literary
Paradigms**

Jinu George & Saran S.

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Judith Butler critically addresses the concerns related to the social appropriation of the subject meticulously when she traces the psychic networks of power. The bodily will of feminine subjectivity suspends itself to be deceptively resistive. The true centre of Chandra's internal distortion is against the masked masculine morality. But when it comes to performative rupture Chandra's rebellion too becomes a subtly lost frame of subjective spatiality. The masculine fantasy of sensual strangeness infects the body of feminine facelessness here. That body of signification with the face of erasure becomes masked to be deceptive like the masculine morality.

Chandra as the performative site of subjection disowns her body of feminine free will and locks herself as the playfully aggressive exterior soul of masculine morality. "The soul is the effect and instrument of a political anatomy; the soul is the prison of the body" (Foucault 30) Foucault's well-known observation can be taken to conclude this argument related to the problematic loss of Chandra's feminine free will with her paradigmatic dependence on the masked quest of masculine will. The soul and body face critical distortion in different ways when they establish a critical relationship between each other to design a subject's space of performative confinement. Chandra's bodily will of sexual identity is attacked by the deceptive tool of masked (masculine) fantasy which becomes her soul's moral facelessness. The political anatomy of the soul's victimhood which also becomes the spectrum of loss for body stays at the centre of *Freedom at Midnight*, where freedom inevitably and ironically becomes a critical suspension of subjective will which enlivens the normative fantasy of institutionalized body.

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DISMANTLING UTOPIA TO DYSTOPIA: THE ANTHROPOCENTRIC GREED AND ENVIRONMENTAL CATASTROPHE IN J. G. BALLARD'S THE DROUGHT

Lismin P. Samuel⁽¹⁾ & Roopa Jose⁽²⁾

Al-Azhar College, Thodupuzha,
St. Joseph's College, Moolamattom

ABSTRACT

James Graham Ballard's climate fiction *The Drought* opens with a dystopic world that exposes the aftermath of an environmental cataclysm marked by anthropocentric greed. J. G. Ballard is a British writer who is considered the pioneer of climate fiction or cli-fi that challenged the existing trend of Western science fiction of the 1950s. Climate fiction or cli-fi, a term coined by an American environmentalist Dan Bloom in 2007, illustrates climatic changes and ecological threats from a fictional point of view to make the people aware of the seriousness of the issue and thereby enable them to find remedies for these problems. Ballard's novel *The Drought*, which is also known as *The Burning World*, is an open ending climate fiction. It visualizes through the perspective of the protagonist Dr Charles Ransom, how a year-long drought has dried out the planet due to humankind's uncontrollable exploitation. This paper studies the relationship between literature and physical environment and how anthropocentrism leads to dystopia.

Keywords: J.G. Ballard, *The Drought*, Cli-fi, Ecocriticism, Anthropocentrism, Dystopia.

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Pragmatism, Spirituality and Society

New Pathways of
Consciousness,
Freedom and Solidarity

Edited by
Ananta Kumar Giri

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Spirituality of Action: Reading O. V. Vijayan's *Khasakkinte Ithihasam* and *Gurusagaram* Through William James' Concept of Religion

Vinod Balakrishnan and Shintu Dennis

INTRODUCTION: THE CONCEPT SPIRITUALITY THROUGH JAMES AND VIJAYAN

Dale Riepe's "A Note on William James and Indian Philosophy" must count as one of the most convincing assessments of James' encounter with Indian philosophy (Riepe 1968). While many have rightly located James' encounter with the London Lectures of Swami Vivekananda (1897) and Max Muller's account of Sri Ramakrishna (1899) in *The Varieties of Religious Experience* (1902) and *Pragmatism* (1907), not many have methodically addressed James' intellectual wrestle with a new found interest that required of him the committed involvement which he was reluctant to give.

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74

Blue Luminescent Graphene Quantum Dots from Direct Carbonization of Citric Acid for Fe³⁺ detection

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Abstract

Graphene quantum dots (GQDs) have drawn great interest due to their low toxicity and ease of synthesis. In the present work, GQDs are synthesized using the carbonization of citric acid and by dispersing carbonized products in water. The formation of GQDs was confirmed by Raman spectroscopy and X-ray diffraction (XRD). The Raman spectrum of GQDs has characteristic peaks at ~1392 cm⁻¹ (D peak) and 1597 cm⁻¹ (G peak). The relative intensity of the D to G peak is 0.87, which is similar to that of other high-quality GQDs, and it indicates the dominance of armchair edges over zigzag edges. The absence of the D' band which appears at slightly higher frequencies than the G peak also supports the quality of the particles. The XRD profile is consistent with previous reports. GQDs show strong blue luminescence with excitation dependence and a good response to ferric ions. Figure: (a) GQD under day light (left) and UV light (right), (b) Raman spectrum of GQD, (c) Excitation dependent PL emission from GQD, (d) PL detection of ferric ion

Key Words: GQD, Citric Acid, Photoluminescence, Fe Sensing

Won Third prize

Gas Leakage Detection System using Arduino



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Abstract

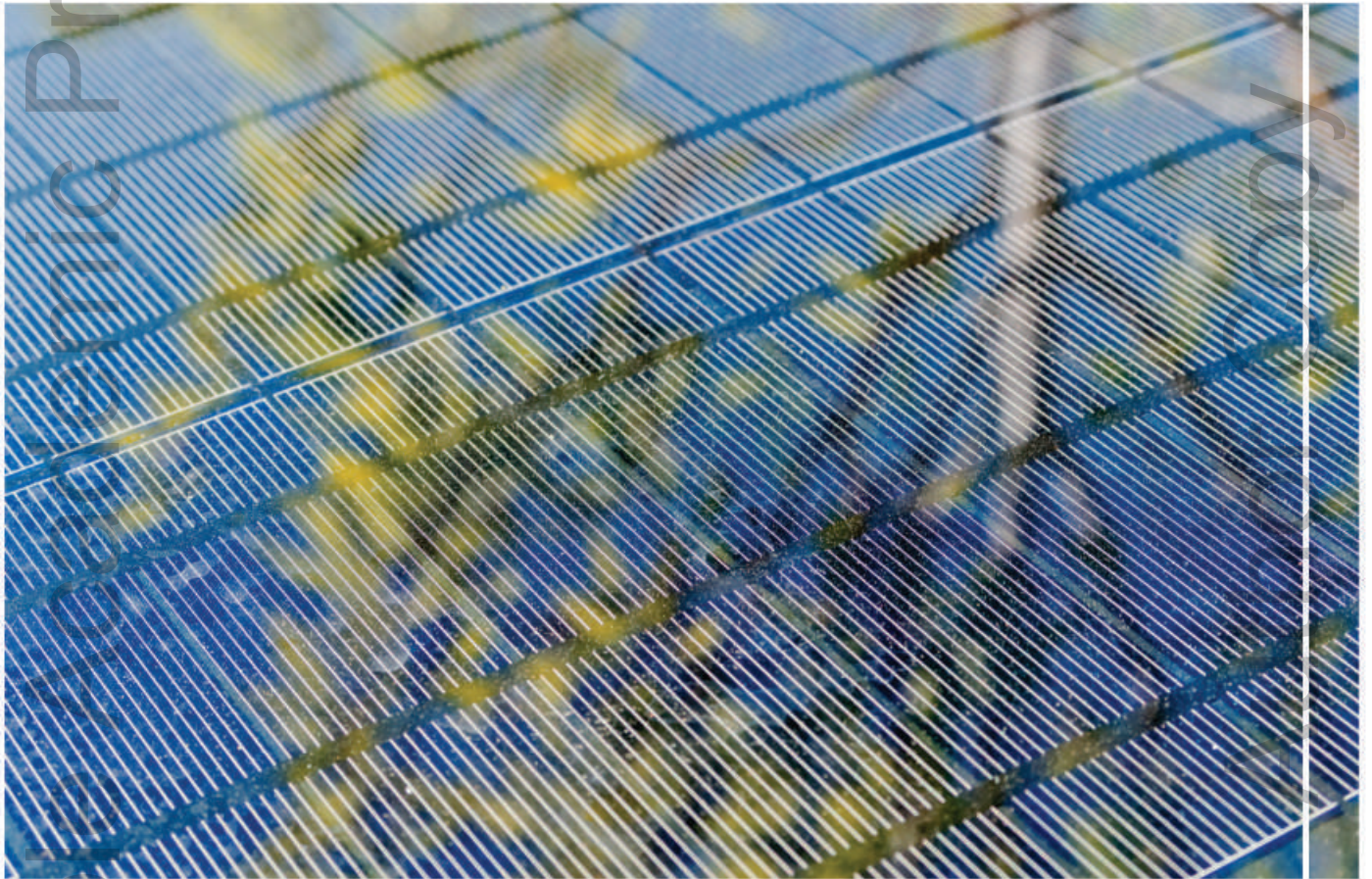
In today's world, due to the busy schedule people rarely take care of utilizing the resources effectively. We know that gas is a useful component in the environment. Some gases do not cause any harm even if they are emitted in excess amounts but some do. Gas like LPG is used not only for cooking food in houses, but also in hotels, restaurants, and hospitals where there is human interaction. Also, we can see CNG operated vehicles. If there is any amount of leakage of these types of gases, it can cause huge destruction to life and property. Nowadays, home security has become a major issue because of the increasing leakage of gas. One of the preventive methods to stop accidents associated with the gas leakage is to install a gas leakage detection kit at vulnerable places. So to be safe from such situations, I have designed this project based on the ATmega328P microcontroller. The system makes use of an MQ-6 gas sensor. This sensor is used to detect any harmful smoke that is released in the atmosphere. I have programmed it in such a way that as soon as the smoke is detected, an alarm will be automatically switched on. This can alert the people when any gas that can cause great harm to living organisms is released so that they can take necessary precautions and steps to either prevent the smoke from spreading or evacuate the place quickly. The aim of this work is to propose and discuss a design of a gas leakage

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Renewable Materials and Green Technology Products

Environmental and Safety Aspects



Shrikaant Kulkarni | Ann Rose Abraham | A. K. Haghi
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CHAPTER 3

Global Abatement of Air Pollution Through Green Technology Routes

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ABSTRACT

Air pollution seems to be the major unsolved problem of the modern era. This chapter deals with different causes of air pollutions and proposes some possible remedies. The green technological alternatives for the global abatement of air pollution are also suggested. The health problems associated with air contamination were also discussed.

3.1 INTRODUCTION

Environment pollution is a fruit of industrialization which shaped the modern lifestyle with the so-called use and throw culture. Nowadays the technological progress without effecting pollution is a risky game. Pollutants are substances emitted by industrial structures and products which are harmful to human beings and animals in particular and the environment

CHAPTER 4

Application of Green Technology in Water and Wastewater Treatments

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ABSTRACT

Wastewater originated from various industries like textile, agriculture, food, petrochemical, polymer, pharmaceutical, etc. and contains a large number of contaminants of oil and salt of inorganic and organic compounds. When this wastewater released into the ecosystem without any appropriate treatments causes major ecological issues with high environmental impacts. Also, the natural fresh water resources are getting depleted because of the increased demand for fresh water supply. There are different physical, chemical, and biological methods are developed for the treatment of water but these methods cannot abolish the contaminants. And also most of these conventional methods are very expensive. The development of green technology for water treatments has received enormous interest over recent years due to its significant advantages to the environment, society, and economy. In this chapter, we discuss the various green technologies for the treatment of water and wastewater.

4.1 INTRODUCTION

The world's population has increased to more than seven billion people. Each year world population continues to increase with a 1.2% growth rate.

CHAPTER 7

Development of Green Technology Through Renewable and Sustainable Materials

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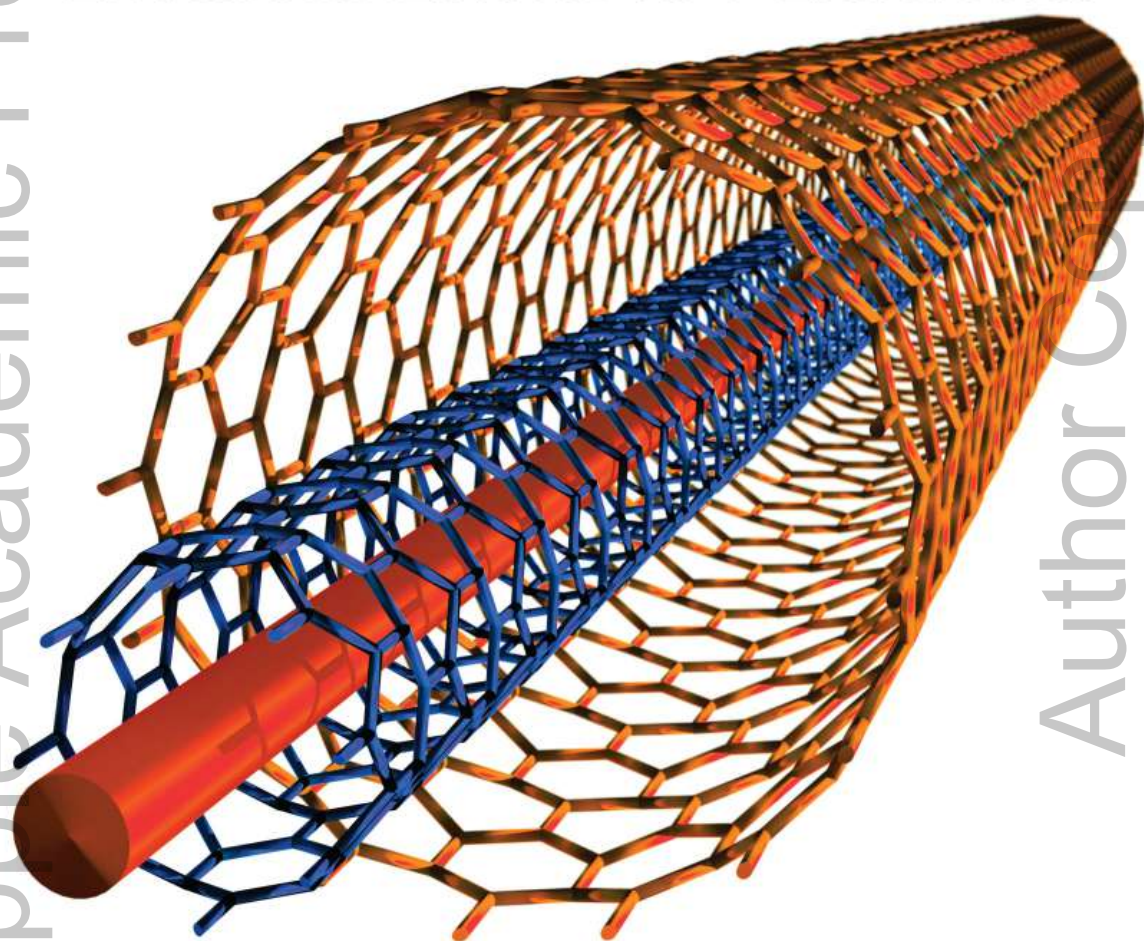
ABSTRACT

In recent times, environmental and climate problems are one of the daunting issues across the world. Economic development without considering the environmental concerns causes the depletion of natural resources particularly water resources and air. This results in extensive ecological, financial, and social impairment on a global level. Therefore, it is very essential to enhance the usage of renewable resources and reduce the usage of nonrenewable resources to protect the environment for future generations. This reiterates the need to develop green technologies, which are required to achieve economic development without harming the environment. In this chapter, we discussed the synthesis of renewable and sustainable materials by different methods and their application in the development of green technology.

CARBON NANOTUBES

FOR ENERGY AND

ENVIRONMENTAL APPLICATIONS



Soney C. George, Jacob Philip | Ann Rose Abraham | A. K. Haghi
Editors

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CHAPTER 9

Sensing of Environmentally Hazardous Chemicals by Carbon Nanotubes

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ABSTRACT

Environmental contamination by heavy metals, pesticide residues, dye stuffs, and other hazardous chemicals is a serious threat to public health. Carbon nanotubes are allotropic forms of carbon which are used for the pollution remediation mission. Carbon nanotubes (CNTs), CNT-nanocomposite, CNT–bimetallic hybrid nanocomposites, etc. can be used to detect and estimate these environment polluting chemicals. CNT-based electrochemical sensors are well known for their sensing applications. Voltammetric detections of heavy metals are done to sense the presence of poisonous chemicals in air, soil, and water. Electrochemical biosensors with various interfaces like nanoparticles, CNTs, and metal oxides are found in the literature. Polymer-based CNT composites are efficient candidates for environmental remediation. This chapter briefly narrates the role of carbon nanotubes in sensing environmentally hazardous chemicals.

9.1 INTRODUCTION

Chemicals that cause physical or biological harm are called hazardous chemicals. They include acids, phenolics, polyaromatic hydrocarbons,

Microbial and Natural Macromolecules

Synthesis and Applications

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Chapter 12

Microbial extraction of micro and nanofibers from plant fibers

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Abstract

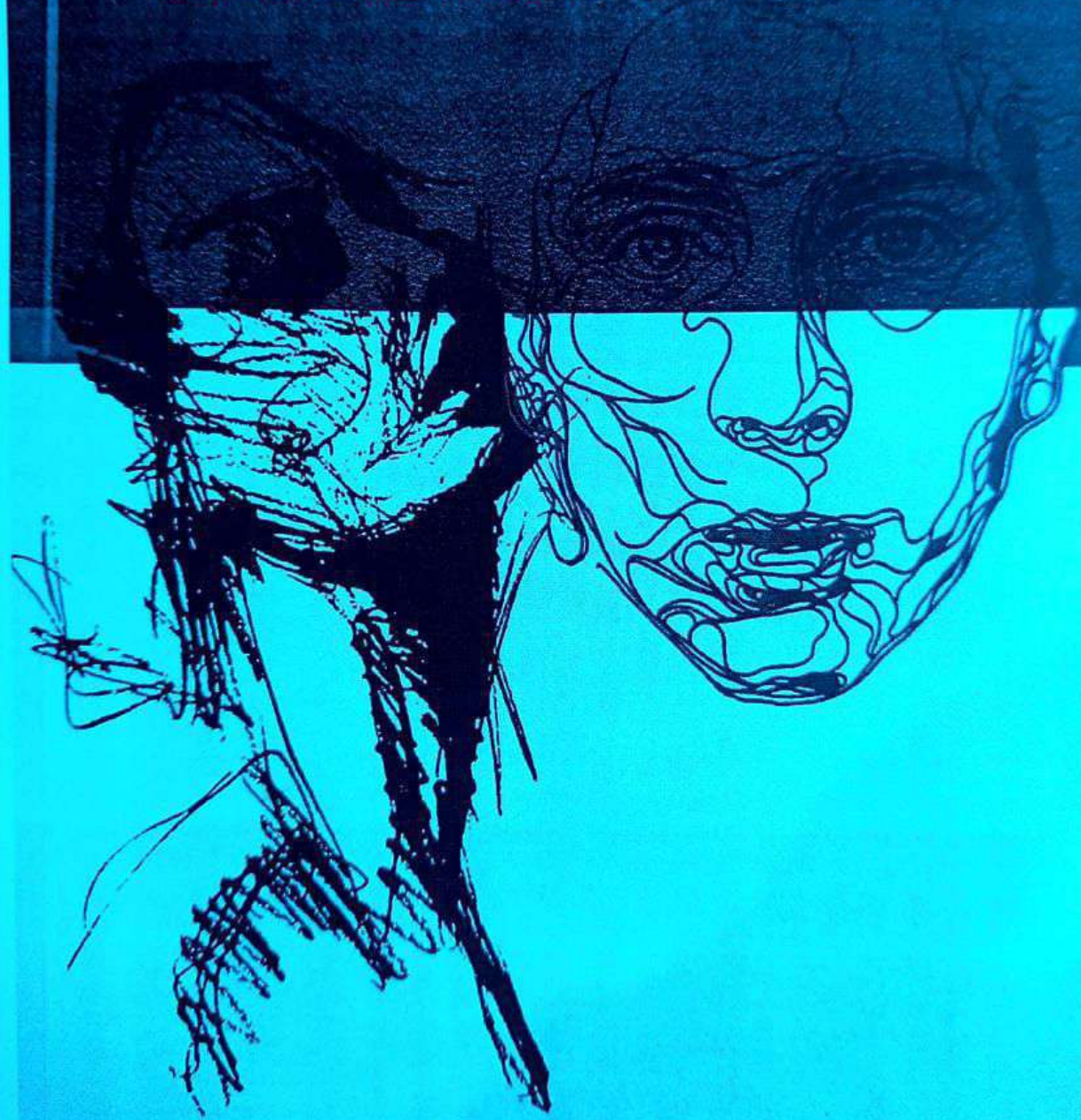
Bacterial cellulose (BC) is a multipurpose biopolymer with superior material properties, such as purity, high degree of porosity, relative high permeability to liquid and gases, high water-uptake capacity, tensile strength, and ultrafine network. This chapter explores the extraction and applications of BC from different sources. There are two main methods to produce BNC by bacterial strains. One is the static culture, which results in the accumulation of a gelatinous membrane of BNC is formed at the gas-liquid junction with the shape of the culture vessel. Applications of BC in immobilization of enzymes and cells, applications in cosmetics include facial mask, facial scrub, personal cleansing formulations, and contact lenses. BC for controlled drug delivery, transdermal drug delivery, dental drug delivery, protein delivery, tissue engineering drug delivery, macromolecular prodrug delivery, and molecularly imprinted polymer-based enantioselective drug delivery are also discussed in this chapter.

1. Bacterial nanocellulose (BNC)

Cellulose is the fundamental unit of the most plant substances. Cellulose has a large commercial use in paper, textile, cellulose nanofibrous mats, and pulp production units (Alemdar & Sain, 2008; Chirayil, Mathew, & Thomas, 2014; Geng, Yao, Zhou, & Oksman, 2018; Hoeng, Denneulin, & Bras, 2016; Lee, Hamid, & Zain, 2014; Mondal, 2017; Qiu & Hu, 2013; Sakurada & Kaji, 1969; Zhu et al., 2016). Plant cell walls are the major sources of cellulose. However, this type of cellulose contains several impurities, including lignin, pectin, hemicelluloses, etc. (Jarvis, 2018; Liu et al., 2016; Liu et al., 2017; Ravindran, Sreekala, & Thomas, 2019; Terrett & Dupree, 2019). Apart from plants, cellulose is also found in many microorganisms such as fungi, bacteria, and algae. Recent studies have revealed that cellulose can be produced by

നോവൽ: അനുഭവസാക്ഷ്യവും സജ്ജീകരണവും

മലയാളനോവൽ പഠനങ്ങൾ - 3



എഡിറ്റർ
ഡോ ടി ജിതേഷ്



ഉള്ളടക്കം

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ശരത് ചന്ദ്രൻ

ആയിരത്തിത്തൊള്ളായിരത്തിത്തൊണ്ണൂറുകളുടെ ആദ്യപകുതിയിലാണ് ആധുനികതയുടെ സാംസ്കാരികസമവാക്യങ്ങളെ ഒന്നടങ്കം തിരുത്തിക്കുറിച്ചുകൊണ്ട് ഉത്തരാധുനികതയുടെ ഭാവുകത്വം മലയാളനോവലിലേക്ക് കടന്നുവരുന്നത്. നോവലിനെ സംബന്ധിച്ചുള്ള ഉന്നതമായ ധാരണകളെ ഇത് അപനിർമ്മിക്കുകയാണുണ്ടായത്. ഇതരജനപ്രിയസാംസ്കാരികമണ്ഡലങ്ങൾക്കുണ്ടായ സ്വീകാര്യതയും സാഹിത്യത്തിന്റെ വാണിജ്യവൽക്കരണവുമെല്ലാം ഇതിനു കാരണമായിട്ടുണ്ട്. അങ്ങനെ മറ്റുസാഹിത്യരൂപങ്ങളെപ്പോലെ നോവലും കൂടുതൽ ജനപ്രിയമായി മാറുകയാണ് ഉത്തരാധുനികതയിൽ എന്നുകാണാം. ഒരു സാംസ്കാരികവ്യവഹാരമെന്നനിലയിൽ സമീപിക്കുമ്പോൾ ഉത്തരാധുനികനോവലിന്റെ നാലുപ്രധാനപ്പെട്ട പ്രവണതകളെക്കുറിച്ച് ഷാജി ജേക്കബ് ചൂണ്ടിക്കാട്ടുന്നുണ്ട് (2018:8). അവയിലൊന്ന് ആഖ്യാനകലയിലുണ്ടായ വഴിമാറ്റത്തെക്കുറിച്ചുള്ള ചിന്തകളാണ്. അതോടൊപ്പം ആഖ്യാനത്തിന്റെ സ്വഭാവത്തിൽ കടന്നുവരുന്ന ശരീരത്തിന്റെ സൂക്ഷ്മരാഷ്ട്രീയത്തെക്കുറിച്ചും മറ്റുമുള്ള ആലോചനകളും അദ്ദേഹം വ്യക്തമാക്കുന്നു(11). ഇതിനോടുകൂടി ചേർത്തുവായിക്കാവുന്നതാണ്, ഇതര ആഖ്യാനപാഠങ്ങളുടെയും ഗണങ്ങളുടെയും കൂടിക്കലരലും അവയുടെ സ്വാധീനഫലമായുണ്ടായ നോവലിന്റെ ഭാവുകത്വവ്യതിയാനവും. വിവിധ സൗന്ദര്യശാസ്ത്രങ്ങളുടെ രീതിശാസ്ത്രമുപയോഗിച്ചുകൊണ്ട് ഇവയെ വിശകലനവിധേയമാക്കാനുള്ള ശ്രമങ്ങൾ നടന്നിട്ടുണ്ട്. സമകാലികമലയാളനോവലിലെ ആഖ്യാനത്തിലുണ്ടായ ഭാവുകത്വവ്യതിയാനത്തെ.

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Performance Analysis of Deep Learning Algorithms for Intrusion Detection in IoT

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Abstract—Due to the wide availability of IoT devices at affordable cost and the ease of use has increased IoT devices increased usage. Due to the enormous usage of the Internet of Things (IoT) devices, the security aspects related to the data are also a significant concern in this data-driven world. Negligence of security measures from users can result in severe data falsification or data thefts. In this scenario, the Intrusion Detection System has a pivotal role in IoT security. Incorporating the deep learning techniques is an effective way to predict various attacks, either known or unknown. This paper highlights the various security threats associated with IoT, the importance of deep learning in IoT intrusion detection, and various IoT intrusion detection systems using deep learning. Comparative analysis of the different deep learning techniques was performed. The results have shown Convolution Neural Networks gave high accuracy in prediction based on various evaluation metrics.

Keywords—deep learning, IoT, decision tree classifier, convolution neural network, deep neural network.

I. INTRODUCTION

In this era, the growth of the Internet of things (IoT) technology made possible the machine to machine communication and man-to-machine communication in a very effective and intelligent manner. Thus smart objects made human life more comfortable than a traditional lifestyle enabling us to control everything. According to CISCO, by 2021, the amount of associated devices will reach 50 billion, more than the world population [1]. This is evidence of the wide acceptability of this technology.

IoT is a technology that helps objects communicate with each other with internet[2][3] as the backbone. Computational intelligence and internet connectivity have a pivot role in IoT, as it is the combination of physical objects or things, controller or intelligence, networks or Internet, sensors, actuators, etc. The diagrammatical representation of IoT is portrayed in Fig.1.

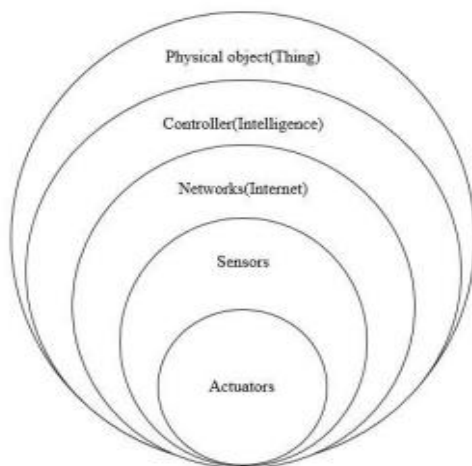


Fig. 1. Overview of Internet of Things (IoT)

This powerful and pervasive technology finds applications in all walks of life: home automation, health care, transportation, inventory management, agriculture, surveillance and monitoring, medical and engineering fields, and many more[4]. IoT devices are unique and dedicated to particular purposes. As it is intended to collect data from various sources, segregate it and make smart decisions, utmost importance must be given to the data collected. This is due to the nature of the highly private and confidential data the IoT devices handle. If proper care is not taken, serious concerns arise, which can lead to unexpected damages.

The privacy and security issues may be because of various reasons like threats, attacks, and other vulnerabilities. Risk is the net effect of threats and vulnerabilities. Risk is the inability to overcome the damage or destruction of a system or information because of threats exploiting the vulnerability. It is the outcome of threats and vulnerabilities. If there are threats and vulnerabilities in a system, then it is at risk. A threat is an action mechanism that takes the benefits of the system's security weakness and makes a security breach or negative impact on the system, which may be intentional or through natural hazards [5][6].

Similarly, attacks can also severely impact the system's security as it prevents normal operations by exploiting vulnerabilities using different techniques and tools. It is a security threat to destroy, remove, or change the information without authorized permission. There are different types of attacks, such as physical attacks, Denial-of-service, access attacks, and privacy attacks, etc. [5]. Vulnerabilities are a weakness of the system, which can be found in hardware and software, or liability is in the system's policies or system users themselves. Hardware weakness is related to hardware compatibility and interoperability, and it isn't effortless to identify and fix. Software weakness is related to operating systems, application software, and control software [5]. This paper is organized as follows; Section II explains the concept of Intrusion Detection Systems. Section III mentions the latest related works. Section IV presents the work done, followed by the conclusions in Section V.

II. INTRUSION DETECTION SYSTEMS

Effective mechanisms to handle numerous data security concerns such as confidentiality, integrity, and availability are essential [7] in any communication network. Intrusion detection systems (IDS) are tools or mechanisms to intercept pirated ingress and detect attacks. From 1980 onwards, the conceptualization of IDS was introduced by Jim Anderson and Heberlein [8]. Sensors, an analysis engine, and a reporting system are the major components of every IDSs. The IoT IDS can broadly be categorized based on placement strategy, detection methods, and security threats [9]. Based on placement strategy, IDS can be divided into centralized, distributed, and hybrid. The categories concerning detection methods are; anomaly-based, signature-based, and

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Impact of Machine Learning Algorithms in Intrusion Detection Systems for Internet of Things

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Abstract—The importance of security aspects is increased recently due to the enormous usage of IoT devices. Securing the system from all sorts of vulnerabilities is inevitable to use IoT applications. Intrusion detection systems are power mechanism which provides this service. The introduction of artificial intelligence into intrusion detection systems can further enhance its power. This paper is an attempt to understand the impact of machine learning algorithms in attack detection. Using the UNSW-NB 15 dataset, the impact of different machine learning algorithms is assessed.

Keywords—Internet of Things, Intrusion Detection System, Machine Learning.

I. INTRODUCTION

The Internet of Things (IoT) has become a viable technology of the recent days as it has proved to assist us in many ways. As the technology is progressing and the technology literates' are also increasing, an enormous usage of IoT devices is evident in various scenarios of surveillance and monitoring, medical and engineering, business and inventory applications and many more. As the acceptance of such devices are more, the inherent security issues also has be thought of seriously, as these IoT devices are quite resource constrained to have stringent security measures to be embedded within. Intrusion Detection Systems (IDSs) are used to monitor the network for any sort of malicious activities that can harm the system and immediately inform the administrator to take remedial actions. Traditional networks can use IDS either in the network or in the host. In IoT perspective, a newer approach is required due to its resource limitations. The use of machine learning (ML) techniques can further strengthen this security mechanism especially in the case of heterogeneous IoT devices.

Security concerns can be either intentional or unintentional[1]. Either of these can cause unpredictable damages to the system. Moreover it is quite easy to manipulate the IoT devices as they can be easily accessed and majority of these devices are of plug and play nature. The data collected and transferred by these devices are quite confidential and private data which has to be protected from thefts. Main threats often faced by IoT applications are the various attacks like DDoS, Botnet, Mirai and the system vulnerabilities. Different approaches for intrusion detection exists each with its own merits and demerits. They mainly differ in the method of

identifying the attacks. The signature based approach checks for pattern matches from the database in the system. Any new attack will not be identified with this approach. An up gradation of this called specification based approach is also used which requires an expert to create guidelines and specifications of the expected behaviour of the network. Both these approaches may not be able to identify novel attacks. Hence another approach called anomaly based approach which uses machine learning algorithms have proved to identify many more attacks. Recent trend is to use a hybrid approach which incorporates various above mentioned approaches and machine learning algorithms.

This paper is an attempt to understand the performance of various machine learning algorithms so that they can be used in the IDS for IoT devices. A short description of the recent works in the area is given in Section II followed by the various machine learning algorithms selected for this study in Section III. Section IV mentions the methodology used, Section V specifies the experimental setup, Section VI details the results and discussions, Section VII states the conclusions and future scope followed by the references used.

II. LITERATURE REVIEW

The introduction of artificial intelligence in improving security has proved to be very efficient and hence many researches are happening in this area. Xiao et al. had done a detailed study on the ML based IoT security techniques wherein they point out that even though many machine learning algorithms exists, the computational cost, requirement of large training datasets and complicated feature extractions [2].

Liang et al. had done an interesting study in this area mentioning the merits and demerits and the vulnerabilities that can happen when using machine learning for security aspects in IoT[3]. More than the issues, the authors had highlighted the benefits achieved through ML like the speed of attack detection and better accuracy. They also gave an awareness of how adversarial networks can fool the system. According to Yao et al. the major problems that is faced by any ML based IDS is the non-identical distribution and class imbalance problems which affects the robustness of the model. In order to solve these issues, the authors had proposed semi-supervised multi-level algorithm.

When reviewing the literature it is seen that the most commonly used dataset is the KDD cup dataset. The main reason

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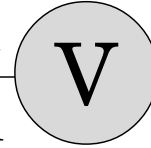


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A. SOCIAL SCIENCE

EFFECT OF TA BATA TRAINING ON ENDURANCE AND SPEED OF COLLEGE LEVEL HANDBALL PLAYERS

***Dr. Thomas George Vengaluvakkel C.M.I.**, Assistant Professor

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****Mr. Gopu M Vijayan**, Assistant Professor, Department of Physical Education

St. Academy of Higher Education and Research Moolamattom Arakulam P.O., Idukki - 685 591, Kerala, India

ABSTRACT

The objective of the study was to analyse the benefit of Tabata training on college level handball players. The experimental design of this study was random group design. For this purpose (N=30) thirty college handball players were selected (male), of age group 18 to 21 years from Idukki Handball association, Idukki, Kerala. The subjects were split into two groups of fifteen (n=15) each namely experimental group (EG) and control group (CG). The experimental group underwent eight weeks of Tabata training programme on alternate days pre week (Monday, Wednesday and Friday).

The dependent variables selected for the study were speed, and endurance and the independent variable selected for the study was Tabata Programme. The dependent variables selected were tested before and after the training programme for both the groups using standardised tests. After the data collection, the data were statistically examined by applying descriptive statistics, paired 't' test and analysis of covariance. All the data were analysed by using statistical package for social sciences (SPSS). The level of significance was fixed at 0.05 level. The result of the study indicated that there was a significant differences in endurance and there was no significant difference in invariable speed.

INTRODUCTION

The Sports training is understood as a process of systematic development of each component, which leads to achieving maximum efficiency within the selected sports discipline. In the broad sense, sport training is the entire process of systematic preparation of athletes for highest levels of athletic performance. Besides, it is the organized process of scientific preparation of athletes

for uppermost levels of athletic performance. Performance is understood as an extent to which motor task is accomplished. In the case of the athlete, performance is evaluated following rules of the sports discipline which were set in advance, which is expressed by the merit of the motor activity and is understood as a sports performance. An ability to achieve a given performance repeatedly is referred to as efficiency. Sports'

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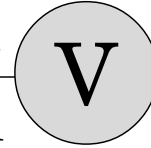


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A CASE STUDY ON VODAFONE INDIA MERGER WITH IDEA CELLULAR

Dr. Joseph George

St. Joseph's College, Moolamattom

ABSTRACT

The case discusses the merger between India's third largest mobile telephony company Idea Cellular and the second largest mobile operator in the country, Vodafone India Limited. The deal announced in March 2017 was valued at around US\$ 23 billion. The merger came in the aftermath of an unprecedented change that the Indian telecom landscape had undergone after launch of Reliance Jio Infocom Ltd. in September 2016. The leading players in the industry who were already facing financial challenges due to huge infrastructure costs and a high debt burden, faced more problems with the exodus of customers to Jio. To face the onslaught from Jio, the telecom operators went into consolidation mode, acquiring spectrum, small players, infrastructures, etc. With Jio growing stronger by the day with offers like free mobile headsets, and another competitor Airtel also looking at consolidation through acquisitions, Idea-Vodafone faced a tough road ahead. It remains to be seen whether the biggest ever merger in the history of Indian telecom would prove to be a game changer in the world's second largest telecom market.

Keywords: Merger, debt, consolidation

History

On 20 March 2017, Idea and Vodafone India announced that their respective Boards had approved a merger of the two companies. The merger got approval from Department of Telecommunication in July 2018. On August 30, 2018, National Company Law Tribunal gave the final nod to the Vodafone-Idea merger. The merger was completed on 31 August 2018 and the newly merged entity is named Vodafone Idea Limited. The merger created largest telecom

company in India by subscribers and by revenue. Under the terms of the deal, the Vodafone group holds a 45.2% stake in the combined entity, the Aditya Birla Group holds 26% and the remaining shares held by the public.

Idea previously brought Spice Communications Ltd, operating as Spice Telecom, for over Rs. 2,700 crores. Idea Cellular Limited was an Indian mobile network operator based at Mumbai, Vodafone Group is a British multinational telecommunication com-

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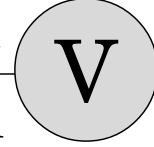
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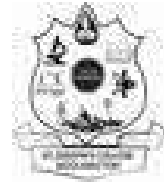
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NAAC & ACADEMIC LIBRARY PERFORMANCE INDICATORS

Droupathy Devi C G

UGC Librarian Stage II, St Joseph's College Moolamattom

ABSTRACT

National Assessment and Accreditation Council (NAAC) was established in 1994 as an autonomous institution of the University Grants Commission (UGC) with its Head Quarter in Bengaluru. Every 5 years, NAAC assesses the quality of the institution through a well-structured format. Annual Quality Assurance Report – (AQAR) is a yearly report, which should be submitted to NAAC every year by all Accredited Institutions as per the format prescribed online. Changes in society and education demand, the restructuring of performance indicators for academic libraries. COVID 19 pandemic situation, the new Education Policy, changes in technologies, and the mode of learning have redefined the role of the Libraries. It's high time to develop a new framework for assessing the performance of academic libraries.

Keywords: NAAC, UGC, AQAR, Covid 19, Academic Library

Introduction

National Assessment and Accreditation Council (NAAC) is the only Assessment procedure for assessing the quality of academic institutions in India. The NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL (NAAC) conducts assessment and accreditation of Higher Educational Institutions (HEI) such as colleges, universities or other recognized institutions to derive an understanding of the 'Quality Status' of the institution. NAAC evaluates the institutions for its conformance to the standards of quality in terms of its performance related

to the educational processes and outcomes, curriculum coverage, teaching-learning processes, faculty, research, infrastructure, learning resources, organization, governance, financial well being and student services. (<http://naac.gov.in/index.php/en/about-us#vision>)

Every 5 years, NAAC evaluates each HEI's through a well structured format that is, SELF STUDY REPORT (SSR), which was divided in to 7 criteria. Every year NAAC collects the data through AQAR (Annual Quality Assurance Report). For both, the criteria's are the same. They are,

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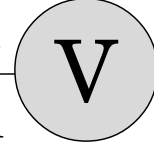


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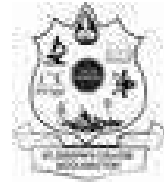
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SIGNIFICANCE OF COMMUNITY BASED REHABILITATION (CBR) STRATEGIES IN HOLISTIC DEVELOPMENT OF PEOPLE WITH DISABILITIES

Jobins Joseph

Research Scholar, Gandhigram Rural Institute, Dindigul

Manu Kurian

Assistant Professor, St. Joseph's College, Moolamattom

Introduction

The World report on disability (WRD) is the first document to give an **extensive** global picture of the situation of people with disabilities, their needs, and the barriers they face to participating fully in their societies. The report states that more than 1 billion persons in the world have some form of disability. This corresponds to about 15% of the world's population. Between 110-190 million people have very significant difficulties in functioning. People with disabilities are more likely to be unemployed than non-disabled people. In Organisation for Economic Co-operation and Development countries, the employment rate of people with disabilities (44%) is slightly over half that for people without disabilities (75%). People with disabilities often do not receive needed health care. Half of disabled people cannot afford health care, compared to a third of non-disabled people. People with disabilities are more than twice as likely to find health-care providers' skills inadequate; nearly three times more likely to be denied health care; and four times more likely to

report being treated badly than non-disabled people (WHO 2010).

Children with disabilities are less likely to attend school than non-disabled children. Education completion gaps are found across all age groups in all settings, with the pattern more pronounced in poorer countries. Even in countries where most non-disabled children go to school, many children with disabilities do not go to school. For example in Bolivia about 98% of non-disabled children go to school, but fewer than 40% of disabled children attend school. In Indonesia, over 80% of non-disabled children go to school, but less than 25% of children with disabilities go to school. People with disabilities experience increased dependency and restricted participation in their societies. Even in high-income countries, 20-40% of people with disabilities lack the help they require to engage in everyday activities. In the United States of America, 70% of adults with disabilities rely on family and friends for assistance with daily activities (WHO 2011).

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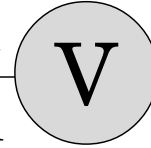


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CREATIVITY AMONG RURAL ADULTS

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ABSTRACT

Creativity studied in various dimensions, but a few studies were conducted among rural population. Present study focused the creativity of rural young adults. The size of the sample was 100 (N=100) selected by using convenient sampling method from Idukki district. The creativity style scale of Kumar & Holman (1997) was used to collect the data. Data was analysed by using SPSS. The study revealed rural adult had higher level of creativity. Further, it revealed that young adults having lower level education had higher level of creativity than their counter part.

Key Words: Creativity, Rural adults, Rural area

Introduction

Creativity is arguably our most uniquely human trait. It enables us to escape the present, reconstruct the past, and fantasize about the future, to visualize something that does not exist and change the world with it. Defining creativity presents difficulties; for example, not all creative works are useful, and not all are aesthetically pleasing. Both usefulness and aesthetic value capture, in some sense, what creativity is about. Nevertheless, psychologists have almost universally converged on the definition originally

proposed by Guilford over sixty years ago (Liane Gabora, 2013). Creativity is a topic of interest across numerous disciplines and areas of study.

Numerous studies and interventions exist on the topic of creativity in the domains of education, work, art, science, and in society in general (Artola et al., 2012, Garaigordobil & Pérez, 2004). This thriving development exists side by side with an open debate on how to measure, apply, and develop creativity (Garaigordobil, 2003).

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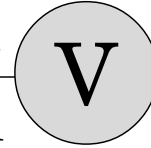


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MENOPAUSE AND RURAL WOMEN

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ABSTRACT

Menopause triggers familial, economical and career related discomforts among middle aged women. Present study focused on middle aged rural women. Because they were marginalised and side-lined with their problems. The study was conducted on a sample of 120 rural women aged in between 44 to 55. Results showed that menopause problems spouse support and type of family did not influence menopause problems of rural women. Further it revealed that types of occupation did not make any influence upon menopause and related problems. The mean cores of each group were slightly differed, but the difference is not statistically significant.

Key words: *Menopause, rural women, spouse support.*

Introduction

When a women's spring's ends, the other side prepares for her another time. She enters into another effective and illusory lifestyle. A woman's cultural and family circumstances, her education and her work affect her and her menopause. When her body, which is compatible with menstruation is slowly saying goodbye to it, she suffers from many kinds of hardships, both physically and mentally. According to Singh (2014) most prevalent symptoms identified include sleep disturbances, muscle or joint pain, hot

shes and night sweats. Menopause also increases the risk for certain conditions such as osteopenia, osteoporosis, decreased lung capacity and cardiovascular problems etc.

Menopausal women confront with various difficulties. Despite menopause being a natural part of the ageing process, there is a general lack of awareness of its symptoms and effects, often resulting in menopausal women experiencing a lack of support, as well as discrimination and harassment. The effects of menopause are most likely to manifest in sickness absence and perfor-

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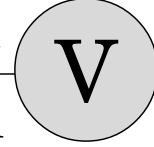
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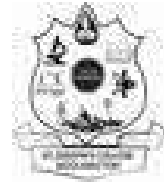
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A CASE STUDY ON PETROLEUM PRICE HIKE IN INDIA

Dr. Joseph George

St. Joseph's College, Moolamattom, Idukki, Kerala

ABSTRACT

Petrol and diesel prices have been rising to record high levels recently in India. The government ended the practice of changing petrol and diesel prices, allowing oil marketing companies to revise fuel rates daily. Crude oil prices crashed in 2020 during the seventh phase of the covid-19 pandemic. But the petroleum prices did not come down in India. Petrol products are not brought under GST and it is an unfair practice from part of the government.

The reasons given by government about the price hike are covid-19 pandemic and reduced fuel production in international market. Fluctuation in the price of petroleum impacts the production and transportation costs of essential and various items.

The prices of petroleum would come down under the ambit of GST. Finance minister told that, it's a call that the GST Council has to take. If Council decides to bring petroleum under the ambit of GST, it will have to ensure that governments continue to earn the kind of money through petroleum taxes that they have been in the past. Another solution is that switching to electric vehicles. These vehicles offer better running realization. The demand and price of petroleum will be decreased by the increased use of alternatives.

Key words: Price hike, GST Council, Electric vehicle

Petroleum

Petroleum or mineral oil is India's next biggest source of energy after coal. It supplies heat and lighting power, machinery lubricants and raw materials for a variety of manufacturing industries. Petroleum refineries for synthetic textiles, fertilizers and numerous chemical industries act as a "nodal industry". Most of India's petroleum occur-

rences are associated with anticlines and fault traps in tertiary age rock formations. It occurs in folding regions, anticlines, or domes, where oil is trapped in the unfold crest.

In the petroleum industry, petroleum companies are divided into upstream, mid-stream and downstream. This refers to oil and gas Company's position in the supply

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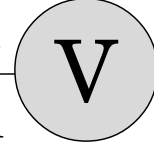
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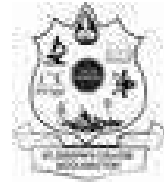
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B. SCIENCE**MORE ON CHARACTERISTIC POLYNOMIALS
OF CHEMICAL TREES****Sabukkutty M G**Associate Professor in Mathematics
St. Joseph's College, Moolamattom, Idukki (Dist.) Kerala, India
mgsk474149@gmail.com**ABSTRACT**

The characteristic polynomials of graphs obtained from the structural diagrams of alkanes play a vital role in the study of their physical / chemical properties [2, 3, 7, 8, 11, 12, 15, 16]. The roots of these polynomials form their spectrum and the indices derived from these polynomials and the spectrum are found to be well correlated with their properties. In this paper we discuss some methods for an easy computation of the characteristic polynomials of chemical trees.

1. Introduction

Let G be a simple graph with vertices v_1, v_2, \dots, v_n . The adjacency matrix [6] of G in the

$$n \times n \text{ matrix } A(G) = \begin{cases} 0 & \text{if } i = j \\ 1 & \text{if } i \neq j \text{ and } v_i \text{ and } v_j \text{ are adjacent} \\ 0 & \text{if } v_i \text{ and } v_j \text{ are not adjacent} \end{cases}$$

A single numerical value characteristic of a graph is described as a topological index [6]. Topological indices are extremely useful in drug designing that saves time, money and lives of living beings contrary to the traditional trial and error method, many of these indices are constructed using the characteristic polynomials of graphs representing a chemical molecule. These indices are systematically tried out in the investigation of drugs in the treatment of COVID-19 [5]. Here we consider some methods which help in an easy computation of such polynomials.

We denote a path of length 'n' by P_n and its characteristic polynomial by L_n . The kenograms (hydrogen depleted diagram) of alkanes are trees (also called chemical trees) and we denote them by 'T'. For any chemical tree, the characteristic polynomial is given by $\varphi(T, \lambda) = |\lambda I - A|$ where ' λ ' is an indeterminate and 'I' is the identity matrix of the order of 'A' [14].

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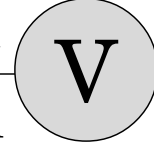


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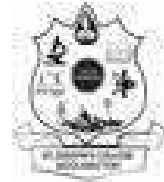
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BIOLOGICAL APPLICATIONS OF NOVEL METAL-SCHIFF BASE COMPLEX FROM O-VANILLIN AND FURFURYL AMINE AND ITS PHYSICOCHEMICAL, SPECTROSCOPIC, CRYSTALLOGRAPHIC CHARACTERIZATION

Sijo Francis, Sreevidhya K.B. and Ann Rose Sebastian

Department of Chemistry, St. Joseph's College, Moolamattom

ABSTRACT

Schiff bases are condensation products of primary amines with carbonyl compounds. Schiff base-coordination complexes gain importance day by day in the present scenario because of their interesting applications in the catalytic, magnetic, and biological fields. Schiff's base formed from o-vanillin and furfuryl amine and their Co (II) and Ni (II) complexes were prepared herein. We employed FT-IR spectroscopy, TGA-DSC analysis, Magnetic susceptibility measurements, Single crystal XRD, Elemental (CHN) analysis etc. We also carried out the biological applications of the prepared complexes in the fields of antibacterial activity.

1. Introduction

Co-ordination chemistry is the study of metal complexes. The transition metals form many complex compounds in which a central metal ion and is surrounded by several ligands which are attached to it by co-ordinate covalent bonds. It is essential that the central ion should have vacant orbitals to accommodate lone pairs of electrons donated by the ligands. The atom in the ligand which may donate the electron pair is named donor atom or co-coordinating atom. The first systematic attempt at explaining the formation, structure, isomerism, bonding, and reactions of a coordination compound was made by Alfred Werner and is known

as the father of co-ordination chemistry. Diverse properties (physical and chemical) and structural aspects of coordination compounds which helps to understand the fundamentals of many bio-chemical processes. Co-ordination compounds have several applications which depend on their unusual stability. They play a significant role in industry, functioning of critical components of biological systems and life process. A few important compounds are porphyrin, chlorophyll, haemoglobin etc. Co-ordination compounds have several applications including separation of specific metal ions and catalysis.

Schiff bases are one of the extensively studied classes of ligands in metal coordi-

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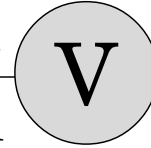


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POSITRON ANNIHILATION SPECTROSCOPIC CHARACTERIZATION OF FREE-VOLUME DEFECTS IN POLYMERIC BLENDS

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ABSTRACT

The size and the concentration of free volume defects in polymeric systems are monitored and their variations accurately traced using positron annihilation lifetime (PALS). The motivation behind the adoption of this particular protocol of characterization is that the polymeric blends like IPN (Interpenetrating networks) can act as platforms for designing cost effective toughened plastic with controlled morphology and mechanical properties. Thus, the correlation between PALS results with mechanical properties is given special emphasis in this work. This new modality of characterization versus composition uplifts and widens the application prospects of elastomer-thermoplastic blends.

Key words: Interpenetrating networks (IPN); positron annihilation; free volume defects; mechanical properties.

1. Introduction

Multi-component polymeric materials facilitate a new fabrication route to combine the properties of different polymers into one tailor-made material.¹ Homogeneous distribution of one polymeric component in another polymeric system is the necessary and sufficient condition for the design of multi-component polymeric systems with excellent performance characteristics.² The synthesis of an interpenetrating polymeric network (IPN) provides a promising path in this direction. IPNs are a combination of incompatible polymer networks in which at least

one of the polymers is synthesized and / or cross-linked in the presence of the other.³

Amorphous materials like rubber and plastic are characterized by a rich concentration of free volume defects, which are the unoccupied regions available for segmental motion within the polymer material. In addition to the intra- and intermolecular interactions and the segment and chain motions, the size, concentration and distribution of atomic-scale free volume holes often play important roles to control the macroscopic properties of polymers.⁴ The free volume defects arise due to the inefficient chain

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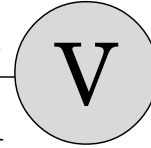
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REVIEW OF MICROWAVE FILTERS EMPLOYING SPLIT RING RESONATORS(SRR) AND COMPLEMENTARY SPLIT RING RESONATORS (CSRR)

Anju P Mathews

Assistant Professor, Dept. Of Physics, St. Joseph's College, Moolamattom

1. Microwave filters

Microwave communication links are an important practical application of the microwave technology and are used to carry data, voice and video over distances ranging from intercity links to deep – space spacecraft. Filters find applications virtually in any type of communication, radar or test and measurement system. In some applications such as communication satellite and mobile communication devices, it is critical that filters be devised with small size, light weight, and lower cost along with stringent electrical characteristics. Planar filter geometries are well suited for meeting these requirements.

The recent advances in novel materials and fabrication technologies, including monolithic microwave integrated circuit (MMIC), microelectro mechanical systems (MEMS), micromachining, high-temperature superconductor (HTS) and low temperature co-fired ceramic (LTCC) technology stimulated the development of new types of filters. The substrate integrated waveguide (SIW) is a promising technology considering its advantages as a new micro-

wave transmission media with the advantages of both the rectangular waveguides and planar transmission line. The upcoming filter realizations utilize SIW to a large extent for microwave as well as millimetre wave communications.

A survey of the major techniques used in the design of microwave filters is presented by Ralph Levy et al. [1]. It is shown that the basis for much fundamental microwave filter theory lies in the realm of lumped –element filters, which indeed are actually used directly for many applications at microwave frequencies as high as 18 GHz. Many types of microwave filters are discussed with the objective of pointing out the most useful ones, especially for the newcomer to this area.

1.1 Microstrip filters employing split ring resonators (SRRs)/complementary split ring resonators (CSRRs)

The electromagnetic behaviour of split ring resonator (SRR) and complementary split ring resonator (CSRR) coupled to planar transmission lines are analysed in litera-

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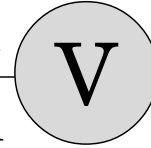


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CHROMATIC M -POLYNOMIAL OF CERTAIN GRAPHS

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ABSTRACT

A topological index of a graph G is a real number which is preserved under isomorphism. Extensive studies on certain polynomials related to these topological indices have also been done recently. In a similar way, chromatic variations of certain topological indices and the related polynomials have also been discussed in the recent literature. In this paper, the notion of chromatic M -polynomial is introduced and determined this polynomial for certain fundamental graph classes.

Keywords: Graph colouring, M -polynomial, chromatic M -polynomial, χ^- -chromatic M -polynomial, χ^+ -chromatic M -polynomial.

MSC2020: 05C15, 05C31.

1. Introduction

For all terms and definitions, not defined specifically in this paper, we refer to [10]. Further, for graph colouring, see [2]. Unless mentioned otherwise, all graphs considered here are undirected, simple, finite and connected.

A *proper vertex colouring* of a graph G is an assignment $\varphi: V(G) \rightarrow \mathcal{C}$ of the vertices of G , where $\mathcal{C} = \{c_1, c_2, c_3, \dots, c_\ell\}$ is a set of colours such that adjacent vertices of G have different colours. The cardinality of the minimum set of colours which allows a proper colouring of G is called the *chromatic number* of G and is denoted $\chi(G)$. The set of all vertices of G which have the colour c_i is called the *colour class* of that colour c_i in G . The cardinality of the colour class of a colour c_i is said to be the *strength* of that colour in G and is denoted by $\theta(c_i)$. We can also define a function $\zeta: V(G) \rightarrow \{1, 2, 3, \dots, \ell\}$ such that $\zeta(v_i) = s$ if and only if $\varphi(v_i) = c_s; c_s \in \mathcal{C}$.

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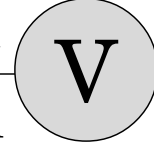
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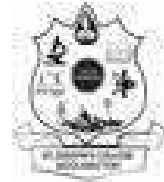
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QUEST FOR AN 'ALL-IN-ONE MATERIAL': THE STORY OF GRAPHENE

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ABSTRACT

Since its discovery in 2004, graphene is being visualised as the miracle material whose realm spans into many fields, including the most awaited electronics industry which is already nearing a bottleneck due to the consequences suggested by Moore's Law. This article is an attempt to critically examine the realities of graphene research with a viewpoint that it could be a silicon killer. At first, a review of the exotic physical, chemical and mechanical properties of the two-dimensional material is conducted keeping in mind 100 % purity of the material. This follows a discussion on several device prototypes in which graphene overshadowed many other materials but with certain pragmatic flaws in terms of real-life execution and economy of those proposed plans. And the last section of this article showcases some of the promises graphene has already fulfilled and some others which are at the end of the tunnel waiting for the light. This includes products in the sports and lifestyle industry that offer lightweight high strength materials for various applications and a few other energy solutions based on graphene. The article is concluded with a remark on the growing graphene economy.

Keywords: Graphene, Graphene Super Capacitors, Graphene Batteries, Graphene Coatings, Graphene Bullet Proof Vests.

Introduction

It has been more than a decade since the term 'graphene' is associated with the future direction of science and technology. We think it is high time to critically evaluate the 'fact vs. fantasy' in this highly active area of research. It was silicon that had a long period of reign as the 'all in one material'

until recent developments in the nanocarbon world. Though fullerenes and carbon nanotubes took the attraction for a decade or so, graphene took the centre stage as a challenge to the throne of silicon from the year 2004 due to a number of exciting results from the Manchester group led by Prof. Andrei Geim and Prof. Konstantin

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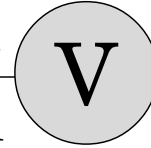
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A REVIEW OF LIQUID/SUPERCRITICAL CARBON DIOXIDE AND ITS APPLICATIONS

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ABSTRACT

Utilization of liquid and supercritical CO₂ as an environmentally benign alternative solvent platform has been one of the major thoughts of green chemistry. Over the years, many novel and innovative industrial strategies using this solvent system have developed by the inherent capabilities of this solvent system such as ease of solvent removal and tunability of solvent parameters. Despite its limitations in terms of understanding its full solvent capabilities, it has made inroads into several important areas such as fluoropolymer synthesis, dry cleaning, chemical separations and processing, microelectronic cleaning, pharmaceutical industry, textiles industry, extraction of natural products and synthetic organic chemistry. This review gives a summary of the evolution of green chemistry,

Keywords: Carbon dioxide, Supercritical, Green chemistry

Introduction

Over the past century, we are highly benefited by the advances in science. At the same time, we have paid an environmental price for this development. Reports from “United States Environmental Protection Agency” show that annual levels of toxic waste from the chemical industries are increasing every year. With the increasing population, non-renewable raw materials such as petroleum, natural gas etc., are disappearing very fast. The only tactical way to overcome this challenge is to switch on to renewable resources. This led researches

to move on to alternative sustainable technologies also known as green chemistry.

The term Green Chemistry was initially proposed by Paul Anastas in 1991.

Green chemistry is the utilization of a set of principles that reduces or eliminates the use or generation of hazardous substances in the design, manufacture and application of chemical products.¹⁻³ Paul Anastas and John C. Warner developed 12 principles of green chemistry.

Solvents have become an inevitable part in the field of chemistry. They are being

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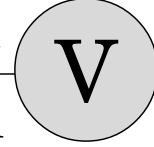


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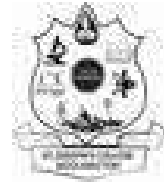
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NUMERICAL SOLUTIONS FOR THE BOUNDARY LAYER FLOW OF A NANOFUID PAST A SEMI-INFINITE FLAT PLATE WITH THERMAL RADIATION

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ABSTRACT

The chapter discusses the mathematical modelling and numerical solutions for the nanofluid flow past a semi-infinite vertical plate. The thermal phenomenon is studied in the presence of thermal radiative heat flux which is modelled based on the Rosseland approximation. Two flow cases (stationary plate and moving plate) are compared. The governing equations are solved by using apt similarity variables and then are solved using finite-difference-based solver (bvp5c) in MATLAB. The flow and thermal profiles are analysed. Nanoparticle loading favours the thermal profile and the heat transfer rate in the Blasius flow case (stationary plate). On the other hand, it decreases the heat transport in the Sakiadis flow case (moving plate). The thermal radiative heat flux is observed to enhance the thermal profile due to the additional energy gained by the nanofluid. The findings suggest that the use of nanofluids instead of conventional working fluids will improve the performance and efficiency of heat exchangers, drying processes and solar collectors.

Keywords: Nanofluid; Flat plate; thermal radiation; Blasius flow; Sakiadis flow.

1. Introduction

Nanofluids have led to revolutionary changes in thermal applications due to the improvised thermal performance. Nanofluids are widely used in heat exchangers, solar collectors, nuclear reactors, stellar cells, smart coatings, and electronic cooling systems. The dispersion of nano-sized particles has led to better thermophysical properties, as first noted by Choi and Eastman [1]. Apart from experimental studies, mathematical modelling of nanofluid flows are cost-effective and time-saving procedures to draw information regarding the thermal efficiency. The enhanced thermophysical properties were initially incorporated in mathematical modelling by using the single-phase model, where the liquid is

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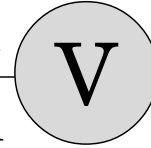


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A LOG BRIDGE TO LINGUISTIC LIBERATION: A PSYCHOLINGUISTIC READING OF CUSS WORDS IN *CHURULI*

Roby Mathew

Assistant Professor, Department of English

Churuli, a 2021 feature film which initiated heated arguments among political parties and orthodox cinema lovers, is observed as a film with ‘an overdose of foul language’ by the Kerala High Court in response to the petition filed by Sri. Peggy Fen regarding the excessive use of cuss words in the film. But on the contrary to the expectation of the petitioner and the conservative cinema lovers, the same court rejected the petition considering the report of a team headed by the Director General of Police which stated that nothing illegal was observable in the cinema and the court observed that, “Language in cinema is director’s call. Cinema is the artistic creation of the director and it is his discretion to choose the language”. It was in 2017, when the college magazine *Viswa Vikyatha Theri* released by the college union of Zamorin’s Guruvayurappan College which won accolades, awards and disapprovals, the readership in Kerala debated much about the cuss words in Malayalam and their etymology. When the wave of protest initiated by the college magazine was about to die out, Pellissery fanned it with his *Churuli* to perpetuate the

controversy affirming the hitherto obstructed linguistic freedom.

Churuli, the Malayalam film named after a small village in Idukki, captured the minds of the progressive lot and made the conservatives to frown due to the abundance of cuss words which has now become the vogue of the new generation cinema. *Churuli*, the Malayalam psychological thriller, celebrates the freedom of informal language in the guise of cuss words after *Joji*, yet another 2021 film with a difference. Lijo Jose Pellissery, the avant garde film director who gave visual form to the story of Vnoy Thomas scripted by S. Hareesh, narrated the story of human evolution from the primitive man to the ultra-modern man in a time frame of about two hours. Like a classical drama which has prologue and epilogue, *Churuli* opens with an animated narrative of a Namboothiri who attempted to trap a phantom that misleads travelers. In spite of the confidence of the Namboothiri to chain the phantom, the phantom misleads him in the guise of an ant eater which the Namboothiri met on the way. The predominance of spiral image throughout the film

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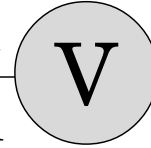


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‘मैं वो शंख महा शंख’ समस्याओं पर एक नजर

Ms. Vishnumaya C.P.

Guest Lecturer, St. Joseph's College, Moolamattom

Dr. Sobhitha Sebastian

Asst. Professor, St. Joseph's College, Moolamattom

हमारे देश में ऐसे अनेक व्यक्ति हैं जो समाज के केंद्र या मुख्यधारा में नहीं रहते। वे समूह जो आम जनता की तुलना में अधिक गरीबी और सामाजिक बहिष्कार के शिकार होते हैं, उन्हीं लोगों की ओर हम संग्रह में कवि ने पाठकों का ध्यान आकृष्ट करने दिखाई देते हैं। अल्प संख्यक समूह के अंतर्गत आनेवाले वे 'हाशियेकृत जनवर्ग' सामाजिक जीवन में सहभागिता हेतु संघर्षरत रहते हैं। लिंग, प्रजाति, जन्म, धर्म आदि के आधार पर पक्षपात का सामना कर रहे लोगों को हाशियेकृत जनवर्ग में शामिल किया जाता है। सामाजिक, सांस्कृतिक, आर्थिक दशाओं के परिप्रेष्य में हाशियेकृत जन की परिभाषा बदलती रहती है। हाशियेकृत जनवर्ग के अंतर्गत महिलाएं और बालिका शिशु, वधु, प्रवासी, धर्मिक, शरणार्थी, राष्ट्रीय अल्पसंख्यक, निशक्तजन, वृद्ध, आदिवासी लोग, आंतरिक रूप से विस्थापित लोग, एलजीबीटी, अनुसूचित जाति और जनजाति, वेश्यावृत्ति में सम्मिलित महिलाएं, एड्स संक्रमित और खानाबदोश या यायावर जैसे अनेक वर्ग आते हैं। हाशियेकृत जनवर्ग विभिन्न प्रकार के भेदभाव का सामना करते हैं जैसे रोजगार के अवसरों का अभाव, शिक्षा का अभाव, राष्ट्रीय संसाधनों तक पहुंच का अभाव, स्वास्थ्य साधनों का अभाव, निर्धनता की स्थिति,

मानवाधिकारों का उल्लंघन, सामाजिक सुरक्षा का अभाव, पौष्टिक भोजन और स्वास्थ्य सुविधाओं का अभाव। मैला होने वाले, कूड़ा उठाने वाले, झुग्गी में रहने वाले, सफाई कर्मचारी, एकल अभिभावक, शरणार्थी, सजा काट चुके व्यक्ति आदि भी हाशिये पर स्थित समुदाय में शामिल हैं। दुनिया भर में होने वाले तमाम प्रकार के मुख्य विघटन एवं मानवीय त्रासदी के कारण आज हाशिये पर खड़े मानव के प्रति पक्षधरता प्रकट करने का विचार अधिक मूल्यवान हो गया है। यह एक जागरूक चेतना है। मानव भविष्य के प्रति पक्षधरता प्रकट करना समकालीन कविता की घुरी मानी जा सकती है। आम आदमी के प्रति हमदर्दी प्रकट करने वाली समकालीन हिंदी कविता की एक व्यापक पृष्ठभूमि है और वह भारत की राजनैतिक एवं सामाजिक विसंगतियों से एकदम जुड़ी हुई है। अरुण कमल जैसे कवि केवल अपना प्रवक्ता नहीं है, वह समस्त जन एवं समस्त जीवों के एवं ब्रह्मांड की आवाज़ है। वह केवल एक खंड या कोटी की ओर से नहीं बल्कि सब की ओर से बोलता है। 'मैं वो शंख महाशंख' शीर्षक का अर्थवत्ता भी यह है। इस संकलन में कवि ने शंख महाशंख के तरह गणना से बाहर कर दी गई निर्बल किंतु संघर्षशील लोगों की कविताएं शामिल किया है।

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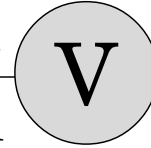
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साठोत्तरी कहानियों में चित्रित दाम्पत्य जीवन में पति का स्वरूप

Dr. Shemi John

Assistant Professor, St. Thomas College (Autonomous), Thrissur

विवाह समाज व्यवस्था का एक अत्यंत आवश्यक अंग है। विभिन्न प्रकार के परंपरागत रस्मों तथा विश्वासों के प्रतिमान विवाह-पद्धति के साथ जुड़े हुए हैं। राधाकृष्णन के मतानुसार, "विवाह एक परिपाटी ही नहीं बल्कि मानव-समाज का एक अंतर्निहित लक्षण है। वह प्रकृति के जैविकीय प्रयोजनों तथा मनुष्य के सामाजिक प्रयोजनों के बीच एक समायोजन है।" (1) विवाह का संबंध एक बहुत घनिष्ठ संबंध है। विवाहित जोड़े को सदा एक दूसरे के साथ रहना तथा एक दूसरे के लिए जीना है। दाम्पत्य जीवन की सफलता के लिए पति-पत्नी के बीच प्रेम, संयम, सेवा, उदारता की भावना होना आवश्यक है। प्राचीन काल से ही पुरुष को ही समाज और परिवार में उच्च स्थान दिया गया और आज भी यह परंपरा चली आ रही है। पुरुष ही घर का मालिक है। घर के मुखिया होने के कारण घर के सभी कार्यों का निर्वाह पुरुष को ही संभालना पड़ता है। शादी के बाद पुरुष पति बन जाता है।

पत्नी घर की देवी है तो पति घर का देवता है, घर का स्वामी है। स्वामी होने के नाते पति पर पूरे परिवार का दायित्व रहता है। उसके आचरण एवं व्यवहार का परिवार पर बहुत गहरा एवं दूरगामी प्रभाव पड़ता है। अतएव पति को चरित्रवान विवेक शील, सहनशील, धैर्यवान एवं सहृदय होना चाहिए। उसके आचरण एवं व्यवहार का परिवार पर बहुत गहरा एवं दूरगामी प्रभाव पड़ता है। पति घर के मुखिया है। पति के विचार, चिंतन एवं चरित्र का प्रभाव पूरे परिवार पर पड़ता है। पुरुष को अपने परिश्रम, कर्तव्य से कभी पीछे नहीं हटना चाहिए। घर की कर्ताधर्ता पुरुष है। यदि पुरुष अपने कर्तव्य अच्छी तरह न निभाया तो दाम्पत्य जीवन में दरार पड़ जाने की संभावना है। पति घर का दायित्व अच्छी तरह निभाया तो पत्नी के मन में पति के प्रति प्रेम की भावना बढ़ जाती है। ममता कालिया की 'काली साड़ी', श्रेह ठाकुर की

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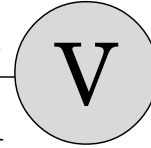


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‘ब्याहता’ में अभिव्यक्त नारी मन का अंतरद्वन्द्व

Dr. Shija Grace

Assistant Professor, CMS College, Kottayam (Autonomous)

हिन्दी के समकालीन लेखिकाओं में डॉ. प्रेमा खुल्लर सशक्त हस्ताक्षर हैं। वे बचपन से कविकर्म में लीन थीं। उनकी आरंभिक कविताएँ विभिन्न पत्र-पत्रिकाओं में प्रकाशित हैं। आकाशवाणी तथा दूरदर्शन के विविध केन्द्रों में उनकी काव्य-गोष्ठियाँ प्रस्तुत हैं। उनकी प्रसिद्ध प्रकाशित कृतियाँ राह बना लूँगी, अक्षित कर दूँ, शब्दों के दायरे (काव्य-संग्रह), छटपटाहट, ब्याहता, तलाश (कहानी-संग्रह), मैं सोचती हूँ (चिन्तन), श्री महाभागवत उपपुराण (अनुवाद) आदि हैं।

एक परिवार को आगे बढ़ाने में स्त्री का महत्वपूर्ण योगदान है। समकालीन माहौल में उसे सुदूर ले जाने के लिए नारी निरंतर प्रयत्नशील है। वह हमेशा चिंतनशील रहती है। वे सदैव सक्रिय हैं। वे अपनी 'मल्टी टैरिंका रिचल' का सर्वथा उपयोग करती हैं। इससे वे परिवार एवं समाज में जीत हासिल

करती हैं। डॉ. प्रेमा खुल्लर की कहानियाँ पारिवारिक संबंधों की हैं। कमलेश्वर जी की राय में, "प्रेमा खुल्लर की कहानियों में खास तौर पर पारिवारिक सदस्यों के बीच संबंधों की कई बारीक भावनात्मकता की परतें खुलती हैं। हर परिवार में सभी सदस्यों का अपना अस्तित्व होता है। चाहे वह सास, बहू, ननद, देवर हो अथवा बुजुर्ग दादा-दादी" १ इनमें स्त्री केन्द्र में होने के साथ-साथ अपनी अस्तित्व तथा अभिमान को सदा कायम रखने की कोशिश करती रहती हैं। 'ब्याहता' में नारी की भावनात्मकता एवं द्विधात्मकता द्रष्टव्य है।

'ब्याहता' की जात्यानी पति पौरुष एवं बच्चों के साथ खुशी से जी रही थी। एक बड़े परिवार का सभी दायित्व उनके कंधे पर थी। फिर भी उसने उसे संभाला। उसकी बेटी मुस्कान की शादी जयंत नामक लड़के से होती है। जयंत से ज्यादा पैसे वह लाती थी। पति के अहंभाव के कारण पारिवारिक जीवन में विघटन आ

AIMS-20

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Influence of Work from Home on Employee Absenteeism in Post Covid 19 Era: Focus on it Sector Employees in Infopark, Kochi



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COVID-19 has not just distressed the people's health. However, the world economy was paused. In response to the COVID-19 pandemic, government guidelines have forced many employers to allow their employees to WFH, greatly reducing number of staff working in an office. 100% of Information Technology sector employees totally worked from their homes at times of pandemic period. Employee absenteeism is a complex issue that can be caused by various factors. The present study will evaluate the influence of Work from Home on Employee Absenteeism during post COVID 19: focusing on IT Sector employees in Infopark, Kochi.

Keywords: COVID-19 Work from Home Employee Absenteeism IT Sector

1. Introduction

1.1 Work from Home

It was in Wuhan, China, the weird novel virus was initially discovered in 2019, November. It quickly escalated to different parts of the globe and in a very short period the World Health Organization proclaimed it as a pandemic, with the phraseology, 'Coronavirus Disease 2019' or 'COVID-19' (WHO, 2020). The name COVID-19 is a combination of 'CO' means 'crown,' 'VI' for 'infection,' and 'D' for illness, and 19 representing the year of infection (2019). Within very few weeks many nations including India announced bans in traveling and social spacing mandatory (De, 2020). Almost one- third of the globe was subject to lockdown at the behest of their respective authorities (Koh, 2020).

However, due to the COVID-19 outbreak, most organizations were forced to opt Work From Home (WFH) in early 2020 for a major portion of the human resources in various countries all over the world. Organizations in India have moved workplaces into the residence of their personnel, with majority companies catering the employees with required infrastructures like hardware and Wi-Fi facilities that are necessary for WFH (Gartner, 2020). But they often fail to equip their employees with the skills they need in order to work remotely (Molino et. al., 2020).

Work From Home is now the dream of many. Especially for today's millennials, you don't have to get up early, take a bath, dress up for the office and crash the long traffic jams that consume plenty of time. Enough to use makeshift clothes, then open the laptop from home and work. Compared to Working from the Office [WFO], WFH has the option to avoid traveling, offer comfortable working hours and accessible job atmosphere, and thus positively influence the satisfaction in job and work-life harmony of the employees. In general, the introduction of these flexible ways of working appears to be a planned decision that requires the organization to develop, prepare and adapt steps to constructively hold up employee productivity and achieve a stronger work-life harmony. (Allen et. al., 2015).

Like all other organizational changes, Work From Home has a number of advantages and disadvantages (Konradt et. al., 2003). WFH provides its employees with flexible working hours as well as the job for the employer is done efficiently and comfortably. It is desirable and feasible in offering work life harmony to the staff, and also simultaneously enables the company to complete the work and get it achieved. Nowadays, most employers offer this opportunity to their employees. It is also known as remote work or virtual work which signifies that the employee is working from a convenient and accessible location usually home. Work From Home may be particularly agreeable to workers with elder care responsibilities, and also to men who wish to partake in home care pursuits.

Work at home tends to increase employee's level of autonomy when moving from the office setting to the home. The employee who is working from his/her home is less exposed to control and surveillance measures, close supervision and therefore can enjoy more freedom in selecting the working hours and work patterns (Schaufeli & Bakker, 2004). However, despite the obvious attractions of WFH for both employee and employer, many challenges arise (Crandall & Longge, 2005) as the productive introduction of Work From Home measures poses greater challenges in the area of human resource management (Hall & Liddicoat, 2005).

Research reports both benefits and ill effects related to Work From Home. Its effects, therefore, have been quite explored. It is important to investigate how the "new manner of working", WFH, has impacted the performance, productiveness and output of workers without previous experience of telecommuting, and to pin point those distinct work environments impacting remote work in the course of COVID-19 crisis.(Vander et.al., 2020).

Difficulties in reconciling personal and work responsibilities are reported in studies as a conflict between family and work, a situation in which workers find it increasingly difficult to fulfill work responsibilities as they are involved in family activities (Weer and Greenhaus, 2014). Family-work conflict is very often perceived as a gender-dependent aspect. The reason is that, in all most all cultures, women are primarily responsible for caregiving and housework tasks (Atkinson & Hall 2009) and it is the women category who are more burdened over men during the times of emergency (Galanti & Cortini, 2019). However, COVID-19 has left millions at home, blurring the lines between personal and professional lives, nevertheless of age or sex, and thus assert that conflict between work and family can be a concern that matters both men and women in Work From Home. On the contrary, previous research has shown that teleworking can negate the benefits of Work From Home (Hilbrecht et. al., 2008) by simultaneously reducing and increasing work-family conflicts (Toscano & Zappala, 2020).

The residence of spouses and kids who are busy with their job and schools, the interruption of crèches and schools happened due to pandemic, and the need to involve in domestic work all have a significant impact on teleworkers (Xiao et. al., 2021). For example, employees routinely cook meals for the entire family (breakfast, lunch, and dinner) three times a day, help children connect to online classes in the morning, helping them to complete the home- work in the afternoon, and also for spending some fruitful time with the children.

Feeling isolated at the workplace is an important key feature of Work From Home at times of pandemic. Even if researchers propounded that loneliness and being isolated at the workplace as the major demerit of remote work, (Cooper & Kurland, 2002) its negative impact and influence had greatly affected the people. This pandemic has been a major reason for higher levels of loneliness of the people (Ellis, 2020) that lead to reduced job satisfaction and productivity, as well as increased stress. In addition, time spent working from home and the level of face-to-face interaction were found to negatively and positively moderate the association between occupational isolation and work productivity, respectively (Golden et. al., 2008).

Another characteristic of Work From Home during the COVID curse is that human resources must share their workspaces with other members in the family too, such as their spouses and/or school-age children, who are primarily involved in distance education. The residences were not adequate to equip people involved in their routine activities, thus creating an intrusive and chaotic atmosphere. Studies put forward that a productive full-time Work From Home is highly related with the standard of the work place, such as adequate lighting, noise reduction and peaceful environment (Raguseo et. al., 2016) and a workplace that is adequately delineated from the abode (Mello, 2007). If such an atmosphere is impossible to create, working in a distracting environment with that detracts from the environment may constitute an additional and appropriate job demand and a corresponding job search.

On the basis of available literature, remote work is delineated by two important aspects. Firstly, employees work exterior to their normal workstation. Secondly, a relationship between home and office prevails. Information and communication technologies can be used to share information and communicate with colleagues (Bélanger, 1999; Bailey and Kurland, 2002). Also the literature brings forth that remote workers should have appropriate working conditions and workplaces. Number of studies concentrate on examining the pros and cons of WFH (Baruch, 2000; Gajendran and Harrison, 2007) or inspect the influence of WFH on work-family harmony (Sullivan and Lewis, 2001; Hill, Ferris and Mårtinson, 2003; Golden et. al., 2006). Against this, performance out-turn of working from home has received only neglectful recognition.

Numerous studies are paying great attention on Work From Home. Initially it is the rising trend towards the achievement of a good work life balance (Perry-Smith & Blum, 2000). Second, there is growing evidence that the provision of work from home paves way for better organizational performance and results in reduced absenteeism (Stavrou, 2005).

1.2 Employee Absenteeism

Absenteeism is the pattern of being erratic in the work field. An absentee is a person who is repeatedly going on leave. Absenteeism is mostly caused by lack of employee dedication and devotion. Absenteeism at the operative level is a crucial problem in some industries. As per Webster's Dictionary, "absenteeism is the practice or habit of being an absentee and an absentee is one who habitually stays away."

Studies tells that few major reasons for absenteeism include workplace mobbing, family-related issues, unhealthy working conditions, absence of adequate welfare facilities, inadequate leave Facilities and related policies, alcoholism, illness, and job hunting. Absenteeism of staff from work results in logjam, work pile and thus work delay or even work stoppage. Johns and Nicholson (1982) opined that absenteeism is an issue that happens at workplace which has to be resolved.

The result of high rate of absenteeism has got a significant negative impact on the organizations well-being and revenue generation, which results in low level performance and even disorganization (Nicholson and Martocchio, 1995). Cole and Kleiner (1992) noted that employee absenteeism is a problem that not only results in low level productiveness but also mislaying of the organization that continue to incur costs due to the benefits offered to employees even if they are absent. Absenteeism directly affects the turnover rates of labors, thus absenteeism has to be treated as a consequential issue and carefully monitored to regulate the same. At the same time labor turnover is the major criterion, that determine the industrial growth, and which in turn has a direct impact over the economic growth.

Studies have focused on demographic features, work attitude, occupational status, work situation, and non-work contexts as predictors of absenteeism (Porter & Steers, 1973, Steers & Rhodes, 1978). Demographic aspects like age, length of service are inversely correlated with absenteeism (Nicholson et al., 1977, Watson, 1981). Absenteeism rate was higher in the case of female category (Flanagan et. al., 1974, Johns, 1978), and lower in case of married personnel (Garrison & Muchinsky, 1977, Watson, 1981). In particular, for female employees, the number of children was also correlated (Isambert-Jamati, 1962, Nicholson &

Goodge, 1976) also the employees who occupied top positions in the organisation are less likely to remain absent in work (Hrebimak & Roteman, 1973, Yolles et. al., 1975).

March and Simon (1958) have differentiated between two main types of absenteeism: involuntary absenteeism (e.g., taking leaves for attending funerals, due to sickness that are been medically confirmed and certified) and voluntary absenteeism (e.g., leisure purposes, sickness that are uncertified). Latter is under the immediate control of the employee and are often availed for self-purposes (Miller, 1981). On the other hand, involuntary absences are far away from the close control of the employee. Thus, voluntary absences, rather than forced absences from work, may result in job discontent and disloyalty to the employer and allegiance to the organization associated with.

It should be noted that there is no single effective measure to control absenteeism. However, a skillful combination of various measures and different behavior models would definitely lead to the desired results (Muchinsky, 1977) and thus combat absenteeism. Significant effort on measures like ensuring healthy and disinfected working conditions, providing adequate wages and benefits and job security for workers, adoption of a well- defined recruitment procedure, liberal grant of leave, improved communication and prompt redressal of grievances, genial relations between supervisors and workers, offering workers education etc must be taken care of in order to control and thereby reduce employee absenteeism.

The author Haswell (2003) gives us the clear idea on how employee absenteeism affects the efficiency, performance and financial well-being of an organization. The author explains that in order to adopt a new work culture, employers has to implement a structured programme and strategy. The employers can take several precautions to cut down and curtail absenteeism rate like proper supervision and surveillance by top level managers or Human Resource managers other than the line managers. The study done by Tadros & Wotton (2020) reveals that employees working from home at Australia feels loneliness and miss their routine office environment. Still they Work from Home in order to support themselves and their family.

There is remarkable argument about to what extent Work From Home can be productive, how successfully it can be executed, and how far organizations will continue using Work From Home. Initial experiences led to optimism, but later on many companies have initiated to examine the viability and feasibility of the prolonged option of Work From Home. (WSJ, 2020; Financial Times, 2021b). One of the salient query in this context is, as to what extent Work From Home influences employee absenteeism. In this study an analysis of the influence of work from home on employee absenteeism among the employees from IT Sector, Infopark, Kochi is conducted.

1.3 Objectives

Objectives of the present study are

- To find the influence of work from home on employee absenteeism
- To identify the benefits and ill-effects in Work from home employment option

1.4 Hypothesis

The following hypothesis were formulated for the study.

Hypothesis 1

Ho: WFH employment option has no significant influence on employee absenteeism

H1: WFH employment option has a significant influence on employee absenteeism

Hypothesis 2

Ho: There is no significant relationship between employees work-life balance and WFH

H1: There is significant relationship between employees work-life balance and WFH

2. Research Methodology

To know the influence of WFH on employee absenteeism, a study was conducted among the IT Sector employees. For this study both Primary data and secondary data are used. Primary data is collected through a well - structured questionnaire. The population will be the IT sector employees working at Infopark, Kochi. For the purpose of this study, sampling technique chosen was the non-probability sampling designs of convenience sampling. The total of sample size is 135 IT sector employees working at Infopark, Kochi. All the employees started to work from their respective homes from lockdown period onwards, which was the only thing common for all the respondents.

The questionnaire was devised to analyze even the basic demographic data and also questions on the various aspects that are been hypothesized for the study. The Likert scaling technique was adopted with 5 for Strongly Agree and 1 for Strongly Disagree.

The main sources of secondary data were government records regarding COVID-19 Pandemic, as well as the policies and actions adopted by different agencies to control the spread of it. Apart from that, several other sources are also referred including national and international journals, newspapers, research articles and magazines too.

SPSS version 25.0 was adopted for conducting the statistical analysis.

3. Data Analysis and Interpretation

Data analysis is the method of applying the most appropriate statistical or logical technique so that the raw research data makes sense and the critical questions are answered through data interpretation.

Table 1 Demographic Variables

Variables	Classification	Frequency	Percentage
GENDER	Male	53	39
	Female	82	61
	TOTAL	135	100
MARITAL STATUS	Single	38	28
	Married	97	72
	TOTAL	135	100
AGE	Below 25	15	11
	25-30	52	39
	30-35	54	40
	35-40	9	7
	Above 40	5	4
	TOTAL	135	100
INCOME	Less than 50,000	36	27
	50,000-1,00,000	55	41
	1,00,000-1,50,000	26	19
	Above 1,50,000	18	13
	TOTAL	135	100

Source: Primary Survey

While analyzing the demographic variables it can be found that 82 out of 135 (61 percent) respondents were female and the rest 53 (38 percent) were male. 72 percent of the total employees were married. Out of the total respondents, only 5 employees belonged to the age group of Above 40 and majority of them belonged to age group of 30-35 (40 percent). The classification of sample units on the basis of income shows majority of the respondents have a monthly income of 50,000 – 1,00,000 i.e., 41 percent.

Table 2 Cross Tabulation of Gender & Marital Status with Preference towards WFH

WFH Preference	Gender			Marital Status		
	Female	Male	Total	Married	Single	Total
Agree	50	26	76	72	23	95
Neutral	23	10	33	11	15	26
Disagree	2	24	26	14	00	14
TOTAL	75	60	135	97	38	135

Source: Primary Survey

Table 2 shows the gender wise preference of respondents towards the Work From Home employment option. When compared to male category, it is female respondents (66 percent) who prefers Work From Home. Table 2 also shows the preference towards WFH on the basis of marital status. Married respondents (74 percent) shows more preference to Work From Home option over the unmarried respondents.

Table 3 Correlation Analysis

Sl. No	Variables	Correlation Coefficient	p-value	N
1.	WFH and Employee Absenteeism	0.725	0.000	135
2.	WFH and Work Life Balance	0.493	0.001	135

Source: Primary Survey

Table 3 represents the correlation coefficient and p-value after Spearman's Rank Correlation analysis:

1. The correlation coefficient of 0.725 indicates that there is a strong positive correlation between work from home and employee absenteeism. Since the significance value is less than 0.05, we reject the null hypothesis and conclude that WFH employment option has a significant influence on employee absenteeism (Hypothesis 1).
2. The correlation coefficient of 0.493 implies that there is only a moderate positive correlation between work from home and work life balance of employees. With a significance value of 0.001 which is less than 0.05, we reject the null hypothesis and conclude that there is significant relationship between employees work-life balance and WFH (Hypothesis 2).

Table 4 Descriptive statistics of attractions in WFH Employment Option

Factors	N	Minimum	Maximum	Mean	Standard Deviation
Flexible working Hours	135	1	5	4.11	1.238
Saves a lot of money	135	1	5	4.27	1.087
No need to take leaves for personal works	135	1	5	3.67	1.177
Work satisfaction and work life balance	135	1	5	3.81	1.147
Very feasible and not much hectic	135	1	5	3.66	1.288

Source: Primary Survey

Table 4 represents the mean and SD of factors attracting employees in work from home option. From this table, it is clear that, the major attractiveness that employees found in work from home option is that it saves a lot of money. The maximum possible score as per the scale is 5 indicating the most attractive factor and the minimum score is 1 indicating the least attractive factor. The actual maximum score and minimum score of ‘Saves a lot of money’ are 5 and 1 respectively with an average of 4.27. Since the average score is close to 5 with a standard deviation (1.087), WFH option saves a lot of money which was otherwise spent on commuting, clothing, food etc.

The average score in respect of the factor ‘very feasible and not much hectic’ the work is 3.66 with a standard deviation of 1.288 indicates the least attraction in WFH option. Since the standard deviation is very high, there is greater variability in the score assigned by different employees. Thus WFH increases the work load and employees do not consider it to be a feasible option.

Table 5 Descriptive Statistics of Difficulties in WFH Employment Option

Factors	N	Minimum	Maximum	Mean	Standard Deviation
Lack of socializing and gathering with colleagues	135	2	5	3.98	.902
Lack of adequate work space at home	135	1	5	3.16	1.269
Increased work load and working hours	135	1	5	3.67	.985
Health issues	135	1	5	3.32	1.104
Lack of required support and fear of committing mistakes	135	1	5	3.31	1.379

Source: Primary Survey

Table 5 represents the mean and standard deviation in respect of the difficulties faced by employees in work from home employment option. From this table, it is clear that, the major difficulty that employees face in work from home option is the lack of socializing and gathering with colleagues. The maximum possible score as per the scale is 5 indicating the major difficulty and the minimum score is 1 indicating the least difficult factor. The actual maximum score and minimum score of ‘Lack of socializing and gathering with colleagues’ are 5 and 2 respectively with an average of 3.98. Since the average score is close to 5 with a standard deviation (0.902), lack of socializing and gathering with colleagues is the major ill-effect associated with WFH and employees use to miss the daily office club environment.

The average score in respect of the factor ‘Lack of adequate work space at home’ is 3.16 with a standard deviation of 1.269 indicates the least difficult factor associated with WFH option. To a great extent employees have adequate workspace at home with required infrastructure and technical support for WFH facility.

4. Findings

Apart from the above analysis made, the following observations were also made

- 72% employees opines that it is for the first time that they work-from- their respective homes and are not very comfortable with the infrastructural facilities at home to work during the introduction of Work from Home employment option but now they consider it as a very flexible and easy choice
- Majority of the employees are satisfied with their workspace at home and have already established a good work routine at home.
- 70% of employees prefer to continue with the work from home employment option.
- For majority of the employees the new WFH option has reduced the number of days being absent in work.
- 98% of employees are aware about the leave policy of the company they are working with.
- Only 13% employees opines that they are not assigned with overtime work and majority does overtime work for one hour on an average in a day.
- Most employees are absent for personal reasons and are of the opinion that working hours have increased under the new Work from Home option.
- The major attraction in WFH employment option is that it saves a lot of money which was otherwise spent on commuting, clothing, food etc.
- Employees in WFH have no opportunity to socialize and gather with their colleagues and thus they miss the clubbed environment of routine office.

5. Recommendation and Conclusion

Based on the study conducted, the following few recommendations are put forward. Team-working must be encouraged which would help to network better and overcome the feeling of loneliness. To overcome the monotonous feeling in WFH, Hybrid models could be implemented were people can come to office once or twice a week. No overtime and unrelated works must be assigned to employees which leads to job dissatisfaction. Working hours and wok routine must be fixed in such a manner that it allows employees to maintain a good work life balance.

According to the study, Work From Home turned out to be one of the best options for the employees in IT Sector as it reduced the employee absenteeism. Even though WFH reduced the communication and interaction between employees and increased the work load, the arrangement has helped employees in not taking leaves for their personal reasons and can easily take care of their family responsibilities too. There are a good number of attractions associated with WFH employment option like flexible

working hours, saves a lot of money, work from the comfort of homes, no need to travel, feasible and not much hectic. For proper control and implementation of WFH, better government rules and regulations are needed. Major bottlenecks in connection with new WFH employment option includes lack of employee interaction in a simulated environment, lack of adequate work space at home, high control and surveillance measures, lack of required infrastructure and technical support for WFH facility. In order to control the employee absenteeism, suitable measures must be adopted. Job rotation, incentives/wage hike, change in management styles, individual attention to employees, encouragement and appreciation for the good work done, suitable working conditions etc. helps to control employee absenteeism to a great extent. Thus the versatile choice of modern work culture, WFH may be stepped up to hybrid model where people can come to office once or twice a week, employee interaction can be improved and job satisfaction can be won.

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Chapter

The Internet of Things Architectures and Use Cases

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Chapter 4

The Internet of Things Architectures and Use Cases

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CHRIST University, Bangalore, India

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The Pendant Number of Line Graphs and Total Graphs



Jomon Kottarathil , Sudev Naduvath , and Joseph Varghese Kureethara 

Abstract The parameter, pendant number of a graph G , is defined as the least number of end vertices of paths in a path decomposition of the given graph and is denoted as $\Pi_p(G)$. This paper determines the pendant number of regular graphs, complete r -partite graphs, line graphs, total graphs and line graphs of total graphs. We explore the bougainvillea graphs, e -pendant graphs and v -pendant graphs. If the pendant number is 2, then the number of paths in the path decomposition of the given graph is at most $\Delta(G)$, the maximum degree of the graph. Hence, a large class of graphs give a more reasonable solution to Gallai's conjecture on number of paths in the given path decomposition.

Keywords Path decomposition · e -pendant graph · v -pendant graph · Gallai conjecture

1 Introduction

The decomposition of a graph G is the partition of the edge set of G , $E(G)$, into the desired collection of subgraphs. The decomposition of graphs is a much sought after area of research in graph theory due to its vast reaching effects which touches almost every walks of life. The path decomposition of the graph G is the partition of $E(G)$ into paths. It is trivial that every graph can be decomposed into paths. There are a lot of studies on path decomposition of graphs are available in the literature. Based on these studies, a new parameter on graphs, namely pendant number of graphs, is introduced in [6]. The pendant number of a graph G is the minimum cardinality of the collection of end vertices of paths in the path decomposition of G and is denoted

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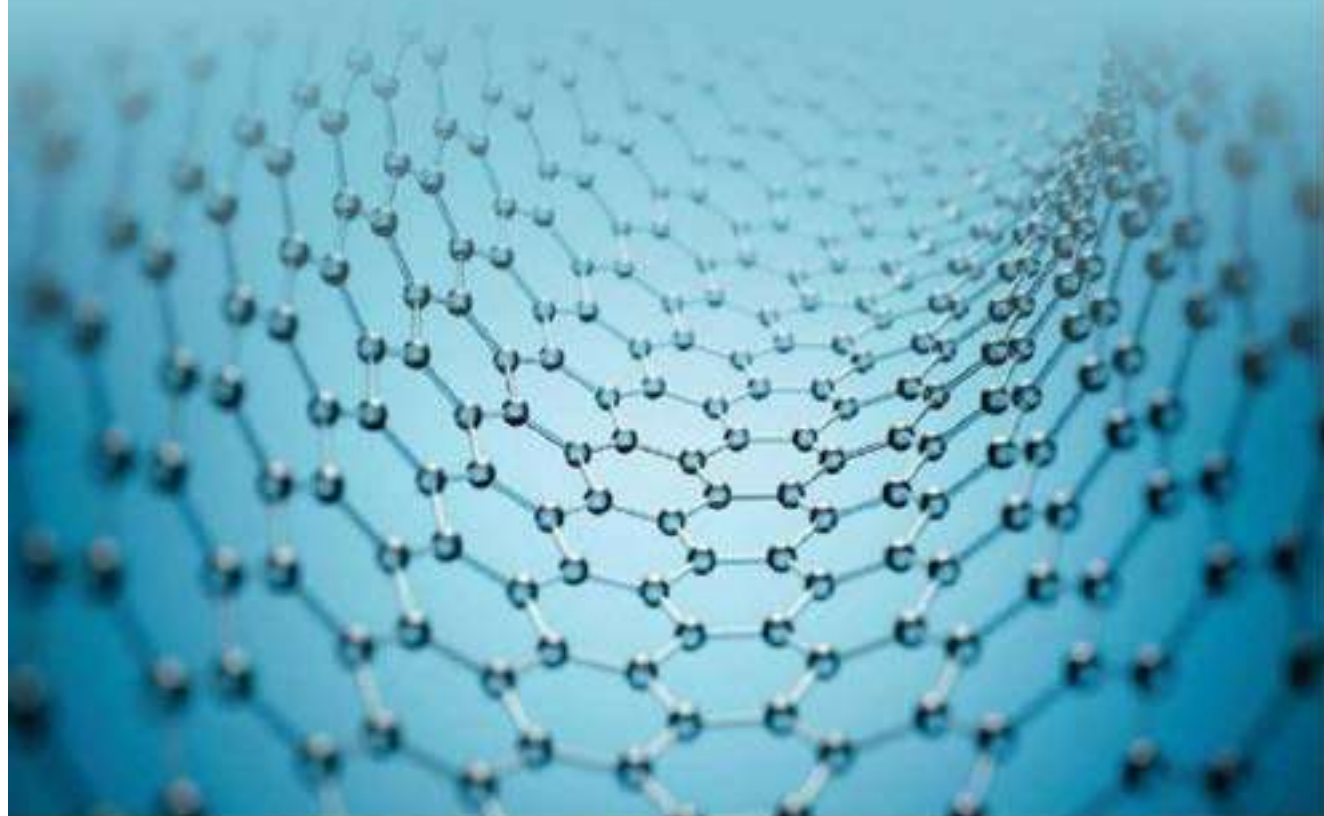
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Carbon Nanotubes

Functionalization and
Potential Applications



Ann Rose Abraham
Soney C. George
A. K. Haghi
Editors



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CHAPTER 4

CNT STRUCTURE AND ITS APPLICATION IN DISPLAY TECHNOLOGY

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ABSTRACT

This chapter gives a detailed overview of the structure and some functional characterization of carbon nanotubes (CNTs) in a nutshell. CNTs are a type of carbon-based nanoparticles with an elongated tubular structure of diameter ranging 1–2 nm with the carbon atoms arranged in coaxial cylinders of graphitic sheets. Based on the number of graphite layers, CNTs are classified into single-walled CNTs, double-walled CNTs, and multiwalled CNTs. The structure of CNTs is unique and it provides unbreakable hexagonal structure which offers unique mechanical, electrical, and thermal properties to the CNTs. Advanced research in the field of CNTs synthesis paved the way for the betterment of synthesis strategies with the high-temperature techniques, such as arc discharge, laser ablation, and chemical vapor deposition have been replaced by low-temperature methods. It is known that the chemical, electrical, and physical properties of CNTs can be altered by inducing change in the structural parameters. This chapter also deals with the fascinating properties of CNTs in the electronic display applications. CNTs are versatile in application since their surface can be chemically modified using various specific functional groups to make it more soluble and biocompatible. CNT offers a platform for the study of intrinsic properties of nanoparticles. The strength and flexibility of CNTs have been widely acclaimed and it makes the CNTs to play a significant role in nanotechnology engineering.



Optical and Molecular Physics

Theoretical Principles and
Experimental Methods

Miguel A. Esteso | Ana Cristina Faria Ribeiro
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CHAPTER 12

Nonlinear Optical Properties of Inorganic Polymers

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ABSTRACT

Nonlinear optical materials have a wide range of applications in industry and electronics because of their versatile mechanical properties. Inorganic polymers are macromolecules having noncarbon skeletal structure and inorganic or organic side chain. Coordination polymers, cross-linked polymers, metal-organic frameworks, thin films, and hybrid materials have additional optoelectronic qualities.

12.1 INTRODUCTION

Polymers are chains compounds composed of repeating monomer units interlinked by covalent bonds. Inorganic polymers are macromolecules have noncarbon skeletal structure and inorganic or organic side chain. The major repeating atoms include oxygen, nitrogen, phosphorous, and silicon. These polymers have multifaceted characteristics and some of them are described briefly here. Polyphosphazenes have phosphorus and nitrogen in their backbone and their major applications are as flame-resistant materials and in the medical field. Conjugated phosphole materials that are derived

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CHAPTER 13

Nonlinear Optical Properties of Metal Nanoparticles and Their Composites Synthesized by Different Methods

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ABSTRACT

The optical properties of metal nanoparticles (MNPs) have a huge significance in physical chemistry from Faraday's explorations of colloidal gold in the mid-1800s. It is possible to change the electronic and optical properties of the MNPs during material design, hence the MNPs possess an immense technological significance. Different methods have been used to synthesize MNPs with a broad collection of sizes, shapes, and dielectric environments. In this chapter, the nonlinear optical characteristics of different nanoparticles have been discussed and we have summarized several processes for the preparation of their composite materials. The nonlinear optical properties of these materials were studied by the Z-scan method.

13.1 INTRODUCTION

Nonlinear optics is a branch of modern optics and it has a good resemblance with the laser physics. The nonlinear optics explains different nonlinear effects that arise during the interaction between laser and matter [1, 2]. The

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DESIGN, FABRICATION, AND CHARACTERIZATION OF MULTIFUNCTIONAL NANOMATERIALS

Edited by
Sabu Thomas, Nandakumar Kalarikkal,
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Electroanalytical techniques: a tool for nanomaterial characterization

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1. Introduction

Electroanalytical chemistry is the branch of chemical analysis that employs electrochemical methods to obtain information related to amounts and characteristics of chemical species. In these techniques, an electrode probe is used for the qualitative and the quantitative analysis of compounds under investigation. In quantitative electrochemical measurements, potential of the cell is being measured, which in turn is related to their respective chemical properties. The method is highly selective as they are able to control the potential of an electrode, which makes it possible to determine the electrochemical spectrum of electroactive species in the solution.

2. Electrochemical techniques

In classical electrochemical analysis (amperometric and potentiometric) the information on the electrode response of the analyte when the electrolyte, solvent, or surface is modified is studied [1]. For potentiometric and potentiostatic types of analysis require at least two electrodes, which together constitute an electrochemical cell. One of the two electrodes responds to target analyte and is termed as indicator (working) electrode. The second one is termed as a reference electrode, which is of constant potential and is independent of the properties of the solution. Potentiometry is a static technique in which the information about the sample composition is obtained from the measurement of the potential established across as membrane materials. In potentiometric titrations, the variation in cell potential is monitored as a function of the volume of reagent added, whereas in direct potentiometry, the cell potential is determined and related to the activity of concentration of individual species.

Electrochemical sensors use an electrochemical cell consisting minimum of two electrodes: a working electrode and a reference electrode. Current flowing in a reduction/oxidation processes at the working electrode surface in connection with a counterelectrode is measured. It includes cyclic voltammetry, stripping voltammetry, differential pulse voltammetry, linear sweep voltammetry, and so forth. Measurement based on current-potential response, current for a specific period, concentration of analyte on stripping etc are named as voltammetry, amperometry, and stripping techniques. Nature of the analyte, type, morphology and size of electrode used are the main influential factors determine the response of the analysis.

2.1 Coulometry

Coulometry is an electroanalytical method which involves the measurement of the quantity of electricity (coulombs) needed to convert the analyte quantitatively to a different oxidation state. Coulometric analysis is an application of Faraday's law of electrolysis.

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Introspecting the Childhood Self of Amir in *The Kite Runner*

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Abstract

The Kite Runner is the debut novel of Afghan-American writer Khaled Hosseini. The novel revolves around the betrayal, mental conflicts and the redemption of Amir. This study aims to explore the childhood experiences of Amir that formed the basis of his mature self. Studies in the field of child psychology states that the events that occur in the lives of children deeply impacts on their later lives. Children construct an understanding of the world around them, and experience discrepancies between what they already know and what they discover in their environment. By applying psychoanalytical reading to Khaled Hosseini's *The Kite Runner*, the paper explores the relationship between the protagonist Amir's childhood experiences and his internal conflict.

Keywords: Childhood, Psychology, Trauma, Self

Introduction

Khaled Hosseini's novel *The Kite Runner* (2003) depicts the internal conflicts of Amir. He is never free from the traumatic childhood event that he had met with at 1975 when he was twelve years old. The complex relations in his childhood have a significant impact up on his judgments and actions. Jean Piaget, the Swiss clinical psychologist known for his pioneering work in child development regarded cognitive development as a process which occurs due to biological maturation and interaction with the environment.

Children are in great need of protection while they are growing up. Being a single-parent child as he lost his mother on his birth, Amir finds his early years very tough on him. Amir adores his father but lacks a relationship with him. Baba is a smart and good man at heart but he is just unable to come to terms with his son's interests, and ultimately neglects him because there is a lack of connection. Baba negatively shapes Amir's attitudes towards his sense of self from a young age. Amir never stood up for himself and he was different. He liked poetry, something that Baba believed was not normal for a young boy. Baba speaks to Rahim Khan, his best friend and business partner, about his confusion with Amir that he does not understand why his son's interests are not similar to his own. "He's always buried in those books or shuffling around the house like he's lost in some dream...I wasn't like that." Baba sounded frustrated, almost angry" (23). Amir fails to rise according to the wishes of his father. Baba's indifference inculcates in him low self esteem and insecure. He craves to get loved. He tries in vain to attract the attention of his father and longs to spend his time with him. But his father callously dismisses him and asked to be with Hassan. He thinks that his father loved Hassan more than him.

The early years of childhood is great disappointment for Amir, as he is not well received by his father. Amir spends most of the first twelve years of his life with Hassan, the son of the family's servant Ali. The early years of Amir and Hassan's friendship is filled with innocent joy. There is adoration, loyalty, and genuine affection between the boys. Later, with the comments and attitudes of the people around him, his attitude to Hassan changes. Hassan is the one who helped Amir choose the path of his future career. Since he is jealous of Hassan as he feels Baba has special concerns for him, Amir takes advantage of the friendship between Hassan and him. He made fun of him whenever he had the chance, but Hassan never took it to heart and still perceived Amir as his best friend. Throughout the entire story, Amir felt that Baba was not giving him the attention he needed. Anytime Amir wanted to be alone with his father, Baba asked Hassan to join him and that made him jealous of Hassan.

The cultural values and customs of his land contributed greatly to the thought process of Amir. Racial politics prevalent in the Afghan society influences Amir in his perspectives. Although Amir and Hassan spent all their formative childhood moments together, Amir internalizes the social hierarchy in the socioeconomic culture of Afghanistan. Amir and Hassan have different ethnic groups: Amir is Pashtun and Hassan is Hazara.

All these tensions come to a breaking point during the kite-fighting tournament. Amir sees the kite-fighting tournament as a way to finally win Baba's love. Amir's desire to feel appreciated and loved becomes the most prominent thing on his mind, and as a result, he disregards other relationships. Amir does nothing to save Hassan when he is raped by Assef.

Conclusion

Different stages in a person's life is closely inter related. Relationships with parents, friends, and other institution have great effect on how children think, learn and develop. Amir is evolved out of his childhood experiences. His self is deeply entangled in the trauma and despair extended by the circumstances of his early years. The guilt that he carried for years found its redemption only when he come back and save Hassan's son from Assef.

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A Comparative Exploration of Truth and Integrity: Henrik Ibsen's *An Enemy of the People* and Satyajit Ray's *Ganashatru*

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Abstract

This chapter provides a comparative exploration of truth and integrity in Henrik Ibsen's *An Enemy of the People* and Satyajit Ray's *Ganashatru*. It delves into the universality of themes, emphasizing how both works, despite distinct cultural contexts, resonate with audiences globally. The chapter examines character transformations, the role of irony, and the significance of film as a medium for adaptation. It underscores the timeless relevance of themes such as morality and the consequences of challenging societal norms. Ultimately, this analysis offers insights into human nature, ethics, and the pursuit of truth, whether through Ibsen's classic play or Ray's cinematic reinterpretation.

Keywords: society, adaptation, morality, individual, disillusionment

Henrik Ibsen's *An Enemy of the People* and Satyajit Ray's *Ganashatru* offer two distinct yet interconnected narratives that delve into themes of truth, morality, and the consequences of challenging a corrupt majority. While Ibsen's classic play serves as the source material, Ray's adaptation transplants the story into the cultural and temporal context of 20th-century India. This chapter explores the universality of the themes within both works, their cultural adaptations, character transformations, and the role of irony and social critique. It also examines the significance of the film medium in adapting a classic play and the broader cultural relevance and social commentary provided by both Ibsen and Ray.

At the core of both *An Enemy of the People* and *Ganashatru* lies a profound exploration of universal themes. Ibsen's original work, set in 19th-century Norway, and Ray's adaptation, rooted in 20th-century India, reveal the timeless nature of themes such as truth, morality, and the clash between individual integrity and collective interests. Regardless of their cultural and historical contexts, the central themes remain relevant to audiences around the world.

Satyajit Ray's adaptation demonstrates the malleability of classic literature when transplanted into different cultural landscapes. By setting the story in India and infusing it with Indian cultural elements, Ray successfully makes the narrative relatable to Indian audiences while preserving the essence of Ibsen's original themes. The contrast between the Western and Indian contexts underscores how universal themes can manifest differently in various cultural settings.

Both Dr. Thomas Stockmann in *An Enemy of the People* and Dr. Ashoke Gupta in *Ganashatru* undergo similar transformations throughout their respective journeys. Their arcs trace a path from initial optimism and dedication to eventual disillusionment in the face of opposition. These character transformations serve as poignant reminders of the personal and emotional costs associated with speaking truth to power.

Both Ibsen and Ray employ irony as a powerful narrative tool to critique societal norms and human behavior. The irony of individuals seeking to protect public welfare being vilified as enemies of the people resonates deeply with audiences. It highlights society's tendency to prioritize short-term economic interests over ethical considerations and the consequences of challenging the status quo.

Satyajit Ray's *Ganashatru* showcases the potential of cinema as a medium for adapting classic plays. The visual storytelling, cinematography, and carefully chosen settings add depth

to the narrative and enhance its impact on the audience. Ray's adaptation demonstrates the transformative power of film in translating a literary work into a new cultural and visual context.

Ibsen's *An Enemy of the People* reflects 19th-century European concerns about individualism and morality. In contrast, *Ganashatru* addresses issues that were pertinent to India in the late 20th century, including faith, tradition, and societal values. Both works serve as powerful commentaries on their respective societies, offering insights into the complexities of human nature and the dynamics of societal change.

The comparative analysis of Ibsen's *An Enemy of the People* and Ray's *Ganashatru* reveals the enduring relevance and adaptability of the play's themes across different cultural and temporal contexts. These works stand as testaments to the universal truths about truth, morality, and the consequences of challenging the prevailing norms of society. Whether through Ibsen's original masterpiece or Ray's cinematic reinterpretation, these narratives continue to captivate audiences and provoke contemplation on the nature of integrity, societal pressures, and the pursuit of truth.

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Cultural Integration in 'Brick Lane' by Monica Ali

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Abstract

"Brick Lane" by Monica Ali delves into the complexities of cultural integration in the multicultural neighborhood of Brick Lane, London. The novel portrays characters like Nazneen, who left their homelands to seek new lives in London, offering a rich exploration of their experiences. Through these characters, the story navigates the delicate balance between preserving cultural heritage and embracing the unfamiliar, shedding light on identity, family, love, and the profound impact of cultural integration. Monica Ali's work serves as a window into the immigrant experience, emphasizing the intricate interplay of cultural adaptation, generational conflicts, and self-discovery in a diverse and ever-changing world. The novel's exploration of relationships showcases how individuals from different cultural backgrounds navigate challenges and opportunities in a multicultural society, highlighting the fluidity of cultural identity and the potential for meaningful connections across cultural boundaries.

Keywords: Culture, integration, diaspora, family, social life, identity

In the heart of London's East End lies the enchanting neighborhood of Brick Lane, a melting pot where cultures collide and intertwine. Monica Ali's novel, "Brick Lane," serves as a guide into this vibrant world, where diverse cuisines perfume the air, and myriad languages fill the streets. This captivating narrative takes readers on a journey through the lives of its characters, exploring the intricacies of cultural integration amidst the backdrop of this multicultural tapestry.

"Brick Lane" is not a simple story of assimilation but a complex exploration of the negotiations, tensions, and adaptations that occur when diverse cultures converge in a shared urban space. It delves into the lives of immigrants like Nazneen, who left their homelands to seek new lives in London. Through Monica Ali's prose, the novel examines the delicate balance between preserving cultural heritage and embracing the unfamiliar.

Set against the bustling markets and quiet kitchens of Brick Lane, the novel paints a vivid picture of the challenges and choices faced by characters striving to weave their unique narratives into the neighborhood's fabric. At its core, "Brick Lane" is a poignant exploration of identity, family, love, and the profound impact of cultural integration.

Monica Ali's novel is a critically acclaimed work that provides a window into the immigrant experience in a multicultural urban setting. It navigates the complexities of cultural adaptation, the clash of generations, and the quest for self-discovery in a world marked by diversity and change.

Monica Ali, the author, was born in Bangladesh but raised in England. Her debut novel, "Brick Lane," catapulted her into literary prominence and ignited discussions on multiculturalism, immigration, and the immigrant experience in the UK. Her lyrical prose and exploration of human relationships, identity, and cultural diversity continue to resonate with readers, cementing her as a significant voice in contemporary literature.

In "Brick Lane" by Monica Ali, the characters' relationships and interactions provide a nuanced exploration of the complexities of cultural integration. These relationships highlight the diverse ways in which individuals from different cultural backgrounds navigate the

challenges and opportunities of living in a multicultural society. Here's an analysis of key relationships and their impact on cultural integration in the novel:

Nazneen and Chanu's Marriage:

Nazneen's arranged marriage to Chanu represents a traditional aspect of Bengali culture. Their relationship reflects the dynamics of a first-generation immigrant couple adjusting to life in London. While initially, Nazneen is submissive and deferential to her husband, her growing independence and interactions with others in the neighborhood lead to changes in their relationship dynamics. The marriage also demonstrates the tension between preserving cultural traditions (arranged marriages) and adapting to new cultural norms (individual choice in marriage).

Nazneen and Karim's Romantic Relationship:

Nazneen's relationship with Karim, a younger man and political activist, symbolizes her journey of self-discovery and empowerment. Their romantic involvement crosses cultural and generational boundaries, reflecting the evolving nature of cultural integration in immigrant communities. The relationship represents a fusion of cultures and the breaking of traditional expectations, as Nazneen explores her desires and independence.

Shahana's Friendship with Razia:

Shahana's friendship with Razia, a non-Bengali girl from school, highlights the potential for cross-cultural friendships among the younger generation. Their relationship symbolizes the willingness of young immigrants to engage with and learn from other cultures, challenging stereotypes and fostering integration. Shahana's friendship with Razia is a source of support and connection outside her Bengali community, emphasizing the importance of diverse friendships in the process of integration.

Karim's Activism and Community Connections:

Karim's involvement in political activism and his relationships within the immigrant community underline the role of community engagement in cultural integration. His interactions with various characters, regardless of their cultural backgrounds, emphasize the importance of solidarity and shared goals in transcending cultural differences. Karim serves as a bridge between cultures, advocating for immigrant rights while maintaining a strong connection to his Bengali heritage.

Chanu's Professional Aspirations:

Chanu's interactions with colleagues and superiors in his workplace highlight his aspiration for success in British society. His determination to pursue education and career advancement is emblematic of the immigrant experience of seeking opportunities in the host culture while preserving aspects of one's cultural identity. Chanu's interactions at work illustrate the challenges and opportunities faced by immigrants as they strive for economic integration.

Mosque and Religious Community:

The mosque and religious gatherings serve as focal points for characters to connect with their cultural and religious heritage. These communal spaces foster a sense of belonging and provide opportunities for immigrants to share their experiences and support one another.

Religious communities represent a form of cultural integration as individuals come together to practice their faith while living in a multicultural society.

In "Brick Lane," the relationships between characters are instrumental in portraying the multifaceted nature of cultural integration. These relationships underscore the fluidity of cultural identity, the impact of generational differences, and the potential for individuals to bridge cultural gaps through meaningful connections. The novel's characters navigate these relationships as they grapple with questions of identity, belonging, and the challenges of adapting to a new cultural environment.

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(M)otherhood: On the Choices of Being a Woman Deconstructs Modern-Day Motherhood

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Abstract:

In *(M)otherhood: On the Choices of Being a Woman*, Pragya Agarwal deconstructs modern-day motherhood, highlighting the cultural gender roles that pressure women to prioritize raising children over careers and the normative images and fertility advertisements they face. The role of motherhood has been deemed the ultimate realization of womanhood since time immemorial, and the paper argues for tackling society's obsession with women's bodies and fertility. Agarwal points out that women are victims of a system that makes them feel worthless if they are not mothers. The text also discusses personal dilemmas and societal pressures surrounding the concept of motherhood, highlighting the incomplete image of a mother always being a selfless caregiver. The literary archetype of the "mother" persona is commonly used, but maternal personalities can also reflect traits like neglect, insensitivity, and selfishness. The text also explores the image of a "New Woman" who is not satisfied only by being a mother, as seen in literature and artistic genres.

Keywords: Motherhood, Archetype, identity, women's body, new woman, gender relations

Introduction:

The Old Testament Book of 1 Kings tells the story of two prostitutes who give birth to sons. One dies, and the other's mother switches the dead baby. Solomon, King of Israel, decides to cut the live child in two, but the first woman is given the child. The grateful mother goes forth with the infant. This story highlights the extremes of motherhood, revealing the complexities of love and self-sacrifice. In literature, mothers have been depicted in various ways, from being revered to obnoxious and controlling. Classical literature often portrays good mothers as immoral, while Shakespeare's *Romeo and Juliet* portrays surrogate mothers as helpful. Later, mothers are often portrayed as gullible or inept, like Mrs. Bennet in Jane Austen's *Pride and Prejudice*. In Victorian and modern eras, mothers faced issues like poverty, globalization, and war, challenging preconceived notions about relationships and parenthood. Examples include Tolstoy's *Anna Karenina*, Flaubert's *Emma Bovary*, and Wharton's *Undine Spragg*, who marries and divorces frequently, often abandoning her children. The Victorian fin de siècle saw significant changes in art, politics, science, and society, particularly in the role of women. With improved educational and employment prospects, marriage and motherhood were no longer seen as the only path to financial security, transforming the male-dominated world. The fin de siècle saw a shift in societal norms, with sex and sexuality playing a significant role in seeking new experiences. The New Woman and Dandy, both fashionable at the time, challenged traditional gender roles and masculinity, sparking outrage from critics like Max Nordau. Punch magazine mocked the New Woman as an embittered spinster. **The New Woman** was viewed differently by men and women as the woman who remained a force for change throughout the late Victorian and Edwardian periods. Some men found women's emancipation desirable, while others, like novelist Mary Augusta Ward, opposed it.

The term 'New Woman' was first used in 1894 by novelist Sarah Grand in her article, 'The New Aspect of the Woman Question', which addressed the double standards in Victorian marriages, emphasizing the importance of the wife's sexual virtue over the husband's. 'The New

Woman' became a popular shorthand to describe independent, educated women, but the qualities and characteristics that defined it had already been present in 1880s literature. The term's origins are disputed, but it became popular in the early 20th century. The New Woman was a feminist, social reformer, poet, and playwright who addressed female suffrage. In literature, she often mirrored societal attitudes, reflecting her aspirations and desires. Early examples include Nora in Hans Ibsen's *A Doll's House*, Lyndall in Schreiner's *The Story of an African Farm*, and Grace Melbury in Hardy's *The Woodlanders*. The new woman, associated with suffrage, fought for women's rights, education, and political participation, challenging traditional gender roles and promoting independence and self-reliance.

The New Woman, a feminist icon, is controversial due to its portrayal of women in media as radical cartoons and its fictional origin. However, the movement was valid and led to a new generation of active women in public life. Pragma Agarwal's book, *(M)otherhood: On the Choices of Being a Woman*, is a pro-motherhood memoir that explores themes of infertility, childbirth, and reproductive justice. It calls for addressing society's obsession with women's bodies and fertility, highlighting the importance of motherhood in shaping our lives. This book explores the stigma and pressures faced by women in the past, focusing on the shapes and choices they face in motherhood.

“(M)otherhood: On the Choices of Being a Woman,” by Dr. Pragma Agarwal, is a deeply fascinating book, both for its contents and for its literary personality. Its identity as a book reflects the identity of diaspora women of colour; varied chapter by chapter, difficult to define, ticking many boxes but fitting into none. The title itself is a nod to the whole world of “otherment” that mothers experience, a role which is viewed as completely biological and instinctual but can be extremely complicated for many. Dr. Agarwal explores gendered language in textbooks, highlighting the negative impact of gender norms on our understanding of sex, menstruation, and conception. She highlights the pressure on women to have children, which can affect their self-esteem and social worth. She emphasizes the importance of personal accountability and the role of women in perpetuating this toxic phenomenon. The book highlights the complexities of human reproduction and the multifaceted nature of privilege and oppression. It highlights that women from different countries may have different experiences and access to abortion, highlighting the interconnectedness of these institutions.

The New Woman, a literary figure in turn-of-the-century Britain, sought equality and sexual freedom in various forms, including education, marriage, and sexual freedom. Despite their identities, they all aimed to challenge an alternative to the Victorian model. The 1880s saw an economic boom and a rise in consumer culture, leading to the emergence of the New Woman. However, the literary representation of this woman was flawed, with Grand's New Woman struggling with a loveless marriage and Schreiner's New Woman dying in childbirth. Victorian society must change to accommodate this.

The New Woman, a figure in Victorian literature and media, was a professional woman who worked outside the home and contributed to public education through various roles. She also aided her husband and contributed to the empire and political issues through single-issue groups. The New Woman model provided women with direct entry into politics through single-issue groups promoting education and the empire. Middle-class women working in professional careers were a new type of woman, challenging Victorian gender roles and becoming valid contributors to feminist movements and British society. Despite their challenges, these women became their own New Women and valid contributors to feminist movements.

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Culture in Nadia Hashmi's *One Half from the East: A Justifying Voice*

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Abstract

Cultural study is a field of study in which culture is understood as a complexly patterned way of life. Every society is different in its cultural practices. No one can decide, which is the exact culture that is to be followed by everyone uniformly. Culture differs across cultures. Afghan society has a strict adherence to its traditions and customs. It is rich in traditions and customs because of its geographical position. Bacha posh is a cultural practice that has been followed by many families since ancient times. The main character in the novel, Obayda had to undergo this tradition. This article highlights the significance of tradition and its impact on strengthening its roots.

Keywords: Culture studies, Bacha Posh, Resilience and Patriarchy

Culture is a means of expressing creativity, forging an individual identity, and enhancing or preserving a community's sense of pride. Culture and literature are in harmony with each other. Culture includes the practices, beliefs, and values of a society and literature expresses them in different literature shapes. Cultural Studies is a field of study in which culture is understood as a complexly patterned way of life.

Cultural studies introduce you to critical approaches used in the study of a wide variety of cultural forms and practices. It helps us to understand the complexity of everyday life and the way that habits and beliefs are socially patterned and laden with values and meaning. It will provide a range of tools to analyse how cultural practices and meanings are produced, circulated, and exchanged. According to Raymond Williams, "culture is a system by which meanings and ideas are expressed, not only in 'art and learning', but also in 'ordinary behaviour'". Every society is different in its cultural practices. No one can decide, which is the exact culture that is to be followed by everyone uniformly. Culture differs across cultures.

Cultural practices are traditional practices developed within a specific ethnic-cultural group. Literature can be described as the medium to popularise forms of culture. Nadia Hashmi uses her Afghan roots to craft fiction that reveals the cultural practices and beliefs in Afghanistan. Afghani's life is affected by constant political conflict. Resilience is now an essential trait that has become instilled within the Afghan character as a result of these experiences.

Afghan society has a strict adherence to its traditions and customs. It is rich in traditions and customs because of its geographical position. Afghanistan is positioned at the meeting point of four major cultural areas, the Middle East, Central Asia, the Indian subcontinent, and the Far East. Islam is the official religion of Afghanistan. Religion also played a major role in shaping the culture of Afghanistan.

Bacha posh is a gender-twisting custom, fairly common in Afghanistan and parts of Pakistan. Bacha posh is a Persian name that literally means dressed up as a boy. Even though this practice is against a background of rigid gender norms and the male-centric nature of Afghan families. It is known that individuals who raise girls as boys have less conservative gender norms, apparent from their acknowledgment that bacha posh can be experienced as gender-liberating for girls who are able to experience the privileged side of a patriarchal society.

It is a cultural practice that has been followed by many families since ancient times. The main character in the novel, Obayda had to undergo this tradition. People outside the

Afghan culture came to know about this after it was portrayed in a literary work like that of *One Half from the East*. Nadia Hashmi recorded real-life experiences of Afghan women by converting them into a fictional work. In a bacha posh system, the younger daughter of the family had to undergo a gender change for many reasons just like Obayda. Obayda's aunt in the novel speaks about the reasons for changing her into a bacha posh.

It's very simple dear. Make Obayda into a boy. With her as a son, she will bring good luck to your home. You'll see your husband cheer up. Then you plan for another baby in the family. Having a bacha posh at home brings boy energy into your household. The next baby that comes will be a boy. And once you have a real son, watch what happens. Your husband will come back to life. I have seen this work in the families around us. It's not magic- it's just how it is. And that's when Obayda can go back to being a girl. Everyone wins. (17)

According to the belief of Afghan society, boys will bring good luck to the family. The family needed some good fortune to escape from their financial struggle. They also believe that making their daughter into a bacha posh will make the subsequent child to be born a boy. They are desperate for a boy child due to the socio-political rules in rural Afghanistan. Only a boy child can inherit his father's property under the traditional system that prevailed in Afghanistan.

The research article aims to study the cultural practices of Afghanistan and their justification. Culture is different in each society. One can't attribute an inferior status to any cultural practice. Because it is the culture that determines the identity of a person. It is through literature the practice of bacha posh becomes popular. Nadia Hashmi wins by bringing the attention of the reader who is out of the Afghan culture to the traditional practices and beliefs. Bacha posh is the gender-twisting custom that has been practiced by Afghans even for a century. It is to adapt to the patriarchal nature of the tribal society without deconstructing the rules of the society. Hashmi also touches slightly on the political condition that prevailed in Afghanistan. The power asserted by the Taliban on the Afghan people remains unquestionable. There exists gender apartheid in society. It is not the family that supports gender equality. Indeed, bacha poshes come from more gender-equitable families. They consider it gender-liberating and want their children to perform every possible thing in life.

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Depiction of Gender Bias in Nadia Hashmi's *One Half from the East*

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Abstract

Literature is influenced by the diversity of culture. Enhancing the identity and individuality of families in society is achieved by it. Afghan culture is characterized by a collective mindset where individuals prioritize their family's interests above their own. This implies that family responsibilities tend to be more important than personal needs. Being loyal to one's family is more important than being loyal to one's tribe or ethnicity. Having a bacha posh in the family is associated with better gender norms. Their status in Afghan society is equal to that of a boy. This research article aims to explore the relevance of culture and its optimistic attitude toward gender bias.

Keywords: Ethnicity, terrorism, Gender studies, and Purdah system

Culture can include everything that gives a family its identity. Culture represents the beliefs and practices of a group that shares those beliefs and practices. Neither family nor culture could exist without the other. Diversity in culture is essential for the difference in literature. It enhances the identity as well as the individuality of the families in the society.

Afghanistan is known for its unique ethnicity. They give paramount importance to their culture. Afghans value their ancestral practices and continue to observe them. Afghan culture is very collective and people generally put their family's interests before their own. This means that family responsibilities tend to hold greater importance than personal needs. Loyalty to one's family supersedes any obligations to one's tribe or ethnicity.

Obayda's parents do not show any kind of discrimination based on their feminine gender when they are residing in the city. Only a male child can work outside the house and earn money. The poverty of families made families send their children to work at an early age. As there is vast inequality between the sexes, bacha posh injects cultural flexibility. Also, the females of a family must have a male escort to travel in the rural parts of Afghanistan. Women's mobility was tightly controlled by the Taliban regime enforcing women not to leave their house without a male companion. If there is no boy to escort women, it will limit their mobility which in turn results in limiting their public access. So, to overcome this issue, Afghan tradition found another tradition called bacha posh.

A bacha posh in the family is linked to more equitable gender norms. They enjoy equal status to that of a boy in Afghan society. A bacha posh child can behave more freely. Not having a boy child is considered a social disgrace in the archaic patriarchal setting. Women in Afghan society are mocked by calling them "dokhtar zai", which means she only brings daughters, and husbands are called "mada posht", which means whose women will only deliver girls. There is constant pressure on families to have at least one boy child. To raise their social standing, the parents convert their daughters into bacha posh. This gender-changing custom will provide social relief to families having no boy child. It is clear from the dialogue with Obayda's aunt that this practice is very common in Afghanistan. Obayda came to see another bacha posh in the Afghan society later.

This custom is documented at least one century ago. It is a much older practice, practiced still today in modern-day Afghanistan. However, it received very little attention in the literature. Turning a child into a bacha posh is somewhat of a public secret in society as it

does not have the approval of religion. Families have several reasons to change their child to a bacha posh. One main reason is the poverty the family faces. Women's mobility, particularly in rural settings, is often highly constrained and a purdah system is imposed upon them. One can escape from all these restrictions by changing into a bacha posh.

Nevertheless, bacha posh may be a practical response to navigating the gender terrain in Afghanistan. Interestingly, bacha posh could be used as a way to resist the strict societal codes that dictate how women should and should not behave. Bacha posh is linked to less patriarchal gender norms and can be a way for girls and women to acquire education, mobility, and engagement in income-generating activities. This practice supports their family economically by making the girl child work in a patriarchal society. Moreover, according to a study conducted by an international journal, women reporting bacha posh in Kabul had higher monthly savings, suggesting that girls raised as boys may be making important economic contributions to household savings, either through their own work or else through enabling women to work. In order to erase patriarchy, every household must have a bacha posh in the family. It will result in less patriarchal individual gender attitudes. Many people outside this cultural practice will think that this practice is victimizing girls. But it actually changes the position from victims to a stage where they can realise their real strength and innate potentialities.

People of Afghanistan express disappointment or dismay at the fact that most Western perceptions of their country are formulated around the news of terrorism and turmoil without insight into the geographical factors that caused such conflicts. Such perceptions overlook many of the positive aspects of the culture. Embellishment is also noticeable in the language, with poetry being one of the most admired art forms.

The researcher concluded that gender is performative rather than innate. It can be proved by the novel *One Half from the East*, in which the researcher sees the subversion of the gender identity of a preteen girl to a boy. Our biological gender is not what we perform. The performance of our gender is decided by the type of performance. If one is performing masculinity, he or she can be considered male. In the same way, one who is performing feminine attributes can be called a female. The binary is not decided by traditional gender analysis. Gender is a broad spectrum and is fluid. There can be a gender change based on performance. Transvestism and cross-dressing are so common in many societies and countries. It is not unique to Afghan society. If one's biological gender is restricting them from doing certain things, it is ok to change to a wished identity and do everything they wish. The researcher came to the conclusion that gender is an objective natural thing, that does not exist. The novel *One Half from the East* proves that gender is real only when it is performed.

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***Samskara* as a text that Raises Subaltern Issues**

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Abstract:

The caste system has existed in India for at least 3,000 years. It is a social hierarchy, passed down through families, and it can dictate the professions, social status etc. But the evilness of the caste system disrupts the lives of million people in India year by year. Superstitious beliefs, discrimination, marginalisation, untouchability, greed, exploitation, selfishness takes a major role in caste system for the distraction of the society

Keywords: Discrimination, marginalisation, untouchability.

Samskara A rite of dead man, a classic of modern literature, is an intense exploration of subaltern issues such as the caste system, inequality, untouchability, patriarchy, Orthodoxy of Brahminism and marginalisation. As an insider's account of life in a community that practised these issues, the novel assumes even greater significance. The book offers a scathing critique of the caste system. U R Ananthamurthy lived in a society in which the caste system was very critical. So his experience and intense opposition are visible in the novel.

Ananthamurthy is unafraid to criticise the style of life of the Brahmins. The stupid insistence on adhering to religious commandments is what causes Naranappa's body to decay. Rats and vultures are drawn in by the nauseating odour, making life in the agrahara intolerable. The community values ceremony above a dead man's entitlement to a good funeral. Naranappa, the anti-Brahmin against the most-Brahmin Praneshacharya and Brahmanism itself, is the book's most intriguing figure. Although Naranappa dies in the first scene, he is constantly present throughout the entire book. He is honest despite his coarse behaviour. As compared to the Brahmins' false behaviour, this honesty causes Praneshacharya to question whether Naranappa will reach God first. In short, even a dead man becomes the victim of marginalisation because of casteism. The depiction of women and lower castes is real and miserable. Women were treated as mere sexual objects. The crucial point of the novel is when the protagonist made a sexual relationship with Chandri It brings a change in the novel. It's led to a dilemma in one own identity.

Ananthamurthy's brilliant depiction of characters can be seen throughout the novel. It really presents the aftermath of the caste system and social inequalities through the career of a limited hero. Each of the characters are the representative of the social system. Through their traits and ideologies author put a question to think and transform

Samskara celebrated three major themes, the caste system, self-discovery and transformation and greed. In connection with the dogma of Brahminism, greed is silent sarcasm upon their blind beliefs. Because Chandra's gold changed the attitude of Brahmins regarding the cremation of Naranappa. The people who rejected to do the cremation themselves come forward to do cremation in front of the gold. That means the rules caste system is merely for subordination and suppression of the lower caste.

To sum up, the act of uniting binary opposites by embracing the non-traditional side of the separation, *Samskara* seems to promote a new paradigm. It focuses on the social questions of the caste system and highlights the cognitive dissonance created in the minds of its followers. *Samskara* means the funeral that is given to a dead person but in another sense it is

transformation and purification of mind-set. So we can assure that samsKara can do a purification in the mind of society by realizing the dogma of the caste system. I believe that this Novel should be explored more by readers today and drive forward the impeding social change built on the foundations of equality.

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Liberal Feminism in the Novel *Daisy Miller*

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Abstract:

Liberal feminism is one of the earliest forms of feminism stating that women's secondary status in society is based on unequal opportunities and segregation from men. Emerging out of the abolitionist and women's movement in the U.S, This body of feminism focuses on eliminating gender inequality. The basic beliefs are grounded in liberalist philosophical traditions, as well as French and British feminist theory. The novel *Daisy Miller* discusses the concept of liberal feminism.

Keywords: Empowerment, Liberation, feminism

European and American women in the nineteenth century lived in an age characterized by gender inequality. At the beginning of the century, women were not allowed to enjoy legal, social, or political rights that are now taken for granted in western countries. They could not vote, could not testify in court, had very much limited control over personal property after marriage, they were rarely granted with legal custody of their children in cases of divorce, they were denied the right for higher education. They were under the control of their fathers and husbands.

Women's occupational choices were also extremely limited. The women from upper – class and middle – class generally remained home, to take care of their children, and for the household work. Lower – class women worked outside the home, usually as poorly – paid domestic servants in factories and mills. Many of the scholars supports the point that the Victorian age was a time of especially gender polarization as women were expected to adhere to a rigidity defined sphere of domestic and moral duties, restrictions that women increasingly resisted in the last two – thirds of the century. *Daisy Miller* represents the society of America of the early 19 th century and woman's status in the very society. It draws a portrait of an American girl from Schneckedy offends the delicate social sense of various so – called patriarchal norms and values and how she is misunderstood. Daisy is hounded for her actions by the other two women present in the novel, Mrs. Costello and Mrs. Walker. Mrs. Costello represents the ideal and respectable woman of late 1800's Europe. She is aunt of Daisy. She is shown in the novel as a refined, proper, and properly opposite all that Daisy embodies. Mrs. Costello is continuously interfere in the severe criticism of Daisy's behaviour, thinking of anyone could behave so vulgarly, she is baffled. Society accepts that Mrs. Costello is right, and her opposite, Daisy is wrong. Without a trial, Daisy's behaviour is condemned, and is met with death.

The huge difference between the behaviours of two young, single Americans abroad, Daisy and Winterbourne, has one clear explanation apart from the divergent personalities: as a man, Winterbourne is free to act as he likes and to lead an independent lifestyle without any restriction, while Daisy is not. The novel *Daisy Miller* implicitly if not explicitly developsthis unjust difference based on gender norms. Daisy is a representative of a generation of American woman who have more options than ever were open – movements on women's rights were beginning in earnest, and the Grand Tour to Europe, which had earlier been open to men only, could now be enjoyed as well as women. However, it's meaning is not women were fully independent. At Daisy's desire to walk alone, Mrs. Costello, Mrs. Walker, and others grow so

shoked. The word allow usually meaning with one man, unaccompanied by a Chaperone – underlines these drawbacks. In many ways, The novel mentions just how frustrating these drawbacks and lack of freedom can be for intelligent, curious, young women. At this historical moment, still James is seemingly very ambivalent about the position of young American women. The book does not agree to Daisy's behaviour as a model for young women, because her death at the end, and is also shown as stemming from her own mistakes and rash choices. As the place of the woman in American and European culture was rapidly changing, Henry James painted some of society's own ambivalent views on what paths the New woman could take, and what dangers she still faces, especially in the older, more established European culture. Women have been lowered to the status of signs in society – especially 19th century society and have had to secure as carriers of meaning for men. James was straightly concerned with this signifying process and treated the sign versus conscious self - contradiction of women's lives through his fiction

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Challenges and Opportunities for Women Working Remotely

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Abstract

When we talk about remote work, we never realize how different it can mean for men and women. The challenges and opportunities women working remotely have, are quite distinct from those of men. Reports suggest that 80% of women are unwilling to return to work as compared to 60% of men. This article sheds light on the challenges and opportunities for women working remotely. Women consider remote work an advantage due to the freedom to work from the convenience of home and better integration of career and personal life.

Keywords: Remote Working, Gender Disparity, Work-Life balance

Introduction

The challenges and opportunities women working remotely have are quite distinct from those of men. Women consider remote work an advantage due to the freedom to work from the convenience of home and better integration of career and personal life. Despite all the benefits of working remotely, women report a sense of insecurity and the fear of losing out on growth opportunities. In a way, working remotely is widening gender disparity for women. Despite women's empowerment and advancement, men are still preferred for significant roles, and women are still the primary caregivers. Then why do women still prefer working remotely? This study will elaborate on how remote working has affected women and how can they decide if working remotely is right for them.

Challenges and opportunities for women working remotely

Women are always expected to take care of children and do household chores. It can be quite daunting for women to focus on work in the hustle and bustle of household responsibilities and simultaneously move up the corporate ladder. Let's take a look at all challenges woman face while working remotely.

1. **Feeling Burnout:** Working from home, taking care of kids, preparing meals, and doing other housework at the same time can be pretty challenging. Remote work blurs the line between work and personal responsibilities. Even the family members expect a woman to cater to their needs when she's at home. It causes distraction and diverts focus. Women work extra hours to accomplish tasks and deliver work before deadlines. This can lead to over-exhaustion and burnout. Working remotely can be rather stressful and deplete motivation.
2. **Stagnant career growth:** Working virtually can take away significant growth opportunities from women as they might miss being part of important discussions and decisions. Women have been struggling to be heard and get equal opportunities for a very long time and now working behind the scenes might make it even harder for them to get access to those opportunities. Although organizations set up performance metrics in virtual work environments, forming associations and networking is a massive part of getting recognized and promoted. Women might miss establishing corporate bonds while working from home.
3. **Feeling lonely:** Watercooler chats, friendly conversations, and connecting with like-minded colleagues are a part of the in-office work environment. Women feel intellectually satisfied when they make these bonds and form meaningful friendships that foster a growth mindset. Working alone from home while entangled in household chores might make women feel lonely and dissatisfied. Staying at home and working in your pajamas is indeed very comfortable, but it can take away the drive, motivation,

and slower work speed. It gives confidence and motivation to work when you dress up for the job and work in a facilitative office environment.

4. **Lack of optimum resources:** Some women might face the challenge of inadequate resources like a lack of comfortable office furniture, an undistracted work environment, and supportive family members. Even if they have adequate resources, it might cost them extra to set up the optimum work environment. In such situations, women should work from their work location or the company must compensate them for office equipment and internet bills, etc.

Despite the various challenges of working remotely, the majority of women are willing to work from home. Let's take a look: why?

1. **Better work-life balance:** Saving time and money by avoiding traveling time and extra unproductive office hours enables women to spend quality time on their children, health, and hobbies. A mother wants to spend quality time with her children, especially during their growing up years, and not miss any personal milestone. Remote work can give women the flexibility to enjoy the best of both worlds.
2. **Safety and comfort:** The biggest benefit women report while working remotely is that they don't have to face the challenge of commuting. Women face harassment and sexual advances using public transport. Even those who own a vehicle avoid traveling alone due to security concerns. It also saves time and money. During menstruation, it is even more comfortable for women to be able to work from the comfort of their homes. Not all companies allow ample maternity leaves and childcare support. Remote work enables them to take care of their health and look after their children while not losing on professional opportunities.
3. **Multiple opportunities:** Women are expected to move and shift careers depending on their husbands' careers. Remote work has allowed them to keep working in their regular jobs while moving from one location to another. Another advantage that women report is, technology has enabled them to voice their opinion without being shut down or interrupted by a male employee. They also have the time and flexibility to work on multiple projects and choose a job irrespective of geographical location. Remote work has given women wings to focus on the work they are passionate about without worrying about personal issues.

Steps organizations can take to minimize challenges for women working remotely

- Organizations must continually review, analyze and modify work-from-home policies to ensure equality and sustainability for women.
- Accurate performance metrics and reward systems must be set in place so that women do not lose out on deserving recognition.
- Appropriate HR training should be mandatory for managers and supervisors to ensure they practice inclusivity and give equal opportunities to women in virtual work environments. They must be aware of the biases and judgments women face at work so that they can keep that behavior in check and follow a zero-tolerance policy for indiscrimination.
- Boundaries, goals, and guidelines must be clearly defined to avoid any confusion. A fair and transparent evaluation system must be set up.

- Along with remote work, flexibility to choose work hours and time off to avoid stress and burnout must be considered by employers too.

Conclusion

There are both challenges and opportunities for women working remotely. It's an individual and organizational responsibility to create gender-neutral and fair working conditions. As a woman, you must set clear priorities and learn to say NO, to avoid burnout and exhaustion. Develop time management skills to seamlessly integrate work and personal life. Make your mental and physical health a priority.

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Environmental Sustainability: A Necessity for Survival

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Abstract

Environmental sustainability is one of the biggest issues faced by the mankind at present. Increasing population along with tremendous escalation in anthropogenic activities has raised several questions on the sustainability of natural resources on our planet. No part of the earth is now untouched by the effect of human activities or pollution. In addition to this, urbanization, industrialization and modern agricultural practices have polluted the water resources, air and soil all around the globe. The natural resources are thus not only being over-exploited but also becoming contaminated with toxic chemicals making it difficult for the survival of future generations.

Keywords: Environment Sustainability, Population, Pollution, Future generations

Introduction

Environmental sustainability is the ability to maintain an ecological balance in our planet's natural environment and thus conserve natural resources to support the wellbeing of current and future generations. Environmental sustainability is about ecological balance. For nearly two millennia, human beings have been carbonizing our planet, which has contributed to global climate change.

The three pillars of sustainability

Sustainability is about meeting the needs of present generations without compromising the ability of future generations to meet their own needs. There are three main pillars of sustainability that many organizations strive to achieve:

- **Social sustainability:** For businesses, social sustainability includes crucial issues of the workplace and employees, like health and safety, inclusion, empowerment, professional development opportunities, and work-life balance.
- **Economic sustainability:** While it may seem that this pillar is focused on an organization's ability to remain profitable throughout its lifetime, economic sustainability isn't just about money. An economically sustainable organization is one that can drive revenue and maintain long-term business growth without negatively impacting the community, environment, or health and wellbeing of its employees.
- **Environmental sustainability:** This pillar is all about protecting the environment for future generations. Environmentally sustainable organizations take steps to enhance efficiencies, reduce resource consumption and waste, and measure and monitor carbon emissions across the entire supply chain.

A brief history of environmental sustainability

The United States first made a national commitment to environmental sustainability in 1969, with the enactment of the National Environmental Policy Act (NEPA). According to the United States Environmental Protection Agency (EPA), under NEPA, the U.S. made it a national policy "to create and maintain conditions under which humans and nature can exist in productive harmony, that permit fulfilling the social, economic, and other requirements of present and future generations." In more recent years, many organizations have made environmental sustainability a priority, expanding their efforts to decrease carbon emissions, reduce and eliminate waste, and consume less water.

Why is environmental sustainability important?

Environmental sustainability is important for the wellbeing of current and future generations. Climate change presents a variety of complex environmental, social, and

economic challenges for countries across the globe. In recent decades, the consequences of climate change have become increasingly apparent—from rising global temperatures and more extreme droughts to strengthening tropical storms, destructive wildfires, and devastating floods. As humans and ecosystems across the planet are suffering from the damaging impacts of climate change, many individuals, communities, and organizations worldwide are embracing environmental sustainability and making this critical cause a priority. These efforts will allow us to decarbonize our planet and conserve natural resources to support the health and wellbeing of future generations.

For organizations, environmental sustainability isn't just good for the environment—it's also good for business. By advocating for sustainability and launching programs that support a healthier environment, organizations across all industries can build brand trust, boost customer loyalty, and enhance employee satisfaction. Environmental sustainability is no longer a luxury for organizations—it's now a corporate social responsibility.

Examples for Environmental sustainability: Six ways to reduce your footprint

While organizations across the globe want to accelerate their sustainability efforts, many do not know where to begin. If you're looking for ways to reduce your organization's environmental impact, here are a few environmental sustainability examples and tips to help you get started:

- a) **Switch to renewable energy:** In an effort to reduce their environmental footprint, many organizations are shifting to renewable energy sources like solar, hydro, geothermal, and wind. Projections show that 50 percent of total power generation after 2035 will be renewables—mainly wind, solar, and hydroelectric.
- b) **Commit to a zero-waste future:** Each year, people consume 100 billion tons of materials—and in 2020, only 8.6 percent of those materials were cycled back into the economy after use. To help reduce waste, some organizations are taking an increasingly circular approach to materials management. This not only means increasing the use of recycled content, but also responsibly sourcing materials for operations, products, and packaging.
- c) **Reduce your organization's carbon emissions:** Innovative environmental sustainability solutions allow organizations to measure, record, and report carbon emissions across their supply chain. This allows organizations to reduce their impact, gain efficiencies, and make lasting changes.
- d) **Protect ecosystems:** Healthy ecosystems are essential for a healthy planet. According to research by the United Nations, the health of the world's ecosystem is deteriorating more rapidly than we previously realized. That's why environmentally conscious organizations are looking for ways to manage their impact on ecosystems and taking steps to help preserve natural resources for a climate-stable future.
- e) **Conserve water:** Many organizations that are committed to environmental sustainability are working to reduce their overall water consumption—and some have set goals to be water positive within the next decade. Due to population growth, economic development, and ever-increasing consumption, there's a global increase in water demand. If we don't take action, projections show that there will be a 56 percent deficit in water supply relative to demand by 2030.
- f) **Advocate for sustainability policies:** Another way organizations can increase their sustainability efforts is by advocating for policies that support the cause. This includes policies designed to help reduce carbon emissions, advance zero-carbon energy, effectively manage ecosystems, and increase water access, availability, and quality. By pushing for greater sustainability action across your community, country and the world, your organization can make a substantial difference.

What is ESG?

ESG, which stands for environmental, social, and governance, is a set of standards that organizations follow as they strive to be more socially responsible. ESG is important because this is the criteria investors evaluate as they determine whether or not to invest in a company. Every organization has a direct impact on environmental, social, and governance concerns. Today, the way businesses approach ESG is more important than ever as environmental and social responsibility has become a focus for a wide range of stakeholders—from communities and customers to shareholders and suppliers. Plus, when an organization commits to strong ESG standards, it can help them attract and retain top talent. That's because an increasing number of employees are drawn to companies that care about bigger issues beyond profitability and take steps to address environmental, social, and governance concerns.

Conclusion

Targeting short term gains, humans have destroyed the natural systems at a fast pace. It is very important to assess the impact of human activities on the local ecosystems and the planet as a whole on a regular basis. Use of latest technologies and tools help the assessment of the situation but the need is to find suitable green solutions with the help of technological tools. Biotechnological approaches and green technologies are providing the solutions to these problems. Scientists are in the process of developing green fuels and novel energy sources which could replace petroleum products and provide green energy so as to cut down the emission of green house gases. Similarly, management of pollutants, organic wastes and biodegradation of contaminated sites are being achieved by the help of biotechnological tools.

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Mechanism of Conflict Management in Business Organizations

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Abstract

Conflict management is a critical aspect of maintaining a healthy and productive work environment in business organizations. This article explores various mechanisms and strategies that organizations can employ to effectively identify, address and resolve conflicts. It emphasizes the importance of communication, conflict resolution procedures, mediation, negotiation, training, leadership and HR support. By implementing these mechanisms, businesses can foster collaboration, creativity and innovation while preventing conflicts from becoming detrimental to their success.

Keywords: Conflict management, mediation, negotiation, conflict resolution, team building

Introduction

Conflict is an inevitable part of human interaction, and this holds in the context of business organizations. When managed effectively, conflicts can lead to positive outcomes such as improved decision-making, increased creativity, and stronger relationships within teams. However, if conflicts are left unaddressed or mismanaged, they can result in decreased morale, decreased productivity, and even damage to an organization's reputation.

This article explores the mechanisms and strategies that business organizations can employ to manage conflicts successfully. We will delve into the importance of communication, conflict resolution procedures, mediation, negotiation, training, leadership, HR support, team building, codes of conduct, and performance feedback in conflict management. By understanding and implementing these mechanisms, organizations can foster a harmonious work environment and prevent conflicts from hindering their growth and success.

Mechanism of Conflict Management

1. Communication

Effective communication is the cornerstone of conflict management in any organization. It serves as the foundation for understanding, empathy and cooperation among employees. Open and transparent communication channels can prevent conflicts from escalating and help in their resolution.

2. Conflict Resolution Procedures

Establishing clear conflict resolution procedures and policies is crucial. These procedures should outline the steps to be taken when conflicts arise and guide how to address them constructively. Having a documented process in place ensures that everyone in the organization knows what to do when conflicts occur.

3. Mediation

Mediation involves a neutral third party who helps conflicting parties reach a mutually acceptable solution. This mechanism can be internal or external, depending on the nature and severity of the conflict. Mediators facilitate communication, assist in identifying common ground, and guide the parties toward resolution. Mediation is particularly effective when conflicts are deeply rooted or when there is a significant power imbalance between the parties involved.

4. Negotiation

Encouraging parties involved in a conflict to engage in negotiations can lead to a compromise that satisfies all parties. Negotiation skills are essential for both employees and managers. Training employees in negotiation techniques can be beneficial in resolving conflicts at an early stage, before they escalate.

5. Conflict resolution training

It provides employees and managers with the knowledge and skills necessary to manage conflicts effectively. This training covers the causes of conflicts, emotional intelligence, communication skills, and strategies for finding constructive solutions. By investing in conflict resolution training, organizations empower their workforce to handle conflicts more constructively and productively.

6. Leadership and Management

Leadership and management play pivotal roles in preventing and managing conflicts. Effective leaders set a positive example by addressing conflicts in a fair and timely manner. They also promote a culture of respect, collaboration, and open communication within the organization. When leaders demonstrate these qualities, employees are more likely to follow suit, reducing the occurrence of conflicts.

7. Establishing a Code of Conduct

A well-defined code of conduct outlines expected behavior and values within the organization. It sets clear boundaries and expectations for employees and management alike. Ensuring that employees are aware of the code of conduct and its consequences for violations can help prevent conflicts and maintain a harmonious work environment.

8. Team Building

Investing in team-building activities and exercises can enhance team dynamics and reduce the likelihood of conflicts. Strong, cohesive teams are more resilient to conflicts, as members trust and understand each other better. Team-building efforts can improve communication, collaboration, and problem-solving skills, fostering a positive work environment.

9. HR Support

Human resources (HR) departments play a significant role in conflict management. They provide guidance, support, and resources for employees and managers dealing with conflicts. HR can also conduct impartial investigations when necessary to ensure that conflicts are resolved fairly and in compliance with company policies and relevant laws.

10. Performance Feedback

Regular performance feedback mechanisms are essential for addressing issues before they escalate into conflicts. Constructive feedback helps employees understand their strengths and weaknesses and guides improvement. Effective feedback fosters personal and professional development, reducing the likelihood of conflicts arising from misunderstandings or unaddressed issues.

Conclusion

Conflict management is a vital aspect of maintaining a healthy and productive work environment in business organizations. By implementing mechanisms such as communication, conflict resolution procedures, mediation, negotiation, training, leadership, HR support, team building, codes of conduct, and performance feedback, organizations can effectively identify, address, and resolve conflicts.

These mechanisms empower employees and managers to handle conflicts constructively, prevent them from becoming detrimental to the organization's success, and even harness their potential for positive outcomes. As businesses continue to evolve, conflict management will remain a critical skill, ensuring that teams collaborate effectively and contribute to the organization's growth and prosperity.

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Emotional Maturity among Graduate Students in India

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Abstract

This article inquires into the concept of emotional maturity among graduate students in educational institutions in the country. Emotional maturity is a crucial aspect of personal development that profoundly impacts academic performance and overall well-being. The article examines key factors influencing emotional maturity, highlights its significance, and presents pertinent facts and figures to shed light on the current state of emotional maturity among graduate students in the country.

Keywords: Emotional maturity, personal development, academic performance

Introduction

Emotional maturity is not only a critical factor but also a defining one in the lives of graduate students in the country. The unique blend of academic pressures, cultural diversity and the pursuit of personal and professional growth in India's educational landscape makes emotional development an essential facet of a graduate student's journey. As they navigate the demanding academic rigors and prepare for the competitive job market, understanding the state of emotional maturity among these students becomes imperative. This article aims to shed light on the emotional maturity landscape, inquire into its complexities, and present compelling statistics that illuminate the current scenario, all while underlining the significance of fostering emotional maturity for the benefit of India's graduate student community.

Significance of Emotional Maturity

Emotional maturity, also known as emotional intelligence, encompasses the ability to recognize, understand, and manage one's own emotions and those of others effectively. It is of paramount importance for graduate students in India due to several reasons:-

Academic Performance: Emotional maturity contributes to improved problem-solving skills, decision-making abilities, and effective time management, which are essential for academic success.

Stress Management: Graduate studies can be demanding and emotionally mature individuals are better equipped to cope with stress and pressure, reducing the risk of burnout.

Interpersonal Relationships: Emotional maturity fosters healthier interpersonal relationships, which are crucial for networking, collaboration and personal well-being.

Mental Health: High emotional maturity is associated with better mental health outcomes, reducing the prevalence of anxiety, depression and other mental health issues.

Factors Influencing Emotional Maturity

The various factors that influence emotional maturity among graduate students in India are:-

Family Background: The family environment plays a significant role in shaping emotional maturity. Supportive and nurturing families tend to promote emotional growth.

Educational System: The structure of the Indian education system, including the pressure to excel in academics, can impact emotional development. High-stakes examinations and competition can either bolster or hinder emotional maturity.

Cultural Norms: India's diverse cultural landscape influences the perception and development of emotional maturity, with varying expectations and norms across regions and communities.

Emotional Maturity in India

The various factors influencing the emotional maturity of graduate students in India are:

Academic Pressure

Academic pressure is a prevalent issue in India, particularly among students. According to a survey conducted by the National Sample Survey Office (NSSO) in 2019, approximately 35% of Indian students in the age group of 5 to 29 years reported experiencing educational stress. This statistic underscores the challenges faced by students in managing academic demands, which can significantly affect their emotional well-being and maturity.

Mental Health Concerns

India grapples with a high burden of mental health issues. The World Health Organization (WHO) reported that India is one of the countries with the highest rates of depression and anxiety. These mental health concerns are closely linked to emotional maturity, as individuals with higher emotional intelligence tend to have better mental health outcomes.

Emotional Intelligence Programs

Some Indian educational institutions are taking proactive measures to enhance emotional maturity among their students. For instance, the Indian Institute of Technology (IIT) Delhi offers a course on Emotional Intelligence and Life Skills. This course aims to equip students with essential emotional intelligence skills, which can improve their emotional maturity and overall well-being.

Career Prospects

Emotional maturity has a significant impact on career success. According to a survey conducted by the National Association of Colleges and Employers (NACE) in India, employers highly value emotional intelligence in job candidates. 71% of employers opined that they consider emotional intelligence more critical than cognitive intelligence when making hiring decisions. This emphasizes the practical relevance of emotional maturity for graduate students in India as they prepare to enter the job market.

Strategies to Foster Emotional Maturity

To promote emotional maturity among graduate students in India, educational institutions and policymakers should consider the following strategies:

Incorporate Emotional Education

Educational institutions should integrate emotional intelligence and coping skills into their curricula. These programs can equip students with the tools they need to manage their emotions effectively.

Mentorship and Counseling

Mechanisms should be installed to provide access to mentors and counselors who can guide students in navigating the emotional challenges of graduate education. Having a trusted support system can significantly contribute to emotional growth.

Peer Support Groups

Encourage the formation of peer support groups where students can share their experiences and learn from one another's coping strategies. Peer support can be invaluable in fostering emotional maturity.

Wellness Programs

Establish wellness programs that prioritize physical and mental health. These programs should emphasize the importance of emotional well-being and provide resources for students to manage stress and build emotional resilience.

Conclusion

Emotional maturity is a critical factor in the lives of graduate students in India, influencing their academic success, career prospects and overall well-being. The statistics presented in this article reveal the prevalence of academic pressure, mental health concerns and the importance of emotional intelligence in the Indian context. Promoting emotional maturity should be a priority for educational institutions and policymakers.

In a rapidly changing world, emotional maturity is an invaluable asset that empowers students to navigate challenges with grace and achieve their full potential. By implementing strategies such as emotional education, mentorship and peer support, India can foster a generation of emotionally mature and resilient graduate students who are better prepared for the challenges and opportunities that stand ahead.

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Product Mix and Strategies - An Introduction

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Abstract

A product mix is the set of all products and items a particular seller offers for sale. Product mix helps determine in which direction your company is heading, and the data accumulated by it helps you determine where you want to lead the company. In this book chapter we will introduce the term product mix and the various strategies of product mix.

Introduction to Product Mix

A product mix is the set of all products and items a particular seller offers for sale. A company's product mix has a certain width, length, depth, and consistency. These concepts are illustrated with the help of selected HUL products.

1. A **product line** is a group of related products sold by the same company, probably under various brand names, often differentiating by price, quality, country, or target demographic, seeking to distinguish them from each other for better usability for consumers.
2. **Product Line length** refers to the number of products/brands that come under a single product category/line.
3. The **width of a product mix** refers to how many different product lines the company carries. The table below shows a product mix width of 11 lines.
4. The **length of a product mix** refers to the total number of items in the mix. In the Table below, it is 42. Length refers to the total number of products in a firm's product mix. The length of the product mix refers to the total number of products in the mix. E.g., That is if a company has 5 product lines and 10 products each under those product lines, the length of the mix will be 50 [5 x 10]. We can also talk about the average length of a line. We obtain this by dividing the total length (here 42) by the number of lines (here 11), for an average product line length of over 3.
5. The **depth of a product mix** refers to how many variants are offered of each product in the line. E.G.1., If LUX comes in four variants (Rose, Lavender, Jasmine, Lotus), and in two sizes, it would have a depth of 8 because there are eight distinct variants. The average depth of HUL's product mix can be calculated by averaging the number of variants within the brand groups

Product Mix Strategies

Companies seeking high market share and market growth will generally carry longer product lines. Companies that emphasize high profitability will carry shorter lines consisting of carefully chosen items. A company lengthens its product line in 5 ways/strategies

1) Line Stretching

Every company's product line covers a certain part of the total possible range. For example, Mercedes automobiles are located in the upper price range of the automobile market. **Line stretching** occurs, when a company lengthens its product line beyond its current range, whether down-market, up-market, or both ways.

		Product Mix Width										
		Personal Care				Home Care			Food			
Product Line Length	Personal Wash	Skin Care and Cosmetics	Hair Care	Deodorants	Oral Care	Fabric Care	Kitchen and Floor Care	Tea	Coffee	Food	Ice Cream	
		Lux	Fair & Lovely	Sunsilk	Axa	Closeup	Surf Excel	Domex	Brooke Bond Red Label	Brooke Bond Bru	Kissan	Kwality Wall's
		Lifebuoy	Pond's	Clinic Plus	Rexona	Pepsodent	Rin	Clf	Lipton		Knorr	
		Life 2000	Vaseline	Clear			Active Wheel	Vim	Brooke Bond 3 Roses		Annapurna	
		Hamam	Aviance				Sunlight		Brooke Bond Taaza		Modern	
		Breeze	Lakme				Comfort		Brooke Bond Taj Mahal			
		Dove	Ayush				Sunlight		Brooke Bond Sehatmand			
		Pears										
		Rexona										

a) Down-Market Stretch A company positioned in the middle market may want to introduce a lower-priced line for any of three reasons:

1. The company may notice strong growth opportunities as mass retailers such as Wal-Mart, Big Bazaar, and others attract a growing number of shoppers who want value-priced goods.
2. The company may wish to tie up lower-end competitors who might otherwise try to move up-market. If the company has been attacked by a low-end competitor, it often decides to counterattack by entering the low end of the market.
3. The company may find that the middle market is stagnating or declining.

A company faces several naming choices in deciding to move down-market:

1. Use the parent brand name on all its offerings. Sony has used its name on products in a variety of price tiers.
2. Introduce lower-priced offerings using a sub-brand name, such as Gillette Vector, the lower-priced version of men's shaving razors.
3. Introduce the lower-priced offerings under a different name, such as Tiger Biscuits. This strategy is expensive to implement and means brand equity will have to be built from scratch, but the equity of the parent brand name is protected.

b) Up-Market Stretch Companies may wish to enter the high end of the market to achieve more growth, realize higher margins, or simply position themselves as full-line manufacturers. Many markets have spawned surprising upscale segments: Toyota's Lexus, Nissan's Infiniti etc. They invented entirely new names, because consumers might not have given the brand "permission" to stretch upward when those lines were first introduced.

c) Two-way stretch Companies serving the middle market might stretch their line in both directions. Titan introduced its first watches in the medium-quality segment of the market. Gradually, it has added watches in the premium segment under brand names such as Titan Edge, Nebula and Xylis, where it competes with European brands. In the economy segment, Titan introduces the Sonata collection. The kind of two-way stretch has helped Titan gain market dominance in the watch category.

2) Line Filling

A firm can also lengthen its product line by adding more items within the present range. Motives for line filling include reaching for incremental profits satisfying dealers who complain about lost sales because of items missing from the line, utilizing excess capacity, trying to become the leading full-line company, and plugging holes to keep out competitors.

Line filling is overdone if it results in self-cannibalization and customer confusion. The company needs to differentiate each item in the consumer's mind with a just-noticeable difference. Good Knight mosquito repellents, have been successful as the brand has been offered in different forms (coils to mats to liquid vaporizer) and variants over time, thus filling consumer need gaps.

3) Line Modernization

In rapidly changing markets, **modernization** is continuous. Companies plan improvements to encourage customer migration to higher-valued, higher-priced items. Microprocessor companies such as Intel and AMD, and software companies such as Microsoft and Oracle continually introduce more advanced versions of their products. It's important to time improvements so they do not appear too early (damaging sales of the current line) or too late (giving the competition time to establish a strong reputation).

4) Featuring

The product line manager typically selects one or a few items in the line to **feature**. Firms will announce a special low-priced washing machine to attract lower-middle/value customers. At other times, managers will feature a high-end item to lend prestige to the product line.

Sometimes a company finds one end of its line selling well and the other end selling poorly. The company may try to boost demand for slower sellers, especially if a factory is idled by a lack of demand, but it could be counter-argued that the firm should promote items that sell well rather than support weak ones.

e.g., Nike's Air Force 1 basketball shoe, introduced in the 1980s, is a billion-dollar brand that is still a consumer and retailer favorite and a moneymaker for the company due to collectible designs and tight supplies. Since their introduction, Air Force 1 shoes have been designed or inspired by many celebrities and athletes are still featured in its product line.

In short firms featuring product line that **protects against economic ups and downs**: We can often see companies offering products under different brand names/variants intended for the discount, middle-market, and premium segments, in part in case the economy moves up or down.

5) Pruning

Using sales and cost analysis, product line managers must periodically review the line for deadwood that depresses profits. In 1999, **Unilever** announced its "Path to Growth" program designed to get the most value from its brand portfolio by **eliminating** three-quarters of its 1,600 distinct brands by 2003. More than 90 percent of its profits came from just 400 brands, prompting Unilever co-chairman Niall FitzGerald to liken the brand reduction to "weeding a garden", so "the light and air get into the blooms/buds which are likely to grow the best."

Multi-brand companies all over the world try to optimize their brand portfolios. This often means focusing on core brand growth and concentrating resources on the biggest and most established brands. **Procter & Gamble's(P&G)** "back to basics strategy" concentrated on brands with over \$1 billion in revenue, such as Tide, Crest(toothpaste), Pampers, and Pringles. Every product in a product line must play a role, as must any brand in the brand portfolio.

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IR Sensor Interfacing using Arduino

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Abstract

In this study, we explore the integration of infrared (IR) sensors with Arduino microcontrollers for various applications, such as proximity sensing, object detection, and remote control systems. The research focuses on the principles of IR sensor operation, their interfacing techniques with Arduino boards, and the development of practical projects that harness the capabilities of these sensors. Through hands-on experiments and programming, we demonstrate how Arduino can efficiently process IR sensor data, enabling users to create responsive and versatile electronic systems with a wide range of real-world applications. This work underscores the significance of IR sensor and Arduino synergy in the realm of sensor-based technology and serves as a valuable resource for enthusiasts and engineers seeking to leverage these technologies for innovative projects.

Key Words: Arduino Nano, Infra Red (IR) sensor, microcontroller, Integrated Development Environment (IDE)

About the Circuit

The interfacing of IR sensors with Arduino involves a straightforward yet effective process that enables the Arduino to receive and interpret data from the sensor. The working principle of this setup revolves around the transmission and reception of infrared light. When an IR sensor is powered on, it emits infrared light in its active state. When an object comes within the sensor's detection range, it reflects some of this emitted light back to the sensor. The IR sensor then detects this reflected light and generates an analog or digital signal, depending on its type, which indicates the presence or absence of an object.

Arduino, acting as the central controller, receives this signal through one of its digital or analog pins. Depending on the sensor's output, the Arduino can perform various actions, such as displaying information on an LCD, triggering an alarm, or controlling other devices like motors or LEDs. This integration is made possible through Arduino's versatile programming environment, which allows users to define specific threshold values and logic for processing the IR sensor's input. Consequently, the Arduino-IR sensor interface opens up a wide array of applications, from simple object detection in robotics to more complex applications like home automation and remote control systems, making it a valuable tool for electronics enthusiasts and engineers alike.

Circuit Diagram

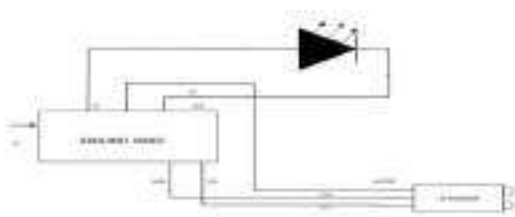


Fig1: Circuit Diagram

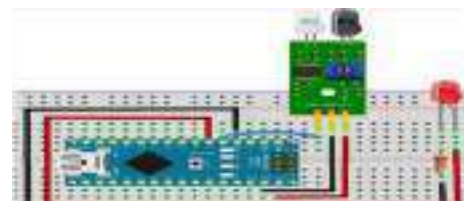


Fig: Circuit Prototype

Components:

1. Arduino board (e.g., Arduino Uno)
2. IR sensor module
3. Breadboard and jumper wires
4. Resistor (typically 10k Ω)
5. LED and current-limiting resistor (optional)

Connections:

1. Connect the VCC (or +) pin of the IR sensor to the 5V output on the Arduino.
2. Connect the GND (or -) pin of the IR sensor to the GND (Ground) on the Arduino.
3. Connect the OUT (or signal) pin of the IR sensor to a digital input pin on the Arduino (e.g., D2).
4. If you want to use an LED as an indicator when the IR sensor detects an object, connect the anode (longer lead) of the LED to a digital output pin (e.g., D7) through a current-limiting resistor (usually around 220-330 Ω). Connect the cathode (shorter lead) of the LED to GND.

Arduino Code

Here's a simple code example for reading the IR sensor's output and controlling an LED:

```
arduino

const int irSensorPin = 2; // Digital pin connected to the IR sensor
const int ledPin = 7;    // Digital pin connected to the LED

void setup() {
  pinMode(irSensorPin, INPUT);
  pinMode(ledPin, OUTPUT);
  Serial.begin(9600); // Initialize serial communication for debugging (optional)
}

void loop() {
  int irValue = digitalRead(irSensorPin); // Read the IR sensor's output

  if (irValue == LOW) { // IR sensor detects an object
    digitalWrite(ledPin, HIGH); // Turn on the LED
    Serial.println("Object detected!");
  } else {
```

```
digitalWrite(ledPin, LOW); // Turn off the LED  
}  
}
```

This code reads the output from the IR sensor and turns on the LED when an object is detected.

Conclusion

In conclusion, the interfacing of IR sensors with Arduino microcontrollers offers a versatile and accessible platform for a wide range of applications. This integration allows for the efficient detection and processing of infrared signals, enabling the creation of responsive electronic systems capable of tasks like object detection, proximity sensing, and remote control. The synergy between IR sensors and Arduino empowers electronics enthusiasts and engineers to develop innovative projects that bridge the physical and digital worlds. Whether used in robotics, home automation, or security systems, the interfacing of IR sensors with Arduino remains a valuable tool in the realm of sensor-based technology, offering limitless opportunities for creative and practical implementations.

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Persistence of Vision Display

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Abstract

A Persistence of Vision (POV) display created with Arduino is a captivating and dynamic visual technology that leverages the human eye's inherent persistence of vision to create mesmerizing animations and messages. By rapidly illuminating an array of LEDs in a precise sequence as the display is moved, Arduino-controlled POV displays can craft the illusion of static images or text floating in mid-air. This innovative fusion of hardware and software engineering not only showcases the versatility of Arduino microcontrollers but also offers a captivating medium for artistic expression and communication, as it allows users to project intricate designs that seem to magically hang in space before their eyes, making it a compelling platform for interactive art installations, advertising, and educational demonstrations.

Keywords

Arduino, Persistence of Vision (POV), Microcontroller

Circuit Description and Working

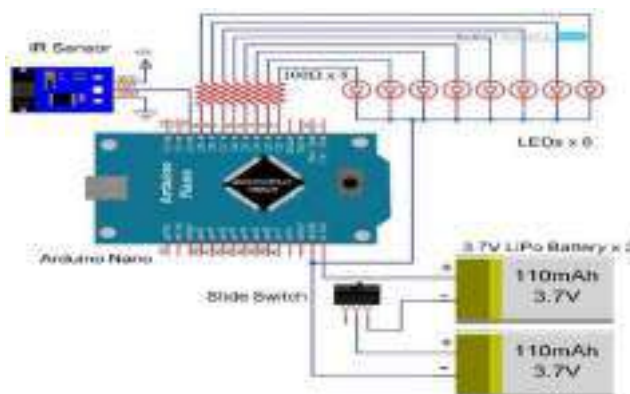


Fig 1: Circuit Prototype

The working of the POV Display can be explained with a simple example. Consider you want to display the alphabet 'B'. In order to display this character, the LEDs get turned on and off in a pattern over 5 steps. Each step is associated with a column of the LEDs and shown in the following image. The delay between the switching of the columns is very less usually in the order of hundreds of microseconds (as you can see in the code). In order to fix a starting point, the Arduino uses the IR Sensor as a reference i.e. whenever a signal from the IR Sensor is received, it starts displaying the text. Components used for the construction are Arduino Nano, LEDs x 8, 100Ω Resistors x 8, 9 V battery, IC 7805, Jumper Wires, IR Sensor Module, Slide Switch, Perf Board, 12V DC Motor, Power Supply for Motor.

A Persistence of Vision (POV) display, implemented with Arduino, operates by capitalizing on the concept of visual persistence in the human eye. This ingenious technology employs an array of LEDs positioned in a linear or rotational configuration. As the display moves, whether through a spinning rotor or linear motion, Arduino's precise timing capabilities come into play. The microcontroller orchestrates the activation of each LED with impeccable timing, ensuring that it lights up precisely when it occupies a particular position within the

display's rotation or movement. This synchronization is crucial as it enables the LEDs to form a coherent image or text when observed by an onlooker.

The illusion of a persistent image emerges because the human eye retains an image for a brief moment even after the LED has moved to the next position. By carefully controlling the timing of the LED activations relative to the display's motion, Arduino creates the perception of a complete and stable image, despite the LEDs individually flashing on and off. This dynamic interplay between precise timing control and the physiological phenomenon of visual persistence results in mesmerizing animations, messages, or patterns that appear to hang in mid-air, making Arduino-powered POV displays a compelling platform for artistic expression, communication, and educational demonstrations.



Fig 2 : POV Clock Display

Persistence of Vision (POV) displays using Arduino find versatile applications in various domains, including Digital Clocks, Advertising and Branding, Educational Demonstrations, Art Installations, Message Boards and Signage

Conclusion

The Persistence of Vision (POV) display powered by Arduino exemplifies the creative synergy between technology and human perception. This ingenious application of microcontroller precision and visual persistence principles results in mesmerizing displays that can convey information, artistry, and innovation in a dynamic and captivating manner. Whether used for crafting digital clocks, conveying messages, or producing stunning animations, Arduino-based POV displays continue to showcase the limitless potential of human ingenuity and engineering. These displays serve as a testament to the power of harnessing scientific principles to create engaging and interactive visual experiences that defy conventional limitations, offering endless opportunities for artistic expression, education, and communication in the digital age.

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Arduino-Uno Microcontroller-Driven Irrigation Automation

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Abstract

The experiment's primary objective is to monitor soil moisture levels and automatically administer water to the soil through an Arduino Uno microcontroller-based automation system. This intelligent soil moisture control system effectively manages field moisture and can be adapted to detect methane gas levels in greenhouses. The system, designed for agricultural greenhouses, boasts an impressive man-machine interface, facilitating a high degree of automation. In addition to its water conservation benefits, the system operates as a self-sustaining prototype, drawing water from a reservoir. Furthermore, the integration of solar energy enhances its environmental friendliness.

Keywords: Arduino, microcontroller, moisture control

Introduction

India, where a significant portion of the population relies on agriculture for sustenance, faces challenges in providing technological support to its rural farmers. The "Arduino Uno Microcontroller-Driven Irrigation Automation" project aims to alleviate this issue and enhance greenhouse conditions. The central component of this system is the Arduino Uno microcontroller, which manages water supply based on soil moisture levels. Additionally, the system can be adapted for automatic plant protection against extreme temperatures and methane gas detection in greenhouses. Excess water can be efficiently reused, and the project can be powered by solar cells in this age of non-conventional energy sources. The primary objective is to create a highly reliable greenhouse monitoring system for optimal crop yields, focusing primarily on soil moisture control, with potential for further parameters like temperature and methane levels in advanced iterations.

Experimental

In the hardware implementation of this project, a soil moisture sensor was connected to the ATmega328p microcontroller, coupled with a motor driver module, and powered by a battery. The flowchart for the entire project is illustrated in Figure 9. The soil moisture sensor detects soil moisture levels, and based on these values, the microcontroller initiates the necessary control actions. If the soil's moisture level falls below the desired threshold, the motor is activated, and vice versa.

Soil Moisture Sensor: This sensor gauges soil moisture content, and depending on the readings, it triggers the motor control circuit to pump water. Figure 1 depicts this sensor, which helps determine whether the soil is dry or wet.

DC Motor & Drive Circuit: The DC motor's primary role is to assist in pumping water into the soil when the soil moisture level drops below the predetermined threshold set in the microcontroller program. Figure 2 illustrates the DC motor and the driver circuit used.

Relay Modules: Relay modules depend on the magnetic field generated by the coil, ensuring power isolation between the coil and the switching pins. This allows the coils to be easily powered from Arduino.

Arduino Uno: Arduino Uno microcontroller (Figure 3) boasts 14 digital input-output pins, 6 analog inputs, and a 16 MHz ceramic resonator. It can be connected to a computer via a USB cable or powered through an AC to DC adapter or a battery.

For advanced versions of this project, additional components like the LM35 temperature sensor and MQ2 methane sensor can be incorporated.

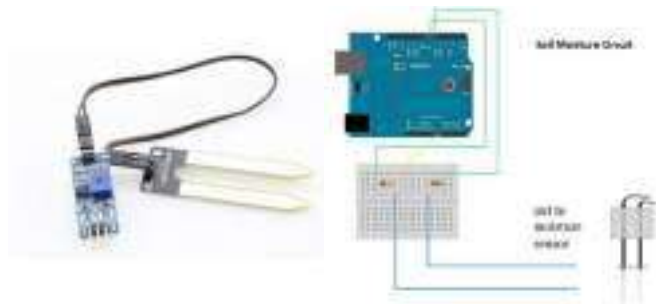


FIG.1 Soil Moisture Sensor and Circuit

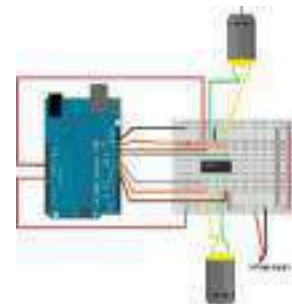


FIG.2 DC Motor Driver



FIG.3 Arduino Uno Microcontroller experimental set up

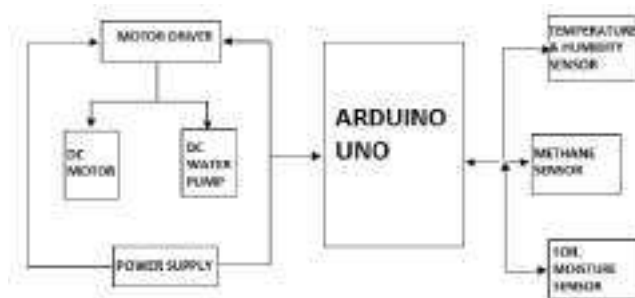


FIG. 4 Block diagram of the

Result and Conclusion

The soil moisture sensor plays a pivotal role in the agricultural system by determining soil moisture levels in the root zone. Every minute, the Arduino Microcontroller collects data from the sensor, recording and analyzing it to take appropriate actions. Soil moisture levels are configured based on plant specifications, soil type, and seasonal rainfall patterns. The Arduino microcontroller regularly uploads observed data and adjusts water supply accordingly, ensuring optimal moisture conditions for plants.

Beyond irrigation control, this system offers versatility. It can be adapted to serve as an automatic alarm system to protect plants from excessive atmospheric temperatures or detect methane gas in greenhouses. Moreover, it enables the recycling of excess water in the field.

The applications of a greenhouse monitoring system in agriculture are vast. Automating greenhouse monitoring reduces the workload on humans, ensuring that plants are cultivated under precise conditions with minimal error. The system's ability to control appliances via the internet opens up further possibilities for integration.

In the near future, there's potential for the system to become completely autonomous, capable of autonomously taking all necessary actions to optimize plant growth. By employing a bi-directional motor pump, while retaining the rest of the project setup, cost-effectiveness can be achieved, making this technology even more accessible and beneficial.

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Comparative Analysis of Viscosity Measurement Techniques: Manual, Poiseuille's Method, and Automated Approach

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Abstract:

Viscosity measurement is a critical parameter in fluid dynamics, with applications spanning various industries. This paper presents a comparative analysis of three methods for measuring viscosity: the manual method, Poiseuille's method, and an automated approach using flow sensors and Arduino microcontrollers. The study aims to evaluate the accuracy, precision, and feasibility of these methods. While the manual method is cost-effective, it is prone to human errors. Poiseuille's method, utilizing solenoid valves and sensors, faces challenges due to sensor inaccuracies. The automated approach, although more expensive, promises higher accuracy and precision when appropriately calibrated. Our analysis reveals the advantages and limitations of each method.

Keywords: Viscosity, Poiseuille's Methods,

Introduction:

Viscosity, the measure of a fluid's resistance to flow, plays a pivotal role in various industries such as aerospace, automotive, and chemical engineering. Accurate and precise viscosity measurements are essential for quality control, process optimization, and research in fluid dynamics. This paper compares three viscosity measurement methods: the manual method, Poiseuille's method, and an automated approach using flow sensors and Arduino microcontrollers. Our analysis aims to guide researchers and engineers in selecting the most suitable method for their specific requirements.

Methodology:

1. **Manual Method:** The manual method involves measuring the time taken for a fixed volume of liquid to pass through a tube of known dimensions. The flow rate and average velocity of the liquid are calculated, and viscosity is determined using Poiseuille's equation. However, this method is prone to human errors and parallax inaccuracies.
2. **Poiseuille's Method:** Poiseuille's method uses solenoid valves and VL53L0X sensors to measure flow through a capillary tube. While theoretically sound, the method faces challenges due to sensor inaccuracies and calibration difficulties.
3. **Automated Approach:** The automated approach utilizes flow sensors and Arduino microcontrollers to measure flow rate accurately. The program calculates viscosity based on flow frequency, tube dimensions, and the Blasius equation. Proper calibration is crucial for precise results.



Figure: Automated setup for measuring viscosity

Results:

In the manual method, viscosity was calculated as 1.05 ± 1.364 Pa.s, indicating a relatively high level of uncertainty. In contrast, the Poiseuille's method using solenoid valves and VL53L0X sensors resulted in inconclusive outcomes due to sensor inaccuracies.

The automated approach, despite its potential for high precision, yielded unexpected results due to calibration errors and sensor inaccuracies. Viscosity was calculated as 0.01 Pa.s, but this value was likely affected by calibration mistakes and sensor inaccuracies.

Conclusion:

In conclusion, our comparative analysis highlights the strengths and weaknesses of three viscosity measurement methods. The manual method, while cost-effective, is prone to human errors. Poiseuille's method, although theoretically sound, faces challenges with sensor inaccuracies. The automated approach, with proper calibration techniques, promises high accuracy and precision but may be cost-prohibitive and require programming skills.

Ultimately, the choice of method should align with the specific requirements and resources of the experiment or industry. For those seeking high accuracy and precision, the automated approach remains promising, provided calibration challenges are addressed. Meanwhile, the manual and Poiseuille's methods may still find utility in scenarios where cost and ease of use are paramount. Further research and development in sensor technology and calibration techniques could enhance the performance of automated viscosity measurement systems.

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Premarital Life Partner Expectations among Rural Adults

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Abstract

The major objective of the study was to explore premarital life partner among adults based on their living area. The sample (young adults aged 18 to 30) were selected by using convenient sampling method (N=305, urban N=83 and rural N=222). Questionnaire method was used to collect data. Premarital life partner expectation scale developed by Reeta Kumari and Pushplata, (1971) and marital attitude scale of Pramod Kumar (1988). The study found that premarital life partner expectation is higher among rural than urban. The study also revealed that sample having post-graduation possessed higher level of premarital life partner expectations.

Keywords: premarital life expectation, Rural adults, Education

Introduction

Premarital life partner expectations are the beliefs and desires that people have about their future spouses before they get married. These expectations can vary based on many factors, such as culture, religion, education, personality, and place of birth. Place of birth can influence premarital expectations in different ways, depending on the social and economic conditions of the region, the exposure to different lifestyles and values, and the availability of potential partners. According to a study by Das and Rout¹, (2023) rural youth tend to marry earlier and have lower levels of education and income than urban youth. They also have higher prevalence of premarital sex, especially among females, due to lack of awareness and access to contraception. Urban youth, on the other hand, tend to delay marriage and have higher levels of education and income. They also have more exposure to mass media and western culture, which may influence their preferences and choices of partners. Urban youth may have more autonomy and freedom to select their partners based on love and compatibility, rather than family or community pressure.

Place of birth can affect the norms and values of the society, as well as the opportunities and challenges for finding suitable partners. Therefore, it is important for couples to understand and respect each other's expectations before getting married, and to communicate and compromise when necessary. premarital life partner expectations can differ based on place of birth, as it influences the social and cultural context of the individuals.

Premarital life partner expectations have undergone a profound transformation, significantly influenced by education. In the past, unions were often arranged based on societal norms and familial considerations. However, as education has become more accessible and widespread, individuals are increasingly seeking partners who share their intellectual and emotional compatibility. Education equips individuals with critical thinking skills and a broader perspective on life, leading them to prioritize qualities like shared values, goals, and communication skills over traditional factors like social status or wealth. Furthermore, education fosters independence, encouraging people to be more selective in choosing a partner who aligns with their personal aspirations and ideals. This evolution in partner expectations underscores the profound impact of education on our quest for lifelong companionship

Result and discussion

Premarital life partner expectation was higher among rural than urban young adults. In rural areas have higher expectation to ensure they find the most compatible match. Rural communities often place a strong emphasis on family values, leading individuals to seek partner who align with their cultural and traditional beliefs. In close-knit rural communities, people often rely more on their partner for support, companionship, and livelihood, which could lead to higher expectations in a life partner. Premarital life partner expectation was higher among rural adults than urban adults in India because of the differences in their exposure to alternative forms of intimate relationships, influence from their families and communities, and access to information and education about sexual and reproductive health.

Smith and Johnson (2020) found that urban-born adults showed a significantly higher preference for partners with ambitious career goals, while rural-born adults placed greater importance on shared family values when it came to premarital life partner expectations.

Education qualification is another factor that influenced the premarital life partner expectation. The results showed that life partner expectations comparatively less among lower educational groups and it is higher among individuals having post graduation.

Postgraduate students often have higher premarital life partner expectations due to various factors. Firstly, their extended educational journey provides more time for self-discovery, leading to a clearer understanding of their desires and needs in a partner. Additionally, advanced education fosters intellectual and emotional growth, making them seek partners who can engage in meaningful discussions and provide intellectual stimulation. Economic stability, often associated with postgraduate degrees, can lead to higher expectations in terms of financial security. Lastly, exposure to diverse perspectives in academia may raise their standards for cultural compatibility, further elevating their expectations for a life partner. These factors collectively contribute to the heightened expectations among postgraduate students. Bhandari (2017) explored the family's involvement in pre-marital relationships of young adults aged 24–31 in India. It argues that pre-marital relationships often model themselves on structures and expectations of a marital union, and that the family can influence the course of a relationship by either obstructing or encouraging it. The study of Kumari (2021) found that the students have high expectations of their future spouses in terms of education, occupation, personality, and compatibility, and that they use various methods to search for and evaluate potential partners. Present findings supporting both of these studies.

Conclusion

These findings indicated the significance of socio-cultural factors shaping marital expectations among rural communities and education also influencing partner preferences. It was a time-bounded study, so as to having various limitations. But it provides an idea regarding the expectations of rural adults.

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Gender Difference in Premarital Life Partner Expectation and Marital Attitude

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Abstract:

The prime objective of the study was to explore premarital life partner expectations and marital attitude among adults based on gender. The sample (young adults aged 18 to 30) were selected by using convenient sampling method (N=305, males N=142 and female N=163). Questionnaire method was used to collect data. Premarital life partner expectation scale developed by Reeta Kumari and Pushplata, (1971) and marital attitude scale of Pramod Kumar (1988). The study found that premarital life partner expectation is higher among females than males. The study also revealed that marital attitude is more or less similar among males and females. No statistically significant gender difference was observed.

Key words: Gender, Marital Attitude, Premarital Life Expectations

Introduction

Gender difference is one of the factors that may influence the expectations and attitudes of young adults towards marriage. Some studies have suggested that there are significant differences between males and females in their views on various aspects of marriage, such as sexual relationship, type of marriage, criteria for choosing life partner and specific motives for successful marriage. These differences may reflect the different social and cultural norms, values and roles that are assigned to each gender in different societies. Premarital expectations refer to what a person anticipates from married life before to getting married. It is a regular occurrence to sense and anticipate something before really experiencing it. Premarital expectations or wants of a spouse are expected from the other partner and are beyond the individual's control, leaving them feeling vulnerable. In addition, when these expectations are not met, it can be incredibly disheartening and aggravating. Marital contentment is an experience that varies from person to person and can only be measured by the response to the marital satisfaction questionnaire (Deressu & Girma, 2019).

Premarital expectations tend to play a significant effect in the marriage life of a person. Once marriage expectations are met, it is recognised that the individual is more likely to enjoy more happiness and marital satisfaction. Particularly, expectations regarding the spouse are regarded as one of the strongest indicators of marital satisfaction (Rios, 2010). Today's generation values companionship, mutual commitment, familial support, sexual needs, and financial independence more than prior generations. Existing research suggests that reciprocal appreciation and cooperation are factors of marital expectations. In addition, other factors influence spousal expectations, such as the spouse's relationship with children and family, professional life, religion, and physical and emotional health (Villa & Prette, 2013). These marital expectations play an important part in the lives of married individuals by influencing their marital satisfaction and quality. According to research undertaken by Signorielli (1999), television plays a significant impact in the formation of perceptions and ideas towards marriage and intimate relationships.

Marital attitudes and expectations form a cognitive schema about relationships brought about by experience (Fletcher & Thomas, 1996; as cited in Riggio & Weiser, 2008). Attitudes and expectations about relationships are important cognitions regarding perceptions of and behaviors in personal relationships (Riggio & Weiser, 2008). One may form attitudes and expectations regarding marital life through personal experiences with a partner, by observing one's parents, or by watching others negotiate the process of courtship and marriage. Highly embedded positive marriage attitudes may influence behaviour and highly embedded negative marriage attitudes may also affect beliefs about relationships (Riggio & Weiser, 2008). Individuals with highly embedded positive attitudes about

marriage view their own current and future marriages as happy and successful but those with highly embedded negative attitudes have less positive expectations (Riggio & Weiser, 2008).

Results and discussions

Premarital life partner expectations higher among females than males. Some of these reasons could be influenced by societal norms, personal experiences, and evolutionary factors. For example, historically, women may have sought partners who could provide security and support, as they often had primary responsibilities in child-rearing. Additionally, changing gender roles and increased emphasis on equality may have led women to seek partners who are supportive, understanding, and share responsibilities in a more balanced way (Smith & Johnson et al., 2020). The study found that male participants tended to prioritize physical attractiveness and shared interests in a partner, while female participants placed more emphasis on emotional intelligence and financial stability as key factors in their premarital life partner expectations. In another study Lee and, Chen, et al.,(2019) there were significant gender differences in premarital life partner expectations. Additionally, educational and professional opportunities have expanded for women, raising their standards for intellectual compatibility and financial stability in potential partners. Women possessed higher levels of romances in their premarital life than males. The study of Harrison (2011) revealed that women were more romantic and tend to fall in love faster than men. This proved that women have more expectations in premarital life regarding their partner.

Conclusions

Young adults normally having higher level expectations regarding their life partner in premarital life. But gender has a significant role in determining the magnitude of expectations. Females obtained higher scores in expectations in this study. But the study shed a light in premarital life partner expectations and attitude towards marriage among new generation youngsters.

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Influence of Gender, Type of Family and Marital Status of Fear of Failure among Performing Artists

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Abstract

Performance failure means any disruption or failure of service including without interruption or delay or any mistake committed by the performer resulting lower level performance is considered as performance failure. Present study was conducted on 200 artists from different areas of arts. The sample were collected by using convenient sampling method and the researcher used Performance failure appraisal inventory (PFAI) 2003 developed by David. E. Conroy to assess the performance failure. The results showed that performance failure not significantly varied on the basis of gender. It was similar among male and female Performers. Further the study revealed that fear of failure was more or less similar among married and unmarried sample. Type of family also does not influence the fear of failure of performing artists.

Keywords: Gender, Type of family, Marital status, Performing artists.

Introduction

Fear of failure has often been described as a “disposition to avoid failure or a capacity for experiencing shame or humiliation as consequence of failure” (Atkinson, 1966). According to Elliott and Thrash (2004) it is seen as “dispositional tendency to avoid failure in achievement settings” due to overwhelming feeling of humiliation and embarrassment caused by failure. The personality traits have its origin in problems like anxiety, shame, and feelings of inferiority (Birney et al., 1969). The fear of failure may exhibit as perfectionist tendency of some students (Beery, 1975) but for others it could cripple their desire to succeed in academics (Rothblum, 1990). They lack self-confidence and in order to save themselves from shame and Embarrassment caused by failing, they perform poorly as an excuse to protect their self-Worth (Beery, 1975). Conroy (2002) states that fear of failure is an encouragement to avoid failure, especially the negative consequences such as shame, lowered self-concept, and loss of social influence.

The performing arts industry is a realm where creativity meets vulnerability, where artists pour their hearts and souls into their craft. Amidst the spotlight and applause, there exists a shadowy companion – the fear of failure. This fear, which can be both motivating and debilitating, is not uniform across all artists. Rather, it is influenced by many factors, including gender, type of family upbringing, and marital status. These aspects, deeply rooted in an artist's personal life and societal context, play a significant role in shaping their perceptions, expectations, and coping mechanisms in the face of artistic challenges. These factors are not isolated variables but intricate threads woven into the tapestry of an artist's life. Gender, with its societal expectations and cultural nuances, can influence how an artist perceives failure and how they respond to it. The type of family one is raised in, whether nurturing and supportive or laden with expectations, plays a vital role in shaping an Individual's self-belief and resilience. Marital status, whether single, married, or in any other configuration, brings its own set of dynamics that can affect an artist's fear of failure.

In the world of the performing arts, where the pursuit of creative excellence is both a passion and a livelihood, the fear of falling short can be a constant companion. The pressure to succeed, the vulnerability of artistic expression, and the unpredictability of the industry create

fertile ground for this fear to take root. What makes this exploration even more fascinating is the realization that the fear of failure is not a one-size-fits-all emotion. It is shaped, molded, and sometimes intensified by an artist's gender, their family background, and their marital status.

Result and Discussions

Gender, type of family, and marital status do not have a significant impact on the performance failure of performing artists. Both male and female artists can experience performance failure, and the reason behind such failures can vary widely and are not inherently related to gender. Factors such as preparation, experience, mental state, external pressure, and various other aspects can play a role in performance outcomes for all individuals, regardless of their gender. It's essential to avoid generalisations and recognize that each artist's experience is unique and influenced by various personal and situational factors. Performance outcomes are multifaceted and depend on a combination of personal qualities and professional circumstances rather than these demographic characteristics. Performance failure typically should not affect artists based on their gender, marital status, or family type due to several reasons. An artist's ability and creativity are not determined by gender, marital status, or family type. Artistic talent is a personal attribute unrelated to these factors. Art is subjective, and the evaluation of an artist's work should be based on its merit rather than personal characteristics.. And also artists are judged primarily on their professionalism and the quality of their work.

Conclusion

Performance failure among performing artists can be influenced by various factors, including physical and mental exhaustion, stress, and lack of preparation. The expectation of flawless technique and the extraordinary demands performers go through, as well as the judgment and critiques performers get about performance, can contribute to the development of the performance failure (Hays, 2002). Addressing these challenges through proper training, mental health support, and balanced schedules could potentially reduce the occurrence of performance failures in the performing arts.

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Influence of Gender, Type of Family and Marital Status of Fear of Failure among Performing Artists

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Abstract

Performance failure means any disruption or failure of service including without interruption or delay or any mistake committed by the performer resulting lower level performance is considered as performance failure. Present study was conducted on 200 artists from different areas of arts. The sample were collected by using convenient sampling method and the researcher used Performance failure appraisal inventory (PFAI) 2003 developed by David. E. Conroy to assess the performance failure. The results showed that performance failure not significantly varied on the basis of gender. It was similar among male and female Performers. Further the study revealed that fear of failure was more or less similar among married and unmarried sample. Type of family also does not influence the fear of failure of performing artists.

Keywords: Gender, Type of family, Marital status, Performing artists.

Introduction

Fear of failure has often been described as a “disposition to avoid failure or a capacity for experiencing shame or humiliation as consequence of failure” (Atkinson, 1966). According to Elliott and Thrash (2004) it is seen as “dispositional tendency to avoid failure in achievement settings” due to overwhelming feeling of humiliation and embarrassment caused by failure. The personality traits have its origin in problems like anxiety, shame, and feelings of inferiority (Birney et al., 1969). The fear of failure may exhibit as perfectionist tendency of some students (Beery, 1975) but for others it could cripple their desire to succeed in academics (Rothblum, 1990). They lack self-confidence and in order to save themselves from shame and Embarrassment caused by failing, they perform poorly as an excuse to protect their self-Worth (Beery, 1975). Conroy (2002) states that fear of failure is an encouragement to avoid failure, especially the negative consequences such as shame, lowered self-concept, and loss of social influence.

The performing arts industry is a realm where creativity meets vulnerability, where artists pour their hearts and souls into their craft. Amidst the spotlight and applause, there exists a shadowy companion – the fear of failure. This fear, which can be both motivating and debilitating, is not uniform across all artists. Rather, it is influenced by many factors, including gender, type of family upbringing, and marital status. These aspects, deeply rooted in an artist's personal life and societal context, play a significant role in shaping their perceptions, expectations, and coping mechanisms in the face of artistic challenges. These factors are not isolated variables but intricate threads woven into the tapestry of an artist's life. Gender, with its societal expectations and cultural nuances, can influence how an artist perceives failure and how they respond to it. The type of family one is raised in, whether nurturing and supportive or laden with expectations, plays a vital role in shaping an Individual's self-belief and resilience. Marital status, whether single, married, or in any other configuration, brings its own set of dynamics that can affect an artist's fear of failure.

In the world of the performing arts, where the pursuit of creative excellence is both a passion and a livelihood, the fear of falling short can be a constant companion. The pressure to succeed, the vulnerability of artistic expression, and the unpredictability of the industry create

fertile ground for this fear to take root. What makes this exploration even more fascinating is the realization that the fear of failure is not a one-size-fits-all emotion. It is shaped, molded, and sometimes intensified by an artist's gender, their family background, and their marital status.

Result and Discussions

Gender, type of family, and marital status do not have a significant impact on the performance failure of performing artists. Both male and female artists can experience performance failure, and the reason behind such failures can vary widely and are not inherently related to gender. Factors such as preparation, experience, mental state, external pressure, and various other aspects can play a role in performance outcomes for all individuals, regardless of their gender. It's essential to avoid generalisations and recognize that each artist's experience is unique and influenced by various personal and situational factors. Performance outcomes are multifaceted and depend on a combination of personal qualities and professional circumstances rather than these demographic characteristics. Performance failure typically should not affect artists based on their gender, marital status, or family type due to several reasons. An artist's ability and creativity are not determined by gender, marital status, or family type. Artistic talent is a personal attribute unrelated to these factors. Art is subjective, and the evaluation of an artist's work should be based on its merit rather than personal characteristics.. And also artists are judged primarily on their professionalism and the quality of their work.

Conclusion

Performance failure among performing artists can be influenced by various factors, including physical and mental exhaustion, stress, and lack of preparation. The expectation of flawless technique and the extraordinary demands performers go through, as well as the judgment and critiques performers get about performance, can contribute to the development of the performance failure (Hays, 2002). Addressing these challenges through proper training, mental health support, and balanced schedules could potentially reduce the occurrence of performance failures in the performing arts.

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Performance Failure among Individuals Performing in Traditional Art Forms of Kerala

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Abstract:

The prime objective of the study was to explore performance failure among individuals performing in traditional art forms of Kerala. Present study was conducted on 200 artists from different areas of arts. The samples were collected by using convenient sampling method and the researcher used Performance failure appraisal inventory (PFAI) 2003 developed by David. E. Conroy to assess the performance failure. The results showed that performers studying in traditional Art forms (Kathakali) have lower level of performance failure. More over performers living with both parents also having lower performance failure than others.

Key words: Performance failure, Kathakali, Traditional art forms.

Introduction

Performance failure among performing artists is a widespread and complex issue that affects individuals across various artistic disciplines. Performance failure among individuals engaged in traditional art forms of Kerala is a significant concern that warrants attention. Kerala, known for its rich cultural heritage, boasts a wide array of traditional art forms such as Kathakali, Mohiniyattam, koothu all of which hold a special place in the state's cultural fabric. Performance failure among individuals performing in traditional art forms of Kerala is a multifaceted issue with deep cultural and social roots. These types of art forms demands a high degree of skill, precision, and emotional expression, making it a challenging art form to master and perform consistently. The pressure to meet these exacting standards can lead to performance anxiety. There are several factors contributing to performance failure:

Insufficient Training: Inadequate training can leave performers ill-prepared, lacking the necessary skills and understanding of the art forms.

Physical Demands: Many traditional art forms require exceptional physical fitness and stamina, making it challenging for those not in peak condition.

Cultural Context: A lack of cultural understanding can result in performances that lack depth and authenticity, failing to convey the essence of these art forms.

Stage Anxiety: The pressure to honor the legacy of these art forms can lead to stage fright and anxiety, affecting a performer's confidence and execution.

Resource Constraints: Absence of essential costumes, props, and musical accompaniments can hamper the overall impact of the performance.

Audience Expectations: Kerala's audiences hold high expectations for these art forms, and falling short can lead to disappointment and perceived failure.

Competition: Intense competition among performers adds to the stress, making it difficult to deliver outstanding performances.

Overall, Fear of failure has been found across different levels of perceived and actual ability (Covington, 1992, Elliot & Thrash, 2004). On the one hand, Fear of failure may serve as a

motivating factor, in terms of striving for and reaching high levels of performance. However, it can also prevent individuals from actualizing their potential due to high anxiety and perceived incompetence (Conroy et al., 2002; Martin & Marsh, 2003).

Result and Discussions

Traditional art forms like Kathakali are also do not have a significant impact on performance failure. Kathakali performers wear elaborate makeup, mask and costumes. Which can provide a sense of liberation on stage. This physical transformation may help students feel more confident and less worried about personal judgment. In Kathakali, students often perform in groups, which can create a sense of camaraderie and shared responsibility. Traditional art forms often require years of rigorous and structured training. Artists learn from experienced mentors and follow well-established techniques, which can reduce the likelihood of failure due to a strong foundation of skills. These artists are motivated by a deep sense of cultural preservation. This commitment can drive them to uphold the standards and practices of their art, leading to more consistent performances. Traditional art forms like Kathakali places a strong emphasis on facial expressions and body language to communicate emotions and stories. However, it's essential to recognize that artists in traditional art forms can still experience performance challenges and occasional failures. Additionally, the perception of lower failure rates in traditional art forms may be influenced by cultural biases or a preference for preserving and highlighting successful performances.

Conclusion

The research on performance failure among individuals performing in traditional art forms of Kerala reveals a multifaceted landscape. This study has shed light on the factors that contribute to the perceived lower incidence of performance failure in these traditional art forms, including rigorous training, dedication to tradition, mastery of techniques, supportive communities, and the cultural significance of these art forms. What one individual considers a failure, another may see as a valuable opportunity for artistic exploration and development. Ultimately, performance failure, while challenging, is an inherent aspect of the performing arts. It is essential for artists to embrace it as a potential stepping stone toward greater artistic achievement and resilience, recognizing that setbacks can be transformed into valuable experiences that contribute to their growth and evolution as performers.

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Analysis of the IPL Data Set

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Abstract

Cricket, a popular outdoor game, generates significant statistical data, particularly in India, with the Indian Premier League (IPL) editions becoming increasingly popular. This article analyzes the IPL cricket match results from 2008-2016, examining factors affecting match outcomes such as team auction, game planning, franchise branding, and fan base accumulation. The data is analyzed using existing data mining algorithms on balanced and imbalanced datasets. Accuracy is used as a performance metric and evaluation criteria, with percentages varying depending on the algorithms used. The article aims to understand the influence of these data on team auction, game planning, franchise branding, and fan base accumulation.

Keywords: IPL, Exploratory Analysis, Batting

Introduction

The Indian Premier League (IPL) is a significant global sports event, and data mining tools and technologies have enabled the prediction of future trends and behaviors based on cricket data. Data mining algorithms have been applied to the IPL dataset, analyzing the knowledge from each algorithm with high accuracy and performance. The dataset includes around 786 matches, with 14 teams participating so far. In today's competitive cricket landscape, teams must prepare from the outside before entering the field. Sports Analytics is crucial for team preparation, as it informs players, coaches, and team management about decision-making on and off the field. On-field analytics helps players make key decisions on the field, while off-field analysis helps prepare and plan for matches. The main objective of this project is to help players make informed decisions based on previous data, using data from 2008 to 2020. The more data available, the better the analyst can assist players in making informed decisions for better results.

Materials And Method

Dataset

The dataset was obtained from the Kaggle. For visualizing and analysing the data of IPL we have used google colab notebook and visualizing tool like Tableau BI. The dataset contains the data of every match that has been played from 2008 to 2020. It has 18 columns and 193468 rows. Each row represents details of a unique match, each column represents a specific attribute. The dataset gives information about id, innings, overs, ball, batsman, non-striker, bowler, batsman runs, extra runs, total runs boundaries, wickets, dismissals, fielders, batting and bowling teams.

Data Pre-processing

Data pre-processing is crucial for obtaining better insights from raw data, as it can be noisy, missing, inconsistent, biased, and have duplicate records. To improve conclusions, data should be cleaned, transformed, and reduced according to requirements. In a dataset with 18 columns and 193468 rows, some columns, such as dismissal type, player dismissed, fielder, extras type, and team won margin, were missing. To streamline analysis, these columns were removed. Additionally, columns like umpire1, umpire2, venue, and neutral venue were removed. The date column was changed from int to date data type, replacing the year with the year of the match.

Data Analysis and Visualization

From 2008 to 2020, 786 matches were played, with 60.69% of teams choosing to field first in 477 matches and 39.31% batting. The winning team won 51.9% of matches, while the chasing team had a higher chance of winning in 55.7% of matches. However, factors such as dew,

batting team scores, player consistency, and the fall of the wicket rate per over can affect the chances of winning. The data can be pre-processed to reveal hidden insights and help make informed decisions. The chasing teams have a higher chance of winning, but this can depend on factors like dew, batting team scores, player consistency, and the wicket rate per over.

Fig 1: Information of the dataset



From 2008 to 2020, 14 teams participated in the IPL, with the Duckworth Lewis method (D/L) used to declare winners in 19 matches. Mumbai Indians played the most matches, with around 200 matches until 2020. KKR, RCB, and Kings XI Punjab played over 175 matches, indicating their success in games to advance to finals and semifinals. Pune Warriors, Gujarat Lions, Delhi Capitals, Rising Pune Supergiants, and Kochi Tuskers Kerala played less than 50 matches until 2020, suggesting they have not participated in all seasons of IPL.

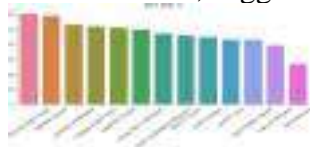


Fig 2: Win over First Batting vs Second Batting

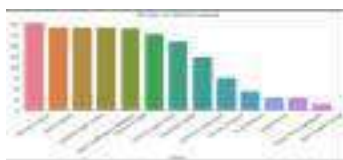


Fig 3: Number of matches played by teams

The Indian Premier League (IPL) has seen a decline in matches since its inception in 2008 to 2010, with fewer than 60 matches played in each season. From 2012 to 2013, the number of matches decreased to 74, and from 2015 to 2020, the number remained below 60 due to widespread rumours of cricket scams and betting. The IPL has been played in 32 cities globally, with Mumbai hosting around 100 matches, Kolkata, Delhi, and Hyderabad hosting over 60 matches. The IPL has played over 40 matches in Chennai, Chandigarh, Jaipur, Abu Dhabi, Dubai, and Sharjah. The visual provides a clear picture of the matches, demonstrating high accuracy in robust and statically significant cases. Ranking lists of rising stars are presented in both domains.

Fig 4: Total runs obtained by the teams

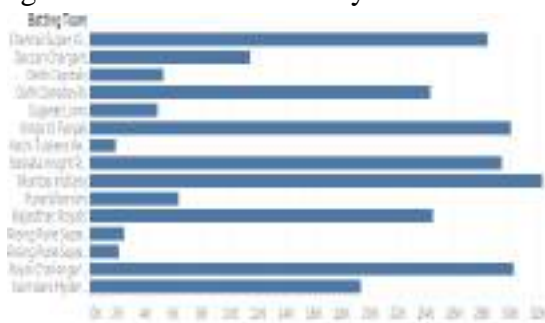


Fig 5: Top 10 Bowlers- Highest number of balls

From 2008 to 2020, it would be exciting to know which team won maximum matches. The data shows that Mumbai Indians has won in about 120 matches followed by Chennai Super Kings winning more than 100 matches. Kolkata Knight Riders won more than 90 matches. The graph gives us a detailed picture regarding the matches won by various teams.

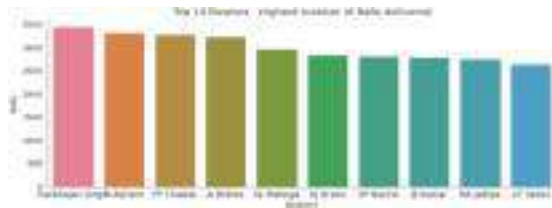


Fig 6:Team Wins over the team played

We got a clear picture regarding which team won the match and how many times. Data also shows the number of times the team won the matches. From the below visual we get the clear picture that Mumbai Indians won close to 100 tosses followed by KKR, CSK, and RR. It seems that Pune Warriors, Delhi Capitals, Gujarat Lions, Rising Pune Supergiant, Kochi Tuskers Kerala have won less than 20 tosses till 2020.

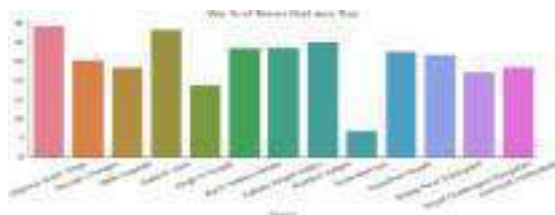


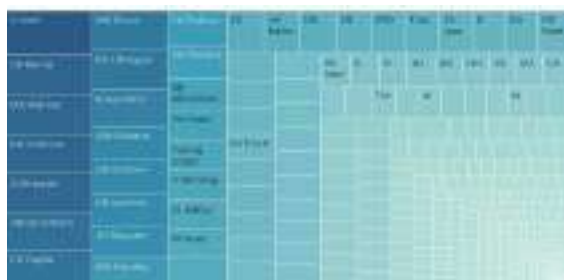
Fig.7. Matches won by various teams over toss

The Indian Premier League (IPL) has seen a significant rise in the number of players who have been awarded man of the match multiple times. C H Gayle and AB de Villiers have been awarded man of the match for 20+ matches, while Rohit Sharma, M S Dhoni, DA Warner, and S R Watson have been awarded man of the match for 15+ matches.

Fig.8 Top Batsman who scored the most runs

Conclusion

This paper explores IPL data and presents insights through graphical representation and comparative analysis. It aims to help Indian Premier League fans make informed decisions on



team performance and predict future trophy winners. The study uses data mining algorithms to analyze the results of IPL matches from 2008-2016, focusing on balanced and imbalanced datasets. The main objective is to pre-process imbalanced data, as classifiers are more sensitive to majority class and less sensitive to minority class. The balanced dataset provides greater accuracy than imbalanced sampling, with higher outcome values and fewer errors.

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Students' use of Alcohol

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Abstract

Alcohol consumption has become widespread, but it can have detrimental effects on individuals, families, and society. This paper zeroes in on the behavior of students and their alcohol consumption during school. It utilizes a dataset from Gabriel Pereira and Mousinho da Silveira schools in Portugal. The analysis includes feature selection, examining how alcohol relates to students' grades, and predicting grades through data visualization.

Keywords -Feature Selection, Prediction, Data Visualization.

Introduction

According to a 2016 survey on drug and health, a concerning 72% of students nationwide engage in daily alcohol consumption, with detrimental effects on their futures and society as a whole. Binge drinking has become a popular and exciting trend, particularly among students aged 15-20. Adolescents often turn to alcohol to cope with life's challenges, leading to an increase in early-age drinking. Binge drinking leads to behavioral changes that harm both individuals and others. The toxic effects of alcohol impair cognitive abilities, hindering innovation and the development of a values-driven society. This paper analyzes alcohol consumption among students and its impact on their academic performance, utilizing publicly available data to shed light on this critical issue.

Methodology

In the implementation phase, we'll utilize three types of data mining tools to analyze our dataset. The goal is to predict the impact of alcohol consumption on students and how it influences their academic grades.

a) Python

We'll employ Python machine learning for data analysis, ensuring concise and readable code. Python excels in managing complex algorithms and providing a human-friendly interface. Its simplicity, versatility, and reliability make it a popular choice, particularly in today's industries seeking efficient solutions..

b) Tableau

Tableau is a rapidly emerging tool with widespread usage in both industry and education. It's primarily employed for data visualization and reporting, offering a fantastic way to understand data comprehensively. What makes Tableau even more appealing is its user-friendly interface, making it accessible to those without prior coding knowledge. We'll use Tableau visualization on our dataset to gain a clearer and more insightful perspective on the data's scope.

c) Orange

The Orange tool is one of the data mining tools used widely over the Weka tool. We do the prediction using the orange tool.

d) Dataset

We've obtained the student alcohol consumption dataset from Kaggle, consisting of approximately 395 instances and 33 attributes. Python will help us understand the dataset, perform necessary pre-processing steps, and then Tableau will assist in visualizing the data, allowing us to extract deeper insights and draw meaningful conclusions.

id	name	gender	age	grade	math	science	english	socialstudies	arts	physicaleducation	health	total
1	John	M	10	5	85	78	92	88	75	80	85	806
2	Jane	F	11	6	78	82	85	79	88	72	80	784
3	Michael	M	12	7	90	85	95	90	80	85	90	885
4	Emily	F	13	8	88	80	92	85	78	82	85	810
5	David	M	14	9	82	75	88	80	75	78	80	768
6	Sarah	F	15	10	75	70	82	75	70	75	75	727
7	James	M	16	11	68	65	75	70	65	70	70	663
8	Olivia	F	17	12	60	58	68	65	60	65	65	611
9	Benjamin	M	18	13	55	52	62	60	55	60	60	574
10	Mia	F	19	14	50	48	58	55	50	55	55	538

e) Pre-processing

In data mining and also in data analysis the first and foremost step is data pre-processing. It will offer a better quality to the data that we deal with. The pre-processing includes appropriate dealing with the missing value, data cleaning and data compression and feature selection if needed in case of in numerous attributes when we consider

```
print("Total missing values: ",sum(data.isnull().sum()))
Total missing values: 0

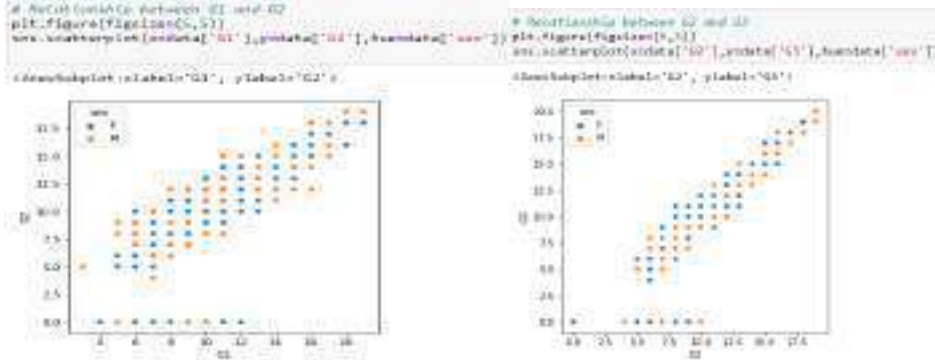
print(data.info())
print(data.describe())

# Basic info:
# int64 (non-null): math: int64(1000), science: int64(1000), english: int64(1000), socialstudies: int64(1000), arts: int64(1000), physicaleducation: int64(1000), health: int64(1000), total: int64(1000)
# float64 (non-null): name: object(1000), gender: object(1000), age: int64(1000), grade: int64(1000)
# object (non-null): name: object(1000), gender: object(1000), age: int64(1000), grade: int64(1000)
```

The dataset contains no missing values.

Both categorical and numerical attributes are present in our data

Correlation among the attribute will easily provide about their relationship.



The graph shows that grades G1 and G2 are correlated.

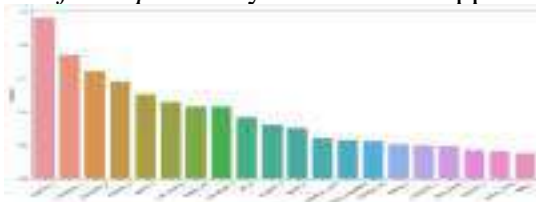
The graph shows that the grades G1 and G2 are much related.

Result And Discussion

a. Linear Regression (Python)

The features that mainly affects our target when we consider the linear regression would be the following :-

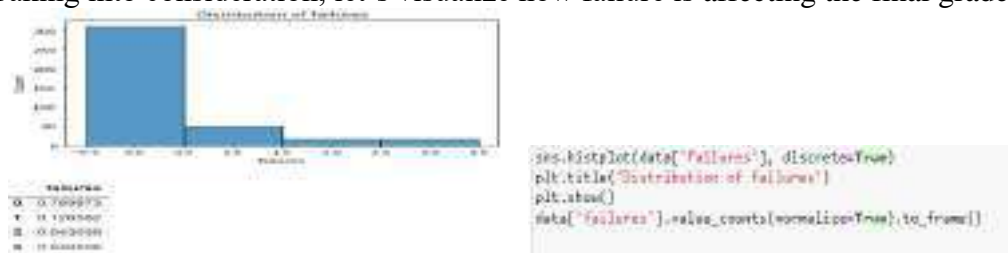
1. *failures* - number of past class failures.
2. *freetime* - free time after school.
3. *Medu* - mother's education.
4. *studytime* - weekly study time.
5. *schoolsup* - extra educational support.
6. *famrel* - quality of family relationships.
7. *Fjob* - father's job (whether father is teacher or not).
8. *Mjob* - mother's job (whether mother is teacher or not).
9. *traveltime* - home to school travel time.
10. *higher* - wants to take higher education.
11. *health* - current health status.
12. *famsup* - family educational support.



Among the dataset we consider only five main factor how they are related to our target.

- Failure

Taking into consideration, let's visualize how failure is affecting the final grade.



We get the inference from here is, 78% of students are not affected by the past class failure. We will separate the dataset according to the number of past class failures and build a distribution of grade for them.



Clearly we can say that the students who did not have any past class failure have better grade.

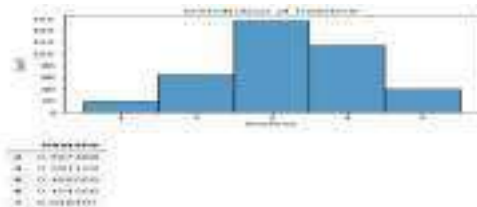
- Free time

When we consider the free time feature with respect to the target, we get:-

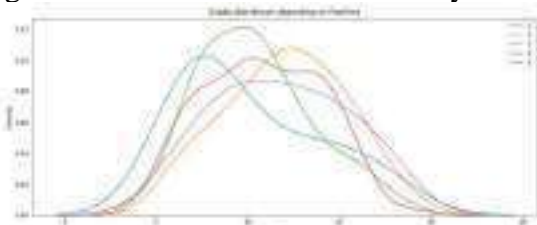
```

sns.histplot(data['freetime'], discrete=True)
plt.title('Distribution of freetime')
plt.show()
data['freetime'].value_counts(normalize=True).to_frame()
    
```

When we consider the graphical representation of free time over the final grade we get as below:-



We can infer from here that only a 10 % of students get more free time. Rest is normally distributed.



So, from these we can identify that our model gives us an accurate value on the target and other features.

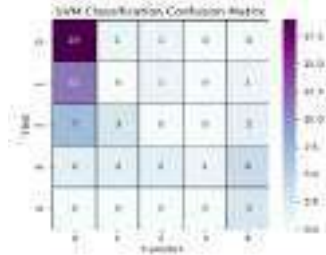
Evaluation Matrix

Model	Train Score	Test Score
0 SVM	63.88	43.33

```

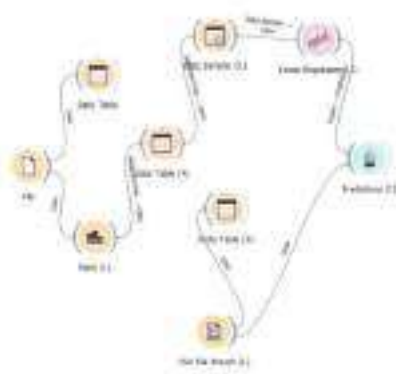
Train Score LR- 64.4776119482985 %
Test Score LR- 45.0 %
Recall score 0.4335499833499833
Precision score 0.3964502164502164
CONFUSION MATRIX [[17 3 1 0 0]
 [ 8 1 5 0 1]
 [ 5 2 3 1 1]
 [ 0 1 4 4 2]
 [ 0 0 0 1 2]]
    
```

In SVM model we get the train score as 63.88% and test score as 43.33%



This shows the confusion matrix for the actual versus predicted.

b. Linear Regression (Orange Tool)



Model	MSE	RMSE	MAE	R2
Linear Regression (1)	0.802	0.896	0.736	0.524

We get the evaluation matrix values as above:-

Conclusion

Based on the findings, it can be inferred that most students who consume alcohol fall within the age range of 15-28. Binge drinking is not prevalent among them. Moreover, students with more free time tend to consume alcohol, and there is a clear correlation between alcohol consumption and failure rates among students.

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Emotional Competence of Cancer Patients

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Abstract

This study employs a descriptive method to investigate the emotional competence among cancer patients in the Idukki district. A convenience sampling method is utilized to gather data from 100 individuals in this specific demographic group. Convenience sampling, a non-probability sampling technique, was chosen to facilitate data collection. The primary objectives of this research were to explore the association between age, gender, and family type with emotional competence in cancer patients. The major findings of this study reveal a statistically significant relationship between age and emotional competence among the sampled patients. Specifically, the research identifies that as individuals within the age group of 51 to 70 advance in age, there is a noticeable change in their emotional competence.

Keywords: Emotional competence, emotional intelligence, physiological change, cancer patients, convenience sampling.

Introduction

Emotion is difficult to define but always consists of feelings, behaviour, physiological change and cognitions and always occurs in a particular context which influences it. Its major function is to give information to the individual about their interaction with the world (Mendes EJ,2003) . According to Saarni (1999) emotional competence as the functional capacity where in a human can reach their goals after an emotion-eliciting encounter. She defined emotion as a building block of self-efficacy. She described the use of emotions as a set of skills achieved which then lead to the development of emotional competence. Attainment of the skills of emotional competence is crucial to self-efficacy. An emotional competence is a learned capacity based on emotional intelligence that results in outstanding performance at work. For superior performance in jobs of all kinds, emotional competence matters twice as much as IQ plus technical skill combined. Emotional Competence is the ability to identify and manage one's emotions. This includes knowing how to nourish your emotional state, take tums, delay gratification, and cope with and loss. It also involves knowing how to control impulses, use failure good judgment and adapt emotions in response to others' emotions and reactions.

Goleman (1989) argued that emotional intelligence underlies emotional competence and that emotional competence is a required antecedent to performance. Emotional intelligence enhances employee potential for learning, and emotional competence translates that potential into task mastering capabilities. Merely displaying high emotional intelligence is insufficient. Emotional intelligence traits only suggest that an employee has the capability for learning task competencies, not that the competencies have actually been learned.

Emotions, or feelings, may be considered to be the ultimate motivator as they fuel a passion for work such that the work becomes enjoyable, effortless, and physically and cognitively rewarding. In such a state, employees give their best in terms of creativity and intuition. Flow may be likened to personal engagement (Kahn, 1990)., in which engaged employees become one with the Job. Motivation and self-awareness give employees a clear sense of whether their personal values fit with those of the organization. If such a fit exists, commitment is strengthened. Emotional literacy is the ability to transcend impulsiveness in favour of a more

rational approach to emotion (Cooper & Sawaf, 1997). Conflicts and frustrations experienced as a rising intensity of constrictive emotions are caught early and suppressed. Setbacks are viewed as learning experiences to be used constructively to spur future growth. Over time, the continuous substitution of positive for negative emotions improves satisfaction and commitment.

Results & Discussions

Most of the cancer patients face problems with Quality of life related issues. The problem can be psychologically approached with a two-step process by addressing the individual's illness representations and resilience abilities. Advances in medical treatments and facilities which are available today are capable of controlling the progression of the disease in many chronic diseases like cancers. However the limitations of the treatment in curing these diseases completely are helping as secondary preventive measures leaving the patient to compromise with many day today issues which ultimately affect their quality of life. Cancer is a disease which is related and restricted to the body of an individual hence any patient can be approached with a similar treatment approach with a subtle variations related to the location of cancer and its severity. Treatment of cancer cannot be done in isolation, it needs to consider the bio psych social model of health and need to consider individual differences. The results we found that there is significant difference in emotional competence based on gender are more among females than males.

When considering the emotional well-being of cancer patients in a specific age group, there are numerous factors that come into play. Firstly, it is crucial to acknowledge that young cancer patients encounter unique obstacles as they navigate their diagnosis and treatment. They often grapple with feelings of fear, isolation, and uncertainty about their future. Moreover, these individuals may have limited life experiences compared to older patients, which can exacerbate the emotional toll of cancer.

However, it is equally important not to underestimate the resilience and strength that many young cancer patients possess. Despite their tender age, they frequently exhibit remarkable emotional competence by discovering ways to cope with their diagnosis, seeking support from friends or siblings who are facing similar challenges, and maintaining a positive outlook on life. Healthcare providers and loved ones must provide tailored support to address the emotional needs of these young individuals, enabling them to navigate this arduous journey with grace and resilience.

Research suggests that cancer patients who receive strong family support tend to exhibit greater emotional competence throughout their journey. This is because a loving and supportive family can enhance their self-esteem, provide a sense of security, and create a safe haven for them to freely express their emotions. Conversely, individuals lacking such support may encounter more difficulties in managing their emotions. Without close family ties, they may struggle to find someone to confide in or seek solace from during challenging moments. It is crucial for healthcare professionals and loved ones to acknowledge the profound influence that various family dynamics can have on a cancer patient's emotional well-being and offer appropriate support accordingly.

Conclusion

This study examined the emotional competence in cancer patients focusing on their emotion, attitude towards their sickness. The study is mainly based in their age, gender, family type. The study was conducted for checking the emotional competence among cancer patients. Hence, the conclusion is that the cancer patients have significant difference in emotional competence and it depends on the demographics.

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Boston House Forecast Prices

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Abstract

This paper aims to create predictive models for house prices in Boston using historical data from a Kaggle dataset. The primary goal is to build and compare multiple models for accuracy. The dataset contains information on 506 houses with 13 features and a target column for price. The tools used for this project are Python (for implementation) and Tableau (for visualization). The predictive models employed are Linear Regression and Random Forest Regressor. The dataset includes the following attributes: CRIM, ZN, INDUS, CHAS, NOX, RM, AGE, DIS, RAD, TAX, PTRATIO, BLACK, LSTAT, and PRICE.

Keywords: Predictive models, real estate market of Boston, regression.

Introduction

In the dynamic real estate market of Boston, data analysts have a valuable opportunity to analyze and predict property price changes. This is crucial because property prices serve as indicators of the overall market conditions and a country's economic health. The provided data involves a substantial set of property sales records in an unknown format with unknown data quality issues. Purchasing a home in Boston, with its millennial appeal, vibrant culture, favorable climate, and abundant job opportunities, can be challenging. The project's objective is to create a model capable of accurately predicting Boston house prices based on various attributes. The model will be developed and assessed using data collected from Boston houses. Once a robust model is established, it can be used to predict the monetary value of houses in the Boston area. Such a model would be a valuable tool for real estate agents who can use this information for their daily operations.

Implementation

Dataset

This project focuses on predicting housing prices, a key economic factor of interest to both buyers and sellers. It aims to create a regression model that can accurately estimate house prices based on various explanatory variables that encompass multiple aspects of residential properties. The dataset is designed for Boston House Price Prediction and provides individual features for each house, including attributes such as the number of rooms and the crime rate in the house's area.

1. **CRIM** per capital crime rate by town
2. **ZN** proportion of residential land zoned for lots over 25,000 sq.ft.
3. **INDUS** proportion of non-retail business acres per town
4. **CHAS** Charles River dummy variable (= 1 if tract bounds river; 0 otherwise)
5. **NOX** nitric oxides concentration (parts per 10 million)
6. **RM** average number of rooms per dwelling
7. **AGE** proportion of owner-occupied units built prior to 1940
8. **DIS** weighted distances to five Boston employment centers
9. **RAD** index of accessibility to radial highways
10. **TAX** full-value property-tax rate per 10,000 USD
11. **PTRATIO** pupil-teacher ratio by town
12. **Black** $1000(Bk - 0.63)^2$ where Bk is the proportion of blacks by town
13. **LSTAT** % lower status of the population.
14. **MEDV** Median value of owner-occupied homes in \$10,000's.

Preprocess

The Boston dataset had five missing values, which were not dropped due to negative impact on

Random Forest Regressor

Random forest is a supervised machine learning algorithm. It can be used for both regression and classification. It is the most flexible algorithm. We have many decision trees in Random trees. To classify a new object, attributes of each tree are considered, as part of the voting process. Based on the voting result, the forest chooses the classification. Shortly, with Random Forest for small amounts of data, we can train the model and can expect pretty good results. Below Fig represents the workflow of the proposed Random Forest method.

Fig: Flowchart of Random Forest



The result of the random forest regressor is in the form of R^2 , Adjusted R^2 , MAE, MSE, RMSE and it show below

For Train Data:

R^2 : 0.9719677068020771
 Adjusted R^2 : 0.9708958838268624
 MAE: 0.8384282485875705
 MSE: 1.4068282151977416
 RMSE: 1.186097894441155

For Test Data:

R^2 : 0.7051961141916434
 Adjusted R^2 : 0.6774247336444794
 MAE: 2.52337697368421
 MSE: 15.457949175723678
 RMSE: 3.931659849951885

Fig:Train Data of Random Forest Regressor

Fig:Test Data of Random Forest Regressor

RMSE - Root mean square error or root mean square deviation is one of the most commonly used measures for evaluating the quality of predictions. It shows how far predictions fall from measured true values using Euclidean distance.

R^2 - R-squared is a statistical measure that represents the goodness of fit of a regression model. The ideal value for r-square is 1. The closer the value of r-square to 1, the better is the model fitted.

Adjusted R^2 - The Adjusted R-squared takes into account the number of independent variables used for predicting the target variable. In doing so, we can determine whether adding new variables to the model actually increases the model fit.

MSE - The Mean Squared Error (MSE) is perhaps the simplest and most common loss function, often taught in introductory Machine Learning courses. To calculate the MSE, you take the difference between your model's predictions and the ground truth, square it, and average it out across the whole dataset.

MAE - Absolute error refers to the magnitude of difference between the prediction of an observation and the true value of that observation.

Result and Discussion

The Boston house price dataset contains 506 rows with 13 attributes (features) and a target column for price. Python was used for implementation, and Tableau facilitated visualization. The dataset underwent missing value imputation and other preprocessing steps. Following data selection and preprocessing, a Training-Test data split was performed. Predictive experiments

JOSEPHINE RESEARCHER

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Analysing and Visualizing Weather Data with Tableau

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Abstract

Temperature and precipitation are fundamental measurements for describing the climate and can have wide-ranging effects on human life and ecosystems. Here this case study focuses on analyze how the temperature and precipitation varies over time. Trend analysis is done over six different cities. The study focuses on answering some questions, with visualization. Visualization will help everyone to understand the concepts easily. Tableau is the data visualization tool used for visualizing my case study.

Keywords: Linear regression, prediction, tableau, temperature, precipitation, visualization, dashboard.

Introduction

Tableau is a visual analytics platform transforming the way we use data to solve problems-empowering people and organizations to make the most of their data. As a data analytics student my case study deals with answering some relevant questions about temperature and precipitation changes through visualization. Visualization gives us a clear idea of what the information means by giving it visual context through maps or graphs. We need a creative thought process to visualize the data that we see in rows and columns. To answer a relevant question through visualization, first we need to visualize that concept on our mind. It was the basic challenge that I face during the case study. I created Dashboards in Tableau. Dashboards are very much interesting as they show visualizations dynamically.

Our dataset contains Temperature data (Minimum, Average, Maximum) in degrees Centigrade and Precipitation data in mm. This data is collected from Weather Station across India. Data for the following cities is present:

- Delhi
- Bangalore
- Chennai
- Lucknow
- Rajasthan
- Mumbai

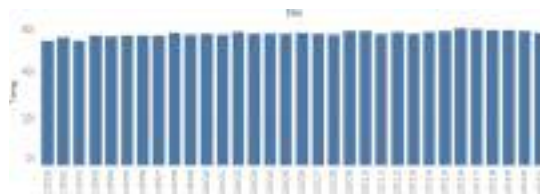
The dataset Consist of 10,000 instances and 5 features. The station Geolocation file will give you the approximate location from where these measurements are taken. Some pre-processing are done on the data at the time of visualization.

Pre-Processing

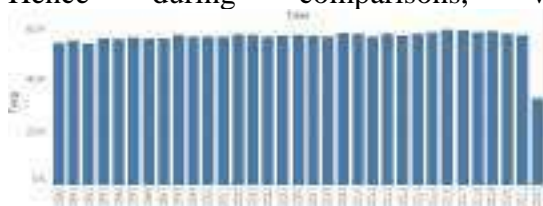
The data was in the form of 7csv files, where 6csv files contain the data regarding cities and the station geo location file will give you the approximate location from where these measurements are taken. To get a collective inference about the data we need to join these 6 datasets, only then we can compare cities and analyses the effect of temperature and precipitation each city. We have the feature 'Time' as a common feature for these 6 files. Hence a new dataset is created with a union of these 6 cities and a new feature called 'Table Name' is also created.

The other main type of pre-processing is handling the missing values. Here the null values can be avoided while visualizing the plots. In most of the settings by default the null values will be

avoided, also there are options to add the entire data while visualizing.



The data set is a time series data, where the data collected continuously over a time period. The dataset contains 11,894 instances. The last data collected was on July 25 th 2022 so there is only 206 instances in 2022 dataset. Hence when we compare the aggregate of the data based on year, we must exclude the year 2022. These are the 7 months during 2022. Hence during comparisons, we must exclude the year 2022.



After removing the instances, the remaining data can be used to yearly comparison.

ANALYSIS

The aim of this case study is to arrive at certain conclusions regarding how temperature and precipitation are changing by time. Hence through this case study I aim at answering some of the questions that we face today. The answers to each of the questions are explained with corresponding visualizations.

Q1) Find the Hottest and Coldest year in each city.

To Visualize the Hottest and Coldest years of each city I created a dashboard with three different types of visualizations. Two of them are bar graphs for Max Temperature and Avg Temperature.

Lucknow



- The Hottest Year of Lucknow was: 2006
- The Coldest Year of Lucknow was: 2012
- **Mumbai**



- The Hottest Year of Mumbai was: 2016
- The Coldest Year of Mumbai was: 2006

Bengaluru



- The Hottest Year of Bengaluru was: 2012
- The Coldest Year of Bengaluru was: 2006
- **Delhi**



- The Hottest Year of Delhi was: 2016
- The Coldest Year of Delhi was: 2012

Rajasthan



Chennai

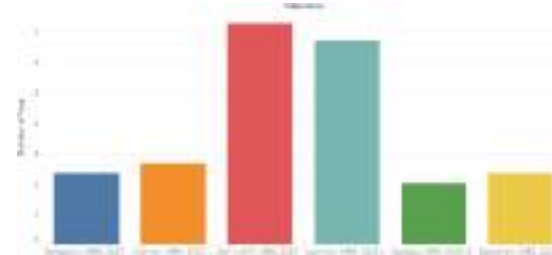
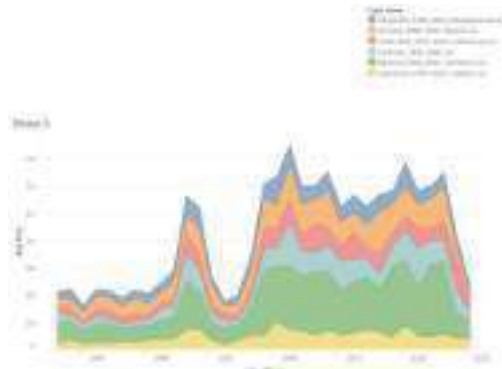


- The Hottest Year of Rajasthan was: 2012
- The Coldest Year of Rajasthan was: 2006

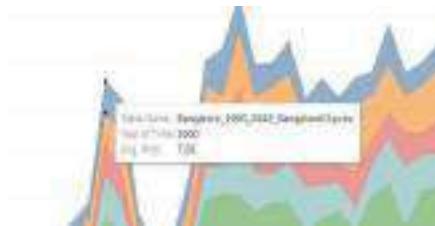
- The Hottest Year of Chennai was: 2012
- The Coldest Year of Chennai was: 2006

Q2) Can you find the precipitation average and tell when rainfall was abnormally less or more?

The graph shows the average of perspiration plotted against year. Here the color helps us to classify the data with respect to city. From the plot Rajasthan is the place having the least amount of precipitation and Bengaluru is the one with the highest value of precipitation. There are scenarios where rainfall was abnormally less and more

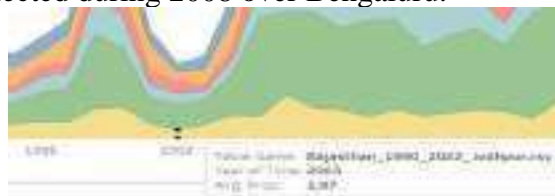


During the year 2000 there is a hike in the average precipitation level across all the states and the highest precipitation during 2000 was over Bengaluru.



avg	year	prcp	year
0	23.2	0	0.0
1	22.2	1	0.0
2	21.8	2	0.0
3	25.4	3	0.0
4	26.5	4	0.0

The highest precipitation level was detected during 2008 over Bengaluru.



It was during 2003, the lowest amount of precipitation is recorded. It was affected over all the cities but most affected by Rajasthan. The average precipitation level was only 1.97 millimeters.

Q3) Predict the Future Trends in Temperature and Precipitation

Our dataset consists of 6 cities, in which Delhi and Lucknow are the cities with highest standard deviations. That means the average temperature over these cities varies over a wide range. Hence to predict the future temperature and precipitation we choose Mumbai as the best option.

Because it has the least standard deviation compared to other cities.

Here we build a model to predict the temperature and precipitation of Mumbai.

Created 2 data frames to predict the unknown values of temperature and precipitation from year.

```

: y_pred = model.predict([ [2050]])
  print(f"Predicted Temperature of 2050:\n{y_pred}")

Predicted Temperature of 2050:
[[29.81597504]]

```

```

: y_pred = model.predict([ [2050]])
  print(f"Predicted Precipitation of 2050:\n{y_pred}")

Predicted Precipitation of 2050:
[[23.33742761]]

```

```

: y_pred = model.predict([ [2050]])
  print(f"Predicted Temperature of 2050:\n{y_pred}")

Predicted Temperature of 2050:
[[29.81597504]]

```

Conclusion

The main aim of my project was to get in touch with the visualization tool Tableau. As a data analyst student, we deal with programming languages like python and R programming which also provides visualization techniques. But tableau is a tool for business intelligence and data visualization. It helps to simplify raw data into the form of dashboards and worksheets that make the process of understanding and comprehending them very easy and accurate.

Through this project my dataset was large; it consists of 10,000 instances and 5 features. The data was over seven CSV files. Tableau provides joining options like relationships and joins (inner join, left outer join, right outer join, and full outer join), which helped me join my six of the CSV files together and treat them as a single dataset. Also the other interesting feature of tableau was filters with will help as to filter through data. Filters play a major role in the dynamic visualization of dashboards.

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An Analysis of OTT Platforms' Utilisation of BI

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Abstract

The COVID-19 pandemic significantly altered entertainment habits, driving a surge in Over-The-Top (OTT) platform usage worldwide. OTT platforms, like Amazon Prime and Disney+, harnessed Business Intelligence (BI) to collect user data, adapting to evolving viewer preferences. In India, these platforms gained popularity for their budget-friendly options. This paper explores various OTT platforms and utilizes data analysis to provide personalized movie recommendations, enhancing the user's OTT experience amid the changing landscape of entertainment consumption.

Keywords: Business intelligence, OTT market, pandemic, UI.

Introduction

Business Intelligence (BI) is essential for OTT platforms like Netflix, Amazon, Disney+, and YouTube to analyze data, understand customer behavior, and stay competitive in the dynamic digital entertainment landscape. This allows them to optimize content and enhance user experiences, contributing to their success in the Asia Pacific OTT market, which is projected to generate \$42 billion in revenue from 351 million subscribers.

Methodologies

System development approaches have evolved, emphasizing methodologies like prototyping, Object-Oriented Analysis and Design Methodology (OOADM), and Rapid Application Development (RAD) to transform traditional systems design. In the context of Business Intelligence (BI) systems, the importance of effective implementation methods is highlighted due to past costly issues. The OTT market, valued at \$85.16 billion in 2019 and projected to reach \$194.20 billion by 2025, has seen accelerated growth during the COVID-19 pandemic. To aid users in selecting the right OTT platform among many, personalized recommendation systems are being developed to simplify the decision-making process.

Datasets

This study delved into content listings from Netflix, Amazon Prime, and Disney+ to tackle the challenge of helping users select the right OTT platform, especially with the emphasis on original content. It aimed to go beyond recommending specific shows and considered the hosting platforms themselves. The primary goal was to offer personalized recommendations to simplify the OTT platform decision-making process. Datasets for each platform were thoughtfully curated with relevant columns, underscoring the significance of data in enhancing user experiences within the streaming world.

Data Preprocessing and Exploratory Analysis

Data preparation is crucial in this study, where movie datasets from Amazon underwent preprocessing to ensure reliable analysis. Disney+, HBO, and Netflix compete in India's growing OTT industry, each offering distinct content and subscription options. Smartphone penetration is rising, and the OTT market is expected to grow significantly. Netflix and

Amazon Prime have substantial subscriber bases, while Disney+ focuses primarily on Disney content, catering to specific audiences. Comparing content offerings is advisable to choose the right service. The analysis highlights Disney's success but suggests areas for improvement in Amazon's browser-based streaming. Other platforms like Zee5, Eros Now, and Sony LIV offer diverse content choices.

Analysis Based on the User Interfac

Amazon, Netflix, and Disney+ have gained substantial audiences with diverse content and high-quality User Interface (UI) designs, especially during the COVID-19 pandemic. Their focus on engaging UI experiences is key to captivating viewers and promoting content consumption. While they compete intensely, each has distinct UI strengths and weaknesses. The success of these OTT giants relies on compelling content and effective UI design, essential for attracting and retaining users in a competitive market.

- **Amazon Prime Video**

Amazon Prime Video has achieved success as a competitor to Netflix and Disney+ through a combination of compelling content, Prime benefits, and a user-friendly interface. Its content library includes popular series and successful originals. The user-friendly interface strategically positions controls for easy access, with features like X-ray and content suggestions. However, some users have expressed concerns about the readability of the suggestion box text and the platform's somewhat subdued color scheme. Overall, Amazon Prime Video's success is attributed to its content and UI, with room for further user satisfaction improvements.

- **Netflix**

Netflix stands out in the OTT streaming industry with its extensive content library, user-friendly interface, and versatile playback options. Its well-organized content, stylish design, intuitive controls, and innovative features like playback speed control highlight its excellence in UI design, enhancing the overall user experience.

- **Disney+**

Disney+ Hotstar, despite entering the OTT market later, has gained international prominence with a user-friendly interface, five main categories, and a complementary color scheme. Its straightforward UI enables easy episode switching in full-screen mode. The platform's surge in subscriptions during the pandemic reflects its appeal in a changing OTT landscape, driven by simplicity and compelling content offerings.

Conclusion

The study delved into BI's role in OTT platforms, examining UI, content, and marketing. Age analytics aid users in selecting age-appropriate content platforms. Category stats showcased genre strengths for Netflix, Amazon Prime, and Disney+. Netflix's UI and extensive content make it a standout. The pandemic's impact on subscriptions underscores BI's influence on user preferences in the competitive streaming arena.

Future Scope

The global OTT market is on track to exceed \$194 billion by 2025, with increasing competition as more content providers join the OTT landscape. Providing high-quality, unique content is crucial for attracting and retaining subscribers. The future of OTT belongs to platforms offering personalized user experiences with AI and machine learning integration. Utilizing OTT SaaS solutions like MAZ Systems

can enhance app aesthetics. Consideration of cost-effective membership plans for underserved demographics is essential. This is a prime moment for both established broadcasters and emerging content creators to launch their OTT platforms, capitalizing on the shift from traditional cable TV to on-demand content and the immense potential in the OTT services market.

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Business Acumen in Social Media

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Abstract

Social media platforms enable easy communication, document sharing, and community creation. Data mining methods can be used to analyze content for decision-making. Business intelligence is a collection of tools and technologies that process qualitative information to help entrepreneurs understand their business and marketplace. It collects and processes historical business data, enabling users to create targeted ads and create reports and dashboards. Social business intelligence also helps make predictions based on user's watch history, search history, ratings, and preferences.

Keywords: Social media, business intelligence, data mining.

Introduction

Social media technologies have revolutionized communication, providing a platform for individuals, teams, and organizations to connect and share information. However, businesses face challenges due to the vast amount of data available on these platforms, which can provide valuable insights into people's opinions and offer new opportunities for business intelligence (BI). Currently, customer analytics are the primary method used by businesses to understand their environment, but they are insufficient for a deeper understanding of customers' behaviors. Social media provides a wealth of information for marketers to understand their target audience's behaviors and preferences, but it is a chaotic hub of thoughts and opinions, necessitating the capture of vast amounts of data for reliable conclusions.

Methodology

This research involves several steps, including data collection, analysis, data warehouse design, business intelligence design, text classification, and evaluation methods. Data collection is conducted using social media platforms like Instagram, Facebook, and Twitter, with the first step being data collection. Data classification evaluates the quality of the data after filtering. Text-mining tools are developed to analyze social media platform performance, tracking and interpreting online texts from news, emails, blogs, and other outlets. The data warehouse process includes four stages: selecting the business process, declaring the grain, identifying dimensions, and identifying facts. ETL (extraction, transformation, loading) is another process in the data warehouse process, where methods like database analysis and social media database results are used to analyze content and load data.

Analysis

Social media marketing is a powerful tool for companies to interact with customers, understand their preferences, and gain direct responses. Business Intelligence solutions offer marketers the ability to analyze data captured by popular social media platforms like Twitter, LinkedIn, and YouTube, providing a quick and cost-effective way to understand the impact of these activities. Engagement metrics reveal people's reaction to a brand's social media content and presence, while content analytics help understand how healthy marketing initiatives and paid campaigns work. Social listening data allows marketers to tune in to discussions across social media, helping them discover what people are talking about and how their brand can join the conversation.

Market research helps businesses stay updated on consumer interest in products and industry

trends, which can be used to launch new products or expand markets. Social BI can also track channels that drive the best results for a business, allowing for data-driven improvements and better content creation. Evaluating sales funnels is crucial for businesses to create more effective campaigns and intelligently structure offers.

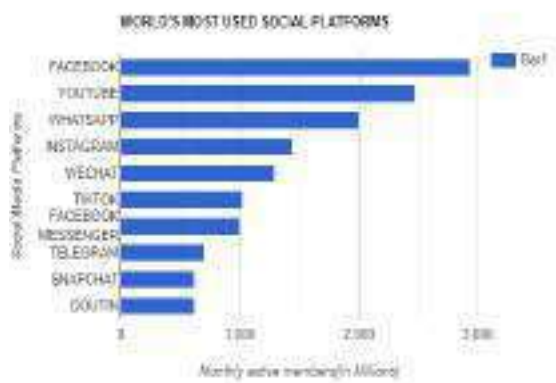
Study

A study reveals that by July 2022, 4.70 billion people worldwide will be using social media, accounting for 59.0% of the global population.

Important Social Media Platforms

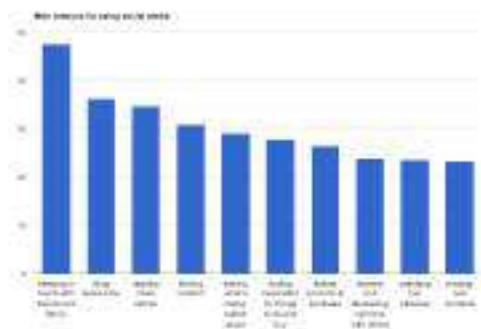
Although Facebook continues to be the most well-known social media site worldwide, there are currently seven others that each claim to have more than one billion monthly active members. Meta owns four of these seven platforms.

1. Facebook has at least 2.036 billion monthly active users.
2. Youtube’s potential advertising reach is 2.476 billion.
3. Whatsapp has more than 2 billion monthly users.
4. Instagram’s potential advertising reach is 1.440 billion.
5. WeChat has 1.288 billion monthly active users.
6. TikTok ads reach 1.02 billion adults over 18 each month.



Why Social Media

Social media is crucial for marketing strategies, especially for businesses. Understanding its primary purpose and popular platforms is essential. Understanding the reasons for using social media allows marketers to construct a platform mix that suits individual campaigns and activity intentions. Marketers should explore the different needs of people using different platforms to identify the best platforms for individual campaigns. Motivations for social media use vary by country, age group, and platform, as shown in the chart.



Challenges

Over a billion users on social media platforms generate vast amounts of data through actions like posts, likes, and comments. This data presents challenges in data entry, processing, and display. Data collection is challenging due to the diverse structures, types, and speeds of data creation. Developing appropriate data collection tools for each platform can help address this issue. However, unstructured data from a wide range of users can decrease data quality. Data integration may be difficult due to the diversity of data sources. Data filtering and cleaning techniques can help address this issue. Protecting user privacy is another challenge. Businesses must balance the use of user data with privacy concerns, considering factors like service type, personal information, clients, and regulatory frameworks. Processing this massive data is another challenge, as it can be structured, semi-structured, unstructured, and in various formats like texts, images, videos, and audio. This massive data, heterogeneity, diversity, high complexity, and high dimensionality make it difficult to conduct data visualization.

Conclusion

A post-pandemic environment necessitates new procedures and strategies for businesses. A survey revealed Facebook as the most widely used social media platform, followed by YouTube, WhatsApp, and Instagram. Users use social media for various reasons, including keeping in touch with friends and family, reading, spending free time, watching videos, reading articles, making new contacts, and shopping. Younger generations are more active on Instagram, while older generations prefer WhatsApp and Facebook. Social media is crucial in day-to-day activities, and business intelligence software can integrate social media data to engage customers and understand customer feedback. By understanding social media usage, businesses can better engage with their customers and improve their overall performance.

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Early Diagnosis of Diabetes

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Abstract

Diabetes is a chronic condition caused by high blood glucose levels due to insufficient insulin production by the pancreas. Insulin, produced by the pancreas, helps cells use glucose for energy. Insufficient insulin causes high glucose levels called hyperglycemia and potential harm. Diabetes has different causes, including genetics and autoantibodies. This paper evaluates prediction accuracy with diverse classification models for comparison.

Keywords: Diabetes, Type 1, Type 2

Introduction

Diabetes is a chronic metabolic disease causing high blood glucose levels, leading to severe bodily damage. There are four major types: type 1 (pancreas doesn't produce enough insulin, often in youth), type 2 (often in those over 40, linked to genetics and lifestyle), gestational diabetes (occurs during pregnancy without symptoms), and prediabetes (slightly elevated glucose levels not yet type 2). Type 1 can be diagnosed by checking for autoantibodies and ketones in urine. Gestational diabetes prevention involves weight loss and fitness before pregnancy. Prediabetes can be managed through a healthy diet and physical activity.

Literature Review

This paper discusses diabetes mellitus, a metabolic disorder characterized by hyperglycemia, and its causes, types, diagnosis, and treatment. It also covers Diabetic Mononeuropathies and Diabetic Amyotrophy, which affect the oculomotor nerve and cause severe pain, muscle weakness, atrophy, and weight loss. The article also examines the impact of iron deficiency anemia on HbA1c, a blood sugar measurement tool. It also discusses diabetic ketoacidosis, a complication of gestational diabetes mellitus, a life-threatening disorder often linked to hyperglycemia. The paper also reports the first case of neonatal COVID-19 infection in China, related to breastfeeding during the pandemic. The article also presents clinical characteristics and outcomes of COVID-19 hospitalized patients with diabetes in the UK, highlighting the increased mortality risk due to older age and the absence of diabetic ketoacidosis. It also addresses the heterogeneity of COVID-19 data among South Asians/Asian Indians and its implications for research and pathophysiology. The paper concludes by highlighting the increased risk of severe infection and death for people with diabetes during the pandemic.

Implementation Methodology

In this implementation, you are using three data mining tools to analyze a dataset related to the effects of alcohol consumption on students and their academic performance. Here's a breakdown of your methodology:

a) Python:

Python is being used for machine learning to analyze the dataset. Python's simplicity and readable code are advantageous. It can handle complex algorithms in a human-understandable way. Python's versatility is highlighted for data analysis tasks.

b) Tableau:

Tableau is used for data visualization and reporting. It provides a clear understanding of the data. Its user-friendliness makes it accessible to those without coding knowledge. Tableau visualization is applied to gain insights from the dataset.

A) Data Preparation:

Data is collected through questionnaires from Sylhet Diabetes Hospital in Bangladesh. The dataset aims to predict diabetes based on symptoms.



Figure 1 dataset overview

The target variables is class

B) Data Preprocessing:

Preprocessing involves preparing the data for analysis.

```
val=data.isnull().sum()
sum(val)
0
```

The dataset has no missing values.

The dataset contains both numeric and categorical attributes. So, the gender attribute's male is replaced by 1 and female by 0. Later symptoms attribute's yes is replaced by 1 and no by 0.

Since class is target variable it's not converted from categorical to numeric.

```
x_train,x_test,y_train,y_test=train_test_split(x,y,train_size=0.7,shuffle=True,random_state=1)
```

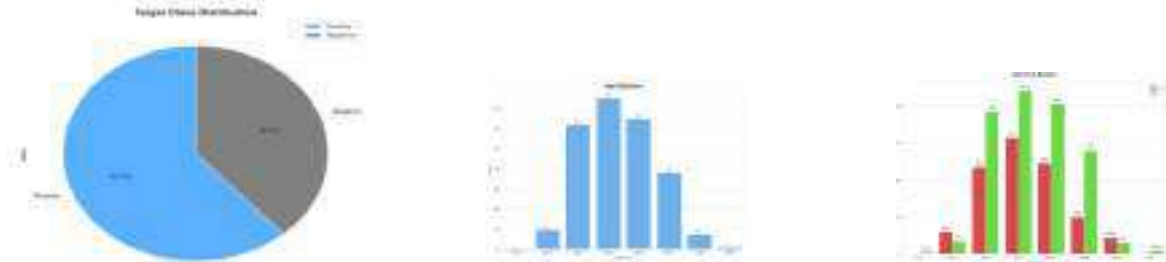
The data is splitted into train and test and scaling is performed by Standard Scalar.


```

import matplotlib.pyplot as plt
import numpy as np
def plot_bar():
    blue = "#1f77b4"
    green = "#2ca02c"
    red = "#d62728"
    magenta = "#9467bd"
    plt.figure(figsize=(10,7))
    ax = plt.gca()
    ax.bar(x, value_counts(), color='blue', label='positive', width=0.8, alpha=0.7)
    ax.bar(x, value_counts(), color='green', label='negative', width=0.8, alpha=0.7)
    plt.title('Target Class Distribution', fontweight='bold', fontsize=12)
    plt.tight_layout()
    plt.show()

```

Pie chart of class is visualized. By the survey conducted 61.5% of them are tested positive by the symptoms and 38.5% negative.



The age group of 60-70 was tested more positive

Conclusion

By this model it can be concluded that 40-50 age group range are more prone affecting diabetes and Decision tree and random forest provides more accuracy.

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Forecast for Tesla Stock

Augustine Shaji*, Sruthy Sebastian^{1*}, Almie Joseph K^{1*}, Sneha C.S^{1*}, Silvanose P. Thomas^{1*}

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This machine learning experiment aims to predict stock prices using a system that tracks the closing price of a targeted stock, Tesla. Tesla has suffered a 30% loss this year due to negative catalysts. The project focuses on predicting stock prices based on factors such as open, high, low, volume, year, and month. The goal is to build multiple prediction models and select the one with the best accuracy. The dataset for the project was obtained from Yahoo Finance website. The Twitter case, where Elon Musk sold a significant portion of his Tesla shares to fund Twitter's buyout, led to a 30% decline in Tesla's stock price in that month alone. The project aims to build multiple prediction models and select the most accurate model.

Keywords: TESLA, machine learning, regression, stock prediction

Introduction

The price of a stock can change due to a variety of circumstances, from specific news regarding a company's earnings to a shift in investor sentiment toward the stock market as a whole.

The stock prices of businesses in the same sector frequently move in lockstep with one another. This is due to the fact that businesses within the same industry are typically impacted similarly by market conditions. However, if two businesses are vying for the same market, occasionally bad news for one will boost the stock price of the other.

Due to the convergence of several significant negative events, Tesla stock has lost 30% of its value so far this year. It's vital to keep in mind that Musk opted back in April to sell a sizeable amount of his Tesla stock in order to raise the money necessary for Twitter's acquisition even though the Twitter case has nothing to do with Tesla's day-to-day operations or financial results. Although it corresponded with the overall slump caused by the change in macroeconomic conditions, such a decision caused a 30% decrease in the TSLA stock price in only that month.



Implementation

Dataset

The dataset was obtained from the Yahoo finance .This dataset contains 1269 records. The dataset consisted of 7 attributes used in the measurements of closing price of the Tesla stock.

	Date	Open	High	Low	Close	Volume	Adj Close
0	8/29/2010	19.000000	25.000000	17.540001	23.869999	18766300	23.889999
1	9/30/2010	25.790001	30.420000	25.209009	23.330000	17197100	23.830000
2	7/1/2010	25.000000	25.920000	20.270000	21.959999	8218800	21.959999
3	7/2/2010	23.000000	23.100000	18.709999	19.200001	5139800	19.200001
4	7/6/2010	20.000000	20.000000	15.830000	16.110001	6986000	16.110001

Prediction

Prediction has been performed using both traditional statistical and machine learning

approaches. In case of statistical prediction, training of model is not necessary. This approach predicts data by using statistical mean of previous closing prices. We have performed four such methods.

- Simple Linear Regression method is applied for closing price prediction using opening price, highest price and lowest price as training attributes.
- K-Nearest Neighbor algorithm has been used with algorithm = auto and leaf_size = 50 for prediction. Scaled values are used as training attributes.

Model Building

Preprocess

Preprocess is done to transform the data into useful format for easy access. Initially the dataset was preprocessed. So, in order to start improving the dataset quality, the first step would be to remove the null values. Then the data information is extracted. For analysing statistical insights data description is taken followed by removing the unwanted attributes scaling the variables.

Data Splitting

The dataset has been split into two parts as training data and test data. Here, 1200 data has been considered as training data and rest 492 data has been kept for testing. (a) Training Data (1200 days): 29-06-2010 to 06-04-2015 Testing Data (492 days): 07-04-2015 to 17-03-2017 (b) Training Data (1000 days): 02-01-2014 to 19-12-2017 Testing Data (258 days): 20-12-2017 to 31-12-2018

Scaling

All the data are scaled with standard scaler to limit the ranges of the variables. By scaling of data, those can be compared on common environments in case of all the methods

Feature Selection

For predicting future values, selection of features is an important task. Selecting best features can make the prediction performance higher, whereas, selection of worst features can direct the prediction to a wrong way. In this system, three features have been selected for closing price prediction. These are the opening price, the highest price and the lowest price.

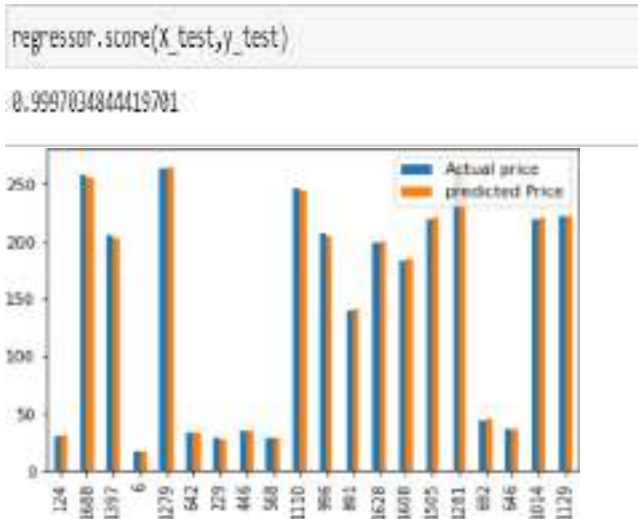
In this we have used four three models for predicting the closing price of the stock namely Linear Regression, Decision Tree Regressor and K Neighbors Regressor.

1. Linear Regression

Linear regression is a statistical method used in various fields for predicting and forecasting outcomes. It helps identify the relationships between a dependent variable and one or more independent variables. The goal of linear regression analysis is to forecast the value of a variable by analyzing its relationship to another variable. The dependent variable is the variable to be anticipated, while the independent variable is the variable to be predicted based on another variable's value. The linear equation and one or more independent variables are used to determine the most accurate predictors of the dependent variable's value. Linear regression can be fitted using a straight line or surface to minimize differences between projected and actual output values. Linear regression calculators use the least squares technique to find the best fit for a given set of paired data.

```
regressor.fit(X_train,y_train)
#Rsq=0.9070000000000001
print(regressor.coef_)
[-5.61128249e-01  8.20244083e-01  7.40523850e-01 -2.44481307e-08]
print(regressor.intercept_)
0.934309570485073809
```

```
#Rsq=0.9070000000000001
print(rfe)
actual price    predicted price
224      30.920000      31.253574
2088     238.800000     236.854509
3387     264.920000     262.532364
6        17.479999      16.660894
1279     262.820000     265.620100
...
2222     234.800000     233.880818
225      26.490000      26.620620
534      31.170000      30.976112
1638     262.400000     261.204651
4848     222.800000     221.740777
```



2. Decision Tree Regressor

Decision tree in an incremental fashion. The completed task produces a tree that has decision nodes as well as leaf nodes. A decision node, such as Outlook, may have two or more branches, such as Sunny, Overcast, and Rainy, with each branch reflecting a different possible value for the analysed property. A decision regarding the numerical target is represented by each leaf node, such as "Hours Played." The root node is the decision node at the very top of a tree, and it corresponds to the predictor.

3. KNeighbors Regressor

KNN regression is a non-parametric method that, in an understandable manner, approximates the relationship between independent variables and the continuous outcome by averaging the observations in the same neighbourhood. This method was developed by K. Neighbor Networks. The analyst is responsible for determining the size of the neighbourhood, but they also have the option of utilising cross-validation (which will be covered in a later lesson) to determine the size of the neighbourhood that results in the smallest amount of mean-squared error. When the number of dimensions increases, or when there are a large number of independent variables, the method, despite the fact that it is highly tempting, quickly becomes impractical.

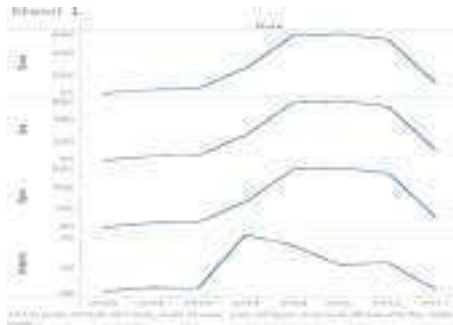
```
# make for loop for Regression
ll = [bta,kmr]
d = {}
for i in ll:
    i.fit(X_train,y_train)
    ypred = i.predict(X_test)
    print(i," ",r2_score(y_test,ypred)*100)
    d.update({str(i):i.score(X_test,y_test)*100})
```

```
DecisionTreeRegressor() : 56.54430094000001
KNeighborsRegressor(algorithm='brute', leaf_size=50, n_neighbors=10, p=15,
weights='distance') : 58.964911626416236
```

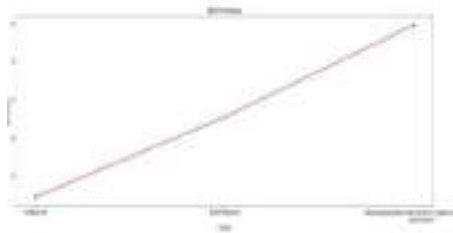
A regression or classification model can be constructed using a decision tree, which presents the data in the form of a tree hierarchy. It takes a dataset and divides it up into smaller and smaller sections while simultaneously developing an associated.

```
# make graph about Accuracy
plt.figure(figsize=(30, 6))
plt.title("Algorithm vs Accuracy")
plt.xlabel("Algorithm")
plt.ylabel("Accuracy")
plt.plot(d.keys(),d.values(),markers='o',color='red')
plt.show()
```





Experimental Results and Discussions



The closing price of the stock is the most important attribute. The Tesla dataset contains 1264 observations which contain the six-year stock data of Tesla. The correlation between each attribute in accordance with data is visualized using Tableau. Here the Volume of the stock follows a trend when compared with other attributes in the dataset. For various models like Linear-Regression, Decision Tree Regressor and KNeighbors-Regressor are shown. As observed from the values it clearly shows that Linear-Regression gives the highest accuracy compared to other models.

Conclusion

One main outcome of this study was to compare major machine learning algorithms: Linear-Regression, Decision Tree Regressor and KNeighbors-Regressor with regard to their precision, accuracy, and sensitivity to predict the close price based on date, open, high, and low prices of the stock. When compared with the other characteristics of the dataset, we can see that the Volume of the stock follows a trend here. There is representation here for a variety of models, including Linear-Regression, Decision Tree Regressor, and KNeighbors-Regressor. When compared to other models, linear regression provides the best level of accuracy, as can be seen from the observations made regarding the values. Hence we conclude that Linear Regression is the best model.

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Trade Analysis of India

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Abstract

This research paper aims to uncover hidden trade patterns and draw valuable insights from the "India Trade Data" dataset obtained from Kaggle. The dataset spans eight years, from 2010 to 2018. Leveraging Python and Tableau, the research involves data preprocessing and visualization. Analyzing a country's trade relationships is of utmost importance to assess the stability of its economy. Through this analysis, the paper identifies key insights such as the most frequently exported commodities from India and the top destination countries for India's exports. These visualizations and findings contribute to India's economic stability and decision-making. In summary, this research paper utilizes data analysis and visualization techniques to shed light on India's trade dynamics, helping to inform economic strategies and bolster the country's economy.

Keywords: trade, value, import, export, countries.

Introduction

Trade is a crucial aspect of business, involving the exchange of goods or services. It can be categorized into domestic and foreign trade. Domestic trade involves goods moving from producers to wholesalers, retailers, and consumers. This analysis focuses on foreign trade, specifically between India and its trading partners. Foreign trade leverages surplus resources by trading them for resources it lacks, which other countries can provide. It is essential for economic balance and aims for economic growth by introducing new opportunities and capital, providing access to higher-quality goods and services, and maximizing the utilization of natural resources. India's foreign trade has its origins in the Indus Valley civilization but gained momentum during British rule. Organizational efforts to promote foreign trade began after Independence, particularly with the advent of economic planning. Over the past five decades, India's foreign trade has seen significant changes in value, composition, and trading partners.

Implimentation

Tools Used

This analysis utilized Tableau 2022.2 and Jupyter Notebook, two powerful data visualization tools in the Business Intelligence field. Tableau simplifies raw data into understandable formats through dashboards and worksheets, converting it into actionable insights through features like bar charts and line charts. Jupyter Notebook, an open-source web application, supports Python, R, and Julia programming languages and allows the creation and sharing of documents containing live code, visualizations, equations, and text. Tableau was used for data visualization, while Jupyter Notebook facilitated data pre-processing and analysis through Python code execution.

Dataset

The dataset for this analysis is collected from Kaggle. The dataset is India Trade dataset (2010-2018) that had two csv files import and export data. Each of which had the following columns:

- HSCode: The Harmonized System is a standardized numerical method of classifying traded products. It is used by customs authorities around the world to identify products

when assessing duties and taxes and for gathering statistics.

- Commodity: Name of the commodity
- Value: Value of Import or Export according to the dataframe.
- Country: Name of the country
- Year: Year of Import or Export according to the dataframe.

HSCode	Commodity	value	country	year
4	PRODUCTS OF ANIMAL ORIGIN, NOT FURTHER PREPARED	5.08	AFGHANISTAN	2010
1	SOLEY VEGETABLES AND CUT VEGETABLES: TOMATOES	12.08	AFGHANISTAN	2011
2	WHEAT FLOUR AND ITS MILLING RESIDUALS	48.08	AFGHANISTAN	2011
3	ROBUSTE TEA, UNCTD AND SPECIES	16.08	AFGHANISTAN	2011

Data Pre-processing

In the initial data pre-processing phase conducted using Python in Jupyter Notebook:

1. **Removing Missing Values:** The import dataset had 11,588 missing values out of 76,124 entries, and the export dataset had 14,038 missing values out of 137,023 entries. These missing value rows were removed from the datasets using the `dropna()` function.
2. **Dropping Column:** The column "HSCode" was deemed unnecessary for the analysis purposes in this paper and was consequently dropped using the `drop()` function in Python.

The pre-processed data was then imported into Tableau for visualization. In Tableau, various bar charts and line charts were created by simply dragging and dropping elements, making the data more comprehensible for analysis in the subsequent section.

Result And Discussions

The Visualisation charts build in tableau and the inferences driven from each graph are the following:

This chart (Fig 1.) is built to show the total import value of each country from 2010 – 2018. There are many more countries other than that displayed in the bar chart. The sorting in descending order option was performed

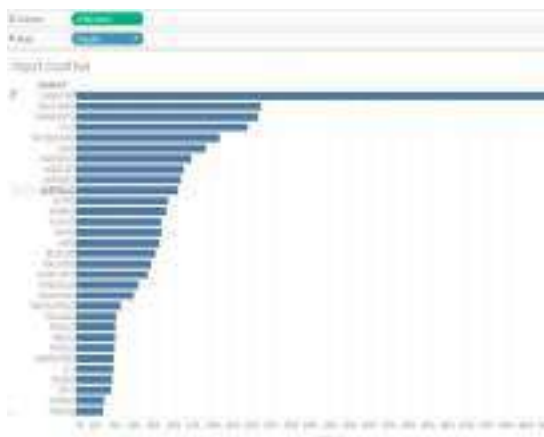


Fig 1. Import country vs value horizontal bar chart

Inference (Fig1): The top 5 countries from which India imported the most were: China P RP, Saudi Arab, U Arab EMTS, USA, Switzerland, Iraq.

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Data Analysis for Air Quality and Pollution

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Abstract

Today India is the second most polluted country in the world. It is posing a heavy threat to the country's health and economy. Almost all of India's 1.4 billion people are exposed to unhealthy levels of ambient PM 2.5 – the most harmful pollutant - emanating from multiple sources. Here I present the analysis of government air quality data of India from 2015–2020 from the Central Pollution Control Board (CPCB). The dataset contains air quality data and AQI (Air Quality Index) at hourly and daily level of various stations across multiple cities in India. I analyzed the data to get a better understanding of the major causes of air pollution in India and how the air quality varies over the years.

Keywords: Air quality index, air pollution, exploratory data analysis, time series analysis, data visualization.

Introduction

In India, air pollution is a major environmental problem. In 2019, 21 of the world's 30 most polluted cities were located in India. At least 140 million people in India breathe air that is ten times or more polluted than the WHO acceptable limit, according to a research based on data from 2016, and 13 of the 20 cities in the world with the worst yearly levels of air pollution are in India. The Air Quality Index (AQI) is a figure that is used to indicate the amount of air pollution. It basically provides information on the amount of air pollution in a certain city on a particular day. In this article, I used Tableau and Python to analyse a dataset that included hourly and daily AQI and air quality data from several stations spread throughout many Indian cities. To better comprehend the data, I've used a variety of data visualisation approaches as well as exploratory data analysis.

Delhi and Ahmedabad end up being the most polluted cities in our nation. The most over-regulated pollutant is PM 2.5, which is followed by PM 10, NO₂, CO, and ozone.

Literature Review

Research on air pollution in India has been conducted using various techniques. Anikender Kumar and Pramila Goyal forecasted the daily air quality index (AQI) value for Delhi using previous records and meteorological parameters. Aditya C R et al. used machine algorithms to detect and forecast PM_{2.5} concentration levels based on atmospheric conditions in a specific city. Nidhi Sharma et al. analyzed data from 2009-2017 and proposed a critical observation of 2016-2017 air pollutants trends in Delhi. They predicted future trends of pollutants such as Sulfur Dioxide, Nitrogen Dioxide, Suspended Particulate Matter, Ozone, Carbon Monoxide, and Benzene using data analytics Time series Regression forecasting. Mohamed Shakir and N.Rakesh analyzed the proportion of air pollutants and estimated the effect of environmental parameters like temperature, wind speed, and humidity on these pollutants using WEKA tool. R. Gunasekaran et al. monitored air quality in Salem Swadeswari College, Tamil Nadu, from April 2011 to March 2011, and found no serious pollution issues related to pollutants like Sulfur Dioxide, Nitrogen Oxides, and Suspended Particulate Matter, as their annual average concentrations are within national standards.

Implementation

We are using python and Tableau to do exploratory data analysis and visualization techniques

on the data to get various insights.

a. Python

Python is a popular programming language in scientific computing due to its data-oriented features, which speed up and simplify data processing, saving time. It is a multi-functional, maximally interpreted language used to streamline massive and complex data sets.

b. Tableau

Tableau is a popular tool for data visualization and reporting in industry and education, providing a comprehensive understanding of data reachability. Its simplicity in performance allows anyone without prior coding knowledge to work efficiently. By applying Tableau visualization to our dataset, we can gain a better understanding of the data's scope and scope.

c. Dataset

The dataset contains air quality data of India from 2015-2020 and AQI (Air Quality Index) at hourly and daily level of various stations across multiple cities in India. The attributes are City, Date, Pollutants like PM2.5, PM10, NO, NO2, NOx, NH3, CO, SO2, O3, Benzene, Toluene, Xylene, AQI, Air quality. The cities in this dataset are Ahmedabad, Aizawl, Amaravati, Amritsar, Bengaluru, Bhopal, Brajrajnagar, Chandigarh, Chennai, Coimbatore, Delhi, Ernakulam, Gurugram, Guwahati, Hyderabad, Jaipur, Jorapokhar, Kochi, Kolkata, Lucknow, Mumbai, Patna, Shillong, Talcher, Thiruvananthapuram, Visakhapatnam.

d. Exploratory Data Analysis

Exploratory data analysis is an approach of analyzing data sets to summarize their main characteristics, often using statistical graphics and other data visualization methods. EDA is applied to investigate the data and summarize the key insights. It will give you the basic understanding of your data, its distribution, null values and much more. You can either explore data using graphs or through some python functions.

e. Time Series Analysis

Time series analysis is a specific way of analyzing a sequence of data points collected over an interval of time. In time series analysis, we record data points at consistent intervals over a set period of time.

Results And Discussion

Bar plot of Air Quality Index in various cities is plotted. From this we find that

- Ahmedabad and Delhi are the most polluted cities in India
- Amaravati is the least polluted city.

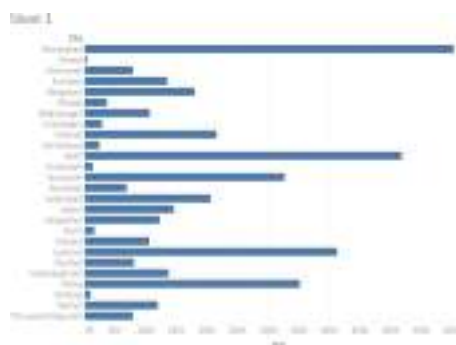


Fig 1 : Bar plot of Air Quality Index in various cities

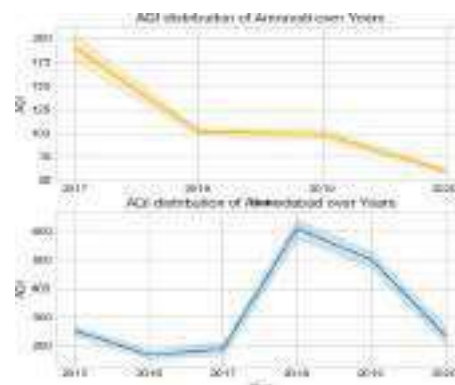


Fig 2: AQI distribution of Ahmedabad and Amaravati from 2015 to 2020:

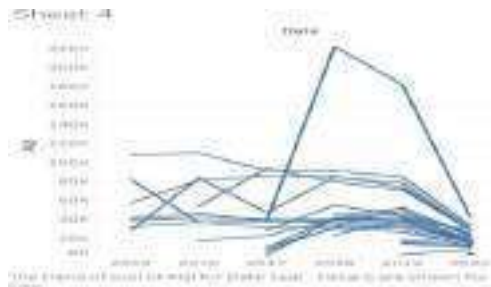


Fig 3: AQI distribution of all cities over the years

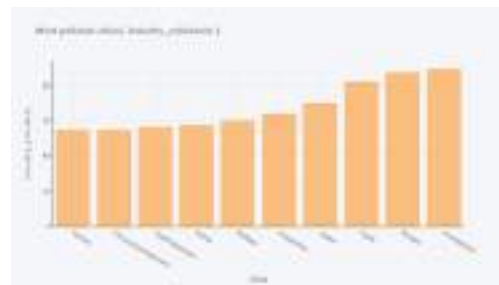


Fig 4: Most polluted cities due to industrial pollutants

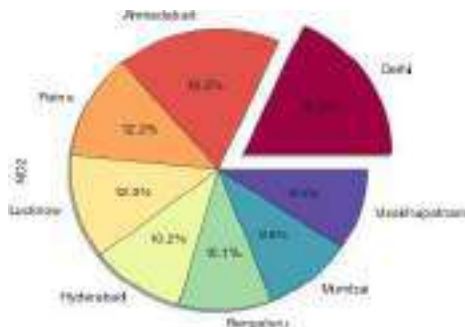


Fig 5 : Distribution of NO2 in various cities.

- From the above plots it is clear that during COVID19 lockdown there is gradual decrease in vehicular pollution contents, industrial pollution content.
- Delhi is the most polluted city in terms of vehicular pollution contents.
- Ahmedabad is the most polluted city in terms of industrial pollution content.
- Of the pollutants, PM 2.5 exceeds the standards the most, followed by PM 10, NO₂, CO, and Ozone.
- The cities with AQI less than 50 have a relatively good air quality.
- Amaravati and Hyderabad are the least polluted cities.

Conclusion

Since air pollution has a negative influence on both the environment and human health, it is imperative that it be controlled. To protect the environment, the concentration of air pollutants like must be managed. Lung cancer, heart disease, and respiratory conditions like emphysema are among the long-term health impacts of air pollution. The government should enact appropriate laws and regulations, raise public awareness, and restrict the number of automobiles on the road, the number of people living in cars, the number of industries, and the amount of energy used in order to reduce air pollution. We must treat the problem of pollution seriously since it is unwise to proceed in ignorance. The world has to wake up and take immediate action because environmental challenges are becoming more and more significant. The stakes are quite high.

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A Machine Learning-Based Analysis of Crop Recommendation Systems

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Abstract

Crop recommendation analysis is a machine learning technique that predicts the best crop to grow based on factors affecting crop growth. This helps farmers increase yields, profitability, and farming strategies. Crop selection is a major factor affecting farmers' profits or losses. Various prediction techniques, such as decision tree regressor, logistic regression, support vector machine, and Random Forest, are used to help farmers select the best crop for their fields. This reduces the risk of wrong crop choices and increases productivity. The paper solves this problem by implementing techniques like random forest, support vector machine, and logistic regression with high accuracy and efficiency, resulting in more accurate and efficient crop cultivation methods.

Keywords: -Crop Recommendation, Random Forest, machine learning, Analysis

I.Introduction

Agriculture is a vital aspect of human existence, and the Indian economy relies heavily on it for food production. However, population growth has diminished agriculture's potential, particularly in land utilization and fertility. In this era of urbanization and globalization, crop prediction is crucial to maximize existing land. Farmers often face challenges such as soil usability, irrigation issues, and weather, leading to loss in cultivation. A crop recommendation system can help solve these issues and increase profits for farmers. The "crop recommendation" dataset, published by Kaggle, was used to analyze various prediction methods to predict the best crop based on environmental factors. Agriculture benefits from modern farming techniques, but growth is not equitable. The dataset includes features like rainfall, atmospheric transpositions, and soil nitrogen, phosphorus, and potassium ratios. By predicting these factors, the system provides the ideal conditions for cultivating crops, enabling farmers to identify the most suitable crop for their fields, leading to better yields.

Implementation

Python

Python is object-oriented, interpreted, high-level programming. It was created by Guido van Rossum and released in 1991. It is mainly used for web development, software development, mathematics and system scripting.

Orange

Orange is a data mining software and were developed by scientists at the University of Ljubljana in 1997. The widget is a user-friendly one that help users to read data, display the data in table and graphical format, feature selection, comparison and visualization of items.

Tableau

It is the leading visualization tool used for data analytics and business intelligence. It was started by an American Company in 2003. It supports powerful data discovery and exploration of data.

Data Collection

The data used in this analysis is collected from kaggle. The dataset consists of 2200 instances and 8 columns. the target variable containing 22 unique crop such as rice, maze, banana, mango, coconut, jute, coffee, etc. The remaining features in the data are rainfall, atmospheric transpositions, ph value of the soil and the ratio of Nitrogen, Phosphorus, Potassium contained in the soil.



Fig 1:Analysis of dataset with respect to crop

The features other than target variable are ratio of Nitrogen content in the soil, ratio of phosphorus content in the soil, ratio of potassium content in the soil, Temperature, Humidity, Ph value of the soil and rainfall. Among these features Humidity and rainfall are the most important features to recommend the crop.

	#	Gai...to	Gini
1	humidity	0.783	0.101
2	rainfall	0.752	0.099
3	K	0.678	0.079
4	P	0.630	0.073
5	N	0.480	0.054
6	temperature	0.416	0.046
7	ph	0.320	0.035

Fig 2:illustration of Rank using orange rank widget

Data preprocessing

The dataset consists of only one categorical variable i.e., the target variable. All other features are Numeric. For regression analysis of the data replaced the categorical values into numeric then splitted the full data into training and testing set by keeping 80% in train data and 20% in test data .in this analysis various regression models such as decision tree, Logistic regression, support vector machine and random forest are build to check which regression model is more accurate.

Model Implementation

To analyse this data four different machine learning algorithms are used

1. Decision Tree

Decision tree divides the data into tree-like structure,where internal nodes represent the features of a dataset,the branches represent the decision rules and each leaf node represents the outcome.decision tree regressor is used in this analysis to predict the crop.

```
r squared score: 0.8902113361221382
MSE : 4.420454545454546
RMSE : 2.1024877039960415
```

Fig 3:Decision tree model score and mean square using python

2. Logistic Regression

Logistic regression is a popular machine learning algorithm that is used to predict the dependent variable using a given set of independent variables.in this analysis logistic regression is used to predict crop that is dependent variable using the other features that is independent variable.

```
r squared score: 0.8619315825988432
MSE : 5.559090909090909
RMSE : 2.357772446418634
```

Fig 4:Logistic regression model score and mean square using python

3. Support Vector Machine

SVM is one of the most popular Supervised Learning algorithms, which is used for Classification as well as Regression problems. The goal of the SVM algorithm is to create the best line or decision boundary that can segregate n- dimensional space into classes so that we can easily put the new data point in the correct category in the future. This best decision boundary is called a hyperplane.

r squared score: 0.913975360539917

MSE : 3.463636363636364

RMSE : 1.8610847276887648

Fig 5:Svm model score and mean square using python

4. Random Forest

In a random forest, we create a large number of decision trees, and in each decision tree, every observation is fed. The final output is the most common outcome for each observation. We take a majority vote for each classification model by feeding a new observation into all the trees.

```
r squared score: 0.9645854396472885
MSE : 1.4259072727272728
RMSE : 1.194113592891092
```

Fig 6:Random Forest model score and mean square using python

RESULT AND DISCUSSION MODEL

The dataset with 2200 rows was split into training set and testing set it is splitted in the ratio 80:20 using a sampler.import features of the data were analyzed using decision tree,logistic regression,support vector machine and Random forest models.evaluated the performance of each model by calculating R squared score,Mean square error and root mean square error in each model.

Model	R Squared score
DT	0.8908
LR	0.8619
RANDOM FOREST	0.9646
SVM	0.9140

Fig7:Highlight table in tableau for R Squared score

Model	Mean squared error
DT	4.395
LR	5.559
RANDOM FOREST	1.426
SVM	3.464

Fig 8:Highlight table in tableau for Mean squared error

It is observed that among the other models Random forest gives the highest R square score (0.964) and lowest mean squared error (1.425)

Data Visualization

Data visualization is done using table Tableau software is an interactive data visualisation tool which uses business intelligence and AI techniques for its smart and easy visualisation of the data.

Model	Accuracy	MSE	R2	RMSE
SVM	0.909091	3.46364	0.913975	1.86108
RANDOM FOREST	0.964585	1.42591	0.964585	1.19411
LR	0.908108	5.55900	0.861902	2.35777
DT	0.875000	4.39545	0.890832	2.10248

Fig 9:illustration of data visualization using tableau

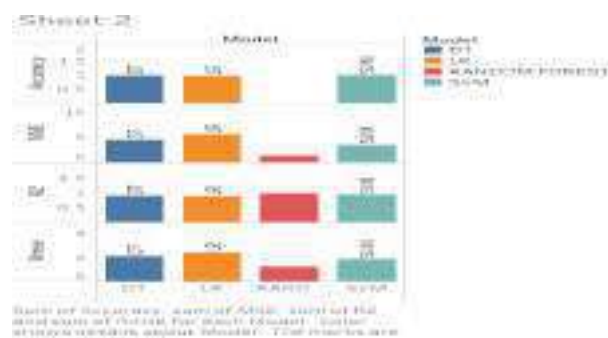


Fig 10:illustration of data visualization using tableau

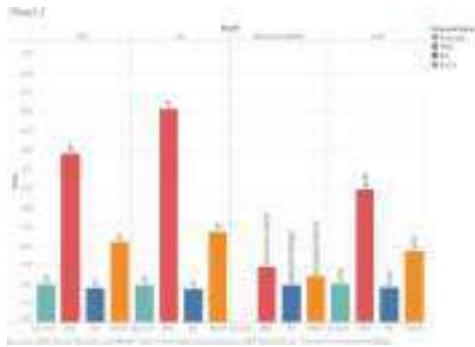


Fig 11: illustration of data visualization using tableau from the visualized data it is inferred that the best model is Random Forest. the R square score of 0.9645.

Conclusion

Developing a model to suggest a crop based on environmental parameters is the aim of this investigation. Four distinct machine learning techniques, including decision trees, logistic regression, support vector machines, and random forests, were compared. Based on our analysis of these algorithms, we were able to determine that Random forest was the superior regression model for the given data. This study aids farmers in choosing the crop that will provide the highest yield on their land.

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Song Analysis on Spotify

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Abstract

Music is a vital source of entertainment, and online platforms like Spotify have become popular for streaming digital music. Spotify offers access to various types of music, including classical, western, and rap, in various languages. A dataset of 2017 songs and their audio features, including name, artist, and "target" label, is used to predict song preferences. Various algorithms, including Random Forest, Support Vector Machine (SVM), K-Nearest Neighbors Algorithms, and Gradient Boosting, are used to create models. An accurate model is chosen to predict which songs users like based on the 2017 rows and 17 features.

Keywords- Spotify song, Classification, Gradient Boosting, data mining techniques.

Introduction

Music platforms like Spotify and Resso offer easy access to a vast array of songs worldwide. To cater to user preferences, they classify songs based on genre and language. Data mining techniques are used to classify songs based on user preferences. The dataset, collected from Spotify's Web API, is used to estimate song liking or dislike. The model aims to predict user preferences by labeling songs as "1" or "0" and comparing results.

Implementation

Python

Python is an object-oriented, interpreted, high-level programming language. It was created by Guido van Rossum and released in 1991. It is mainly used for web development, software development, mathematics and system scripting.

Orange

Orange is a data mining software and developed by scientists at the University of Ljubljana in 1997. The widget is a user friendly, that help users to read data, display the data in table and graphical format, feature selection, comparison and visualization of items.

Tableau

The visualization tool, developed by an American company in 2003, is a powerful tool for data analytics and business intelligence. It uses data from Spotify's API to predict song preferences based on various characteristics like acousticness, danceability, duration_ms, energy, instrumentalness, key, liveness, loudness, mode, speechiness, tempo, time-signature, and valence. The tool has 17 columns, including 13 song attributes, a song name, artist, label, and index.

Data Preprocessing

- **Missing Values**

The process of replacing missing values is called missing data imputation or imputing. So for in this dataset there is no missing values or duplicates values that to be replaced.

- **Relevant Feature Selection**

Feature selection is a crucial step in building a machine learning model, involving identifying relevant attributes from a dataset. Avoiding reductant variables can reduce the model's generalization capacity and complexity. Information gain, calculated by reducing entropy from a dataset transformation, can be used to identify relevant features. By evaluating each variable's information gain in relation to the target variable, the best set of features can be identified.

Those attributes are: Instrumentalness, Loudness, Danceability, Duration_ms, Speechiness, Tempo and valence.

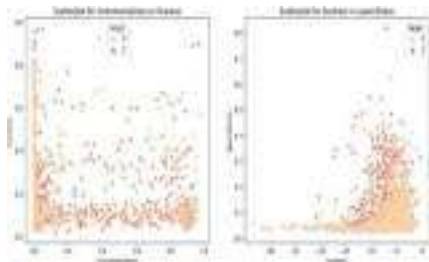


Figure1:Rank of attributes in Orange

• **Feature Scaling**

Standardization or Z-score Normalization is used to centralize the data. It is a scaling technique where the values are centered around the mean with a unit standard deviation.

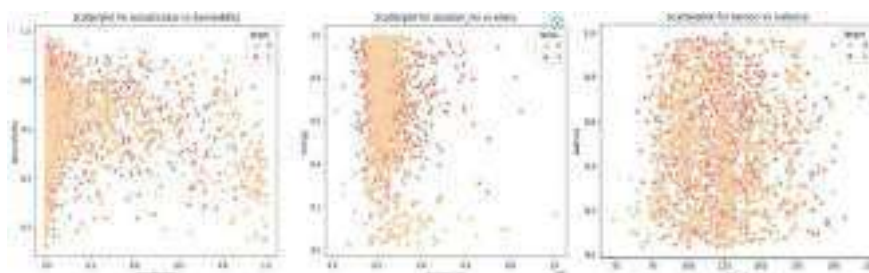
Splitting Data

Here, we divide the data into train and test data in the ratio 80:20 for accurate analysis. Here, out of 2017 songs, I took 1613 rows as train data making the remaining data i.e.404

rows as test data

Visualization

- Distribution of the features with other



- There are few outliers between acousticness and danceability , loudness and speechiness.
- The acousticness vs danceability and duration_ms energy group is heavily distributed between 0-0.2 and 0.2-0.4.

Classification

In this work we have used four classifiers namely Random Forest, Support Vector Machine (SVM), KNN algorithm which are briefly explained as follows.

Random Forest

Random Forest is a machine learning algorithm that belongs to the supervised learning technique. It can be used for both classification and regression problems in machine learning. It is based on the concept of ensemble learning. It is a process of combining multiple classifiers to solve a complex problem and to improve the performance of the model. Given below shows the parameter values for Random Forest.

Random Forest Model Evaluation Parameter:

Accuracy: 0.7202970297029703

Precision: 0.7248677248677249

Recall: 0.6919191919191919

f1-score: 0.7080103359173128



Figure2: Random Forest Model Confusion Matrix

Support Vector Machine

Support Vector Machine (SVM) is a supervised machine learning algorithm used for classifying and predicting continuous values using regression. It is a computationally generalized linear classifier with good accuracy and avoids data over fitting. The SVM algorithm identifies a hyperplane that divides n-dimensional space into target classes, with the margin being the distance between the support vector and the hyperplane. The hyperplane's dimensions depend on the number of attributes in the dataset.

SVM Model Evaluation Parameter:

Accuracy: 0.6485148514851485

Precision: 0.6666666666666666

Recall: 0.5656565656565656

f1-score: 0.6120218579234972



Figure3 : SVM Model Confusion Matrix

K-Nearest neighbors Algorithm

The K-Nearest Neighbors(KNN) algorithm is a simple, supervised machine learning algorithm that is easy to understand and implement which will solve both classification and regression problems. When a sample comes, the algorithm begins by calculating the distance between the new sample and the existing data points and it is assigned to the group common to the k nearest selected neighbors. The given figure shows the parameter values used for KNN model. Given below shows the parameter values for KNN.

KNN Model Evaluation Parameter:

Accuracy: 0.7079207920792079

Precision: 0.7150537634408602

Recall: 0.6717171717171717

f1-score:0.6927083333333334



Figure4 : KNN Model Confusion Matrix

Gradient Boosting Algorithm

Gradient Boosting is a sequential ensemble technique used for classification and regression problems. It improves model performance over iterations by optimizing an absolute differentiable loss function. As weak learners are added, a new model is created, providing a more precise estimation of the response variable. This robust technique applies multiple risk functions and optimizes model prediction accuracy. The parameter values for the Gradient Boosting algorithm are provided.

KNN Model Evaluation Parameter:

Accuracy: 0.7623762376237624

Precision: 0.7771739130434783
 Recall: 0.7222222222222222
 f1-score: 0.7486910994764399



Figure5: Gradient Boosting Model Confusion Matrix

Result

The dataset of 2017 songs are split in the ratio 80:20 using a data sampler. The data sample with 80% split(1614 songs) were used for the model building purpose and the remaining data was used to check the model performance on new data. Then I identified important features using information gain and have selected relevant attributes. A total of four different models were built on our dataset using the classification techniques and these include Random Forest, Support Vector Machine, KNN and Gradient Boosting.

Performance value of all the implemented models:

	Model	Score
3	Gradient Boosting	0.764851
0	Random Forest	0.720297
2	KNN	0.707921
1	SVC	0.648515

Figure6:Accuracy Score of all Models Visualization of the result:

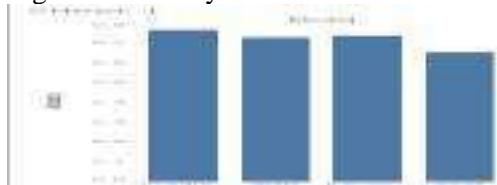


Figure7:Accracy score Using Tableau Matrix

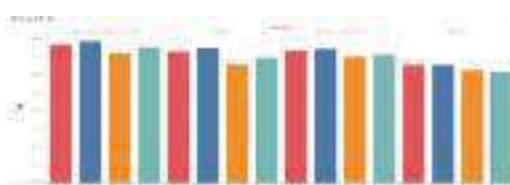


Figure8:Visualization Of Evaluation

As observed from the values it clearly shows that Gradient Boosting gives the highest accuracy 76%,Recall and precision values compared to other models. So I choosed Gradient Boosting as the final model.

Conclusion

The paper aimed to develop a model that predicts a song's popularity based on its audio features. Four machine learning models were investigated: Random Forest, SVM, KNN, and Gradient Boosting. The Gradient Boosting model was found to be the most accurate, with an accuracy of 76%. The model correctly predicted that out of 1614 songs, 50.8% were liked, and 49% were disliked. The model also predicted that out of 403 songs, 35.1% were liked and 41.3% disliked. The project's objective was to determine the type of song the user likes or dislikes. The model revealed that the user prefers songs with higher valence, loudness, and acoustic qualities.

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Analysis of Campus Recruitment

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Abstract

Campus recruitment is a crucial process for corporate companies to hire students about to graduate from educational institutions. It involves pre-placement talks, written tests, group discussions, and interviews. Students and recruiting companies are major stakeholders, with entry level salaries and recruitment season being important parameters. Recruitment is a critical human resource management function that impacts organizational performance. Poor recruitment decisions can limit goal achievement, and it is taking time for public service agencies to identify and implement effective hiring strategies. Acquiring and retaining high-quality talent is essential for an organization's success. In a competitive and diverse job market, recruiters need to be more selective in their choices. This paper discusses strategies organizations can employ to ensure the best possible pool of qualified applicants, identifying their advantages, drawbacks, and suggestions for ensuring their utility.

Keywords – Campus recruitment, Random forest, Logistic regression

Introduction

Economic and demographic trends continue to impact the job market, affecting employers' campus recruitment programs. Maintaining strong relationships with faculty, administrators, career center staff, and students is crucial for success in a competitive environment. Winning companies must adapt their recruitment practices to the needs of Generation Y and attract good talent for admissions or research. Educational institutions must position themselves among corporate entities through branding activities and collaborations with industry partners. This analysis uses data from Kaggle Campus Recruit, which contains 215 student data including education level, degree, gender, and specialization. Machine learning techniques such as decision tree, random forest, and logistic regression are used to classify student status into job placement or not placement. Different classification techniques are compared to determine the best prediction for the dataset. A regression analysis is performed using only job-placed students to identify key factors influencing salary. The analysis is performed in Python using Jupyter Notebook. Various techniques that are used in this analysis are:

- Exploratory data analysis
- Random forest regressor and classifier
- Logistic regression classifier
- Multiple linear regression

Data Preprocessing

Data preprocessing is a crucial process that transforms raw data into a clean set, ensuring it is free from missing values, noise, and inconsistencies. This is done before the algorithm is executed. Data cleaning, also known as data cleansing or data scrubbing, is the removal of corrupt or unnecessary data from a dataset before analysis. This ensures only relevant data is analyzed, leading to more accurate results. There are a number of different data cleaning techniques you can use, depending on the type of data at your disposal and the type of analysis you wish to do.

Drop a column

Drop a column is used to remove the columns. The first column `sl_no` will be dropped from the dataset as it's an index column.

`isnull().sum()`

The `isnull().sum()` is used to return the number of missing values in the dataset.

Groupby

It is used to split the data into separate groups so that it can be used to perform computations for better analysis. In this dataset several attributes are grouped by using this attribute to predict which category was placed the most.

Categorical variable to numerical

A machine learning model requires all its inputs and outputs to be in the form of numeric values. If we have any categorical data then convert it into numeric values before fitting and evaluating a model.

Figure 1 Dataset description

	ssc_p	hsc_p	degree_p	west_p	mba_p	salary
count	215.000000	215.000000	215.000000	215.000000	215.000000	148.000000
mean	67.203205	66.333793	89.370188	72.100558	62.275188	289655.405405
std	10.827205	10.897059	7.358743	13.275998	5.033285	83497.852420
min	40.800000	37.000000	50.000000	50.000000	51.210000	200000.000000
25%	50.600000	60.000000	81.000000	60.000000	57.845000	240000.000000
50%	67.100000	65.000000	89.000000	71.000000	62.000000	265000.000000
75%	75.700000	73.000000	72.000000	83.500000	66.255000	300000.000000
max	89.400000	97.700000	91.000000	90.000000	77.880000	940000.000000

Equations

Logistic Regression is a classification algorithm. It is used to predict a binary outcome (1 / 0, Yes / No, True / False) given a set of independent variables. To represent binary/categorical outcome, we use dummy variables. You can also think of logistic regression as a special case of linear regression when the outcome variable is categorical, where we are using log of odds as dependent variable. In simple words, it predicts the probability of occurrence of an event by fitting data to a logit function.

$$g(E(y)) = \alpha + \beta x_1 + \gamma x_2$$

Here, g() is the link function, E(y) is the expectation of target variable and $\alpha + \beta x_1 + \gamma x_2$ is the linear predictor (α, β, γ to be predicted). The role of link function is to 'link' the expectation of y to linear predictor.

After we load the data, we can see that there are 215 observations and 14 columns in this dataset with a mix of categorical and numeric variables. The target variable for our classification problem is the status column, which is stored as Placed and Not Placed. There are other binary variables such as gender, workex need to transfer into 0 and 1 later in the analysis. Also, the first column sl_no will be dropped from the dataset as it's an index column.



Figure 2 Relationship between gender & status

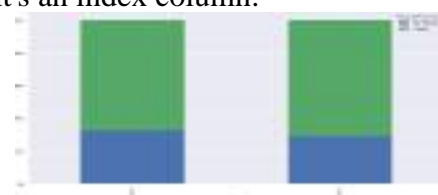


Figure 3 Relationship between ssc_b & status



Figure 4 Relationship between hsc_b & status

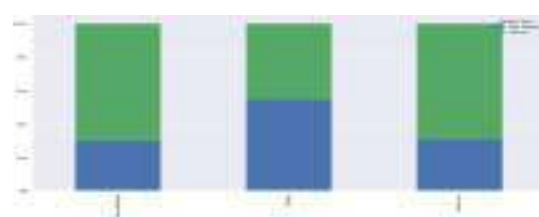


Figure 5 Relationship between degree_t & status

status



Figure6 Relationship between hsc_s & status



Figure7 Relationship btw specialization & status



Figure 8 Confusion matrix of logistic regression

Model Architecture

Random Forest Classifier

Random Forest Algorithm is a supervised learning algorithm which collects samples from different data sets and predicts the best solution. It is forming a Decision Tree like Structure. And It's more accurate than the Decision Tree. But quite slower in prediction and complex in constructing.

Random Forest Regressor

A random forest regressor. A random forest is a meta estimator that fits a number of classifying decision trees on various sub- samples of the dataset and uses averaging to improve the predictive accuracy and control over-fitting.

Logistic Regression

In Logistic Regression there are only 2 outcomes. For Example: True or False, 1 Or 0 .Logistic Regression uses one or more Independent Variables to determine an outcome hence the following feature makes the algorithm faster and better to perform.

Experimental Results

As we could see that the status attribute of the dataset is the target variable, we have performed different classification algorithms such as logistic regression, random forest classifier and random forest regressor. After all these models have provided us with the accuracy the authors have come to the results that logistic regression gives about 83 percent accuracy while random forest gives 81 percent . Hence, after seeing all the accuracy one can know that logistic regression is performing the best.

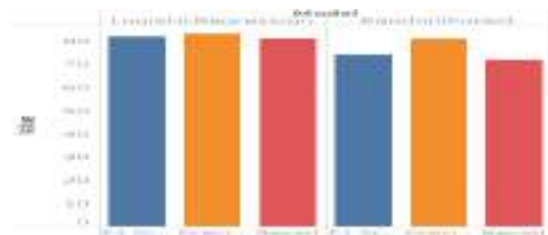


Figure 9 Bar graph representation

Conclusion

Finally, after performing all the steps needed to get the results from preprocessing to model building the authors have concluded that the model which performs the best out of all these is the logistic regression model with 83 percent accuracy

.

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Analysis of Campus Recruitment Parameters in an Indian Context

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JOSEPHINE RESEARCHER

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Analysis on a Case Study on Traffic Safety and Accidents in India

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Abstract

This case study thoroughly examines the issue of road accidents in India, investigating causes and solutions. It reveals vulnerabilities in the 30-59 age group, links accidents to extreme weather and working hours, and underscores regional disparities in accident rates. Despite efforts, India's road safety situation is deteriorating, with other road users' behavior identified as the primary cause in most accidents (70-95%). A Delhi-based pilot study sheds light on the tendency of younger and experienced drivers to violate traffic rules under stress. The study calls for population-based research to understand road user behavior and suggests using business intelligence to address the problem. Without innovative interventions, India's traffic fatalities are projected to exceed 250,000 by 2025.

Keywords: Accident control, national highway accidents, role of BI in accidents, factors affecting.

Introduction

India faces a significant issue with road accidents, despite having the world's second-largest network. These accidents account for a significant percentage of accidental deaths, impacting the nation's prosperity and development. Over the past three decades, fatal road accidents have increased, becoming a leading global cause of mortality. Factors contributing to accidents include overtaking and lane discipline issues, poor road conditions, potholes, traffic congestion, and increased air and noise pollution.

Methodologies

This statistical analysis identifies several significant factors contributing to road accidents in India:

1. Road Conditions and Traffic Control: Poor road durability and inadequate maintenance, coupled with political challenges, impact road safety. Lack of speed bumps and reflectors on curve and straight roads contribute to accidents.
2. Climate Conditions: Uncontrollable factors like hilly terrain and slippery roads occasionally lead to accidents. Addressing this includes improving tire alignment and fog lamps in vehicles and installing SOS lights in hilly areas.
3. Poor Lighting: Insufficient street lighting, particularly in remote areas of states like Kerala, Gujarat, and Bihar, poses a significant risk to both drivers and pedestrians.
4. Traffic Situations: Challenges such as illiteracy, lack of awareness, and inadequate traffic signals contribute to traffic accidents. Implementing measures like cycle lanes, zebra crossings, and overhead foot ramps can enhance safety.
5. Surprise Factor: Human factors like carelessness, rule violations, and emotions like ego and road rage contribute to unpredictable road situations. Government intervention through education and tests during Motor Vehicle Department (MVD) classes is suggested to address this issue.

Addressing these factors is crucial to improving road safety in India and reducing the number of accidents and fatalities.

One of the main key factors in road accidents is situational incidents like natural situations such as a pedestrian crossing or a pothole in the road and there are better ways to correct this.

Let us look at the specific states in India where accidents are more often.

States	2016	2017	2018	2019	2020
Tamil Nadu	22,573	20,696	19,583	17,633	15,269
Uttar Pradesh	13,078	14,333	16,198	16,181	13,695
Madhya Pradesh	10,709	11,150	9,967	10,440	9,866
Kerala	9,209	8,993	9,161	9,459	6,594
Maharashtra	10,364	9,327	9,355	8,360	6,501
Rajasthan	6,567	6,851	6,726	6,883	5,784
Total	72,500	71,350	70,990	68,956	57,709

As this data shows from 2016 that Tamil Nadu and Goa are one of the top most places to have accidents for numerous reasons and Lakshadweep is low the land is small. Fast forwarding to 2021 the data has only increased and now it is in millions and this is an alarming thing in India.

As you see the trend observed here is gradually declining which is good but have to get better because the lesser the numbers the more people we save

National highway accidents: in India have seen a significant number of fatal accidents over the past seven years, with 72.6% of these accidents occurring between 2016 and 2020. Over speeding is a predominant factor contributing to these accidents. Uttar Pradesh consistently

ranks high in national highway accidents. A significant 74.2% of national highway accidents in India are attributed to over speeding, indicating a critical area for correction. Drunk driving and wrong-side driving contribute 5.2% and 3%, respectively, and could be addressed through strict rules and deterrent measures. A minor 0.8% results from running red lights, which, although relatively low, still poses a risk, especially during late-night hours when some disregard traffic rules, emphasizing the need for caution during this time.

Role Of Business Intelligence For Resolving

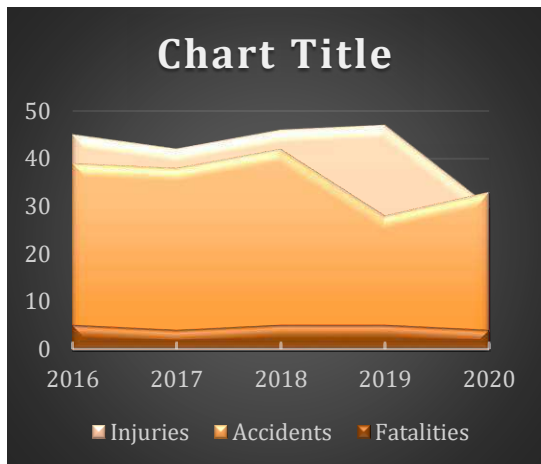
Business Intelligence (BI) is crucial for analyzing and preventing road accidents. European countries utilize historical data to create real-time BI dashboards for informed decision-making. In India, a BI solution involves the Statistical Application for Population Health and Intelligence (SAPHaRI) based on SAS Enterprise, accessing data from hospitals and road safety organizations. Real-time data from sources like ARF and CCTV monitoring software is uploaded to BI, although latency issues exist. Kerala successfully reduced accidents using this approach, implementing strict rules and investing in road improvements.

To implement BI for accident prevention, consider data sourcing from historical and live reports, weather conditions, and more. The data warehouse, using dimensions like accident, causality, vehicle, road, driver, and time, can adopt a star schema to efficiently store and analyze data, enabling strategic queries for road safety improvement.

Data Analysis And Results

Several crucial questions need to be addressed for effective accident analysis and prevention:

1. Accident Severity Trends: Analyzing historical data and conducting trend analysis can reveal how many accidents have occurred each year, categorized by severity (fatal, serious injury, minor injury, and damage only). Notably, damage-only accidents have shown a significant 11.93% decline over the past three years.



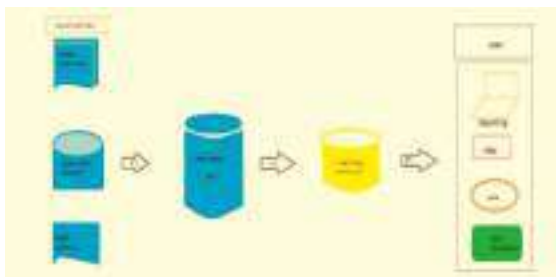
2. Accidents by Police Station District: Understanding how many accidents are recorded in each dedicated police station district is essential for efficient data collection and real-time Business Intelligence (BI) processing, minimizing latency.

3. Age Group and Gender Analysis: Segmenting accident data by age group and gender provides valuable insights into which demographics are most responsible for accidents, facilitating targeted preventive measures.

These questions and analyses are fundamental for developing strategies to enhance road safety and reduce accidents in India.

In this graph, the 18-25 age group is the most age group in accidents and fatality that is of 55%, and the rest 30% and 15% are in the 25-50 and 50-60 age groups respectively.

Conclusion



In conclusion, this case study highlights the potential of Business Intelligence (BI) to significantly reduce road accidents. By leveraging BI for data analysis, India can implement effective preventive measures. Furthermore, as BI technology continues to evolve, it holds the promise of addressing current challenges and further improving road safety in the future.

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Attitude towards Alcohol among Adolescents

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Abstract

The primary objective of the study was to evaluate attitudes towards alcohol among adolescents. The study was conducted on 300 samples of adolescents (12-18). Random sampling method was used to select samples. The researcher used a questionnaire method for data collection. The main tools for data collection are socio demographic sheet and attitude towards alcohol scale. The descriptive research design was used by the researcher. The statistical procedure used by the researcher was mean and standard deviation, t test and ANOVA. The study revealed that there is a significant difference in attitude towards drug and alcohol among adolescents in relation with age, residential area and presence of alcohol addict in family.

Keywords: Daily life, alcohol, early childhood, adolescent.

Introduction

In early childhood, children develop physically and learn things they need to use in daily life. However, in adolescence, teens learn and shape their mindset as they see in family, school, society, and peer groups. Attitude is a settled way of thinking or feeling, characteristically imitated in a person's behaviour. Psychologists say that attitude is a way of evaluating things in a certain way after learning from others and society. Evaluating things may encompass evaluation of people, objects, issues, and events and it can be either positive or negative contingent upon nurturing by parents. It is also believed that attitude is the outcome of personal experience of an individual or by observing others such as parents, friends, or celebrities. As stated, before 'celebrities' influence teenagers the most. Teenagers follow their ways as shown on screen, driving fast, and drinking alcohol.

Moreover, if parents ignore their children's adolescence years might induce them to ruin their lives unknowingly. The sudden and rapid physical changes that adolescents go through make them very self conscious, sensitive, and worried about their own body changes. They may make painful comparisons about themselves with their peers (Jenkins, 2007). Pursuing this further, observing others or when teenagers compare themselves with someone higher than them in society, it makes them feel inferior. To conquer their fear of losing their position in a peer group, sometimes they are compelled to make wrong decisions in life.

The most common diagnosed disorders among alcohol abusers were antisocial personality (Harford et al., 1994), Personality disorders), depression and risk-taking behaviour (Lutz & Snow, 1985; Weissman et al., 1977). Despite reported close association between these psychopathologies and alcohol addiction, it cannot be inferred that all individuals having above reported syndromes become alcohol addicts. However, the co-occurrence of the presence of these mental disorders in alcohol patients is a very important consideration when it comes to the treatment part. (Franken and Hendriks 1999) in fact found that very troubled people showed virtually no improvement in any de-addiction treatment.

Result & Discussion

Age groups of students belonging to the age group 15-16 have a positive attitude towards alcohol.

Females from positive attitude were 30.66% percent. Which means the majority of the students have a positive attitude towards alcohol. Males are 45.66% of the total and 27.33% are having a positive attitude towards alcohol.

Positive attitudes of the rural residents were 35.33%, which means the majority of the students belonging to rural residencies have a positive attitude towards alcohol. Members from urban residency had a low attitude towards alcohol.

During adolescence everyone's attitude will be almost similar towards alcohol. Age is a factor to determine the attitude towards alcohol among adolescents. It may be due to peer pressure, influence, family background, and educational level all are the factors that decide their attitude, so age group 15-16 kept a difference in the other two age groups and it is higher.

Conclusion

The study entitled "Attitude towards alcohol among adolescents" is an attempt to examine the level of attitude based on different demographic details such as age, parental status, presence of addict, number of siblings, religion, economic status etc. The researcher could find that there is a significant relationship in Attitude towards alcohol on different socio- demographic details especially with age and presence of addict. The study also enlightened that Attitude towards alcohol and Age has a correlation.

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Building a Foetal Health Model

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Abstract

Global health complications during gestation can lead to fetal mortality, particularly in developing countries. Cardiotocography is a diagnostic technique used to measure fetus heartbeat and uterine contractions, interpreting outputs as physiological, suspicious, or pathological. The project aims to visualize data using a table to classify foetus and maternal mortality as physiological, suspicious, or pathological. The dataset, obtained from Kaggle, consists of 2126 rows and 21 features. Tableau is used for visualization, and Python is used for implementation. The goal is to build multiple classification models with the best accuracy.

Introduction

Fetal health is crucial during pregnancy, with each trimester lasting three months. Regular check-ups are essential to prevent disability or mortality in the newborn. Cardiotacagraphy (CTG) is a primary tool for assessing fetal health, but doctors often rely on machine and deep learning algorithms for accurate predictions. This study aims to develop a machine learning model that can identify high-risk fetuses as accurately as highly trained medical professionals. The main objective is to prove the prediction accuracy using different classification models and compare their performance. The goal is to develop a machine learning model that can accurately identify high-risk fetuses.

Implementation

Dataset

The dataset, obtained from Kaggle, contains 2126 records of features from Cardiotocogram exams, including 21 attributes used to measure FHR and uterine contractions. Fetal health is a crucial field that can be used as a target variable. The main risk variable used to determine fetal state includes qualitative and quantitative descriptions of FHR, such as baseline heart rate, baseline variability, accelerations per second, early, late, and variable decelerations per second, prolonged decelerations per second, and sinusoidal pattern and UCs like baseline uterine tone, contraction frequency, duration, and strength.

The CTG of pregnant women were classified by three expert obstetritians into 3 classes:

- Normal
- Suspect
- Pathological

Preprocess

Preprocess is done to transform the data into useful format for easy access. Initially the dataset was pre-processed. So, in order to start improving the dataset quality, the first step would be to remove the null values .Then the data information is extracted

.For analysing statistical insights data description is taken. Then the attribute fetal health is set as the target variable consisting of 3 different values. The correlation matrix is used in getting the relation of each feature or attribute with itself and also with the other features present out in the database. The correlation among various attributes with in the dataset is examined using heat map.

Model Building

In this we have used four classifiers namely Decision tree, K- nearest neighbour algorithm, Gradient Boosting algorithm and Random Forest which are briefly explained as follows:

Decision Tree

Decision Tree is a supervised learning algorithm used to improve classification and regression problems. It aims to create a training model that predicts the target variable's category or value by learning simple decision rules from prior data. The algorithm starts by comparing the foundation attribute values with the record's attribute, then jumps to the next node. Input features are used to construct a tree, which then generates rules representing various classes. These rules are used to predict the category of a new instance with an unknown class. The accuracy of Decision Tree is calculated to be 92.723005.

```

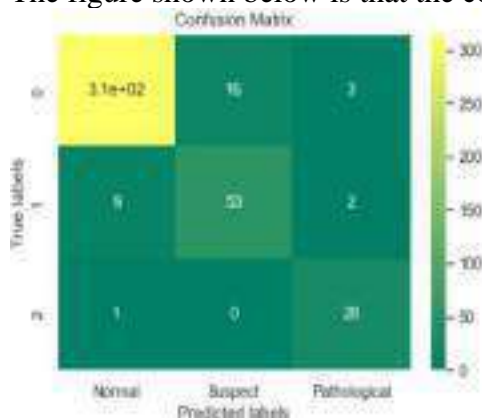
Classification Report
      precision    recall  f1-score   support

   1.0         0.97     0.94     0.96     333
   2.0         0.77     0.83     0.80     64
   3.0         0.85     0.97     0.90     29

 accuracy          0.93
 macro avg         0.86     0.91     0.89     426
 weighted avg     0.93     0.93     0.93     426
    
```

Classification report of Decision Tree

The figure shown below is that the confusion matrix obtained after implementing Tree.



Confusion Matrix of Decision Tree

K-Nearest Neighbours Algorithm

This algorithm was supervised algorithm. The simplest algorithm and easy to implement, It can solve both classification and regression problems where a new coming sample is classified based on the closest training samples present in feature field. where a new coming sample is classified based on the closest training samples present in feature field. The accuracy calculated for KNN is 87.323944 The figure shown below is that the classification report obtained after implementing KNN.

```

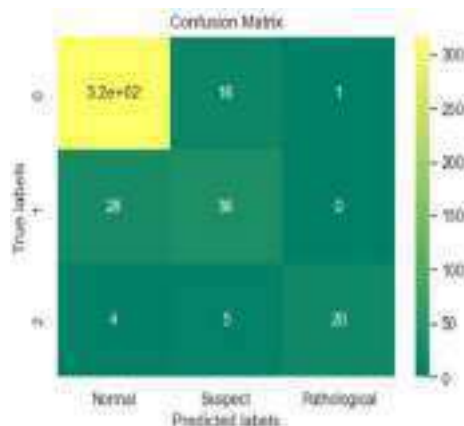
Classification Report
      precision    recall  f1-score   support

   1.0         0.91     0.95     0.93     333
   2.0         0.63     0.56     0.60     64
   3.0         0.95     0.69     0.80     29

 accuracy          0.87
 macro avg         0.83     0.73     0.77     426
 weighted avg     0.87     0.87     0.87     426
    
```

Classification report of k-nearest neighbours algorithm

The figure shown below is that the confusion matrix obtained after implementing KNN.

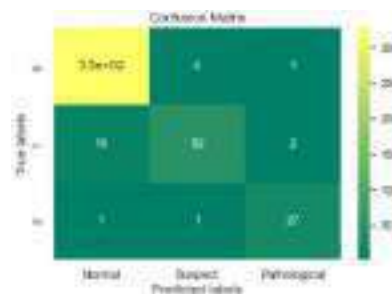


Confusion matrix of k-nearest neighbours algorithm

Random Forest

Random Forest is a classifier technique that contains a number of decision trees on various subsets of the given dataset and takes the average to improve the predictive accuracy of that dataset. Instead of relying on a decision tree, the random forest takes the prediction from each tree and based on the majority votes of predictions, and it predicts the final output. The higher number of trees in the forest leads to higher accuracy and prevents the problem of overfitting. The accuracy calculated for Random Forest is 95.539906. The figure shown below is that the evaluation result and confusion matrix obtained after implementing Random Forest.

Classification Report				
	precision	recall	f1-score	support
1.0	0.97	0.98	0.98	333
2.0	0.91	0.81	0.86	64
3.0	0.98	0.93	0.92	29
accuracy			0.95	426
macro avg	0.93	0.91	0.92	426
weighted avg	0.95	0.95	0.95	426



Classification report of Random Forest

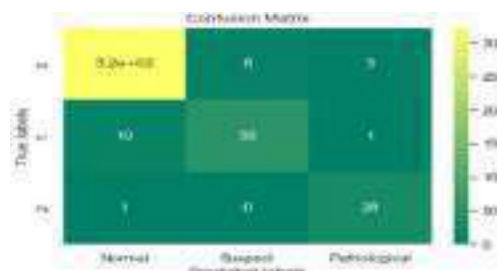
Confusion matrix of Random Forest

Gradient Boosting

The next type classification method is Gradient Boosting. Gradient Boosting is most effective one to classify the most complex dataset. They are a group of algorithms that combine many weak learning models together to create a strong predictive model. Decision trees are usually used when gradient boosting is done. The calculated accuracy of gradient boosting is 94.600939

The figure below shows the classification report and confusion matrix of naïve bayes respectively.

Classification Report				
	precision	recall	f1-score	support
1.0	0.97	0.97	0.97	333
2.0	0.87	0.83	0.85	64
3.0	0.88	0.97	0.92	29
accuracy			0.95	426
macro avg	0.90	0.91	0.91	426
weighted avg	0.95	0.95	0.95	426



Classification report of gradient boosting

Confusion matrix of gradient boosting

Performance Evaluation Criteria

In here there are five methods are used to measure the performance, they are accuracy, sensitivity, specificity, AUC respectively.

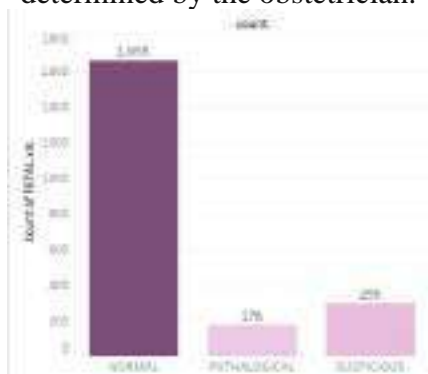
Accuracy= (TP+TN)/(TP+FN+FP+TN) x 100

Precision=TP/(TP+FP) x 100% Recall =TP/(TP+FN) x 100% Where,

TP, true positive refers to the number of correct classifications. FN, false negative refers to the number of incorrect classifications. TN, true negative refers to the number of correct classifications. FP, false refers to the number of incorrect classifications

Experimental Results And Discussions

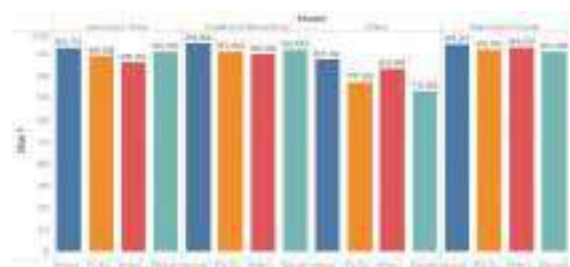
The health feature is the most important attribute . The CTG data of 2126 pregnant women were classified into the normal, suspect, or pathologic state by three obstetricians. The CTG data comprised of 77% normal fetal state, 15% suspect state, and 8% pathologic state as determined by the obstetrician.



Fetal health count

A total of 4 different models were made on our dataset using the classification techniques. To judge the prediction built by the models we used the calculated accuracy. After all these models have provided us with the accuracy the authors have come to the results that KNN gives about 87.3 percent accuracy while random forest gives 94.3 percent, gradient boosting gives 94.8 percent and Decision tree gives 91.7percent.

Model	Accuracy	precision	recall	f1 score
KNN	87.3239	83	73	77
Gradient Boosting	94.8357	90	92	91
Random Forest	94.3662	93	91	92
Decision Tree	92.723	86	91	89



Evaluation matrix of various models

Visualization using tableau

Visualization is done using tableau. Various values like accuracy, precision, recall, f1score are all considered for examining the best model. The visualization is shown above. Here the values for various models like KNN, Decision Tree, Gradient Boosting and Random Forest are shown. As observed from the values it clearly shows that gradient boosting gives the highest accuracy compared to other models. So had chosen gradient boosting as our final model.

Conclusion

One main outcome of this study was to compare major machine learning algorithms Decision

tree, KNN, Random Forest and Gradient Boosting with regard to their precision accuracy and sensitivity to predict normal, suspect, or pathologic fetal state based on given 21 CTG attributes. Various statistical techniques were used to compare the performance of the algorithms. These included precision score, and overall accuracy. Using these statistical techniques we compare the machine learning algorithms and came to a conclusion that with the help of gradient boosting people can identify that who may be at high risk for adverse perinatal outcomes based on CTG findings, for referral and further management. So that gradient boosting is the best model suited for this dataset comparing with the other datasets.

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Physical Problems Faced by Transgender Women during the Period of their Hormone Treatment Period after Sex Reassigning Surgery

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Abstract

The study aims to investigate the physical problems faced by transgender women during the period of their hormone treatment. In this study, the sample population includes transgender women who undergo sex reassignment surgery between the ages of 20 to 35. Descriptive research designs were used in this research. The tools used were self-prepared questionnaires.

Introduction

A transgender woman is a woman identified as male at birth. Transgender women have a female gender identity, may experience gender dysphoria, and may transition; this process commonly includes hormone replacement therapy and sometimes gender reconstructive surgery, which can bring relief and resolve feelings of gender dysphoria. Like cisgender women, transwomen may have any sexual orientation. Transgender woman is not always interchangeable with transsexual woman, although the terms are often used interchangeably. Feminizing hormone therapy is the administration of exogenous endocrine agents to induce changes in physical appearance. Since hormone therapy is inexpensive relative to surgery and highly effective in the development of secondary sex characteristics estrogen in combination with an anti-androgen is the standard first-choice gender-affirming hormone treatment for transwomen. Complication includes Blood clots in a deep vein or the lungs, Heart problems, High levels of triglycerides, High levels of potassium in the blood, Higher levels of the hormone prolactin in the blood, Nipple discharge, weight gain, Infertility, High blood pressure, Type 2 diabetes, Stroke. Transwomen hormone treatment has reported high levels of mental health problems, particularly anxiety, depression and self-harm, which are likely caused by several internal and external stressors. Studies examining mental health in transwomen have primarily focused on individuals attending transgender health services and hence those who are likely to experience a higher level of distress about their assigned sex at birth. These studies have primarily looked cross-sectionally at levels of anxiety, depression and self-harm. Feminizing or masculinizing hormone therapy is the administration of exogenous endocrine agents to induce changes in physical appearance. Since hormone therapy is inexpensive relative to surgery and highly effective in the development of secondary sex characteristics in [FTM] individuals or breast tissue in male-to-females [MTFs]), hormone therapy is often the first, and sometimes only, medical gender affirmation intervention accessed by transgender individuals looking to develop masculine or feminine characteristics consistent with their gender identity. In some cases, hormone therapy may be required before surgical interventions can be conducted. Transwomen who undergo hormone treatment as part of their sex reassignment surgery may experience a range of physical changes. These changes can vary depending on the specific hormone therapy regimen they are prescribed, as well as individual factors such as age, health status, and genetics. One of the most common physical changes faced by transwomen during hormone treatment is the development of breast tissue. Hormone therapy typically involves the use of oestrogen, which can stimulate breast growth in transwomen. While this can be a positive outcome for many transwomen, it can also lead to discomfort or pain in the breasts, as well as social stigma and discrimination. Another physical change faced by transwomen during hormone treatment is changes in body fat distribution. Oestrogen can cause fat to redistribute from the abdomen and upper body to the hips, thighs, and buttocks. While

this can lead to a more feminine body shape, it can also lead to weight gain and other health concerns. Transwomen undergoing hormone treatment may also experience changes in their skin, hair, and nails. Oestrogen can cause skin to become softer and smoother, hair to become thinner and less coarse, and nails to become more brittle. While these changes can be positive for some transwomen, they can also be a source of discomfort or insecurity. In addition to these physical changes, transwomen undergoing hormone treatment may also experience a range of health risks associated with hormone therapy. These risks can include blood clots, high blood pressure, liver damage, and certain types of cancer. Regular monitoring by a healthcare provider is essential to minimise these risks and ensure the safety of hormone therapy. It is important to note that not all transwomen will experience the same physical changes during hormone treatment. Factors such as age, health status, genetics, and the specific hormone therapy regimen prescribed can all play a role in the physical changes that occur. Overall, while hormone therapy can lead to positive physical changes for transwomen, it can also lead to a range of challenges and health risks. Transwomen need to work closely with their healthcare providers to manage these challenges and ensure the best possible outcomes from hormone therapy. Regular monitoring and communication with healthcare providers can help transwomen navigate the physical changes and health risks associated with hormone therapy.

Result

45% of the respondents rarely think seriously about trying to hurt themselves that in a way resulted in their death 35% of the respondents never think seriously about trying to hurt themselves that in a way resulted in their death and 20% of the respondents rarely think seriously about trying to hurt themselves that in a way resulted in their death.

In this study majority of the respondents rarely think seriously about trying to hurt themselves that in a way resulted in their death. Feeling bothered by thoughts of self-harm or suicidal ideation is a serious and concerning symptom that should be addressed immediately. It is crucial for transwomen experiencing these thoughts to reach out for help and support from healthcare professionals, friends, or helplines. Hormone therapy after sex reassignment surgery can sometimes have an impact on an individual's mental health, including an increased risk of depression and suicidal thoughts. These thoughts may be influenced by the hormonal changes in the body, as well as the emotional and psychological challenges associated with transitioning.

Conclusion

Hormone treatment after gender reconstructive surgery is an important step for many transgender individuals in aligning their physical appearance with their gender identity. This treatment typically involves the use of hormone replacement therapy (HRT) to introduce hormones that are consistent with the individual's gender identity. Hormone treatment after gender reconstructive surgery can have various effects on the body and mind. Some of these effects may include changes in physical appearance, such as breast development or facial hair growth, as well as changes in mood and emotional well-being. While hormone treatment can bring about positive changes for many individuals, it is important to recognize that it can also have an impact on relationships. Similar to hormone treatment before surgery, mood swings and emotional instability can occur during hormone treatment after gender reconstructive surgery. Transwomen who undergo hormone treatment as part of their sex reassignment surgery may experience a range of physical changes. These changes can vary depending on the specific hormone therapy regimen they are prescribed, as well as individual factors such as age, health status, and genetics. One of the most common physical changes faced by transwomen during hormone treatment is the development of breast tissue. Hormone therapy typically

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Criminal Propensity among Youth

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Abstract

This research employs a descriptive method to investigate the criminal propensity among youth within the age group of 18 to 25 in the state of Kerala, India. The study utilizes a convenience sampling method to gather data from 300 individuals in this demographic group. Convenience sampling, a non-probability sampling technique, was chosen to facilitate data collection. The primary objectives of this research were to explore the association between age, profession & marital status and criminal propensity among the youth in Kerala. The major findings of this study reveal a statistically significant relationship between age and criminal propensity among the sampled youth. Specifically, the research identifies that as individuals within the age group of 18 to 25 advance in age, there is a discernible change in their likelihood to engage in criminal behavior.

Keywords: Criminal Propensity

Introduction

The word "crime" is derived from the Latin word "Krimos" which means "to accuse". It covers those acts which are against social order and deserve disapprobation and condemnation of society. As stated, crime is essentially concerned with social order. Emile Durkheim's (Paranjape, 2007) "Crime as a Normal Phenomenon" mentioned a society composed of persons with angelic qualities would not be free from violation of the norms of that society. Criminal propensity is the tendency of an individual to be inclined towards criminal behaviour. Criminal propensity explains the various forms of antisocial behaviour, "criminal propensity is genetic however these pathological traits interact and are often aggravated by environmental social conditions" (Delisi, 2005).

Over the last decade, the crime rate has become a menace affecting millions of youths and children in our nation. As per the National Crime Records Bureau among states, Kerala has the highest crime rate, (NCRB-2021). The crime rate is crime incidence per 100,000 of the population. Young people with a strong morality and capability to exercise self-control are likely to refrain from crime, regardless of their level of criminogenic exposure while those with a weaker morality and capability to exercise self-control are more likely to engage in acts of crime when exposed to criminogenic settings. People's exposure to criminogenic settings is dependent on the places they frequent and with whom they tend to frequent them. Criminal propensity is defined as criminal minds, which is defined as the mindset that allows people to consider using illegitimate means to achieve a goal.

Results & Discussions

There is a statistically significant relationship between age and criminal propensity. As individuals age, there is a gradual increase in the likelihood of engaging in criminal behavior. The criminal behavior tends to peak during early adulthood, typically in the late teens and early twenties. This period is characterized by a higher propensity for impulsive and risk-taking behaviors. Several factors contribute to the age-related variation in criminal propensity, including social, economic, and psychological factors. Younger individuals often face unique challenges such as peer pressure, limited employment opportunities, and lower impulse control. The findings of this research support the notion that criminal propensity is not a static characteristic but varies over the lifespan. It is crucial to recognize the influence of age-related factors in understanding and addressing criminal behavior. Early interventions and targeted

support for individuals during their high-risk years may prove effective in reducing criminal activity.

The study also aimed to understand whether there is a correlation between leading a solitary life and a higher likelihood of engaging in criminal behavior when compared to married individuals who typically have more social connections. Married individuals, as a group, had lower levels of reported loneliness compared to unmarried individuals. This suggests that marriage is associated with decreased feelings of loneliness. The findings suggest that social isolation, particularly loneliness, is associated with a higher likelihood of engaging in criminal behavior. The study underscores the importance of social connections in reducing criminal propensity and highlights the potential role of marriage as a protective factor against loneliness and its associated criminal outcomes.

The study sought to understand whether the environment, specifically urban or rural living, had an impact on an individual's likelihood of engaging in criminal behavior. There was no statistically significant difference in criminal propensity between individuals living in urban and rural areas. Both groups showed a comparable likelihood of engaging in criminal behavior. The study also considered demographic factors such as age and gender. While these factors were associated with variations in criminal propensity, they did not show a significant correlation with the urban or rural divide.

The findings of this research challenge the assumption that certain occupational groups may be more prone to criminal behavior than others. There were no statistically significant differences in criminal propensity among the various occupational groups. Participants across different professions displayed similar levels of the likelihood of criminal behaviour. Individuals from different occupational backgrounds were equally likely to be involved in various types of criminal activities, including property crimes, white-collar crimes, drug offenses, and violent crimes. The findings underscore the need for a nuanced understanding of the factors contributing to criminal behaviour, moving beyond occupational stereotypes. Policymakers and law enforcement agencies should adopt a holistic approach to crime prevention that addresses the multifaceted nature of criminal activities.

Conclusion

Crimeless society is a myth and youth delinquency is a universal phenomenon, India is not an exception. Youth is an intense period of rapid development culminating in identity formation and social integration tasks. During this developmental phase family, moral values, peers, technology, etiquette and society influence their upbringing. Youth are our future who will develop as an adult personality on the world platform. Similarly, the Constitution of India secured special status for youth for their optimal growth and development.

In modern times crime is an issue of serious concern throughout the world, and it is a menace with which all sections of society have to deal. The present study has emphasised the prevention of this social evil and is based on different treatment programs and analysis

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Cyber Etiquette among Young Adults

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Abstract

This descriptive research study aimed to investigate the state of cyber etiquette among young adults using a sample of 268 participants. Cyber etiquette, encompassing digital manners, online behaviors, and ethical conduct in the digital realm, was examined with a particular focus on gender and the distinction between students and employees. The findings of this research revealed intriguing insights into cyber etiquette practices among young adults. One major result indicated that the level of cyber etiquette was significantly higher among females when compared to males. This gender difference suggests that females may exhibit more considerate and ethical behaviors in their online interactions and digital conduct. Another noteworthy finding of the study was the distinction in cyber etiquette related to piracy and plagiarism between students and employees. Specifically, the research identified that cyber etiquette piracy and plagiarism were more prevalent among students than among employees.

Key Word: Cyber Etiquette

Introduction

The term etiquette was first introduced in 1750 from the French word 'etiquette' which means ticket. Etiquette is the ticket to the proper way of doing things. Human beings are complex social animals. Individuals cannot get along by themselves; people need other members of the species around them. Etiquette and manners help keep people from hurting each other so they can remain together. (Choukimath, 2006). It is the conventional rule of personal behaviour in polite society. It is the customary code of polite behaviour in society or among members of a particular profession or a group. According to (Cuppy, 1929) etiquette is behaving yourself a title better than is essential. Etiquette can be considered as an unwritten rule, synonymous with manners.

Cyber etiquette refers to etiquette acceptable with respect to the use of technology. To put it simply cyber etiquette is a certain code of conduct of behavior or conduct and manners applied to the use of internet technology in everyday scenarios. Cyber etiquette is an asset of acceptable rules and norms that must be followed with the use of technology. These rules are to ensure individual and community safety, security and positive communication across the internet (Lohmann, 2010). Cyber etiquette is extremely important in this era of connectedness and increased virtual interconnection. As the world is fast adapting to online practices for learning, working and entertainment there is a growing need to ensure respect security, social sensitivity and appropriate communication. Cybercrime is a term used to broadly describe criminal activity in which computers or computer networks are a tool, a target, or a place of criminal activity and includes everything from electronic cracking to denial-of-service attacks. Everyone appreciates the use of the Internet but there is another side of the coin which is Cyber Crime by the use of Internet (Saini, 2012). Cybercrime is a by-product of the ever-increasing development in the areas of information and communication technology (ICT). Therefore, it is important to expose and make the younger generation understand unethical online activities (Freestone & Mitchell, 2010) as well as provide ethical guidelines and encouragement for improving responsible behaviour and positive qualities when engaging in cyberspace. The study aims at promoting awareness and the need to exhibit responsible behaviour online among

youth.

Findings and Discussions

The study recognised the level of cyber etiquette is higher among females than males. The result that females exhibit higher cyber etiquette than males likely stems from a specific research study that observed or surveyed online behavior and found that, on average, females tended to display more polite and respectful conduct. From a young age, individuals are often socialized differently based on their gender. Females may be encouraged to be more polite, empathetic, and considerate in their interactions, both offline and online. This socialization can influence their online behavior and lead to a perception of higher cyber etiquette.

The study shows that cyber etiquette piracy and plagiarism are higher among students than employees. Students are generally less experienced in professional and academic environments compared to employees. They may not have a full understanding of the consequences and ethical implications of piracy and plagiarism. In contrast, employees often have more exposure to workplace expectations and may be more aware of the legal and ethical boundaries. Peer influence can play a significant role in shaping behavior. Students may be more likely to engage in unethical practices if they perceive that their peers are doing the same. In contrast, employees may have a different peer group with different norms and expectations. While there may be instances where cyber etiquette, piracy, and plagiarism are more common among students than employees, it's crucial to recognize that these behaviors are not limited to any particular group. The prevalence of such behaviors can vary based on multiple factors, including age, education, context, and awareness of consequences.

Sample of young adults without online gaming habits have higher levels of piracy and plagiarism than young adults with online gaming habits. Young adults with an online gaming habit may allocate a significant portion of their leisure time to gaming. This can leave them with less time to engage in other activities, including searching for and engaging in piracy or plagiarism. On the other hand, young adults without this habit may have more free time on their hands, potentially leading to more opportunities for unethical behavior. Online gaming often requires the development of various skills, such as problem-solving, strategy, and coordination. Young adults who are invested in gaming may channel their energy into honing these skills, leaving them less inclined to engage in activities like piracy and plagiarism, which do not contribute to skill development. Privacy and confidentiality are higher at the age of 21-25. The age range of 21-25 typically represents a period of transition from adolescence to adulthood. During this time, individuals often become more independent and gain a stronger sense of autonomy. As a result, they may place a higher value on their privacy and confidentiality as they navigate their own lives and make personal decisions. Many individuals in this age range are pursuing higher education or starting their careers. They may be aware that maintaining privacy and confidentiality can be essential in professional and academic settings, where sensitive information or personal data may be at stake. This awareness can lead to more careful handling of private information.

Conclusion

Cyber etiquette is a part of digital citizenship that everyone needs to obey, which was later coined as netiquette. (Sari, et al,2020). The lack of awareness and knowledge about cyber etiquette caused some undesired negative impacts on the users of cyberspace. A wide range of ethical issues like Information indecency, online safety issues (identity theft, fraud, hacking, and phishing), the misuse of information (plagiarism and illegal access to protected content)

and health risks (screen exposure and internet addiction) etc. are prominent issues in this context. Therefore, it is important to expose and make the younger generation understand unethical online activities (Freestone & Mitchell, 2010) as well as provide ethical guidelines and encouragement for improving responsible behaviour and positive qualities when engaging in cyberspace. The study aims at promoting awareness and the need to exhibit responsible behavior online among youth.

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Dyadic Adjustment and Emotional Intelligence among Middle-Aged Women

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Abstract

The major objective of the study was to examine Dyadic Adjustment and Emotional Intelligence among middle-aged women. The study was conducted on a group of middle-aged (40 to 60) couples including both males and females. The convenient sampling method was used to select the sample. The data was collected by using the survey method. Emotional intelligence and Dyadic adjustment were assessed by using Emotional Intelligence Scale, and Revised Dyadic Adjustment scale. Results of the study revealed that Emotional Intelligence and Dyadic Adjustments were more or less similar among Males and Females. Further, the study revealed that middle-aged couples having single children showed higher levels of Dyadic Adjustment than couples having more children.

Key Words – Dyadic Adjustment, Emotional Intelligence, Middle-Aged Women

Introduction

Middle age is the stage of adulthood that comes just before old age. While the specific age range for middle age can vary from person to person, it is generally considered to be between 40 and 60 years old. During this period, individuals typically experience both physical and psychological changes, including a gradual decline in physical abilities and an increased awareness of their mortality. In middle age, people often shift their focus from anticipating the future to reflecting on the past, engaging in reminiscence and recollection. When approached with a positive outlook, middle age can serve as a valuable preparation for a fulfilling and productive old age.

Emotional intelligence and marital adjustments are closely related to each other. Within a marriage, there are many unspoken emotional dialogues and verbal and non-verbal communication that can affect marital satisfaction (Dildar et al., 2012). Managing and controlling self-emotions and other's emotions helps the partner to resolve conflicts and live a satisfying life (Fitness, 2001). Dyadic adjustment is a process with consequences that can be identified with the rule of a couple's problematic conflicts, interpersonal tensions, individual anxiety, marital satisfaction, coherence integrity, and collaboration about important problems. Dyadic adjustment seems to be a comprehensive conceptualization of the quality of marriage since it can be a blanket term to cover either or both marital satisfaction and marital happiness. Emotional Intelligence is the ability to monitor your own emotions as well as the emotions of others, to distinguish between and label different emotions correctly, and to use emotional information to guide your thinking and behavior and influence that of others. Emotional intelligence refers to the ability to recognize, understand, and manage one's own emotions as well as the emotions of others. Middle-aged people, typically between the ages of 40 to 60, often exhibit a higher level of emotional intelligence compared to younger individuals due to their life experiences and maturity. Middle-aged individuals tend to be more adept at handling complex emotions and interpersonal relationships. They have had ample time to develop coping strategies, empathy, and self-awareness, which can positively impact their social interactions and decision-making.

The relationship between emotional intelligence and dyadic adjustment can be varied among individuals regardless of their gender. Research has shown mixed results, but some studies

have suggested that emotional intelligence can positively impact dyadic adjustment in both men and women. Individuals with higher emotional intelligence may be better equipped to understand and manage their own emotions and those of their partners, leading to healthier and more satisfying relationships.

Results and Discussions

The findings of the study no significant differences in Emotional Intelligence and Dyadic Adjustment among middle-aged Couples based on Gender. This means that Emotional Intelligence and Dyadic Adjustment were more or less similar among males and females. Over time traditional gender roles have evolved, leading to more equitable distribution of emotional expression and relationship responsibilities between men and women. This shift means that both genders now have more similar opportunities to develop emotional intelligence and contribute to the quality of their relationships. Society has become increasingly aware of the importance of emotional intelligence and healthy relationships. Schools, families, and communities often emphasize the development of these skills for both boys and girls, reducing potential gender gaps in these areas. These findings are supported by the study of Kshirsagar and Sarika Shivaji (2021). They found no significant gender differences in Emotional Intelligence and Dyadic Adjustment.

Further, the study revealed that middle-aged couples having single children showed higher levels of Dyadic Adjustment than couples having more children. These findings are supported by the findings of Douglas et al., (1985). The study found that significant difference with Dyadic Adjustment based on the number of children. Couples with one child may have more time and resources to invest in their relationship, leading to increased satisfaction. The presence of multiple children can create additional stressors and demands on a couple's time and attention, potentially leading to lower relationship satisfaction. Additionally, having one child can foster a stronger sense of intimacy and connection between partners, as they may rely more on each other for companionship and support.

Conclusion

The current study resolves intending to understand and analyze Emotional Intelligence and Dyadic Adjustment among middle-aged Women. The study could find that good Emotional intelligence and Dyadic Adjustment are present in Middle-aged Couples. Middle-aged couples having single children showed higher levels of Dyadic Adjustment than couples having more children. The study was conducted within a limited period, so it has certain limitations.

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Exploring the Relation Between Economic Status and Individuals' Perception of Social Support, and Its Impact on Psychological Well-Being.

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Abstract

This paper investigates the intricate relationship between economic status and its impact on the perceived social support and psychological well-being of elderly individuals. The study, comprising a sample size of 200 older adults from Idukki & Kottayam districts of Kerala, employed a simple random sampling method for participant selection. Data collection was carried out through a comprehensive questionnaire consisting of a demographic data sheet, the Multi-dimensional Scale of Perceived Social Support, and the Psychological Well-being Scale. Data analysis was conducted using t-tests, ANOVA, and correlation analyses. The results of this study reveal a significant positive association between economic status and the perceived social support experienced by elderly participants.

Introduction

The world is experiencing a demographic shift of unprecedented proportions. The global population is aging, with a significant increase in the proportion of elderly individuals. According to the World Health Organization (WHO), the number of people aged 60 years and older is expected to double by 2050, reaching nearly 2.1 billion. This demographic transformation brings about multifaceted challenges, particularly in addressing the well-being and social support systems for the elderly.

As individuals advance in age, they often encounter a variety of physical, psychological, and social changes. These changes can significantly impact their quality of life and overall well-being. Among the many factors influencing the well-being of the elderly, economic status stands out as a crucial determinant.

Economic status, encompassing income, assets, and financial security plays a pivotal role in the lives of older adults. The financial resources available to them can shape their access to healthcare, housing, and other essential services. Furthermore, economic well-being is intricately linked to the social fabric of society, influencing the extent and quality of social interactions and support networks that seniors can access.

At the heart of this intricate relationship lies the concept of perceived social support—the subjective evaluation of the availability and adequacy of social connections and assistance. The perception of social support can significantly impact an individual's psychological well-being, affecting emotional stability, self-esteem, and mental health. Thus, understanding how economic status influences perceived social support and, subsequently, the psychological well-being of the elderly is a matter of critical importance.

Umukoro, Omonigho Simon, conducted a study on the Implications Of Social Support And Socio-economic Status On the Perceived Health And Wellbeing Of Psychiatric Patients(August 2018) Social support and educational status emerged as significant predictors of health status among psychiatric patients while income did not predict health status among psychiatric patients. Social support, income and educational status did not jointly predict the

subjective well-being of psychiatric patients in State Hospital Adeoyo while only educational status emerged as a significant predictor of subjective well-being among psychiatric patients.

Results & Discussions

The ANOVA of Perceived social support and psychological well-being concerning Economic Status with variables significant other, family, and friends perceived social support and psychological well-being shows that the calculated F value of significant other is 14.74, which is greater than the table value and it is significant at 0.01 levels. The calculated F value of significant other is 10.81 which is greater than the table value and it is significant at 0.01 levels. The calculated F value of friends is 6.27, which is greater than the table value and it is significant at 0.01 levels. The calculated F value of perceived social support is 12.31, which is greater than the table value and it is significant at 0.01 levels. The calculated F value of Psychological well-being is 16.49, which is greater than the table value and it is significant at 0.01 levels.

One way of explaining these contradictory findings concerns variations in the choice of socioeconomic indicators that can be associated with social networks and support in different ways. Poverty can lead to social exclusion. Social participation requires financial resources to afford activities to pay member fees, buy gifts, etc. Therefore, it seems plausible that less external, non-family ties are established in low-income groups.

In a study by Simone Weyers (Low socio-economic position is associated with poor social networks and social support), findings show that socially disadvantaged persons are more often exposed to poor social networks and social support. In bivariate analyses, it becomes obvious that there is a higher percentage of having no confidant and no partner, of no participation, of being socially isolated and lacking social support. In multivariate analyses, odds ratios are elevated in low SEP groups. Both income and education are likely to impact well-being. A higher education, higher financial resources, and thus, a higher SES increase psychological well-being in various respects.

However, there is also evidence that lower socioeconomic status is associated with higher levels of psychological distress. It seems reasonable to suggest, however, that patterns of economic success and failure, and the associated different mixes of environmental resources and demands, would have an important impact on the extent to which feelings of accomplishment, mastery, and self-acceptance, for example, develop over the life course. Since occupation is closely tied to socioeconomic level, some support for this assertion can be found in Kohn and Scholander's work in which they demonstrated that job characteristics, which are highly correlated with social class, exert a growing influence over time on psychological well-being. A study by G.A Kaplan (2008) showed that as economic status is higher, psychological well-being improves.

This study also validates the point that Individuals who have high economic status show high perceived social support and psychological well-being.

Conclusion

In conclusion, the research findings highlight a noteworthy relationship between economic status and psychological well-being among the elderly, underscoring the importance of financial stability in maintaining overall mental health and life satisfaction.

These findings provide valuable insights into the critical role of economic resources in shaping the social support networks and psychological well-being of elderly individuals. The implications of this research hold promise for policymakers, healthcare providers, and social support organizations seeking to enhance the well-being of an aging population, emphasizing the need for strategies that address economic stability as a cornerstone of elderly care.

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Educational Status, Loneliness & Depression: A Study of Older Adults

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Abstract:

This research study investigates the influence of educational status on feelings of loneliness and levels of depression among elderly individuals aged 60 and above. A convenient sampling method was employed to gather data from a diverse sample of 250 participants, comprising both men and women. The tools used for data collection are a demographic data sheet, UCLA (University of California, Los Angeles) Loneliness Scale, and Geriatric Depression Scale. The analysis utilized statistical tests, including mean and standard deviation, t-tests, ANOVA, and correlation, to explore the relationship between marital status and the emotional well-being of the elderly population. The study's major findings reveal that educational status significantly impacts feelings of loneliness and levels of depression among elderly individuals. Notably, the data underscores the profound effect of the level of education on these emotional states.

Keywords: education, loneliness, depression, older adults

Introduction:

In an increasingly interconnected and aging world, the well-being of our elderly population has emerged as a paramount concern. Depression and loneliness represent two formidable challenges that often afflict older individuals, casting shadows over what should be their golden years. In a study conducted by Archana Singh & Nishi Misra (2009), results revealed a significant relationship between depression and loneliness. Amidst this backdrop, the role of education, a potent catalyst for personal growth and social engagement, has garnered growing attention. This research endeavors to explore the intricate relationship between education and the mental and emotional well-being of the elderly, shedding light on how access to and participation in lifelong learning can potentially mitigate the pervasive issues of depression and loneliness among this vulnerable demographic. In an era marked by demographic shifts and the evolving landscape of education, understanding this connection takes on renewed significance, offering promising avenues for enhancing the lives of our elderly citizens

In this research, it delves into a less explored facet of the battle against loneliness and depression among older adults – the role of education. While numerous factors contribute to the prevalence of these emotional challenges, education emerges as a potentially transformative force. Education, often associated with the vigor of youth, should not be relegated to the past as individual's age. Instead, it offers a promising avenue to mitigate the effects of loneliness and depression among older adults, fostering resilience and promoting a sense of purpose.

Findings of a study conducted by Gul, S. N., Chishti, R., & Bano, M. (2019) revealed that the educational qualification of the sample had a positive impact on their social support and they were less socially isolated as compared to uneducated elderly. The study on the relationship between social isolation, loneliness, and social support to disease outcomes among the elderly indicated that belongingness support related most consistently to health outcomes (Joe Tomaka et al. 2006). Other research shows that senior citizens with less financial resources and low educational level especially those who are jobless are prone to feel loneliness when contrasted with those with advanced education and high financial resources and those who are employed (Hawkley, et al., 2008; Creecy, Berg & Wright 1985; Pinquart and Sorensen 2001; Lauder, Sharkey & Mummery 2004).

This study embarks on an exploration of the multifaceted relationship between education and the mental and emotional well-being of older adults. It investigates how the level of education can influence, alleviate, and potentially prevent the onset of loneliness and depression. By examining the interplay between education, loneliness, and depression, it aims to shed light on the potential benefits of educational interventions in improving the lives of older adults. In doing so, the study aspires to contribute to a more comprehensive understanding of the challenges faced by this demographic and to offer insights that may guide policies and practices aimed at enhancing their emotional well-being.

Results & Discussion:

The ANOVA results of geriatric depression and loneliness show that the calculated 'F' value of geriatric depression is 5.24, which is higher than the table value of 4.60 and is significant at 0.01 level. So there is a significant difference in geriatric depression among old age people based on their education. Hence the hypothesis will have a significant difference in geriatric depression among old age people based on education.

In the case of loneliness, the 'F' value is 9.19 which is higher than the table value of 4.60 and it is significant at 0.01 levels. So there is a significant difference in loneliness among old age people based on their education. Hence the hypothesis will have a significant difference in loneliness among old age people based on education.

The Post Hoc test of geriatric depression concerning education shows that the total score of geriatric depression is higher among the sample below SSLC compared to the sample of education in degree. Geriatric depression is higher among the sample belonging to below SSLC. Geriatric depression is comparatively lower among the sample belonging to a degree. The educational status of SSLC +2 and below SSLC did not differ from each other.

The present findings supported the study of James Mitchell(1999)et. al The study found that there is a significant difference in geriatric depression concerning education.

The Post Hoc test of loneliness concerning education shows that the total score of loneliness is higher among the sample residing below SSLC compared to a sample of education in degree. Loneliness is higher among the sample belonging to below SSLC. Loneliness is comparatively lower among the sample belonging to a degree. The educational status of SSLC +2 and below SSLC differ from each other too. The present findings supported the study of Dr.Catherine Turner (2009)et. al the study found that there is a significant difference in loneliness concerning education university-level respondents have a low level of loneliness compared to those with secondary education.

Conclusion:

In conclusion, this research has provided valuable insights into the relationship between educational level and loneliness and depression among the elderly. The results of this study have demonstrated a statistically significant positive correlation between lower educational levels and increased feelings of loneliness and depression in the elderly population. These findings emphasize the importance of addressing educational disparities in interventions and support systems for the elderly. By recognizing the impact of education on mental well-being in later life, we can better tailor programs and initiatives to provide targeted assistance to those with lower educational backgrounds, potentially reducing the prevalence of loneliness and depression among this vulnerable demographic. Furthermore, this research underscores the

need for continued investigation into the multifaceted factors contributing to mental health in the elderly, to develop holistic strategies to enhance their overall well-being and quality of life.

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Family Type and Its Impact on Social Support & Psychological Dimensions among the Elderly

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Abstract

This research employs a descriptive method to investigate the impact of family type on perceived social support and psychological well-being among older adults above the age group in the state of Kerala, India. The study utilizes a random sampling method to gather data from 200 individuals in this demographic group. The primary objectives of this research were to check the influence of family type such as nuclear or joint or significant other relations on the perceived social support and psychological mental health of the elderly. The data were collected using a questionnaire method and the main tools for data collection were a socio-demographic data sheet, perceived social support, and psychological well-being scale. The major findings of this study reveal a statistically significant relationship between friends subscale and perceived social support among the sampled older adults. Specifically, the research identifies that for individuals above the age of 60, there is a significant relation between friends and family type on their perceived social support.

Keywords: Family type, perceived social support, psychological well-being, older adults

Introduction

Today, even in joint families, the elders do not feel that much support and well-being. All family members are busy with their work and jobs. So there is no time to spend with elders. All have their work to do. Those who live in joint families have a high perception of support from friends. In a joint family, elders get free time and can participate and integrate into the community. They spend their time with their friends. They get more time to share with friends than family. In a study by Majid and Fatemeh (2017) shows that for older people, friends accompany them in social activities more than their children or relatives. Family members compared to friends, exert more social control and the elderly expect social support from friends when needed. Also, the quality of an individual's relationships with spouse, children, and other family members was associated with personal feelings of well-being, but the quantity of such associations had little impact on either physical or psychological health.

Haifeng, Yang Ji, and Tianyong conducted a study on The Roles of Different Sources of Social Support on Emotional Well-Being among Chinese Elderly (March 2014). The results showed that the order of contact, frequency, and mutual support followed a hierarchical order from the spouse, children, to friends; zero-order correlations of Both family support and friend support were associated with more positive affect and less negative affect; and when Compared with the relative role of family and friend support, spouse (children if the spouse is not available) support had Greater contribution on decreasing negative affect, while friend support had a greater influence on increasing positive effect, These results were better Explained in light of the task specificity model rather than the hierarchical compensatory model.

This paper delves into the analysis of research findings that investigate the relationship between family type and social support dimensions among the elderly. Specifically, the study aimed to determine if there were significant differences in perceived significant others, family, friends, and psychological well-being based on family type. Statistical tests, including t-tests, were employed to analyze data collected from the sample.

Results & Discussion:

The findings suggest that, in general, family type does not significantly influence perceived significant others, family, and psychological well-being among the elderly in this study. This aligns with existing research that has also reported limited impacts of family structure on these aspects among elderly individuals. On the contrary, the significant difference observed in the friends subscale underscores the unique role that friends play in the perceived social support of the elderly. The t-value for the friend's subscale was calculated to be 1.99, surpassing the critical table value at the 0.05 significance level. This indicates that there is indeed a statistically significant difference in the friend's subscale based on the family type.

It suggests that family type may affect the extent to which elderly individuals rely on and receive support from their friends. This finding emphasizes the importance of friendships in the lives of the elderly, potentially compensating for any variations in family support.

These findings have several implications for policymakers, healthcare providers, and families themselves. Firstly, the results suggest that promoting joint family structures or attempting to recreate their benefits within nuclear families may contribute to increased perceived social support among the elderly. However, it's essential to recognize that family dynamics and relationships within any structure are complex and cannot be reduced solely to structural factors.

Additionally, the findings underscore the importance of considering individual differences and external support systems when assessing the psychological well-being of elderly individuals. Healthcare interventions and support services should be tailored to address the unique needs of each elderly person, taking into account their family context.

Conclusion

In conclusion, these research findings, indicate that while family type does not significantly affect perceived significant others, family, and psychological well-being among the elderly in the sample, it does indeed have a significant impact on the friend's subscale. This underscores the importance of friendships as a key element of perceived social support among elderly individuals. These findings contribute to our understanding of the complex interplay between family type, friendships, and social support among the elderly population, emphasizing the need for tailored support strategies that consider the role of friends in promoting the well-being of older individuals

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Feelings of Isolation & Depression in Elderly: Influence of Financial Factors

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Abstract:

The prime objectives of the study were to explore the role of financial factors in loneliness and depression among old age people. The sample was selected by using the Convenient sampling method (n=250). The tools used were a self-prepared socio-demographic data sheet Geriatric Depression Scale (Sherry A Greenberg, 2022), and the UCLA Loneliness Scale (Daniel W Russell, 1994). The obtained data was analyzed using the SPSS tool and used 't' test, ANOVA, and Correlation. Through a comprehensive analysis of the collected data, a significant relationship between financial factors and the experiences of loneliness and depression in the elderly population was revealed. These findings emphasize the critical role that economic stability plays in the mental well-being of older adults.

Keywords: Isolation, depression, financial factors

Introduction:

In an aging global population, the emotional well-being of elderly individuals has emerged as a critical concern. Feelings of isolation and depression among the elderly can have profound implications for their overall quality of life. While numerous factors contribute to these emotional struggles, the role of financial income in exacerbating or alleviating such sentiments remains an underexplored yet pivotal aspect.

A stable and sufficient income source, such as a pension or savings, provides the elderly with a sense of financial security. This security can alleviate worries about basic needs like housing, healthcare, and food, reducing anxiety and the risk of depression. Also, income often facilitates social engagement opportunities. Elderly individuals with the means to participate in social activities, travel, or hobbies are more likely to stay connected with friends, family, and their communities. Social engagement is a potent antidote to loneliness. The income–depressive symptoms relationship among older adults is likely due to psychosocial factors (Geyer et al. 2006; Osafo et al. 2015). Low income levels can create financial strain and daily stress, involving worries over financial matters and the future of household members (Zimmerman and Katon 2005). In the case of older adults, several recent studies in Europe have incorporated income into their analyses. The evidence generated by these studies suggests that household income inequality plays a remarkable role in the social gradient in depression among older adults (Brinda et al. 2016; Freeman et al. 2016).

Adequate income enables access to healthcare services, including mental health support. Regular medical check-ups and counseling can prevent or manage depression, ensuring a higher quality of life. Also, stable income has a significant role in maintaining independence. Income can enable elderly individuals to continue living independently. This independence preserves their sense of agency and control over their lives, reducing the risk of feeling isolated or dependent on others. Another important advantage of income source is it reduces financial stress. A lack of financial resources can lead to constant stress, which is a known contributor to depression. Having a reliable income source minimizes financial stressors and allows the

elderly to focus on their emotional well-being. Ultimately, income source significantly influences the overall quality of life for the elderly. It impacts their ability to engage in enjoyable activities, maintain social connections, and access essential services, all of which play crucial roles in combating loneliness and depression.

The source and adequacy of income for the elderly have a profound impact on their mental and emotional well-being. Exploring this relationship is essential in developing strategies to enhance the lives of our aging population and address the growing concerns of loneliness and depression among them. Thilak (June 2016), had worked on “Prevalence and factors associated with depression among the elderly in rural areas of Kannur, North Kerala, and India: a cross-sectional study”. The study was conducted at two-gram panchayat areas of Kannur Medical College surrounding. Findings suggested that depression in this area was very high and associated factors were financial dependency and one or more co-morbidities causing more worsening of the cases.

This research endeavors to shed light on the intricate relationship between financial income and the mental health of the elderly, delving into the nuanced ways in which economic resources can either serve as a buffer against isolation and depression or act as an additional stressor in their lives.

Results & Discussion

From the ANOVA analysis concerning income the calculated ‘F’ value of geriatric depression is 2.43, which is lower than the table value 2.99 and it is not significant. So there is no significant difference in geriatric depression among old age people based on their education. In the case of loneliness, the ‘F’ value is 6.29 which is higher than the table value 4.60 and it is significant at 0.01 levels. So there is a significant difference in loneliness among old age people based on their source of income.

The present findings supported the study of Rajesh Gupta (2005) et al who found that there is a significant difference in loneliness between sources of income showing that elderly individuals relying on traditional agricultural income reported higher levels of loneliness.

On analyzing the Post Hoc test for loneliness concerning sources of income such as current job, pension, and rented, the total score obtained for loneliness is higher among samples residing in rent compared to samples having current job. Loneliness is higher among the sample belonging to the rent source of income. Loneliness is comparatively lower among the sample belonging to the current job in the source of income. Pension and rent as sources of income did not differ from each other.

The present findings supported the study of Rajesh Gupta (2005) et al the study found that there is a significant difference in loneliness between sources of income that show the elderly.

Conclusion:

In conclusion, this research has shed light on the significant role that income plays in the isolation and depression experienced by the elderly. The findings underscore the harsh reality that older individuals with lower financial stability are more vulnerable to feelings of loneliness and depression. As our aging population continues to grow, it becomes increasingly imperative for society to address the economic disparities that contribute to the well-being of our elderly citizens. By recognizing and addressing these challenges, we can work towards fostering a

more inclusive and supportive environment for our aging population, ultimately improving their overall quality of life and mental health.

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Does Number of Children Influence Life Satisfaction & Quality of Life? A Study among Elderly

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Abstract:

The primary objective of the study was to evaluate life satisfaction and quality of life among elderly parents living alone. The study was conducted on a group of 202 elderly including both males (N=80) and females (N=122). The convenient sampling method was used to select samples. The present study tries to find out any significant difference in Life satisfaction and Quality of life with respect to the number of children. The tools used were a self-prepared questionnaire, a life satisfaction scale, and a quality of life scale. The Data was collected by using a survey method. The statistical procedures used to analyze the acquired data were the 't' test, ANOVA, and correlations. The study reveals that life satisfaction and quality of life have a significant difference with respect to the number of their children.

Introduction:

The dynamics of family structures and demographics have undergone significant transformations in recent decades, with a notable shift in the size of families and the aging population. One intriguing aspect of this evolution lies in the influence of the number of children on the life satisfaction and quality of life experienced by the elderly. As societies continue to grapple with aging populations and changing family patterns, understanding the intricate relationship between the number of children and the well-being of the elderly has become increasingly relevant.

Doerwaldet. al, in ' Domain specific life satisfaction among older adults with and without children: the role of intergenerational contact' shows that the domain-specific approach to life satisfaction can elucidate differences in the correlates of life satisfaction and well-being between older adults with and without children. They further suggest that the benefits of working with children for life satisfaction may be more pronounced in older adults without children than older adults with children.

The relationship between the numbers of children a person has and their quality of life and life satisfaction in old age is a complex and multifaceted one. It encompasses various social, economic, and emotional factors that can significantly influence the well-being of the elderly. This relationship can have a key influence on the lives of the elderly. Firstly, it is the social Support. The number of children can impact the level of social support available to an elderly individual. More children can potentially mean a larger network of family members to provide emotional, physical, and financial support. This support can enhance the overall quality of life and life satisfaction of the elderly by reducing feelings of isolation and loneliness. Secondly, a greater number of children can lead to a larger pool of potential caregivers and financial contributors. This can alleviate financial stress in old age, improving access to healthcare, housing, and other essential needs, thus enhancing quality of life. On the flip side, having more children can also mean more caregiving responsibilities for the elderly. While this can provide emotional satisfaction and a sense of purpose, it can also be physically and emotionally draining, potentially affecting life satisfaction. Also, the physical health and mobility of the elderly can influence the impact of the number of children on their quality of life. Healthier

individuals may derive more satisfaction from interacting with their children and engaging in family activities.

In a study conducted by Shiv Prakash (2020) among 100 elderly, most of the respondents (30%) who live with their adult children were satisfied in their lives, and but remaining group, those who are living alone or independently were slightly not satisfied.

Even though, in another study conducted by, Papi and Cheraghi,(2001), showed that the majority of older adults had low or moderate life satisfaction. Life satisfaction was not favorable in older adults. This research has demonstrated that older adults with fewer children had a higher score in life satisfaction which was contrary to the older adults traditional attitude towards having more children in the family.

In essence, the relationship between the number of children and the quality of life and life satisfaction among the elderly is highly individualized and context-dependent. It involves a complex interplay of social, economic, emotional, and cultural factors that require careful examination to draw meaningful conclusions and provide insights into how best to support our aging populations.

This research endeavors to explore the multifaceted connections between family size and the contentment and overall quality of life among the elderly, shedding light on an essential aspect of gerontology in our evolving world.

Results & Discussion:

The major findings of the study are given below:

Table 1. ANOVA of life satisfaction and quality of life based on the number of children

Variables		Sum of square	Df	Mean of square	F
Life satisfaction	Between groups	278.112	3	92.70	1.613
	Within groups	11377.49	198	57.46	
	Total	11655.60	201		
Quality of life	Between groups	1419.35	3	473.11	2.98*
	Within groups	31339.54	198	158.28	
	Total	32758.89	201		

*significant at 0.05

The ANOVA of life satisfaction and quality of life of samples based on their number of children shows there is no significant difference in life satisfaction based on the number of children. But quality of life shows a significant difference and the calculated 'F' value is 2.98 which is higher than the table value.

The present findings supported the study of Henning-Smith, C. (2016). The study found a significant positive difference between the number of children an elderly person has and their overall quality of life.

Table 2. Post hoc of quality of life based on the number of children

Number of children	N	Subset of alpha =0.05	
		1	2
1	39	92.12	
Above 3	36	94.94	94.94
3	29	96.65	96.65
2	98		98.94
Sig.		0.127	0.178

As per the above table elderly having 2 children kept difference with having 1 children. It is higher among elderly having 2 children and lower among 1 children. The elderly having 3 children and above 3 children do not differ from each other.

From the analysis of data, it is evident that elderly individuals with more children tend to report higher levels of social support, emotional well-being, and overall quality of life.

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Influencing Factors of Dyadic Adjustment among Middle-Aged Couples

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Abstract

The primary objective of the study was to identify the Influencing factors of Dyadic Adjustment among Middle-aged couples. The study was conducted on a group of 290 Middle aged couples including both males and females. The convenient sampling method was used to select samples. The tool used to assess Dyadic adjustment was the Revised Dyadic Adjustment Scale. The Data was collected by using a survey method. The study found that there are significant differences in Dyadic Adjustment among middle-aged couples based on certain demographic factors. Such as age. Family structure, Number of Children, Place of residence. Further, it revealed that the Dyadic Adjustment among middle-aged couples did not vary based on Gender, Education, Monthly Income, and Duration of Marital life. The study also revealed that Dyadic Adjustment is related to age, as the age increased the Dyadic Adjustment increased.

Keywords –Dyadic Adjustment, Middle aged couples

Introduction

Dyadic adjustment, referring to the quality of a romantic relationship between two individuals, is influenced by a multitude of socio-demographic factors. These factors encompass various aspects of individuals' lives, such as age, education, income, and cultural background. Age can impact dyadic adjustment as younger couples may face different challenges and priorities compared to older couples. Education can influence communication and problem-solving skills, while income can affect stress levels and access to resources.

Cultural backgrounds bring diverse values and expectations into the relationship, affecting everything from gender roles to conflict resolution styles. Additionally, factors like urban or rural living, religious beliefs, and family structures all play a role in shaping dyadic adjustment. Understanding how these socio-demographic factors intersect and influence a couple's relationship dynamics is essential for promoting healthy and thriving partnerships.

Dyadic adjustment among middle-aged couples is a complex and evolving dynamic influenced by various factors. During this life stage, couples often navigate a multitude of challenges, including career changes, raising children, and potential shifts in personal goals and values. Maintaining a healthy dyadic adjustment becomes crucial at this juncture. Communication and empathy remain key components, as couples must adapt to evolving needs and expectations. Middle-aged couples may also experience a renewed sense of intimacy and companionship as they face an "empty nest" phase, with children leaving home. Overall, dyadic adjustment for middle-aged couples hinges on their ability to effectively communicate, support each other's growth and aspirations, and find new ways to sustain their bond as they journey through this pivotal life stage.

Results and Discussions

The study revealed that dyadic Adjustment was higher among middle-aged couples belonging to nuclear families. The 't' value of Dyadic Adjustment 3.29 Is greater than the table value. The Subscales of Dyadic Adjustment such as Consensus, Satisfaction, and Cohesion Show significant differences The 'value of Consensus is 2.00, Satisfaction 2.85, and Cohesion 4.27 which is greater than the table value. The mean of the nuclear family and joint family is 24.78

and 23.71, Satisfaction 16.43 and 15.38, and Cohesion 13.58 and 11.54. The mean of the Dyadic Adjustment and its Subscales are higher among members of the nuclear family than those Joint family.

Dyadic Adjustment is positively related to age, which means that as age increases, the dyadic adjustment increases. According to the Correlation table, there is a significant relationship between age and dyadic Adjustment. There is a relationship between Subscales Consensus and total Dyadic Adjustment with age and the relationship is significant at 0.05 level. The subscale satisfaction is also keeping a significant relationship with age at 0.01 level.

Further, the study revealed that middle-aged couples having single children showed higher levels of Dyadic Adjustment than couples having more children. From the ANOVA analysis with respect to the number of Children the calculated 'F' value of satisfaction is greater than the table value and it is statistically significant. The difference is significant at 0.05 level. Cohesion (3.41) and total Dyadic Adjustment (3.88) are greater than the table value and it is statistically significant. These findings are supported by research done by Douglas et al., (1985). The study found that significant difference with Dyadic Adjustment based on the number of children.

The calculated 'f' value of satisfaction (7.70) is greater than the table value and it is statistically significant, the difference is significant at 0.001 level. Cohesion (3.48) and total Dyadic Adjustment (4.59) are greater than the table value and are statistically significant. The difference is significant at 0.05 level. Consensus (2.10) is lower than the table value it is not statistically significant. The study revealed that dyadic Adjustment was higher among semi-urban.

Conclusion

The study found that there are significant differences in Dyadic Adjustment among middle-aged couples based on certain demographic factors. Such as age, Family structure, Number of Children, and Place of residence. Further, it revealed that the Dyadic Adjustment among middle-aged couples did not vary based on Gender, Education, Monthly Income, and Duration of Marital life. The study also revealed that the Dyadic Adjustment is related to age, as the age increased the Dyadic Adjustment among middle-aged couples increased. The study was conducted within a limited period, so it has certain limitations. But Dyadic Adjustment research is relevant because it helps us better understand, assess, and improve the quality of romantic relationships, which has significant implications for individuals, couples, and society as a whole.

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Role of Marital Status in Loneliness & Depression among Elderly

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Abstract:

This research study investigates the influence of marital status on feelings of loneliness and levels of depression among elderly individuals aged 60 and above. A convenient sampling method was employed to gather data from a diverse sample of 250 participants, comprising both men and women. The tools used for data collection are a demographic data sheet, the UCLA (University of California, Los Angeles) Loneliness Scale, and the Geriatric Depression Scale. The analysis utilized statistical tests, including mean and standard deviation, t-tests, ANOVA, and correlation, to explore the relationship between marital status and the emotional well-being of the elderly population. The study's major findings reveal that marital status significantly impacts feelings of loneliness and levels of depression among elderly individuals. Notably, the data underscores the profound effect of widowhood on these emotional states. Widowed elderly participants reported significantly higher levels of both loneliness and depression compared to their married counterparts.

Introduction:

In an era marked by rapid demographic shifts and an aging global population, the well-being of elderly individuals has gained increasing significance. Among the multifaceted challenges faced by this demographic group, loneliness, and depression stand out as critical concerns that affect not only the individuals themselves but also society as a whole. Loneliness and depression in the elderly are complex phenomena, influenced by a myriad of factors, one of which is marital status.

Jabin (2016), in her article "Loneliness & Depression among Old Aged People," "tried to find out the relationship between loneliness and depression among old aged people, assessed the degree of depression, and examined the level of loneliness among the elderly. The findings, on the whole, indicated that there was a significant difference between loneliness and depression levels in old people.

Marital status is one significant factor that can influence these emotions. While marriage can provide companionship and emotional support, it doesn't guarantee immunity from loneliness and depression in old age. Widowhood, divorce, or never having married can introduce unique challenges.

The role of marital status in shaping the emotional and psychological experiences of elderly individuals has long been a subject of interest for researchers, policymakers, and healthcare professionals. Marriage, traditionally seen as a source of emotional support and companionship, can play a pivotal role in alleviating feelings of loneliness and depression. Conversely, the absence of a spouse, either due to widowhood or lifelong singlehood, can exacerbate these emotional challenges. Singh and Kiran (January 2013), carried out a study on "Loneliness among elderly women". This study was focused on various theories with special reference to widowhood from a loneliness perspective. Findings suggested that older women report more loneliness than male peers. The other truth comes out that widowhood and relocation have increased the vulnerability to loneliness.

In a study conducted by Zhao, L, et.al (2022), the results showed that middle-aged and older women were more likely to suffer from depression than men, and married middle-aged and older people were less likely to be depressed than those who were separated or divorced, widowed and never married

This research endeavor seeks to delve into the intricate interplay between marital status and the mental well-being of elderly individuals. By examining the impact of marriage, widowhood, and singlehood on loneliness and depression among the elderly, this study aims to provide valuable insights that can inform healthcare interventions, support systems, and policy decisions aimed at enhancing the quality of life for this vulnerable population. The significance of this research lies not only in its potential to uncover empirical evidence but also in its broader societal implications.

As the global elderly population continues to grow, understanding how marital status influences emotional well-being becomes increasingly vital for fostering healthier aging and addressing the rising burden of mental health issues among the elderly. In this comprehensive exploration of the role of marital status in loneliness and depression among elderly individuals, we will examine existing literature, present methodological approaches, and anticipate potential findings. Ultimately, this research endeavor seeks to contribute to the ongoing dialogue on aging, mental health, and the dynamics of marital relationships in the context of the elderly population.

Results & Discussion:

In the analysis using ANOVA, The calculated 'F' value of geriatric depression is 25.59 which is higher than the table value of 3.32 and it is significant at 0.01 level. So there is a significant difference in geriatric depression among old age people based on their marital status. Hence the hypothesis will have a significant difference in geriatric depression among old age people based on marital status.

In the case of loneliness, the 'F' value is 51.96 which is higher than the table value of 3.32 and it is significant at 0.01 levels. So there is a significant difference in loneliness among old age people based on their marital status. Hence the hypothesis will have a significant difference in loneliness among old age people based on marital status.

The Post Hoc test for geriatric depression shows that the total score of geriatric depression is higher among the sample residing in widow compared to samples married. Geriatric depression is higher among the sample belonging to the widow category. Geriatric depression is comparatively lower among the sample belonging to married. Divorced, widower, and widow did not differ from each other.

The present findings supported the study of Alejandro Gomes (1998)et. al the study found that there is a significant difference in geriatric depression with respect to marital status.

Also, the Post Hoc test for Loneliness shows that the total score of loneliness is higher among the sample residing in widow compared to samples of married and single. Loneliness is higher among the sample belonging to the widows. Loneliness is comparatively lower among the sample belonging to married and single. Widower and widow did not differ from each other.

Conclusion:

The present findings supported that the study of Prof.Sofia Hernandez (1994) et.al. The study found that there is a significant difference in loneliness with respect to marital status.

Loneliness and depression mostly occur among widows due to the loss of loved ones and nobody to support them social exclusion also being the reason behind the serious difference in loneliness and depression among old age people compared to the marital status.

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A Study on Internet Addiction and Psychological Distress among Early Adulthood with Special Reference to Ramankary Grama Panchayath

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Abstract

The study aims to investigate the prevalence of internet addiction, psychological distress, and self-esteem in early adulthood. In this study, the term Early Adulthood refers to the individual who falls in the age range of 18 to 29 years in Ramankary Grama Panchayat. A total of 120 participants were selected from Ramankary Grama Panchayath using the convenient sampling method. The participants included both males (N=62) and females (N=58). Descriptive research designs were used in this research. The tools used were self-prepared questionnaires, the Young Internet Addiction Test, the Kessler Psychological Distress Scale, and the Rosenberg self-esteem scale. The data was collected using online questionnaires.

Keywords: internet addiction, psychological distress, self-esteem, early adulthood

Introduction

In the contemporary digital era, the internet has become an indispensable part of our lives, transforming the way we communicate, work, access information, and entertain ourselves. Its vast array of online platforms and services has opened up endless opportunities, connecting people across borders and fostering global communities. However, along with its many advantages, the internet also poses certain challenges, one of which is internet addiction.

Internet Addiction Disorder (IAD) is a definition introduced by Ivan Goldberg in 1995. It describes net addiction as “a pathology, a disorder, overuse of this technology, including a wide range of behaviors and impulse control. (Goldberg, 1995). Excessive and compulsive reliance on the Internet that interferes with a person's everyday life, relationships, and general well-being is referred to as Internet addiction. It is characterized by an insatiable drive to use the internet, discourses neglect of obligations decreased productivity, and withdrawal symptoms when Internet usage is restricted. Although the idea of addiction is not new, the internet's development has given addicting behaviors a new channel through which to express themselves.

According to a report published by IAMAI(Internet and Mobile Association of India), the majority of Indians have become active Internet users with 52% of the population, or 759 million people accessing the Internet at least once a month in 2022, according to a report published by IAMAI and Kantar Wednesday. By 2025, the number is expected to grow to 900 million.(Romita Majumdar,, Bureau ET. IAMAI Report.2023).

Psychological Distress is a set of painful mental and physical symptoms that are associated with normal fluctuations of mood in most people. In some cases, however, psychological distress may indicate the beginning of a major depressive disorder, anxiety disorder, schizophrenia, somatization disorder, or a variety of other clinical conditions. It is thought to be what is assessed by many putative self-report measures of depression and anxiety.

A person's daily functioning and general quality of life can be significantly impacted by psychological distress. It can make it difficult for them to perform well at job or school, strain their connections, and prevent them from fully engaging in formerly enjoyable activities. Psychological distress can develop into more severe mental illnesses including major depressive disorder, generalized anxiety disorder, or post-traumatic stress disorder if it is not treated.

Promoting mental health and halting further psychological decline requires identifying and treating psychological suffering. Individuals can get the assistance and treatment alternatives they need by consulting mental health professionals like psychologists or therapists. Therapy, counseling, medicine, or a combination of strategies adapted to the individual's particular needs may all be included in the course of treatment.

Self-esteem, as an overall reflection of an individual's self-worth, encompasses beliefs about oneself as well as an emotional response to those beliefs. Representing the capacity to feel worthy of happiness and be able to successfully address life challenges, self-esteem is an important determinant of early adults mental health and development. Self-esteem is needed for the efficient functioning of their lives.

It is important to know the magnitude of internet addiction psychological distress and self-esteem among adults before the initiation and implementation of intervention strategies. The present study will provide baseline data on these three factors among early adults. The study findings can help understand the implications of internet addiction, psychological distress, and self-esteem among early adults, and provide impetus for policymakers, and stakeholders in health and education sectors to initiate policies that will address these issues among early adults.

Results & Discussions

The study shows that only 73.4% of respondents are addicted to the Internet. The rest 26.6% of respondents are not addicted to the Internet. The majority of the respondents have a moderate level of internet addiction (33.3%). 23.3% of respondents have mild levels of internet addiction and 16.6% of respondents have severe levels of internet addiction. The study reveals that the majority of the respondents spent more time being online, preoccupied with the internet and it also interfered with their daily activities. The study depicts that 75% of respondents have psychological distress and only 25% of the samples are likely to be well. The severity of psychological distress varies from mild level to severe levels 40% of the respondents have mild level to severe levels.

13.3% of respondents have severe levels of psychological distress. It is followed by 21.6% of respondents having a moderate level of psychological distress and 40% of respondents having a mild level of psychological distress. The study shows that 13.3% of respondents are at a higher risk for mental health problems. The study shows that overall self-esteem levels among the respondents are low (53.3%). 46.6% of respondents have a normal level of self-esteem.

Conclusion

Throughout the study, various key findings and implications have emerged, offering valuable insights into the prevalence and range of internet addiction, psychological distress,

and self-esteem among early adults. The study revealed a significant prevalence of internet addiction among early adults, indicating a concerning pattern of excessive and compulsive internet use. The study depicts majority of the respondents have an addiction to the Internet. Through the Kessler Psychological Distress scale, the study highlights the substantial prevalence of psychological distress among adults. The majority of the respondents have psychological distress and it varies from mild level to severe level of distress. The study revealed the considerable prevalence of low self-esteem among young adults in the early stages of adulthood. The findings reveal that a significant portion of individuals in this age group struggle with negative self-perceptions, self-doubt, and feelings of inadequacy. This emphasizes the importance of addressing low self-esteem and its potential impact on overall well-being during this critical developmental period. By recognizing the prevalence, contributing factors, consequences, and potential interventions associated with these issues, policymakers, mental health professionals, educators, and individuals themselves can work collaboratively to develop comprehensive strategies and support systems. These efforts aim to promote healthy internet use, enhance mental well-being, and foster a positive sense of self-esteem, empowering young adults to navigate the challenges and transitions of early adulthood successfully.

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Resilience among Type 2 Diabetic Patients

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Abstract

The prime objective of the study was to explore the resilience among type 2 diabetes patients. The samples (aged 40 – 60) were selected by using the convenient sampling method (N=210). The questionnaire method was used to collect data and the Resilience scale (Annalakshmi, 2009) was administered to assess the resilience level among the sample. The study found that resilience is higher among people with type 2 diabetes. The study also revealed that people with type 2 diabetes have more age and above 10 years duration of illness showed a greater level of resilience.

Keywords: Resilience. Type 2 Diabetes

Introduction

Resilience is defined as a dynamic process that individuals exhibit positive behavioral adaptation when they encounter significant adversity, trauma, (Luthar, Cicchetti, & Becker, B, 2000) tragedy, threats, or even significant sources of stress. It is different from strengths or developmental assets which are a characteristic of an entire population, regardless of the level of adversity they face. Under adversity, assets function differently (a good school, or parental monitoring, for example, have a great deal more influence in the life of a child from a poorly resourced background than one from a wealthy home with other options for support, recreation, and self-esteem) (Annunziata, Hogue, Faw. & Liddle, 2006). Resilience is a two-dimensional construct concerning the exposure to adversity and the positive adjustment outcomes of that adversity (Luthar & Cicchetti, 2000). This two-dimensional construct implies two judgments: one about a “positive adaptation” and the other about the significance of risk.

Diabetes is a chronic, metabolic disease characterized by elevated levels of blood glucose (or blood sugar), which leads over time to serious damage to the heart, blood vessels, eyes, kidneys, and nerves. The most common is type 2 diabetes, usually in adults, which occurs when the body becomes resistant to insulin or doesn't make enough insulin. In the past 3 decades, the prevalence of type 2 diabetes has risen dramatically in countries of all income levels. Type 1 diabetes, once known as juvenile diabetes or insulin-dependent diabetes, is a chronic condition in which the pancreas produces little or no insulin by itself. For people living with diabetes, access to affordable treatment, including insulin, is critical to their survival. There is a globally agreed target to halt the rise in diabetes and obesity by 2025(WHO 2023).

Type 2 diabetes is a condition that happens because of a problem in the way the body regulates and uses sugar as a fuel. That sugar also is called glucose. This long-term condition results in too much sugar circulating in the blood. Eventually, high blood sugar levels can lead to disorders of the circulatory, nervous, and immune systems. In type 2 diabetes, there are primarily two problems. The pancreas does not produce enough insulin — a hormone that regulates the movement of sugar into the cells. Cells respond poorly to insulin and take in less sugar. Type 2 diabetes used to be known as adult-onset diabetes, but both type 1 and type 2 diabetes can begin during childhood and adulthood. Type 2 is more common in older adults.

Results and Discussions

Sugar levels, adopt healthier lifestyles, and adapt to the challenges of diabetes. Also, they have

a heightened awareness of long-term complications associated with diabetes, motivating them to take better care of their health. As people age they may be more inclined to make positive lifestyle changes such as improving their diet, increasing physical activity, and managing stress which contributes to better diabetic management (DeNisco, 2011). And the study shows that resilience was higher among 40-50 age groups of people. It is mainly the patients who have lived with diabetes for a longer time that tend to develop better-coping mechanisms and adapt to the challenges of managing their conditions. They become Resilience is higher among type 2 Diabetic patients. It is because, mainly type 1 diabetes is affected at younger ages and they may take restrictions on food, start to take medicines from the younger period of life, and have created high worries and stress related to the chronic illness. In the case of type 2 diabetic patients, the condition starts from the elder stage of life and they start to accept the condition. They may have learned how to better control their blood more familiar with their dietary, medications, and lifestyle needs. Long-term diabetic patients often have established relationships with healthcare providers. Regular checkups, monitoring, and adjustments to their treatment plan can help maintain better control over blood sugar levels and overall health.

People with diabetes often make lifestyle modifications to manage their condition effectively. Those with a longer duration of illness may have incorporated healthier habits into their daily routine, such as regular exercise and a balanced diet. Over a long-term illness condition, psychological resilience can also develop within the patient. Thus, the patient may develop a positive mindset, better stress management skills, and a sense of empowerment in managing their health. Long-term diabetic patients may belong to support groups or communities where they can share experiences and strategies for managing the condition, providing valuable emotional support. The heightened resilience can be attributed to these several factors. The experience of living with diabetes can foster a sense of empowerment and self-efficacy as individuals learn to navigate the complexities of their condition. This increased self-confidence can contribute to higher resilience as they become more capable of handling adversity and adapting to changes in their health. It can be concluded that diabetic patients with type 2 respect to having a higher duration of illness, and with aged group of people has greater resilience.

Conclusions

Patients with diabetes 2 have greater resilience than those with type 1 diabetes. The higher age group range, with respect to the duration of illness, which is greater than that of above 10 years of illness has greater resilience. The study was conducted within a limited period, so it has certain limitations. However, the study shed light on type 2 diabetic patients having greater resilience than type 1.

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Influence of Gender and Age on Sibling Relationship among Middle-Age

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Abstract:

The prime objective of the study was to explore the relationship between adult siblings in middle age based on gender and age. The sample (aged 40 to 60) was selected by using a convenient sampling method (N=299, males N=147 and female N=152). The questionnaire method was used to collect data. The Adult Sibling Relationship Scale (ASRS) was prepared by Shobha Nandwana and Madhur Katoch was used for the study. The study found that the adult sibling relationship is more common among people belonging to the age group 40 to 50 than among people belonging to the age group 51 to 60. The study also revealed that adult sibling relationships in females were more than that in males.

Keywords: Gender, Age, Sibling Relationship, Middle Age

Introduction

Adulthood marks a significant phase in an individual's life, representing a time of transition, growth, and self-discovery. As one emerges from the sheltering cocoon of youth, the journey toward adulthood introduces a range of new challenges, responsibilities, and opportunities. According to Dunn, J., and Kendrick, C. (1982), Sibling relationship refers to the bond and connection between individuals who share at least one biological or adoptive parent. Sibling relationship refers to the bond and connection between individuals who share at least one common biological or adoptive parent. Siblings are brothers and sisters, and the relationship can be characterized by love, rivalry, support, and shared experiences.

In the human life cycle, middle age refers to the period of life that occurs after early adulthood and before late adulthood. It is characterized by individuals typically being between the ages of 40 to 65 years old. During this phase, people often experience various physical, psychological, and social changes, which may include adjustments in career, family roles, and personal priorities. Erik H. Erikson (1950). It's important to remember that everyone ages differently, and individual experiences of middle age can vary widely. Some individuals may experience a sense of fulfillment and contentment during this period, while others may face significant challenges or changes. The concept of middle age is just one way of understanding and categorizing different stages of the human lifespan. An individual thrives within a network of relationships with parents, grandparents, friends, and siblings. Siblings are vital members of kin in fostering an individual's development. Sibling relationship fulfills different needs and holds different meanings for adults. Sibling bonds may become more salient during adult years as a source of emotional support. Key life transitions play a role in early adulthood, sibling relationships that are marked by increased separation and decreased overs quality are affected by events like marriage, an increase in geographic proximity among siblings, the birth of a child, or establishment in career On the other hand during late adulthood, that age 60 and over siblings become undoubtedly of great importance, Intensity of the sibling relationship resumes after demands of career and children diminishes and solidarity between siblings becomes even stronger than that with parents. Caring for aging parents and property inheritance has been suggested as a source of conflict for siblings, but may also bring them closer (Bedford, 1996) Sibling contact becomes voluntary and ties become loosened and diffused Even though general contact includes phoning or in-person contact, residential proximity and quality of the sibling-inlaw relationship has been associated with frequency of contact and it places obvious constraints on interaction.

Gender exerts a profound influence on adult sibling relationships. Societal norms and expectations related to gender roles and behavior play a pivotal role in shaping the dynamics between brothers and sisters as they grow into adulthood. These influences manifest in communication styles, emotional expression, and even the division of responsibilities within the sibling bond. Exploring how gender impacts adult sibling relationships provides valuable insights into the intricacies of familial connections and the interplay between societal constructs and personal experiences.

Result and Discussion

There is a significant difference in adult sibling relationships based on age group. As adult siblings age, their relationships can evolve in complex ways. Factors such as changing life stages, geographic separation, and evolving priorities can impact the closeness between them. As individuals mature, they often take on responsibilities like starting families and pursuing careers, leaving less time for sibling bonding. Geographic separation, driven by career choices or personal circumstances, can also hinder regular interaction. Additionally, divergent interests, personal growth, and shifting values can lead to differences that affect the connection between adult siblings. While age can potentially decrease the frequency of contact and shared experiences, it's important to remember that sibling bonds can remain strong with effort and communication. A study on Sibling Relationships over the Life Course conducted by Lynn White(2004) also supports this finding. The study found that the measures(dimensions) of sibling relationships decline significantly with respect to increase in age.

The study revealed that there is a significant difference in adult sibling relationships based on gender. Adult siblings' relationships can indeed be influenced by gender. Females tend to maintain closer and more frequent connections with their siblings than males. This phenomenon is often attributed to societal norms emphasizing emotional expression and communication among women. Female siblings often bond over shared experiences, emotions, and caregiving roles, fostering stronger relationships. In contrast, societal expectations for males may encourage independence and less emotional sharing, potentially leading to more distant sibling relationships. However, it's essential to note that individual personalities, family dynamics, and cultural factors also play significant roles in shaping sibling relationships, making each case unique. A study conducted by Connidis and Leder(1993) shows the complications in adult sibling relationships. According to the study, conflict is more between male siblings than female siblings.

Conclusion

The adult sibling relationship is more common among people belonging to the age group 40 to 50 than people belonging to the age group 51 to 60. When the age increases the sibling relationship becomes decreased. So age has a significant role in the adult sibling relationship. Also, females have more adult sibling relationships than males. The study was conducted within a limited period, so it has certain limitations. However, the study gives an elaborate idea about adult sibling relationships influenced by age and gender.

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An Overview about Tax

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Abstract

The word tax is derived from the Latin word “taxare” meaning to estimate. It is a compulsory contribution to the state revenue levied by the government on worker’s income and business profits or added to the cost of some goods, services and transactions. In general, it is a financial charge or fee imposed by the government and tax is the principal source of revenue for a country’s government.

Keywords: Tax, Assessment year, financial Year

Introduction

The first known taxation system was in Ancient Egypt around 3000-2800 BC, with the most widespread form being the corvée and tithe. The corvée was forced labor provided by poor peasants to the state, while tithes were collected by the Pharaoh. Early taxation is also described in the Bible, where Joseph instructed the people of Egypt to divide their crops and give a portion to the Pharaoh. In India, taxation is rooted in the Manu Smriti and Arthashastra periods and is based on the theory of maximum social welfare. Taxes are the largest source of income for the government, and they are determined by the Central and State Governments, local authorities, and municipal corporations. The authority to levy taxes is derived from the Constitution of India, which requires each tax to be backed by an accompanying law.

Introduction To Gst

The first known taxation system was in Ancient Egypt around 3000-2800 BC, with the most widespread form being the corvée and tithe. Early taxation is also described in the Bible. In India, taxation is rooted in the Manu Smriti and Arthashastra periods and is based on maximum social welfare. Taxes are the largest source of income for the government, determined by Central and State Governments, local authorities, and municipal corporations. The authority to levy taxes is derived from the Constitution of India, which requires each tax to be backed by an accompanying law.

The proposed GST system in India will maintain the central government's power to impose taxes on inter-state trade and commerce, while states can levy GST on intrastate transactions. The GST Council will administer the system, with a turnover threshold of Rs. 1 million. The central government will impose IGST on inter-state goods and services supply, while imports will be subject to basic customs duty and IGST. GST will cover central and state-level taxes, with a provision to remove entry tax/octroi. Entertainment tax will be subsumed, but taxes on entertainment at the panchayat, municipality, or district level will continue.

Benefits Of Gst

- ✓ Removal of bundled indirect taxes such as VAT, CST, Service tax, CAD, SAD, and Excise.
- ✓ Less tax compliance and a simplified tax policy compared to the current tax structure.
- ✓ Removal of cascading effect of taxes i.e. removes tax on tax.
- ✓ Reduction of manufacturing costs due to lower burden of taxes on the manufacturing sector. Hence prices of consumer goods will be likely to come down.
- ✓ Lower the burden on the common man i.e. public will have to shed less money to buy the

- same products that were costly earlier.
- ✓ Increased demand and consumption of goods.
- ✓ Increased demand will lead to increased supply. Hence, this will ultimately lead to a rise in the production of goods.
- ✓ Control of black money circulation as the system normally followed by traders and shopkeepers will be put to a mandatory check.
- ✓ Boost to the Indian economy in the long run.

Dual GST Model | GST Details

Before discussing GST details we shall first discuss what is dual GST and why is it required. The Dual GST is assumed to be a simple tax with one or two Central Goods and Service Tax (CGST) and State Goods and Services Tax (SGST) rates. In India, both the Centre and State have been assigned the powers to levy and collect taxes through appropriate legislation. Both the Centre and State Government have distinct responsibilities to perform according to the division of powers as prescribed in the Constitution that needs resources for implementation. A dual GST therefore, is appropriately aligned with the Constitutional requirement of fiscal federalism.

Features of the proposed dual model

GST consists of two components: Central GST, levied by the Centre, and State GST, levied by the States. Both apply to all transactions of goods and services, and taxes paid against Central GST can be taken as input tax credit (ITC). Cross-utilization of ITC between Central GST and State GST is only permitted for inter-state supply. Credit accumulation on refund of GST should be avoided, except for exports and capital goods purchases. A uniform procedure for collection and a common format for taxpayers are required.

Taxes to be Subsumed Central Tax and Levies to be Subsumed

- ❖ Central Excise duty
- ❖ Additional duties of excise
- ❖ Excise duty levied under medicinal
- ❖ Toiletries Preparation Act
- ❖ Additional Duties of Customers
- ❖ Service Tax
- ❖ Surcharges and Cesses

State Taxes and Levies to be subsumed

- ❖ VAT/Sales Tax
- ❖ Entertainment Tax (other than those levied by local bodies)
- ❖ Luxury Tax
- ❖ Purchase tax
- ❖ Entry Tax

Following is the list of indirect taxes in the pre –GST regime

- Central Excise Duty
- Duties of Excise
- Additional Duties of Excise
- Additional Duties of Customs
- Special Additional Duty of Customs
- Cess
- State VAT
- Central Sales Tax
- Purchase Tax
- Luxury Tax
- Entertainment Tax
- Entry Tax
- Taxes on advertisements
- Taxes on lotteries, betting, and gambling

Conclusion

An important turning point in India's taxation system is the Goods and Services Tax (GST). It simplifies the tax code, lessens the burden of compliance on companies, and makes doing business easier. By bringing down the price of consumer products and production, it promotes economic growth. GST promotes accountability and transparency, which reduces the flow of illegal money. It also drives demand, which increases supply and boosts the Indian economy. GST's successful implementation is a prime example of India's dedication to economic reform and world advancement.

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An Overview about GST

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Abstract

The Goods and Services Tax (GST) was introduced in India as a significant taxation reform since 1947. Implemented from July 1, 2017, it replaced various taxes and levies, including central excise duty, services tax, additional customs duty, surcharges, state-level value added tax, and Octroi. The dual GST system, SGST and CGST, was adopted for State and Central India.

Keywords: GST, SGST, CGST

Introduction

India's tax system is governed by the Central, State, and local governments, with some minor taxes levied by local authorities. Direct and indirect taxes are imposed on income, with indirect taxes collected by businesses. The retail industry is experiencing growth, with an estimated \$650 billion mark for organized retail by 2011, with \$421 billion investment planned for the next four years. Footwear has the highest organized retail penetration, followed by clothing. Overview on

CGST: Collected by the Central Government on an intra-state sale (Eg: transaction happening within Maharashtra) Under GST, CGST is a tax levied on Intra State supplies of both goods and services by the Central Government and will be governed by the CGST Act. SGST will also be levied on the same intra-state supply but will be governed by the State Government.

This implies that both the Central and the State governments will agree on combining their levies with an appropriate proportion for revenue sharing between them. However, it is mentioned in Section 8 of the GST Act that the taxes be levied on all Intra-State supplies of goods and/or services but the rate of tax shall not exceed 14%, each.

SGST: Collected by the State Government on an intra-state sale (Eg: transaction happening within Maharashtra) Under GST, SGST is a tax levied on Intra State supplies of both goods and services by the State Government and will be governed by the SGST Act. As explained above, CGST will also be levied on the same intra-state supply but will be governed by the Central Government.

Note: Any tax liability obtained under SGST can be set off against SGST or IGST input tax credit only. An example for CGST and SGST: Let's suppose Rajesh is a dealer in Maharashtra who sold goods to Anand in Maharashtra worth Rs. 10,000. The GST rate is 18% comprising of a CGST rate of 9% and an SGST rate of 9%. In such case, the dealer collects Rs. 1800 of which Rs. 900 will go to the Central Government and Rs. 900 will go to the Maharashtra Government.

IGST: Collected by the Central Government for inter-state sale (Eg: Maharashtra to Tamil Nadu)

Objectives of GST

The objective of the new taxation regime in short as under:

a. No cascading of taxes

- b. Reduced compliance cost
- c. Seamless flow of credit
- d. Less wastage of time and effort to comply
- e. Few numbers of taxes
- f. Transparent and corruption-free
- g. Supportive to compete at Domestic and International Markets
- h. Buoyancy in tax collection both for Central and State/UT
- i. Tax impact on inflation should be minimal

Features of GST

- (i) GST would be applicable on the “supply” of goods or services as against the present concept of tax on the manufacture of goods on the sale of goods or the provision of services.
- (ii) GST would be based on the principle of destination-based consumption taxation as against the present principle of origin-based taxation.
- (iii) It would be a dual GST with the Centre and the States simultaneously levying it on a common base. The GST to be levied by the Centre would be called Central GST (central tax-CGST) and that to be levied by the States [including Union territories with legislature] would be called State GST (state tax-SGST). Union territories without legislature would levy Union territory GST (union territory tax- UTGST).
- (iv) An Integrated GST (integrated tax- IGST) would be levied on inter-state supply (including stock transfers) of goods or services. This would be collected by the Centre so that the credit chain is not disrupted.
- (v) Import of goods would be treated as inter-state supplies and would be subject to IGST in addition to the applicable customs duties.
- (vi) Import of services would be treated as inter-state supplies and would be subject to IGST.
- (vii) CGST, SGST /UTGST & IGST would be levied at rates to be mutually agreed upon by the Centre and the States under the aegis of the GSTC.
- (viii) GST would replace the following taxes currently levied and collected by the Centre:
 - a) Central Excise Duty;
 - b) Duties of Excise (Medicinal and Toilet Preparations);
 - c) Additional Duties of Excise (Goods of Special Importance);
 - d) Additional Duties of Excise (Textiles and Textile Products);
 - e) Additional Duties of Customs (commonly known as CVD);
 - f) Special Additional Duty of Customs (SAD);
 - g) Service Tax;
 - h) Cesses and surcharges insofar as they relate to the supply of goods or services
- (x) GST would apply to all goods and services except Alcohol for human consumption.
- (xi) GST on five specified petroleum products (Crude, Petrol, Diesel, ATF and natural gas) would be applicable from a date to be recommended by the GSTC.
- (xii) Tobacco and tobacco products would be subject to GST. In addition, the Centre would continue to levy Central Excise duty.
- (xiii) A common threshold exemption would apply to both CGST and SGST. Taxpayers with an annual turnover of Rs. 20 lakh (Rs. 10 lakh for special category States (except J&K) as specified in article 279A of the Constitution) would be exempt from GST. A compounding option (i.e. to pay tax at a flat rate without credits) would be available to small taxpayers (including to manufacturers other than specified category of manufacturers and service providers) having an annual turnover of up to Rs. 75 lakh (Rs. 50 lakh for special category States (except J&K and Uttarakhand) enumerated in article 279A of the Constitution). The threshold exemption and compounding scheme would be optional.

- (xiv) The list of exempted goods and services would be kept to a minimum and it would be harmonized for the Centre and the States as well as across States as far as possible.
- (xv) All Exports and supplies to SEZs and SEZ units would be zero-rated.

GST benefits

It includes a lean tax structure, a unified Indian market, lower business costs, benefits export-oriented businesses, and lower prices for consumers. It allows suppliers, manufacturers, wholesalers, and retailers to recover GST incurred on input costs as tax credits, reducing costs and enabling fairer prices. The tax system also brings transparency and better compliance, reduces the number of tax departments, and widens the tax base. IGST, a tax levied on inter-state supplies of goods and services, applies to both imports and exports. Tax is shared between the Central and State Governments.

Conclusion:

The Goods and Services Tax (GST) has revolutionized India's taxation landscape since its implementation in July 2017. The dual GST system, comprising Central Goods and Services Tax (CGST) and State Goods and Services Tax (SGST), aims to eliminate the cascading effect of taxes, reduce compliance costs, facilitate credit flow, streamline tax processes, minimize tax rates, ensure transparency, and boost India's competitiveness in domestic and international markets. GST has simplified tax collection, ensured continuity of the credit chain, and subsumed earlier taxes and levies. However, certain categories like alcohol and petroleum products remain excluded. GST has also improved transparency, compliance, and rationalized tax administration by reducing the number of tax departments. It has also regulated taxes on imports and exports, ensuring fair revenue-sharing between the two governments.

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Financial Principles is an Authentic Guide to Budgeting, Investment Strategies, and Risk Management

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Abstract

The importance of sound financial principles, efficient budgeting, sound investment methods, and risk management in making wise financial decisions is emphasized in this essay. The importance of these ideas for achieving goals, financial stability, and growth is examined. Making a budget guarantees responsible spending, debt avoidance, and efficient financial priority. Budgeting supports strategic planning and financial stability for firms by assisting with resource allocation, spending control, and revenue forecasting. Investment strategies cover a variety of methods for accumulating wealth and matching risk appetite with financial goals. Understanding risk tolerance, time horizons, and financial objectives is necessary for effective investment strategies. Stocks have large profits but higher risk, thus diversification is required. While providing stability, bonds and fixed-income investments typically offer lower returns. Real estate requires careful selection and administration but also has the potential for rental income and capital growth. Assessing, managing, and reducing financial risks is essential for both individuals and corporations. Hedging techniques, insurance, and emergency cash are essential resources. Insurance protects against unforeseen events and includes health, life, and property coverage. During times of need, emergency funds offer financial protection.

Keywords: Budgeting, Investment Strategies, and Risk Management

Introduction

Understanding financial principles is necessary for making wise decisions, and financial literacy is critical for economic success. It involves risk management, investment planning, and budgeting. Understanding these ideas promotes growth and stability in one's finances and has numerous advantages for both people and organizations. It explores the importance of financial principles, delves into budgeting, investment strategies, and risk management, and provides valuable insights into how businesses and individuals can benefit from mastering these concepts.

Budgeting

Budgeting is a crucial financial management tool for individuals and businesses, allowing them to track spending, identify savings opportunities, and make informed decisions. It helps in forecasting revenues, managing expenses, and allocating resources efficiently. In the corporate world, budgeting includes revenue forecasting, expense allocation, and capital budgeting. Effective business budgets support strategic planning, identify cost-saving opportunities, and ensure financial stability.

Investment strategies, such as diversification, involve spreading investments across different asset classes to reduce risk. Understanding risk tolerance, time horizon, and financial goals is essential for successful investment. Stocks offer high returns but come with greater risk, while bonds provide stability but lower returns. Real estate offers potential for rental income and capital appreciation but requires careful property selection, management, and market analysis.

Risk Management

All financial ventures involve risk. To safeguard their financial security, both businesses and individuals must evaluate, control, and mitigate risks. Risk management requires the use of

hedging tactics, insurance, and emergency money. Making wise decisions and preparing for unforeseen setbacks require a thorough awareness of financial risk. An essential risk management tool is insurance. To protect themselves from unanticipated disasters, people should acquire health insurance, life insurance, and property insurance. Employer benefit programs, business interruption insurance, and liability insurance are all things that businesses should think about. Both people and corporations should keep an emergency fund on hand. In the event of unanticipated disasters, such as sudden medical expenses, job loss, or economic downturns, this savings buffer offers financial protection.

Conclusion

Financial literacy is crucial for both individuals and businesses, as it helps build a solid foundation for goal achievement and resilience against setbacks. Mastering financial principles, such as budgeting, investment strategies, and risk management, enables confident navigation of the complex financial world and fosters a secure future. Financial literacy is not a luxury but a necessity in today's world.

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Sleep Disorders, Insomnia, Irregular Schedules, and Academic Pressure, Coping Mechanisms and Interventions to Sleep Disorders, and their Impact on the Mental Health of College Students

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Abstract:

This article explores the intricate relationship between sleep disorders, particularly insomnia, irregular schedules, and the demanding academic pressures faced by college students. Sleep is a fundamental aspect of mental and physical well-being, and its disruption can have far-reaching consequences on a student's mental health. We delve into the prevalence of these issues, their causes, and their effects on students' mental health. Additionally, we discuss strategies and interventions that can help mitigate these challenges, emphasizing the importance of a holistic approach to student well-being.

Introduction

Sleep is a fundamental pillar of human well-being, playing a crucial role in maintaining both physical and mental health. It is during sleep that the body regenerates, repairs tissues, and consolidates memories. Moreover, sleep is closely intertwined with mental health, as disruptions in sleep patterns can lead to a range of psychological issues, including depression, anxiety, and mood disorders. The Most Common Sleep Disorder is insomnia, characterized by difficulty falling asleep or staying asleep, and is one of the most prevalent sleep disorders among college students. It is estimated that up to 60% of college students experience symptoms of insomnia during their academic journey. Factors such as academic stress, irregular schedules, and lifestyle choices contribute to the high prevalence of this disorder.

Sleep is a vital component of human well-being, playing a crucial role in maintaining physical and mental health. Insomnia, a common sleep disorder among college students, is one of the most prevalent, with up to 60% experiencing symptoms during their academic journey. Factors such as academic stress, irregular schedules, and lifestyle choices contribute to the high prevalence of this disorder. College life can be a breeding ground for sleep issues, with erratic schedules, academic demands, socializing, and substance use all contributing to sleep problems. Students often live in dormitories or shared housing, where noise and disturbances can affect sleep quality. Financial stress from tuition costs, student loans, and living expenses can lead to anxiety and depression, further disrupting sleep. The college experience can also be emotionally challenging, leading to conditions like depression, anxiety, and insomnia co-occurring. The relationship between sleep disorders and mental health is complex and often vicious, impacting cognitive function, emotional well-being, and the link between sleep disorders and mental illness. Sleep disorders can lead to memory deficits, concentration and problem-solving difficulties, mood disturbances, and emotional regulation issues. Sleep disorders often co-occur with mental illnesses, making treatment more challenging. Addressing this cycle of sleep disorders and mental health is crucial for overall well-being, often involving a multidisciplinary approach that includes therapy, medication, lifestyle changes, and sleep hygiene practices. Recognizing and addressing sleep issues can significantly improve mental health outcomes and highlight the importance of integrated care for individuals experiencing these interconnected challenges. Sleep is a fundamental pillar of human well-being, playing a crucial role in maintaining both physical and mental health. It is during sleep that the body regenerates, repairs tissues, and consolidates memories. Moreover, sleep is closely intertwined with mental health, as disruptions in sleep patterns can lead to a range of psychological issues, including depression, anxiety, and mood disorders.

Coping Mechanisms And Interventions For Sleep Disorders

Sleep disorders can significantly impact a person's quality of life and lead to various physical and mental health problems. Effective coping mechanisms and interventions are crucial in managing these disorders. Cognitive Behavioral Therapy for Insomnia (CBT-I) is a structured therapeutic approach that targets the root causes of insomnia by changing negative thought patterns and behaviors. Key components include sleep restriction, stimulus control, relaxation techniques, cognitive restructuring, sleep education, sleep hygiene education, stress management techniques, counselling, and medication. Sleep hygiene involves adopting healthy habits, maintaining a regular sleep schedule, creating a comfortable sleep environment, limiting screen exposure, avoiding caffeine and heavy meals, and incorporating regular physical activity. Counselling and support services can help address underlying issues and improve mental well-being.

Sleep disorders among college students are prevalent, with 27.6% reporting poor sleep quality and over 70% obtaining less than the recommended 7-9 hours of sleep per night. Over 20% of students experience symptoms of a sleep disorder, with insomnia being the most prevalent. Academic pressure, irregular schedules, lifestyle factors, and technological and social influences contribute to sleep disorders in college students. The relationship between sleep disorders and mental health is bidirectional, with sleep disorders impairing cognitive function, leading to poor academic performance and increased stress and anxiety levels. Emotional well-being also suffers from sleep disorders, leading to irritability, mood swings, and increased susceptibility to stress and depression. There is a well-established connection between sleep disorders and mental illnesses such as depression and anxiety. College students with untreated sleep disorders are at a higher risk of developing or exacerbating these conditions. To address this issue, interventions include Cognitive Behavioral Therapy for Insomnia (CBT-I), sleep hygiene education, stress management techniques, counselling and support services, and medication as a last resort. Creating a supportive campus environment and reevaluating grading systems, workload expectations, and academic support services can help reduce academic pressure on students and create a supportive campus environment that values well-being over competition. By addressing these issues early, colleges and universities can prevent the development of more severe mental health issues and improve overall student well-being.

Creating A Supportive Campus Environment

Colleges and universities can reduce academic pressure on students by reevaluating grading systems, workload expectations, and academic support services. Promoting healthy sleep habits, destigmatizing mental health, and implementing peer support and mentoring programs can help students cope with sleep disorders. Faculty and staff should be involved in a supportive campus environment by being attentive to student distress, providing flexibility, and directing students to appropriate resources. Addressing sleep disorders is crucial for the overall health and success of college students, and a holistic approach is needed. Collaboration among educational institutions, healthcare providers, and students is essential to raise awareness about the relationship between sleep, mental health, and academic success.

Conclusion

Sleep disorders, particularly insomnia, are prevalent among college students due to academic stress, irregular schedules, and environmental influences. These disorders can worsen mental health issues like depression and anxiety. To reduce sleep disorders, colleges should create a supportive environment, reevaluate grading systems, and offer peer support. Faculty and staff should recognize signs of distress and provide flexibility. Collaboration among institutions, healthcare providers, and students is crucial to raising awareness about sleep, mental health, and academic success.

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Time Management, a Crucial Skill for College Life

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Abstract

Time management is a crucial ability that is crucial to college students' lives. Students who manage their time well are more likely to perform academically, maintain a work-life balance, experience less stress, and acquire skills that will serve them well once they graduate from college. The significance of time management in college life, the difficulties that students encounter, and useful techniques to improve time management skills will all be covered in this extensive article. College students can maximize their potential and succeed academically and personally by exploring the subject and comprehending its value.

Introduction

The college years are an exciting time that offers many chances for new experiences, intellectual improvement, and personal development. Due to the increased workload, extracurricular activities, and the requirement to balance academics with social and personal life, it can, however, also be daunting. The ability to manage one's time well is essential for academic achievement in college. It entails carefully allocating one's time to numerous obligations and tasks to achieve objectives effectively and efficiently. This article analyses the importance of time management for college students, the problems they frequently run into, and some doable solutions. Additionally, we will discuss the long-term benefits of mastering this skill, which extend well beyond the college years.

Time Management in College Life

The clear correlation between time management and academic performance is one of the main reasons it is important in college. Multiple lessons, assignments, projects, and tests must all be balanced by students. It is simple to fall behind on assignments without good time management, which can result in lower marks and more stress. Students who are good at time management can set aside enough time for studying, finishing tasks, and getting ready for tests. It guarantees that they remain organized, fulfil deadlines, and keep up a regular study schedule. Students are thus better prepared to excel academically and realize their educational objectives. The stress of college life might be increased by ineffective time management. Students who put off assignments or have trouble meeting deadlines frequently find themselves in a constant state of tension. On the other hand, efficient time management lessens the stress related to cramming for examinations and the last-minute rush to finish homework. Students can design a balanced schedule that incorporates time for leisure, self-care, and social events by using their time effectively. This equilibrium is necessary for mental and emotional health, which enhances the college experience.

College is about more than simply academics; it's also a time for personal development and discovery. Students participate in social gatherings, part-time jobs, internships, and extracurricular activities. It can be extremely difficult to juggle these responsibilities with schoolwork. Students can schedule time for both academic and extracurricular activities by using time management techniques. It enables them to enjoy a well-rounded college experience by assisting them in finding a balance between their obligations and free time. The value of good time management goes far beyond the classroom. It is a versatile skill that is highly prized in the workplace. Employers are looking for people who can prioritize their tasks wisely, manage their time well, and meet deadlines. College students can better position themselves for success in their future employment by developing their time management abilities. They

develop discipline, organization, and the ability to work efficiently, all of which are qualities that make them highly marketable in the job market.

Challenges to Effective Time Management in College

Although it is obvious how important time management is at college, students frequently encounter some difficulties in learning and keeping this ability. Effective time management is significantly hampered by procrastination. Many students have a propensity to put off assignments until the last minute, which results in hurried and inadequate work. Procrastination-busting needs self-control and the capacity to rank tasks according to importance. Students in college may have a full schedule of obligations, including classes, clubs, part-time employment, and social events. Overcommitting can thwart time management efforts and cause burnout. Prioritizing obligations and learning to say no are crucial life skills. Some pupils have trouble setting priorities. They may spend too much time on less important activities while neglecting critical assignments. Learning to distinguish between urgent and important tasks is crucial for effective time management. Without a well-structured plan, time management efforts can fall apart. Students need to set clear goals, create schedules, and allocate time wisely to ensure they make the most of their available hours.

Strategies for Enhancing Time Management Skills

College students can use a variety of ways to get beyond these obstacles and master good time management. Create an agenda for each week that includes all of your classes, study sessions, hours at work, and extracurricular events. A visual representation of your time obligations makes it easier for you to see when you have time for serious study. SMART goals are time-bound, relevant, specified, measurable, and achievable. Establish definite, attainable goals for both your personal and academic lives. Your time management efforts will be guided by these goals, which will also keep you motivated. Use methods like the Eisenhower Matrix to group jobs according to their urgency and importance. Prioritize finishing urgent and crucial activities before moving on to less crucial ones. Contrary to what many people think, multitasking occasionally backfires. It might cause a lack of attention and poorer work. Instead, focus on and offer each work your undivided attention. Utilize modern technology and tools to help you keep organized and use your time effectively, such as calendar apps, to-do lists, and time monitoring apps. Setting limits and abstaining from overcommitting is crucial. Refuse invitations or commitments politely if they would fill up your schedule and interfere with your time management attempts. Regular breaks during study or work sessions can improve focus and productivity. The Pomodoro Technique, which involves 25-minute focused work intervals followed by a 5-minute break, is a popular method. Regularly review your time management strategies to identify what's working and what needs improvement. Be flexible and adjust your schedule and goals as necessary.

Long-Term Benefits of Effective Time Management

Learning time management skills in college has long-term advantages. Employees with strong time management skills are highly valued by employers. Strong time management skills enable college grads to handle difficult workloads and flourish in their employment. Throughout their lifetimes, people who are good at time management can balance their jobs and personal lives. Overall pleasure and well-being are influenced by this equilibrium. Time management supports ongoing education and personal growth. People who can efficiently manage their time are more inclined to pursue continued education and self-improvement. Stress is reduced in both the professional and personal realms by effective time management. To maintain healthy mental and physical health, stress management is essential.

Conclusion

Time management is not just a college student's concern; it's a life skill that influences academic success, career growth, and overall well-being. College life presents unique challenges that demand effective time management to navigate successfully. By recognizing the importance of time management, understanding common challenges, and implementing practical strategies, students can unlock their full potential and lay the foundation for a successful future. In the fast-paced and demanding world of academia and work, effective time management is a skill that will continue to pay dividends long after graduation. It is a skill that empowers individuals to achieve their goals, reduce stress, and lead balanced and fulfilling lives. As college students embark on their academic journeys, they should embrace time management as a valuable ally on their path to success.

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Environmental Attitude among Young Adults

Dr. Jose James^{1*}, Mr. Roby Mathew^{1*}, Mr. Biju Scaria^{1*} & Mr. Sijo John^{1*}

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Abstract

With an emphasis on demographics including age, gender, occupation, socioeconomic level, marital status, education, kind of residence, place of residence, and religion, the study assessed the environmental attitudes of 265 young adults. Based on these criteria, the results revealed substantial differences in environmental attitudes, with age having a favourable link with environmental attitudes and place of residence not indicating a significant difference.

Keywords: Young Adults, Environmental Attitude

Introduction

The study, which included 265 participants who were both male and female, sought to evaluate the environmental attitudes of young adults. The study analyzed the variations in environmental views based on socio-demographic information using self-made socio-demographic tools. The phrase "environment" refers to the collection of external physical factors that have an impact on an organism's survival, growth, and development. It includes everything on Earth, both living and non-living, as well as natural phenomena, all-natural resources, and non-human activities. The environment has a significant impact on life quality, thus people need to utilize resources and use them wisely to support sustainable development. The environment, which includes the climate, soil, water, light, plants, and other elements, is a system that sustains life.

Environmental Problems

The significance of environmental issues has grown in recent years as the effects of human activity on the environment become more obvious. Rapid mechanization, industrialization, and scientific advancements have improved human comfort while wreaking havoc on the environment. Human knowledge, attitudes, values, ethics, and environmental behaviors all influence the quality of the environment. Human activities, particularly economic activities, are directly tied to environmental problems. These issues include deforestation, loss of biodiversity, climate change, water pollution, and air pollution. Industrial operations, traffic, and energy generation all contribute to air pollution, which worsens respiratory conditions and other health concerns. Governments can establish regulations that lower emissions from transportation and industrial activities, promote the use of renewable energy sources, and provide incentives for people to cut their carbon emissions to combat air pollution.

Water pollution is another major environmental issue, affecting aquatic ecosystems and human health. Governments can regulate industrial and agricultural practices to minimize waste and runoff, while individuals can reduce their water footprint by conserving water at home and disposing of household waste properly. Climate change is perhaps the most significant environmental problem facing the world today, caused by the release of greenhouse gases, primarily carbon dioxide, into the atmosphere. To address climate change, governments can implement policies that encourage the use of renewable energy, promote energy efficiency, and reduce carbon emissions.

Environmental Pollution

Contaminants are released into the environment, harming living things and harming the environment as a whole. It is a significant source of disease and death, with regional differences in exposure patterns. Major difficulties in India include air, water, soil, and noise pollution, with excessive levels of toxic pollutants resulting in respiratory conditions and other health

disorders. Vehicle emissions, industrial activity, and open rubbish burning are the main causes of air pollution. Water scarcity and issues with public health are the results of water contamination, which is primarily brought on by untreated sewage and industrial waste. Microplastics are widespread and can disturb naturally occurring flora and animals. They are a prevalent source of water contamination. With agricultural practices contributing to soil contamination and the dumping of industrial waste, soil pollution is a rising issue in India. In many Indian towns, noise pollution is a serious problem because of how loud construction, transportation, and industrial activities are frequently. Electronic waste is a rising issue in India, where it is produced in vast amounts and illegally disposed of, posing risks to the environment and human health. Through measures like waste management plans, pollution control rules, and the development of renewable energy sources, the Indian government and non-governmental organizations are attempting to address these problems. Pollution in India is exacerbated by the country's quick industrialization, inadequate waste management, wasteful agricultural practices, obsolete automobile emissions, open burning, lack of regulations, and population expansion. To address these issues, the government, private sector, and civil society must work together to implement effective policies, improve waste management, promote cleaner energy and transportation, and raise awareness about environmental issues.

Environmental Attitude

An individual's views, values, and attitudes about the environment and their relationship with it are referred to as their environmental attitude. It is a psychological propensity that manifests itself in how we perceive our surroundings—either favourably or unfavourably. Individuals' attitudes about the environment can vary greatly, and they can be influenced by things like education, personal experiences, cultural and societal conventions, and prevailing beliefs. These principles and attitudes serve as guidance for making decisions. The earliest evidence of ecological consciousness dates back at least 5,000 years when Taoists and Vedic sages called for living in harmony with nature and Vedic sages praised wild woods. Early human myths provide us with important lessons about the value of restraint, the holiness of wilderness, and our responsibility to preserve the environment. Early human civilizations recognized the effects of pollution on human health and practiced waste management and sanitation. In the 17th century, naturalist John Evelyn wrote that London resembled "the suburbs of Hell," inspiring the first "renewable" energy boom in Europe. Dutch artist Pieter Bruegel the Elder painted scenes of raw sewage and pollution emptying into rivers, and Dutch lawyer Hugo Grotius wrote *The Free Sea*, claiming pollution and war violate natural law. The 18th century saw the emergence of modern environmental rights, with Benjamin Franklin advocating for waste management and clean air removal. Artist George Catlin proposed Indigenous land protection as a "natural right." Thomas Malthus warned of ecological destruction due to human overpopulation. Ralph Waldo Emerson's *Nature* in 1835 encouraged appreciation for the natural world and proposed a limit on human expansion into the wilderness. Botanist William Bartram and ornithologist James A.

Conclusion

To safeguard the environment, the chapter explores how important environmental attitudes are in determining environmental behaviour. The bulk of the world's population, young adults aged 18 to 40, are the study's primary target group. The overall attitude toward the environment is determined by beliefs about health and hygiene, wildlife, forests, pollution, population growth, and environmental issues. According to age, gender, occupation, socioeconomic status, marital status, education, type of residence, religion, and other aspects, the study attempts to understand the environmental attitude among young adults. Major studies show that men are more environmentally conscious than women and that married people are more likely to be

environmentally conscious than unmarried people. Environmental attitude is higher among the higher age group (30-40) than lower-aged individuals. Education also influences environmental attitudes. The study found that environmental attitude is higher among hostel dwellers and lower among apartment dwellers. Hindus have a higher environmental attitude than non-Hindus. Urban and rural young adults have similar environmental attitudes, and age positively influences environmental attitudes.

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College Life: The Most Productive and Transformative Period in the Lives of Undergraduate Students

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Abstract:

The years spent in college are frequently seen as a turning point in one's quest for both personal and professional development. The reasons why undergraduate (UG) students view their time in college as the most fruitful and transforming time of their lives are examined in this article. It explores a range of collegiate experiences, including intellectual, social, and personal growth, and offers insights into how these encounters affect UG students' futures. The article advises on maximizing this era of transformation while also addressing difficulties encountered during this phase.

Introduction

College is an important stage in a person's life and is sometimes viewed as the transitional period between adolescence and maturity. One of the most fruitful and transforming times in a person's life, is a time when they are exposed to a wide range of chances and difficulties. Students grow personally and socially during their undergraduate (UG) years, which affects how they will live in the future. The purpose of this post is to examine why college is thought to be the most fruitful and transforming time for UG students. It explores the many facets of college life, including academic, social, and personal development, and talks about the opportunities and challenges that come with it. By understanding the significance of this phase, UG students can make the most of their college experience and prepare for a successful future.

Academic Growth

College offers a comprehensive academic atmosphere with a variety of majors, electives, and courses. Undergraduate students get the chance to investigate a variety of subjects, which enables them to identify their passions and interests. For them to make educated decisions regarding their future employment, this exposure is essential. The college promotes an environment where students are encouraged to question, discuss, and explore new ideas. It also develops intellectual curiosity. This fosters the growth of critical thinking abilities, which are beneficial in all facets of life. Students get the information and abilities needed for their chosen fields in college. It offers a well-organized curriculum that aims to create a solid academic foundation and lay the framework for success in the future. The college focuses not just on subject-specific knowledge but also on skill development. Research, problem-solving, and communication skills are taught to undergraduate students, and they can be applied to a variety of jobs. Through challenging courses and analytical debates, critical thinking is honed. Mentoring is a common role for college professors and instructors.

Social Development

College campuses are centres of variety, bringing together students from various racial and ethnic origins. Students' horizons are expanded, tolerance is fostered, and they are more equipped for a globalized society when they interact with people from many cultures, nationalities, and viewpoints. The networking opportunities and lasting contacts that may be formed in college are unmatched. Students build a useful social and professional network through connecting with peers, teachers, and professionals. Communication skills are improved by participating in group projects, presentations, and extracurricular activities. Any career requires effective communication, and college life offers many opportunities to practice it. Student leadership and teamwork experiences are exposed through participation in clubs, organizations, and sports teams. These encounters aid in the development of leadership abilities, teamwork capabilities, and the capacity for productive collaboration. College often

hosts cultural events, international programs, and exchange opportunities. These experiences expose students to different cultures and perspectives, fostering a greater understanding of the world and promoting cultural competence.

Personal Growth

College is a period for discovering oneself. Students have the flexibility to explore their interests, values, and beliefs when they are away from home and their familiar surroundings. They learn about themselves and what they aspire to accomplish in life. Responsibilities, time management, and budgeting are taught to students who live alone or in a communal environment. They acquire crucial life skills such as how to balance work, social commitments, and personal obligations. Undergraduate students balance a variety of obligations, including coursework, homework, part-time employment, and extracurricular activities. This calls for efficient time management and prioritization, which are abilities that will help them in their professions. Challenges and setbacks are a part of college life. Students gain the ability to handle adversity well and adjust to shifting conditions. These characteristics are extremely beneficial to professionals. These qualities are invaluable in the professional world. The college encourages ethical and moral development.

Challenges Faced In College

College's demanding academic requirements sometimes be too much to handle. Students frequently experience academic pressure, which causes stress and anxiety. The cost of a college education can put many students under financial strain. It might be difficult to balance living expenses, student loans, and tuition. It might be challenging to strike the correct balance between social obligations and academic obligations. Some students have trouble setting priorities and managing their time. It can be emotionally difficult to adjust to college life. Students may feel homesick, lonely, or suffer from mental health conditions including depression and anxiety. Students in college frequently struggle with uncertainties regarding their future professions. It might be difficult to decide on a major, look into internships, and make plans for life after college.

Maximizing the College Experience

Students should have clear academic and personal goals to get the most out of college. They can maintain their focus and motivation by having a clear vision for the future. Students must ask their teachers, academic advisors, and counsellors for assistance. These people can offer direction and resources to assist students in overcoming obstacles. The college experience is enhanced by participating in clubs, groups, and volunteer activities. It aids kids in forming friendships, gaining leadership experience, and creating a well-rounded resume. College campuses are multicultural mashups. Inclusion is cultivated and pupils are better equipped for a globalized society when diversity is celebrated and accepted. To handle stress and maintain their mental and physical health, students should put self-care first. This entails obtaining enough rest, maintaining a healthy diet, and asking for assistance when required.

The Role of Technology in College Life

Through e-learning platforms, online materials, and digital libraries, technology has changed education. These resources improve learning and provide access to education. Students, alumni, and professionals can communicate and connect more easily thanks to social media and networking sites. These sites can be utilized for professional network growth and career advancement. While technology has many advantages, it also has drawbacks like privacy concerns and digital diversions. To fully benefit from technology, students must utilize it responsibly.

Preparing For Life after College

The best time to look for internships, co-ops, and part-time work relating to one's subject of interest is during college. These encounters improve employability and offer priceless insights into the working world. College is where graduate school preparations begin for individuals

contemplating advanced degrees. Professors and counselors are available for guidance from students regarding graduate programs and admission requirements. Alumni associations, employment fairs, and college networking activities all present chances to meet mentors and employers. Having a strong professional network can open doors to employment. Graduates should also think about financial planning, which includes handling student loans, creating a budget, and setting aside money for the future.

Conclusion

College is a transformative experience for undergraduate students, offering academic, interpersonal, and personal development opportunities. It promotes independence, resilience, diversity, communication, and cultural exposure. The knowledge and experiences gained during college shape personal beliefs, career trajectories, and lifelong learning. However, the journey continues beyond graduation, requiring students to apply their learnings to future endeavors. By understanding and actively participating in college, UG students can maximize their college experience and achieve success.

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New Trends in Accounting and Auditing

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Abstract

In the world of money and business, auditing and accounting are crucial tasks. They are crucial in guaranteeing financial accountability, transparency, and the accuracy of financial reporting. The trends and practices in accounting and auditing change along with the corporate environment. The most recent trends in these areas are examined in this article, along with how technological advancements, legislative modifications, and changing business paradigms are altering how firms approach their financial reporting and auditing processes. We dive into subjects like artificial intelligence in auditing, block chain technology, data analytics, and sustainability reporting. Businesses and accounting professionals can better position themselves for the future of accounting and auditing by knowing these rising trends.

Key Words: Business, Accounting and Auditing

Introduction

Technology developments, legislative changes, and changing company practices are just a few of the elements transforming the accounting and auditing industry. These modifications are altering how businesses approach financial reporting, compliance, and assurance. We will examine some of the most important trends in accounting and auditing in this article, emphasizing how they affect organizations and the accounting profession. We will also talk about how these patterns affect decision-making, risk management, and financial transparency.

Blockchain Technology and Distributed Ledger Accounting

Block chain technology, most notably associated with crypto currencies like Bit coin, has gained prominence in recent years. Beyond digital currencies, block chain has the potential to revolutionize accounting by providing a secure, transparent, and tamper-proof ledger of financial transactions. Traditional accounting systems rely on centralized databases that are vulnerable to fraud and manipulation. In contrast, block chain employs a decentralized ledger, reducing the risk of financial misreporting.

Distributed ledger accounting and blockchain technology

In recent years, block chain technology has become more well-known, most notably in connection with crypto currencies like Bit coin. Block chain technology has the potential to transform accounting in addition to digital currencies by offering a safe, open, and unchangeable ledger of financial transactions. Centralized databases, the foundation of traditional accounting systems, are susceptible to fraud and manipulation. In contrast, the decentralized ledger used by block chain technology lowers the possibility of financial reporting fraud.

Data Analytics

Modern accounting and auditing procedures are increasingly relying on data analytics. Organizations have a wealth of data at their disposal, which presents opportunity to learn important lessons about risk, compliance, and financial performance. Accounting and auditing professionals may now extract useful data from massive databases thanks to advanced analytics technologies.

Statistical Analysis & Environmental Reporting

To predict future financial trends and spot potential problems, predictive analytics makes use of historical data and statistical algorithms. For instance, firms can proactively manage liquidity by using machine learning algorithms to predict cash flow variations. With regard to risk analysis and strategic planning, their predictive abilities are invaluable. Sustainability reporting is an emerging area in accounting and auditing. Companies are increasingly recognizing the importance of disclosing their environmental, social, and governance (ESG) performance. Investors and stakeholders are demanding greater transparency on sustainability matters, and accounting professionals are instrumental in providing accurate ESG data.

Artificial Intelligence (AI) and Continuous Auditing

Automating repetitive activities and enhancing risk assessment are two ways artificial intelligence has the potential to revolutionize auditing. Software with AI-powered audit capabilities may evaluate massive datasets more quickly than people, freeing up auditors to concentrate on challenging problems. As a result, the risk of fraud is decreased. It can also spot anomalies and irregularities in financial data. Continuous auditing, which conducts audit operations in real-time or more often, is made possible by AI. With this strategy, openness is improved and timely information on compliance and financial performance is provided. Organizations can lessen the likelihood of financial irregularities by using continuous auditing to quickly identify and address problems.

Ethical Considerations and Regulatory Changes and Compliance

Concerns concerning algorithmic bias, data privacy, and the value of human judgment are brought up by the use of AI in auditing. AI systems must be fair, impartial, and in accordance with all applicable laws, according to auditors. Global momentum for the implementation of International Financial Reporting Standards (IFRS) is still growing. With the help of IFRS, international corporations can more easily prepare and present their financial statements consistently. IFRS offers a single language for financial reporting. Reg Tech solutions, which employ technology to streamline compliance processes, are being developed in response to changing regulatory requirements. These technologies assist firms in more effectively navigating complicated regulatory environments and lowering compliance risks.

Remote Auditing and Cyber security

Remote auditing procedures were quickly adopted as a result of the COVID-19 epidemic. Auditors now conduct audits remotely using digital tools and communication channels. While there is more flexibility as a result, there are issues with data security and confidentiality. The switch to remote auditing emphasizes how crucial effective cyber security measures are. Auditors are required to protect against online dangers that can jeopardize the accuracy of financial statements and ensure the protection of sensitive financial data.

Evolving Role of Accountants and Auditors

Accountants and auditors are becoming strategic consultants as technology automates mundane duties. They are getting more and more involved in offering opinions and suggestions to help with financial planning, risk management, and commercial decision-making. Accounting professionals need to pursue lifelong learning and professional development if they want to stay current with these changing responsibilities and trends. This entails keeping up with new technological developments, legislative modifications, and industry best practices.

Conclusion

Technology developments, regulatory reforms, and evolving business models are driving a dramatic revolution in the accounting and auditing industries. How financial information is

recorded, analyzed, and audited is changing as a result of block chain technology, data analytics, artificial intelligence, and remote auditing. These trends are enhancing efficiency, transparency, and decision-making in the financial world. However, they also bring challenges related to data privacy, ethics, and cyber security. Accountants and auditors must adapt to these changes by embracing new skills and technologies. By doing so, they can remain at the forefront of their profession and continue to provide valuable insights and assurance to organizations and stakeholders.

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Self Confidence and Mathematical Problem Solving Ability among Adolescents

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Abstract

The period of adolescence is both demanding and rewarding, characterized by the development of new abilities, a complicated social life, and changes in familial ties. Between childhood and maturity, this age is one of biological, cognitive, social, and emotional transformations. Siblings are frequently the closest companions and confidantes of adolescents, with whom they engage frequently. Particularly during adolescence, self-confidence is a critical component of one's emotional and psychological growth. Significant physical, cognitive, and social changes that occur during adolescence result in a greater demand for self-assurance and identity development. To help people develop a positive self-image and give them the confidence they need to face the challenges of life with resiliency and assertiveness, it is crucial to understand the elements that affect self-confidence. An individual's apparent capacity to respond appropriately to circumstances, get things done, and overcome challenges is referred to as self-confidence.

Introduction

Self-confident individuals are willing to risk disapproval and accept themselves, while those without self-confidence may rely too much on others' approval and avoid taking risks. Self-confidence is a complex concept that can vary across individuals. It is not a universal trait and can be influenced by various factors such as parents' attitudes, peer influence, academic achievement, physical appearance, parental style, past experiences, personality traits, cultural background, and mental and emotional health. Parents play a crucial role in shaping children's self-confidence, as they provide acceptance and love when they make mistakes. Friends can also play a significant role in shaping self-confidence, as they re-examine values and develop their identities. Factors influencing adolescents' self-confidence include social support, peer influence, academic achievement, physical appearance, parental style, past experiences, personality traits, cultural and ethnic background, and mental and emotional health. Barriers to self-confidence include fear, which can be either fear of failure or ridicule, an inferiority complex, worrying, negative thoughts, procrastination, and indecision. It is essential to avoid these barriers and focus on personal growth and development. By addressing these barriers, individuals can develop self-confidence and overcome challenges in various aspects of their lives.

The review literature

The literature review discusses various studies on self-confidence, personality traits, and academic achievement in students. It reveals that self-confidence is important for personality and is directly related to academic achievement and adjustment. Studies have found that students from different castes and socio-economic backgrounds have different self-concepts, with some showing higher intelligence and imagination, while others have more practical traits. Vijay Laxmi's research on self-confidence and adjustment in family-raised and institution-raised children found that self-confidence is related to personality adjustment. Lanier's study on the effects of ethnicity and perceived performance on academic performance and self-confidence found that black male adolescents had significantly higher anagram scores than their white counterparts. Heflin's study on the effect of subliminal suggestion treatment on self-confidence found no significant change in self-confidence at a 0.05 level of significance. Verma and Sangeeta's study found no significant difference in self-confidence between male and female students. Kitisook's study on gender differences and information use on self-

confidence development during the early stages of learning a motor task found that gender differences and information may influence self-confidence. Sansanwal and Sharma's study on scientific creativity showed that self-confidence students had significantly higher scientific creativity scores. Agarwal's study on the relationship between sex and general self-concept in IX-grade students also found no significant differences. The study reveals that girls have a higher mean score in various aspects of self-concept, including identity, self-satisfaction, and self-criticism. Self-concept is a good predictor of creativity but is less efficient in predicting composite creativity. A comparative study found that Navodya Vidyalaya students had a better self-concept profile than Government High School students in Karnataka. Talniya's study found that caste, region of residence, and sex do not affect self-confidence and aspiration levels. Chopra, Vasudeva, and Sandhu's study found a significant main effect of procrastination on neuroticism, but no significant effect on general well-being and self-esteem. Tevendale's study found that instability in self-evaluations of peer relationships and physical appearance predicted greater depression independent of trait-oriented self-evaluations and daily hassles. Raddy, Rao, and Mohan's study found that the confidence levels and motivation levels of men and women are not equal. Srivastava and Verma's study found that Vidya Bharati athletes had higher self-confidence levels than their mean.

The study aims to investigate the relationship between self-confidence and mathematical problem-solving ability among single adolescents. The research hypothesizes that factors such as birth order, age, gender, religion, educational qualification, residential area, family, father's occupation, and mother's occupation will significantly influence these factors. Self-confidence is defined as a positive attitude towards one's self and problem-solving is a process of overcoming difficulties. It can empower individuals to face challenges, take risks, and handle setbacks with resilience. The findings are significant and warrant further research.

Conclusion

Self-confidence is crucial for single adolescents' social, academic, and emotional well-being, shaping their abilities, worth, and capacity to handle challenges. It is influenced by factors such as peer pressure, academic stress, and personal experiences. Developing self-confidence involves fostering a supportive environment, providing opportunities for exploration, teaching coping strategies, valuing oneself, and embracing imperfections. Promoting a healthy lifestyle, including regular exercise, nutrition, and sleep, also positively impacts self-confidence. Mathematical problem-solving ability among adolescents can vary greatly, with some demonstrating advanced skills while others struggle with certain concepts. Factors influencing their abilities include exposure to math education, quality of instruction, innate aptitude for math, and motivation to learn. The study aimed to assess self-confidence and mathematical problem-solving ability among single adolescents in Kerala using a Self-confidence inventory and problem-solving ability test. Understanding self-confidence is vital for adolescent development, as it influences resilience, risk-taking, and assertiveness. Nurturing self-confidence involves creating supportive environments, setting achievable goals, and encouraging the exploration of strengths and talents.

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The Profound Impact of Swami Vivekananda's Philosophy in Human Life

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Abstract

The philosophical beliefs of Swami Vivekananda, a well-known Indian philosopher and spiritual figure, have endured throughout time. His great understanding of spirituality, human potential, and religious peace has had a significant influence on people and society at large. This page explains how Swami Vivekananda's philosophy has influenced individuals all around the world and how his teachings still serve as a source of inspiration, direction, and influence.

Introduction

Swami Vivekananda was a spiritual giant, philosopher, and supporter of human welfare. He was born Narendranath Datta in Kolkata, India, in 1863. His Vedanta-based teachings have persisted through the ages and continue to motivate millions of people all around the world. Swami Vivekananda's philosophy emphasizes self-realization, interfaith cooperation, and service to humanity. It cuts beyond religious lines and speaks to the core of human existence. This article explores Swami Vivekananda's philosophy's enormous influence on people and society at large.

Swami Vivekananda's life's path was characterized by a desire to serve humanity and a search for spiritual truth. He underwent a significant shift after meeting the mystic Sri Ramakrishna Paramahansa. He accepted Vedanta philosophy, a branch of Hinduism that emphasizes the unity of the personal soul (Atman) and the collective soul (Brahman).

Although Vivekananda's worldview significantly incorporates Vedanta, it is not limited to one particular tradition. His message is global and goes beyond religious dogma, emphasizing the inherent divinity in every person and the fundamental oneness of all religions. His life's work consisted of sharing these ideas with others and causing a spiritual awakening. At the heart of Swami Vivekananda's philosophy lies the concept of Vedanta. Vedanta posits that the ultimate reality, Brahman, is one and indivisible. Every individual soul (Atman) is a manifestation of this supreme reality. Vivekananda's teachings emphasize self-realization—the process of recognizing one's true nature as divine and transcending the limitations of the ego.

The people who embrace this idea of self-realization are profoundly affected by it. It promotes self-awareness, inner fortitude, and the quest for enlightenment. The philosophy of Swami Vivekananda offers people a road map for navigating the complexity of life with purpose and clarity.

The philosophy of Swami Vivekananda has a transformational power over anyone who tries to comprehend it and use it in their life. Those who are on a spiritual path would identify strongly with his emphasis on self-discipline, introspection, and meditation as instruments for self-realization.

People can undergo a significant viewpoint change by internalizing Vivekananda's teachings, which fosters greater self-awareness and a sense of purpose. His exhortation to "Arise, awake, and stop not until the goal is reached" acts as a call to action for individuals pursuing spiritual and personal development.

Swami Vivekananda's support for interfaith cooperation and the universal applicability of spiritual principles is one of his most noteworthy contributions to philosophy. He was adamant that all religions contained divine insight and that all religious paths ultimately led to the same ultimate truth.

Vivekananda's message of harmony and respect for all religions stands as a ray of hope in a world where religious conflicts are frequently the source of division. His teachings promote dialogue and understanding among people of different religions, fostering a sense of global community and shared spiritual values.

The philosophy of Swami Vivekananda emphasizes the value of serving humanity as well as interfaith harmony and personal growth. He held that genuine spirituality should result in compassion and altruistic devotion to others.

Numerous people and organizations have been motivated to participate in charitable and humanitarian activity as a result of Vivekananda's call to "Serve man as God." The Ramakrishna Mission and other institutions devoted to helping the less fortunate were founded in large part as a result of his teachings.

Conclusion

The philosophy of Swami Vivekananda has had a profound impact on humanity. His emphasis on spiritual awakening, interreligious cooperation, and humanitarian assistance continues to serve as a road map for people. His ideas speak to those looking for unity, meaning, and purpose in a world that is becoming more and more dispersed.

We acknowledge Swami Vivekananda's philosophy's ongoing relevance and cross-cultural appeal as we consider its significant influence. His optimistic blueprint for a better, more peaceful society is one in which people accept their divine nature, respect the diversity of religious traditions, and put endless effort into advancing the welfare of all living things.

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College Education: A Unique Opportunity for Intellectual, Spiritual Exploration, and Holistic Growth of Adolescents

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Abstract

College education plays a pivotal role in the intellectual, spiritual, and holistic growth of adolescents. It serves as a transformative period in one's life, shaping not only career prospects but also personal values, beliefs, and perspectives. This article delves into the multifaceted aspects of college education, highlighting how it fosters intellectual development, nurtures spiritual exploration, and contributes to the holistic growth of young individuals. This comprehensive article explores the multifaceted role of college education in fostering intellectual, spiritual, and holistic growth in adolescents. It underscores the transformative power of higher education, the challenges it faces, and its ongoing relevance in an ever-changing world. Ultimately, college education remains a beacon of hope, providing young individuals with the tools and opportunities to reach their full potential and contribute positively to society.

Introduction

Young adults frequently view attending college as a rite of passage that signifies their passage from adolescence to maturity. College offers a special chance for intellectual, spiritual, and holistic growth in addition to its role in professional preparation. People can study a variety of academic fields, exercise critical thinking, challenge preconceived notions, and deepen their sense of identity and purpose during this transformative time. This article aims to examine the significant effects of higher education on adolescents' intellectual, spiritual, and overall development. It will explore the numerous dimensions of human development, looking at how college encourages intellectual growth, supports spiritual discovery, and aids in the overall development of young people.

Intellectual Growth through College Education

The chance to study a variety of academic fields and topics is one of the main advantages of a college education. Students have the chance to investigate areas they might not have previously experienced, fostering intellectual curiosity. Students' horizons are expanded and interdisciplinary thinking is encouraged by this experience. Critical thinking and problem-solving abilities are honed in a college environment. Students gain the ability to understand complicated situations, evaluate evidence, and make educated judgments through challenging coursework. These abilities are important for success in a variety of vocations in the real world as well as in academic contexts. The centers of innovation and research are colleges and universities. Students frequently get the opportunity to work on research projects that progress their fields. College education instills a lifelong love of learning. By encouraging intellectual curiosity and providing access to resources, it equips students with the skills to continue their education beyond graduation. This mindset becomes an invaluable asset in an ever-evolving world.

Spiritual Exploration in the College Environment

College campuses are recognized for their variety and inclusiveness. Students can develop their spiritual and philosophical ideas in an environment that supports freedom of thought and religion without having to worry about bias or discrimination. In college, students encounter a variety of opinions, including those that conflict with their own. By encouraging tolerance and open-mindedness, the exposure aids students' understanding of the complex web of human

spirituality and belief systems. For many students, college is a time of self-discovery. It enables people to look into their passions and hobbies, which might lead to a stronger sense of meaning and purpose in life. Their philosophical and spiritual development frequently coexists with this search for meaning.

Holistic Development, Challenges and Criticisms

College education helps young adults navigate emotions and relationships, while also providing practical skills and practical experiences. Colleges offer internships and cooperative education programs, preparing students for the workforce. However, standardized education can limit creativity and individual growth. Critics argue that a one-size-fits-all approach may not cater to diverse needs. Balancing coursework, extracurricular activities, and social life can be challenging, and colleges must provide adequate support for students' mental well-being.

The Future of College Education

Advancements in technology are reshaping the landscape of higher education. Online learning platforms, virtual reality, and artificial intelligence are revolutionizing the way students access and engage with educational content. The concept of education is evolving beyond the traditional college experience. Lifelong learning and continuing education are becoming integral to career development, as individuals seek to acquire new skills and knowledge throughout their lives.

Conclusion

A college education offers a special chance for holistic, intellectual, and spiritual growth. By exposing children to a variety of knowledge, developing critical thinking abilities, encouraging inquiry and invention, and establishing a lifetime love of learning, it promotes intellectual development. Additionally, it offers a setting for spiritual inquiry, promoting intellectual freedom, exposing students to many worldviews, participating in ethical debates, and assisting people in discovering meaning and purpose. Through extracurricular activities, social and cultural awareness, emotional intelligence, and career preparation, college education encourages holistic growth in addition to academics. It also promotes civic participation, inclusivity, and alumni contributions to society, acting as a catalyst for social change. College education is still a worthwhile and important institution, despite difficulties and criticisms. Its capacity to mould young people's minds and ideals, prepare them for the modern world's intricacies, and promote societal advancement cannot be emphasized. It is crucial that we increase access to and affordability of higher education as we go forward. To satisfy the changing requirements of students, we also need to keep innovating in teaching, technology, and support systems. By doing this, we can ensure that a college education remains a life-changing and powerful experience for future generations.

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How Teenagers' Self-Confidence Affects Their Intellectual and Personal Development

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Abstract

Adolescence is a crucial phase of human development, marked by physical, cognitive, emotional, and social changes. During this transformative period, self-confidence plays a pivotal role in shaping academic performance and personality development. This article explores the multifaceted relationship between self-confidence, academic success, and the formation of an adolescent's personality.

Key words: Self-Confidence, Intellectual Development and Personality Development

Introduction

Adolescence is a critical period of transition from childhood to adulthood, characterized by numerous physical, emotional, cognitive, and social changes. During this phase, adolescents begin to develop their sense of identity, values, and beliefs, laying the foundation for their future lives. Academic performance and personality development are two significant aspects of adolescent growth, and the role of self-confidence in shaping these areas cannot be overstated. Self-confidence is a complex psychological trait that influences how individuals perceive themselves, their abilities, and their potential for success. It plays a crucial role in academic pursuits and is closely intertwined with an adolescent's personality development.

Purpose of the Study

The primary purpose of this study is to explore the multifaceted role of self-confidence in the lives of adolescents. We will investigate how self-confidence impacts academic performance, including motivation, goal setting, study habits, and test anxiety. Additionally, we will examine the influence of self-confidence on various aspects of personality development, such as self-identity, resilience, interpersonal relationships, and emotional regulation. Through a comprehensive examination of psychological theories, empirical research, and real-life examples, we aim to provide valuable insights into the significance of self-confidence in adolescent development.

Adolescence: A Period of Change

Adolescence is a period of significant physical, cognitive, and emotional transformation, affecting an adolescent's self-perception and self-confidence. Body image, cognitive development, and identity formation are key factors in adolescence. Positive body image and self-acceptance can boost self-confidence, while critical thinking skills can challenge societal norms and anxiety. The emotional ups and downs of adolescence can also impact self-confidence.

Understanding Self-Confidence

Self-confidence is a psychological trait that reflects an individual's belief in their abilities, competence, and worthiness. It is a dynamic and context-dependent quality that can vary across various domains, such as academics, sports, or social interactions. Self-concept, which includes beliefs about physical appearance, abilities, personality traits, and values, is a foundational component of self-confidence. Positive self-concept leads to higher self-confidence. Self-esteem and self-confidence are related but distinct constructs.

The Connection between Self-Confidence and Academic Performance

Self-confidence is a key factor in academic success, as it motivates adolescents to set high standards and view challenges as opportunities for growth. High self-confidence leads to ambitious, achievable goals, reinforcing a sense of accomplishment and self-worth. Adolescents with high self-confidence engage in proactive study behaviors, such as time management and self-regulated learning, with a growth mindset. Conversely, those with low self-confidence struggle to initiate and maintain productive study habits, leading to subpar academic performance. Therefore, self-confidence is crucial for academic success.

Self-Confidence and Test Anxiety

Test anxiety is a common challenge faced by adolescents, and self-confidence plays a pivotal role in mitigating or exacerbating this anxiety. Adolescents with high self-confidence tend to approach tests with a positive attitude and a belief in their ability to perform well. This positive mindset can reduce anxiety and enhance test performance. Conversely, adolescents with low self-confidence may experience heightened test anxiety. They may doubt their abilities, fear failure, and experience physical symptoms of anxiety, such as increased heart rate and sweating.

Self-Confidence and Personality Development

Adolescence is a crucial period for self-identity formation, closely linked to self-confidence. High self-confidence leads to a stable, positive self-identity, while low self-confidence can cause inner conflicts and identity crises. Adolescents with high self-confidence tend to align their values and aspirations, while those with low self-confidence may struggle.

The Role of Self-Confidence in Building Resilience

Resilience, the ability to overcome adversity, is crucial for adolescent growth. High self-confidence adolescents view challenges as opportunities for growth, seeking solutions and support. Low self-confidence may lead to feelings of helplessness and despair, hindering resilience and personal growth. Both self-confidence and resilience are closely linked in adolescence.

Self-Confidence in Interpersonal Relationships

Adolescents' self-confidence significantly influences their ability to navigate interpersonal relationships and manage emotions effectively. High self-confidence leads to assertive communication, setting boundaries, and healthy relationships, fostering positive interactions with peers and adults. Conversely, low self-confidence can lead to passive or aggressive communication styles, difficulty setting boundaries, and reluctance to express true thoughts, hindering personality development. Emotional regulation is also crucial for adolescents, with high self-confidence allowing them to handle intense emotions with resilience. Conversely, low self-confidence can lead to emotional outbursts, avoidance, or suppression, hindering overall well-being.

Personal Growth and Self-Confidence

Personal growth is a continuous process, and self-confidence plays a crucial role in this process. Adolescents with high self-confidence are more open to learning and growth opportunities, viewing mistakes as valuable learning experiences. Conversely, those with low self-confidence may avoid challenging themselves, hindering their development. High self-confidence also promotes healthy emotional regulation, allowing adolescents to handle emotional challenges with resilience. On the contrary, low self-confidence may lead to emotional outbursts, avoidance, or suppression, hindering overall well-being.

Strategies for Enhancing Self-Confidence in Adolescents

Self-reflection and creating a supportive environment are essential for enhancing adolescent self-confidence. Journaling is a useful practice, as it helps adolescents record their achievements and growth experiences. Parents, teachers, and peers can provide encouragement, constructive feedback, and emotional support. Self-compassion, which involves treating oneself with kindness and understanding, can counteract negative self-talk and promote a healthier self-concept. Mindfulness practices, such as deep breathing and meditation, help adolescents develop self-awareness and self-regulation, reducing anxiety and improving self-esteem

Conclusion

This article explores the relationship between self-confidence, academic performance, and personality development in adolescents. It highlights that self-confidence is a crucial trait that influences an adolescent's belief in their abilities, competence, and worthiness. Factors influencing self-confidence include parental influence, peer relationships, school environment, cultural and societal factors, and technology and social media. Strategies to enhance self-confidence include self-reflective practices, building a supportive environment, encouraging self-compassion, promoting mindfulness, and seeking professional help.

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Self-Confidence and Mathematical Problem-Solving Ability among Single Adolescents

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Abstract

The purpose of the study was to assess single adolescents' mathematical problem-solving skills and sense of self. In order to find significant differences in self-confidence and problem-solving skills depending on age, gender, education, birth order, residential area, family type, and the jobs of the father and mother, the study employed a convenient sample technique. The findings indicated that while single adolescents had stronger self-confidence, they were less adept at solving mathematical puzzles. Based on the mother's profession, family structure, or residential area, there was no discernible difference in her ability to solve mathematical puzzles.

Introduction

Adolescence is a difficult yet rewarding time when people learn new skills, develop more complex social lives, and change their family dynamics. It is a period of biological, cognitive, social, and emotional transition from childhood to adulthood. Adolescents' social lives are greatly influenced by their siblings, whom many view as their best friends and with whom they engage regularly. A person who is an only child doesn't have any siblings, yet they might have half- or step-siblings. Children with younger or older siblings could grow up in a similar family structure.

Self-confidence and Adolescents

An individual's emotional and psychological growth, particularly throughout adolescence, the period between childhood and adulthood, depends greatly on their level of self-confidence. Significant physical, cognitive, and social changes during adolescence result in a greater demand for self-assurance and identity development. To help young people develop a positive self-image and equip them with the resilience and assertiveness necessary to face the challenges of life, it is crucial to understand the elements that affect self-confidence in adolescents. An individual's apparent capacity to perform skillfully in a scenario to get things done, overcome challenges, and go well is referred to as self-confidence. It may or may not be a universal quality that permeates all parts of a person's life. Parents' attitudes play a significant role in children's feelings about themselves, particularly in their early years. Lack of self-confidence is often the result of focusing too much on unrealistic expectations or standards of others, especially parents and society. Friends' influences can be as powerful as parents and society in shaping feelings about one's self.

Mathematical Problem-Solving Ability

Adolescents must develop their mathematical problem-solving skills as they become ready for their future academic and professional pursuits. It entails comprehending mathematical ideas, using rules to resolve issues, and clearly expressing mathematical concepts. Strong mathematical problem-solving abilities in adolescents increase their chances of success in college and many occupations in the sciences, technology, engineering, and mathematics. Teenagers must practice frequently, compete, work with friends, and use technology like online games, tutorials, and applications in order to acquire these skills. Home settings and emotional intelligence also significantly influence one's capacity for problem-solving. A solid foundation in fundamental arithmetic abilities, critical and logical thinking, desire and enthusiasm for math, excellent math instruction and resources, and a supportive environment are all factors that affect one's ability to solve mathematical problems. Teenagers who are really interested in

arithmetic are more inclined to work hard to hone their problem-solving abilities. Strong mathematical problem-solving abilities can also be aided by having access to materials and education in arithmetic of the highest caliber, including textbooks, online tutorials, and math software.

Single-Child Adolescence

Adolescence is a challenging and rewarding period, transitioning from childhood into adulthood through biological, cognitive, social, and emotional transitions. It can be divided into three stages: early adolescents (12-14 years), middle adolescents (14-17 years), and late adolescents (17-19 years). The biological transition of adolescence, or puberty, is characterized by physical changes, cognitive transition, and emotional transition. Physically, only children may feel lonely or isolated due to the lack of siblings in the home. However, this preference for adult companionship is not interpreted as loneliness. Cognitively, only children may have a higher sense of independence than their peers, as they have to navigate family life alone. They may have less experience in sharing resources and may have less experience in sharing with others. Hyperindependence may be their chosen coping mechanism if high expectations are placed on them. Poor social skills are common among 'only children', as they have fewer opportunities to engage in casual, everyday interactions. With adult time as their primary social outlet, they may have a more challenging time relating to other children at first. High achievers may feel pressure to attain high levels of achievement in academics, extracurricular activities, and future careers. Lastly, only children may be highly sensitive to criticism, as they do not have consistent interaction with other children and do not learn how to manage negative feedback.

Significance of the Study

Urbanization, growing housing expenses, and changes in gender roles are only a few of the causes contributing to the popularity of the idea of single-child families. Couples now place a greater emphasis on the welfare of their lone child, enabling them to invest more time and money in their child's growth. The idea of raising a single child has been affected by societal developments, including a greater appreciation of parenting that emphasizes quality over number. However, different cultures and geographical areas have different rates of single-child families. The predominance of single-child households may be impacted by government rules, such as China's one-child policy, while cultural norms may still favor bigger families. Understanding the experiences of single-child teenagers can help societal policies, parental techniques, and educational practices that support good outcomes for these kids.

Self-confidence in single adolescents is crucial for their social, academic, and emotional well-being. It is influenced by factors such as peer pressure, academic stress, and personal experiences. Building self-confidence involves fostering a supportive environment, positive reinforcement, setting achievable goals, and encouraging the development of strengths and talents. However, self-confidence can fluctuate due to factors like peer pressure, academic stress, and personal experiences. To build self-confidence, adolescents should be encouraged to explore their interests, teach coping strategies, and embrace their imperfections. Promoting a healthy lifestyle, such as regular exercise, proper nutrition, and sufficient sleep, can also positively impact self-confidence. Mathematical problem-solving ability among adolescents can vary greatly, with factors such as exposure to math education, quality of instruction, innate aptitude, and motivation to learn influencing their abilities. A supportive learning environment, engaging teaching methods, and practice opportunities can enhance mathematical problem-solving skills.

Conclusion

The purpose of the study was to examine how single adolescent self-confidence and mathematical problem-solving skills differ depending on factors like birth order, age, gender, religion, educational attainment, residential area, family, and father's and mother's occupations. The findings indicated that self-confidence was comparable between boys and females, with girls having a stronger capacity for solving mathematical puzzles. Teenagers with nuclear homes were more self-assured, and those between the ages of 14 and 18 were better at solving mathematical puzzles. The most self-assured teenagers were those who were born alone, whereas those whose fathers were employed in the public sector exhibited greater assurance. Students at higher secondary schools demonstrated the best aptitude for solving mathematical puzzles. According to residential location or mother's profession, the study also revealed no evidence of a substantial difference in the self-confidence and problem-solving skills of solitary teenagers. Limitations of the study included time limitations and the inability to detect single adolescents. The study's limitations include a limited sample size and a time limit.

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Business Economics: The Nexus of Profit and Strategy

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Abstract

The main ideas, theories, and applications of business economics are all covered in-depth in this article. This article emphasizes how important business economics is in directing businesses toward successful and long-term business plans. A thorough understanding of business economics is crucial for corporate success in today's dynamic business environment. An interdisciplinary field called business economics studies how economics and business management interact. This article explores the core ideas, theories, and applications of business economics, emphasizing how crucial it is in determining business strategy, optimizing profits, and fostering long-term growth. Key economic concepts like supply and demand, cost analysis, market structures, pricing schemes, and decision-making instruments will be covered. We will also look at how business economics aids businesses in navigating dynamic markets, adapting to shifting customer tastes, and dealing with the forces of the global economy. Readers will have a thorough understanding of the significance of business economics in modern corporate contexts by the end of this article.

Key Words: Business, economics, supply and demand, pricing strategies, and decision-making

Introduction

Business economics acts as a link between economic theory and actual business activities, giving businesses the resources and knowledge they need to make wise decisions. It covers a broad spectrum of subjects, such as supply and demand analysis, cost management, market structures, pricing tactics, and decision-making procedures. The fundamental goal of business economics is to maximize profits while effectively utilizing the resources at hand. By weighing the advantages and disadvantages of numerous options, it helps businesses make informed decisions. It applies equally to charitable organizations and governmental organizations working to allocate resources effectively; it is not just confined to for-profit businesses. The works of classical economists like Adam Smith, David Ricardo, and John Stuart Mill can be used to trace the origins of business economics. However, it wasn't until the early 20th century when economists like Alfred Marshall and John Bates Clark made ground-breaking contributions that managerial economics officially emerged as a separate profession

Importance in Modern Business

Businesses must continually make decisions about pricing, production, investment, and resource allocation in today's complicated and fiercely competitive business climate. The profitability and long-term viability of a corporation are significantly impacted by these choices. This idea is applied in business to manage inventories, anticipate sales, and establish prices. Supply and demand are influenced by a number of variables, such as customer preferences, market competition, outside shocks, and governmental policies. For businesses to continue to be successful and competitive, they must continuously monitor and adjust to these elements.

Cost Analysis

Another crucial component of corporate economics is cost analysis, which aids businesses in choosing the most economical production and pricing strategies. Variable costs change with production while fixed costs are constant regardless of the degree of production. It's essential to comprehend these expense areas if you want to maximize your profits. Cost-cutting

strategies are frequently used by businesses to lower variable costs and boost profitability. Expenses that can be changed immediately include labor and materials, which are considered short-run expenses. Choosing to increase or decrease production capacity is one of the more fundamental decisions that affect long-term expenses. A detailed cost analysis aids businesses in making the best short- and long-term choices. Companies strive to produce goods and services for the least amount of money without sacrificing quality. Finding effective production techniques, maximizing resource use, and negotiating advantageous supplier contracts are all part of cost-minimization tactics.

Perfect Competition & Monopolistic Competition

In a perfectly competitive market, there are many buyers and sellers, homogeneous products, and easy entry and exit. Prices are determined solely by supply and demand forces, and no single firm can influence the market price. Businesses in perfect competition focus on cost efficiency to remain profitable. A monopoly exists when a single firm dominates an entire industry. Monopolists have significant pricing power and can set prices above their production costs. Government regulation often intervenes in monopolistic industries to prevent abuse of market power. Monopolistic competition combines elements of both monopoly and perfect competition. Firms produce differentiated products, allowing them some control over prices. Marketing and product differentiation are essential in this market structure.

Pricing

Pricing tactics are essential to understanding business economics since they have a direct impact on the sales and profits of an organization. Companies use a variety of pricing strategies to accomplish their goals. Price discrimination entails setting different rates for various client segments according to their capacity to pay. For instance, airlines have varied ticket costs for leisure and business travelers. Segmenting markets and prohibiting resale between groups are necessary for effective price discrimination. With cost-plus pricing, the selling price is calculated by adding a markup to the production cost. This strategy guarantees that all expenses are met and offers a desired profit margin. However, it might not take into account customer preferences or market conditions. Value-based pricing places an emphasis on how customers perceive the worth of a good or service. Businesses determine the prices that consumers are willing to pay and set them accordingly. This tactic can result in greater profitability by matching price with customer expectations. Pricing that is competitive means basing costs on what other businesses charge. Although this strategy could result in price wars, it can also aid a company in gaining market share. Competitive pricing requires strategic competitor analysis.

Game Theory and Investment Appraisal Methods

It incorporates internal rate of return (IRR) and net present value (NPV), two metrics that help assess the financial sustainability of such actions. In competitive situations, game theory examines the strategic interactions between businesses. Businesses utilize game theory to simulate rivals' behavior and make choices that will optimize their own results. In industries with interdependent enterprises, like telecommunications and aviation, game theory is particularly pertinent.

Conclusion

Strategic decision-making in modern company environments is supported by the dynamic discipline of business economics. Its tenets and methods support businesses in maximizing profits, adjusting to market dynamics, and thriving in the face of forces from the global economy. Business economics continues to play a crucial role in leading organizations toward sustainable growth and profitability as the business landscape changes.

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The Profound Impact of Swami Vivekananda and the Indian Knowledge System on Shaping the Present Student Community

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Abstract:

The old Indian knowledge system and Swami Vivekananda, a respected spiritual teacher and philosopher, have had a profound impact on today's student population. The significant influence of Swami Vivekananda's teachings and the extensive Indian knowledge system on the minds, values, and aspirations of today's students is explored in depth in this article. It looks at how these inspirations and guiding principles still help students grow holistically and gain a better knowledge of what their lives are for. Through his teachings on spirituality, self-realization, and human potential, he made an enduring impression on the world. His impact has endured for generations of pupils all throughout the world, far beyond his own lifetime. The enormous influence of Swami Vivekananda's teachings on the current student community is examined in this article. Through his emphasis on self-discovery, character development, and the pursuit of knowledge, Swami Vivekananda continues to inspire students to lead purposeful lives and contribute positively to society.

Introduction:

His lessons, which are grounded in Vedanta philosophy and the core of the Indian knowledge system, have been crucial in forming the current student body. For countless millennia, the ancient knowledge of India – contained in writings like the Vedas, Upanishads, and Bhagavad Gita – has served as a source of illumination and direction. Swami Vivekananda is a towering figure in the enormous universe of spiritual and philosophical philosophers, whose ideas have permeated space and time. This essay dives into his emphasis on self-realization, character growth, and the pursuit of knowledge and shows how his timeless advice continues to serve as an example for young people who want to live meaningful lives and have a positive impact on the world.

Swami Vivekananda believed that young people in India had enormous potential and might usher in a beneficial transformation. He highlighted the importance of education in fostering one's character, intelligence, and spirituality. His well-known speech at the World's Parliament of Religions in Chicago in 1893 marked the start of his endeavor to uplift and inspire young people. Young minds were profoundly affected by Vivekananda's message of self-assurance, bravery, and the pursuit of perfection. An important moment in Swami Vivekananda's life was his historic appearance at the World's Parliament of Religions in Chicago in 1893. His address, which began with the iconic words "Sisters and brothers of America," introduced the world to the rich spiritual heritage of India and its universal relevance. This event catapulted him onto the global stage as a representative of Hindu philosophy and Vedanta. From that point forward, Swami Vivekananda dedicated his life to spreading the message of self-realization, human unity, and the importance of a holistic education.

Swami Vivekananda recognized the immense potential of the youth in India and envisioned them as the harbingers of positive change. He emphasized the development of character, intellect, and spirituality as essential components of education. His famous address at the World's Parliament of Religions in 1893 in Chicago marked the beginning of his mission to inspire and uplift the youth. Vivekananda's message of self-confidence, fearlessness, and the pursuit of excellence resonated deeply with young minds. Swami Vivekananda's historic

appearance at the World's Parliament of Religions in Chicago in 1893 marked a turning point in his life.

His call to "Arise, awake, and stop not until the goal is reached" serves as a powerful mantra for students facing adversity. In an era marked by competitiveness and peer pressure, Swami Vivekananda's emphasis on self-confidence and self-awareness empowers students to navigate challenges with resilience and a positive outlook. Swami Vivekananda stressed the importance of character development and ethical values as the foundation of a fulfilling life. He believed that true education should not only impart knowledge but also cultivate noble qualities and virtues in individuals. Swami Vivekananda's advocacy for truthfulness, integrity, and compassion resonates deeply with the student community. His words inspire them to uphold ethical principles even in the face of adversity, encouraging them to become responsible citizens who contribute to the greater good. Education was of paramount importance to Swami Vivekananda, who saw it as a means of empowerment and transformation. He believed that true education should nurture both the mind and the soul, enabling individuals to develop their full potential. His call for education that goes beyond rote learning and encourages critical thinking is particularly relevant in today's knowledge-driven society.

The teachings of Swami Vivekananda, which place a strong emphasis on holistic education that involves the development of the body, mind, and spirit, have had a tremendous impact on India's educational system. Students have been affected by his demand for truth, integrity, and compassion to make moral decisions and work through challenging moral conundrums. His message of self-realization and self-empowerment has influenced the mindset of today's youth, inspiring them to overcome self-imposed barriers and pursue excellence. The Bhagavad Gita, one of the Upanishads, and other ancient works that form the foundation of the Indian knowledge system continue to offer profound insights into the nature of existence, the self, and the quest for a meaningful life.

Conclusion:

Swami Vivekananda's teachings continue to have a profound impact on shaping the present student community. His message of self-realization, character development, and the pursuit of knowledge resonates deeply with students seeking meaning and purpose in their lives. In a world marked by uncertainty and rapid change, his timeless wisdom serves as a guiding light, empowering students to navigate their academic, personal, and ethical journeys with confidence and integrity. As we reflect on the enduring relevance of Swami Vivekananda's teachings, it is evident that his legacy transcends generations and borders. Students hoping to have a positive impact on society continue to find great inspiration in his vision of a peaceful, enlightened world where people recognize their divinity and work to improve humanity. The wisdom of the Indian knowledge system and Swami Vivekananda's teachings have had a lasting influence on the current student body. They have given kids the tools they need to succeed academically and lead meaningful lives by instilling principles like honesty, compassion, and self-realization. Students' brains and emotions continue to be profoundly shaped by Swami Vivekananda's vision for youth and the rich legacy of Indian knowledge, leading them toward a better and more enlightened future.

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Anu Saju^{1*}, Aldona John^{*}, Josna Jose^{*}, Divyamol Thomas^{1*}, Amal Joseph^{1*}

Building Relationships with Professors and Mentors: A Key to College Success

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Abstract

The years spent in college are a critical time in a student's academic and personal development. Building relationships with instructors and mentors may be a fulfilling and meaningful experience outside of the lectures and homework in the classroom. This essay addresses the value of developing these relationships while in college and how they support both academic and personal development. We highlight the benefits of mentorship and provide advice on how students can successfully develop these valuable relationships by using a variety of viewpoints, examples, and research. We also talk about the possible lifetime benefits of such connections, such as potential career prospects and personal growth.

Introduction

A young adult's journey through college is a crucial time marked by academic and personal development as well as the pursuit of long-term objectives. Many people use this time to learn about themselves, go on adventures, and acquire important life skills. Beyond the academic curriculum, the relationships made during this time frequently have a significant impact on how people develop. Mentors and professors are crucial to a student's college experience. In order to help students manage the complexity of higher education, they provide direction, knowledge, and support. Developing relationships with these people can be transformative and give students the resources they need to excel in both their academic and personal lives.

Why Building Relationships Matters

The academic help that professors and mentors offer is one of the main advantages of doing so. These people can provide study advice, provide clarity on course materials, and even draft recommendations for graduate school or employment applications. They could also represent students who are having academic difficulties. Professors and mentors can aid students in developing personally as well as academically. They can help students make critical life decisions, provide career advice, and provide emotional support during trying times. These people's knowledge and life experiences can be extremely helpful in molding a student's character and perspective. Professors and mentors frequently have wide networks in the fields they work in. Developing connections with them might lead to chances for internships, research projects, and prospective employment offers.

These contacts may play a key role in launching a student's career and offering insightful information about the working world. Professors at colleges are knowledgeable authorities who love to impart their knowledge. Developing a relationship with them might open up prospects for research or academic collaboration as well as a greater understanding of the topic area. They offer advice on choosing a major, choosing courses, and academic preparation. They can support students in making well-informed choices about their academic and professional aspirations. Mentors are those who provide advice and support, frequently outside of the classroom. They could be teachers, former students, or experts in the student's chosen profession. Mentors offer insightful advice and helpful career guidance. Peer bonds are also crucial to development; they can be with professors, alumni, or professionals in the student's field of interest. Mentors provide valuable insights and career advice. Building relationships with peers is also important. Study groups and friendships can enhance the college experience and create a support system for academic and personal challenges.

Benefits of Mentorship

Academic progress can be strongly impacted by mentoring. Mentors can offer advice on time management, study habits, and learning practices that will increase academic performance and knowledge retention. Mentors can provide career advice and frequently have real-world experience. They can offer guidance on job seeking and networking, as well as assist students in identifying their talents, interests, and potential career routes. Mentors can act as role models for students, assisting them in the development of critical life competencies including leadership, problem-solving, and communication. In trying times, they can also offer emotional support.

How to Build Relationships

Attending the teachers' office hours is one of the simplest ways to get in touch with them. In-depth discussions about coursework, research interests, or professional goals can be had during this one-on-one session. Active involvement in class shows commitment to and enthusiasm for the subject. Additionally, it gives educators the chance to get to know their students. Never be afraid to ask your instructors or mentors for suggestions or advice. Their opinions can be quite valuable on a variety of topics, including academics, job options, and personal issues. Clubs and groups focused on academics and careers can be found at many institutions. Students can find classmates and mentors who share their passions by joining these clubs. Participating in extracurricular activities or research initiatives run by professors can give hands-on experience and deepen relationships.

Success Stories

There are stories of individuals whose lives were positively impacted by mentors and professors during their college years. Profiles of successful individuals who credit their college relationships with professors and mentors as key factors in their achievements. There are examples of people whose mentors and teachers throughout their college years had a good influence on their lives. Profiles of successful people who attribute a large part of their success to their ties with instructors and mentors during college. Investigating how relationships made in college might help people later in life, including in terms of their employment and personal growth. The value of having a wide network of teachers, mentors, and peers to tap into while looking for chances and contacts in different career domains.

Conclusion

A review of the long-term benefits of forming friendships with teachers and mentors while in college and how they support a student's development both academically and personally. Finally, some final words of incentive and encouragement for students to actively seek out and cultivate these crucial connections throughout their college experience. a thorough listing of sources, writings, and publications on the subject of forming bonds with college mentors and professors that can be used as a starting point for additional research. In conclusion, developing relationships with mentors and professors while in college can have a profoundly positive effect on a student's academic progress, personal development, and chances for the future. Students will be motivated and empowered by the tales, studies, and advice to actively seek out and cultivate these priceless connections throughout their college careers and beyond.

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Psychological Capital among Middle Aged

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Abstract

The major objective of this study was to evaluate the psychological capital among middle-aged employees. The study was conducted on middle-aged employees living in urban, semi-urban and rural areas. The sample was collected through a convenient sampling method. 270 samples were collected for the study. The descriptive research method was used by the researcher. The main tool for data collection was socio-demographic details and the psychological capital scale of Luthans, Youssef and Avolio. The study reveals that there is no significant difference in psychological capital based on age, religion, monthly income, marital status, etc.

Keywords: Psychology, Capital, Marital status, Religion, Income and Adult

Introduction

Changes in roles and social expectations describe middle age as a time of major transformation. A person's physical and mental health may suffer during this time due to biological, social, and psychological influences. A complex interplay of elements affecting physical, mental, emotional, and social well-being exists. Workplace factors that affect employees' welfare include the standard and security of the physical environment, how well-treated they feel at work, the nature of the task, and the organization. For employees, prosperity is a crucial asset, and a positive working atmosphere is crucial. Work performance can be impacted by mental health problems, which can result in burnout, hopelessness, stress-related illnesses, and strain on the organization. For the sake of social transformation, economic development, and mental health, psychological capital, or Psy Cap, is essential. To maintain good mental wellness, factors such as training, work, salary, and housing play crucial roles. Positive psychology in the workplace, known as Positive Organizational Behavior (POB), aims to cultivate the best employees while focusing on excellence and decency. The study of psychological capital among middle-aged employees aims to understand and analyze its importance for overall well-being.

Middle Aged

Middle age is a time of significant psychological challenges, with women experiencing depression and grief more frequently than men. Erikson suggests that middle-aged individuals should engage in procreative, productive, and creative behaviors, adapt to physical and physiological changes, and ensure economic security for old age. Balancing responsibilities as breadwinners and homemakers, as well as caring for their parents, can lead to emotional conflict and guilt. Additionally, middle-aged individuals may experience a decline in physical fitness, affecting both men and women. These changes can affect the overall well-being of middle-aged individuals, affecting their overall well-being.

Psychological Challenges

Middle-aged women are twice as likely to experience psychiatric issues as men due to societal and familial circumstances. Depression is the most prevalent mental illness in women aged 30-50, characterized by melancholy, hopelessness, and sleep disturbances. Grief is common in middle life, ranging from loss of friends to job stress. Erikson suggests that middle-aged adults should engage in procreative, productive, and creative behaviors, adapt to physical and physiological changes, reevaluate vocational accomplishments, ensure economic security, help

children become responsible adults, reorganize living arrangements, and participate in the community.

Vocational Satisfaction Among Middle Aged

Transitioning to middle age involves adjusting to new interests, attitudes, and behaviors in job, family, and social contexts. Males face challenges due to retirement and physical changes in their jobs, while women transition from housewives to working in business or industry. Factors affecting career adjustment include job satisfaction, social attitudes, advancement prospects, professional expectations, automation, coworker attitudes, and relocation. Middle-aged workers may face challenges like boredom, lack of pride, and increased workplace speed. The transition is complex and requires careful consideration and adaptation.

Psychological Capital

Positive psychology, or psychological capital, was developed in the 1990s to assess and manage people's strengths and psychological core meanings. It represents motivational tendencies resulting from healthy psychological concepts like efficacy, optimism, hope, and resilience. Psychological capital is influenced by cognitive development, job drive, and intrapersonal and interpersonal performance. It is a crucial aspect of positive organizational behavior, based on a quality-based methodology. It includes four measures: expectation, idealism, self-viability, and strength. A reliable and valid Psychological Capital Questionnaire (PCQ) measure can measure psychological capital. A study examined the psychological capital of middle-aged employees in government and private sectors, finding that these factors have diminished in their personal lives, and most find satisfaction in their work.

Conclusion

The study explores the psychological capital of middle-aged employees, highlighting the complex interplay of physical, psychological, and social challenges they face. It emphasizes the importance of understanding and addressing these challenges, particularly for women, who are more susceptible to mental health issues like depression and grief. The study also emphasizes the importance of vocational satisfaction, as the transition to middle age often involves significant adjustments in career and life roles. Psychological capital, which includes qualities like efficacy, optimism, hope, and resilience, is crucial for maintaining the well-being of middle-aged employees. It contributes to personal growth, happiness, societal well-being, economic development, and mental health.

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The Role of Emotional Maturity in Building Resilience among College Students

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Abstract

In order for young adults to successfully traverse the difficulties and changes that come with college life, resilience is a crucial component in their growth. This essay examines how emotional maturity helps college boys and girls develop resilience. It explores what emotional maturity and resilience are, how important they are in the context of higher education, and the many things that go into developing them. Colleges and universities can better support their students in their journey toward personal and academic success by recognizing the connection between emotional maturity and resilience.

Keywords: Maturity, Resilience, College Students

Introduction

A young person's life is transformed at college, which is characterized by intellectual challenges, social changes, and growing independence. Additionally, it is a time when people start to define their identities and acquire the knowledge and abilities needed to deal with the challenges of maturity. The development of resilience, which enables pupils to recover from setbacks, adapt to change, and prosper despite adversity, is essential to this process. An individual's emotional maturity is crucial in determining how resilient they are, as it affects their capacity to control their emotions, forge solid relationships, and make wise judgments. In this essay, we'll examine the crucial connection between college boys' and girls' emotional development and resilience.

Defining Resilience & Emotional Maturity

An individual's capacity to respond constructively to adversity, trauma, tragedy, threats, or other substantial sources of stress falls under the umbrella of resilience, which is a multidimensional concept (Masten, 2001). It entails not just surviving terrible situations but also thriving as a result of them. Positive outlooks, problem-solving abilities, emotional control, and robust social support networks are just a few of the traits that resilient people exhibit (Rutter, 2012). The ability to identify, comprehend, manage, and utilize one's emotions is referred to as emotional maturity, also known as emotional intelligence (EQ) or emotional maturity (Salovey & Mayer, 1990). It includes abilities like self-awareness, emotional control, empathy, and interpersonal efficacy. Emotional maturity enables individuals to navigate social situations with finesse, make decisions based on a balance of reason and emotion, and build meaningful relationships (Goleman, 1995).

The Importance of Resilience and Emotional Maturity in College

Academic demands associated with college life can include intense homework, difficult tests, and the need for time management. Resilient and emotionally mature students are better able to handle these academic stresses. They can recover from poor grades, ask for assistance when necessary, and keep a growth mentality that encourages ongoing learning (Duckworth, Peterson, Matthews, & Kelly, 2007). Students frequently experience homesickness, loneliness, and worry as they make the adjustment to college, which can be emotionally exhausting. Individuals with emotional maturity are able to control these emotions, seeking help when needed and engaging in self-care. By enabling students to persevere and adapt, resilience ensures that setbacks in their mental health do not undermine their overall wellbeing (Connor & Davidson, 2003). Young adults make new friendships and love connections during their time

in college, which can be both beneficial and difficult. Students that are emotionally mature are better able to connect with others, solve problems, and communicate clearly. Their ability to bounce back from social setbacks like breakups or friendship disputes helps them develop resilience (Brackett, Rivers, & Salovey, 2011). This prevents these experiences from defining their college years. A key competency for the workplace is emotional maturity since it encourages effective leadership, teamwork, and communication. Individuals that are resilient are able to deal with obstacles in their career path, adapt to shifting employment markets, and recover from professional setbacks (Boyatzis, Goleman, & Rhee, 200).

Factors Contributing to Emotional Maturity and Resilience

Growing up in a familial context has a big impact on how resilient and emotionally mature you become. According to Luthar, Cicchetti, and Becker (2000), families that are emotionally loving and supportive tend to create kids who are more emotionally aware and better able to handle adversity.

Through specialized educational programs and treatments, colleges and universities can play a significant role in promoting emotional maturity and resilience. Students can acquire the necessary abilities by taking courses on emotional intelligence, stress management, and interpersonal communication (Brackett, Palomera, Mojsa-Kaja, Reyes, & Salovey, 2010). Peer interactions also contribute to the development of emotional maturity and resilience. Positive friendships can provide emotional support and opportunities for growth, while conflicts with peers can serve as valuable learning experiences (Larson & Richards, 1991). Positive and negative life experiences can influence emotional development and resiliency. Emotional resilience can be boosted by overcoming difficult life experiences like the death of a loved one or a life-threatening illness (Hjemdal, Vogel, Solem, Hagen, & Stiles, 2011).

Strategies for Helping College Students Develop Emotional Maturity and Resilience

Colleges may provide workshops and courses that emphasize the development of emotional intelligence. These courses can aid students in developing their emotional control, empathy, and self-awareness. Support for mental health: Having access to resources and counseling services is crucial. Students should be urged to seek assistance when necessary and mental health problems should be de-stigmatized. Programs for peer mentoring: Incoming freshmen may benefit greatly from advice and emotional support from friends who have already made the transition to college life. Stress Management and Coping Strategies: Teaching students effective stress management techniques and coping strategies can enhance their ability to handle academic and personal challenges. Experiential Learning: Encouraging students to engage in internships, volunteer work, or study abroad experiences can foster personal growth and resilience.

Conclusion

As college boys and girls manage the intricacies of higher education, emotional maturity and resilience are priceless assets. Their general well-being is improved by their capacity to control their emotions, overcome challenges, and uphold healthy relationships. In order to provide students with the skills they need to succeed in college and beyond, colleges and universities have a responsibility to encourage the development of these fundamental abilities.

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The Role of Self-Confidence in Adolescents' Academics and Personality

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Abstract

This article explores the relationship between self-confidence, personality traits, and academic achievement in students. It reveals that self-confidence is crucial for personality and is directly related to academic achievement. Studies show that students from different castes and socio-economic backgrounds have different self-concepts, with some showing higher intelligence and imagination while others have more practical traits. Gender differences and information use may influence self-confidence development. High self-confidence students have higher scientific creativity scores. Self-concept is a good predictor of creativity but less efficient in predicting composite creativity. However, caste, region of residence, and sex do not affect self-confidence and aspiration levels.

Keywords: Self-confidence, Adolescents' Psychology

Introduction

Adolescence is a challenging yet rewarding period characterized by new abilities, social changes, and emotional transformations. Self-confidence is crucial for emotional and psychological growth and is influenced by factors such as parents' attitudes, peer influence, academic achievement, physical appearance, parental style, past experiences, personality traits, cultural background, and mental and emotional health. Barriers to self-confidence include fear, an inferiority complex, worrying, negative thoughts, procrastination, and indecision. Recent research denotes that there is a strong relationship between self-confidence, personality traits, and academic achievement in students. Studies show that students from different castes and socio-economic backgrounds have different self-concepts, with some showing higher intelligence and imagination while others have more practical traits. Gender differences and information use may also influence self-confidence development.

Role of Self-Confidence in Adolescents' Academics and Personality

The period of adolescence is both demanding and rewarding, characterized by the development of new abilities, a complicated social life, and changes in familial ties. Between childhood and maturity, this age is one of biological, cognitive, social, and emotional transformations. Siblings are frequently the closest companions and confidantes of adolescents, with whom they engage frequently. Particularly during adolescence, self-confidence is a critical component of one's emotional and psychological growth. Significant physical, cognitive, and social changes that occur during adolescence result in a greater demand for self-assurance and identity development. To help people develop a positive self-image and give them the confidence they need to face the challenges of life with resiliency and assertiveness, it is crucial to understand the elements that affect self-confidence. An individual's apparent capacity to respond appropriately to circumstances, get things done, and overcome challenges is referred to as self-confidence. Self-confident individuals are willing to risk disapproval and accept themselves, while those without self-confidence may rely too much on others' approval and avoid taking risks. Self-confidence is a complex concept that can vary across individuals.

The period of adolescence is both demanding and rewarding, characterized by the development of new abilities, a complicated social life, and changes in familial ties. Between childhood and maturity, this age is one of biological, cognitive, social, and emotional transformations. Siblings are frequently the closest companions and confidantes of adolescents, with whom they

engage frequently. Particularly during adolescence, self-confidence is a critical component of one's emotional and psychological growth. Significant physical, cognitive, and social changes that occur during adolescence result in a greater demand for self-assurance and identity development. To help people develop a positive self-image and give them the confidence they need to face the challenges of life with resiliency and assertiveness, it is crucial to understand the elements that affect self-confidence. An individual's apparent capacity to respond appropriately to circumstances, get things done and overcome challenges is referred to as self-confidence.

It is not a universal trait and can be influenced by various factors such as parents' attitudes, peer influence, academic achievement, and physical appearance, parental style, past experiences, personality traits, cultural background, and mental and emotional health. Parents play a crucial role in shaping children's self-confidence, as they provide acceptance and love when they make mistakes. Friends can also play a significant role in shaping self-confidence, as they re-examine values and develop their identities. Factors influencing adolescents' self-confidence include social support, peer influence, academic achievement, and physical appearance, parental style, past experiences, personality traits, cultural and ethnic background, and mental and emotional health. Barriers to self-confidence include fear, which can be either fear of failure or ridicule, an inferiority complex, worrying, negative thoughts, procrastination, and indecision. It is essential to avoid these barriers and focus on personal growth and development. By addressing these barriers, individuals can develop self-confidence and overcome challenges in various aspects of their lives.

This article explores the relationship between self-confidence, personality traits, and academic achievement in students. It reveals that self-confidence is crucial for personality and is directly related to academic achievement. Studies show that students from different castes and socio-economic backgrounds have different self-concepts, with some showing higher intelligence and imagination while others have more practical traits. Gender differences and information use may influence self-confidence development. High self-confidence students have higher scientific creativity scores. Self-concept is a good predictor of creativity but less efficient in predicting composite creativity. However, caste, region of residence, and sex do not affect self-confidence and aspiration levels.

Conclusion

Adolescence is a challenging and rewarding period characterized by new abilities, complex social life, and changes in familial ties. It is a period of biological, cognitive, social, and emotional transformations, with siblings often being the closest companions and confidantes. Self-confidence is a critical component of emotional and psychological growth, and it is influenced by factors such as parents' attitudes, peer influence, academic achievement, and physical appearance, parental style, past experiences, personality traits, cultural background, and mental and emotional health. Barriers to self-confidence include fear, inferiority complex, worrying, negative thoughts, procrastination, and indecision. It is essential to avoid these barriers and focus on personal growth and development to develop self-confidence and overcome challenges in various aspects of life. Self-confidence is crucial for personality traits and is directly related to academic achievement. Studies show that students from different castes and socio-economic backgrounds have different self-concepts, with some showing higher intelligence and imagination while others have more practical traits. Gender differences and information use may influence self-confidence development. Adolescents' self-confidence is crucial for their social, academic, and emotional well-being. Building self-confidence involves supportive environments, positive reinforcement, setting achievable goals, and

encouraging them to develop their strengths and talents.

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Attitude of College Lectures towards Educational Administration

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Abstract

The major objective was to study the attitude of college lectures towards educational administration. The sample constituted a of total 203 college lectures belonging to seven districts of Kerala. The Attitude towards Educational Administration scale prepared by Dr. T.R. Sharma was used this for this study. The data was collected, scored, and calculated. The statistical procedure used is mean, Standard Deviation. 't' test, ANOVA, and Correlation. The study revealed that there is significance in the attitude of college lectures toward educational administration based on some demographic factors such as monthly income and residential area. Also, the study revealed that age, and educational qualifications designation did not affect the attitude toward educational administration.

Keywords: Attitude. College Lectures, Educational Administration

Introduction

Attitude is an important psychological factor that contributes towards success and this is an important factor in helping any person to get through the highs and lows of life. That is to say, once a particular attitude is formed, it likely is what often comes out of a person. Having a positive attitude allows me to be more productive at work. People who have a positive attitude regularly set goals and achieve them. Being able to accomplish things is fostering a positive attitude, and it enhances the effectiveness. For an administrator, a positive bent of mind is essential to execute his duties wholeheartedly. (P. Karjee, 2014). Education administrators are employed in educational institutions for the management of Institutions. They manage the routine activities of the institutions and provide instructional leadership. Educational administration is a discipline within the study of education that examines the administrative methodology in general and educational institutions and educators in particular activities. Educational Administration is regarded as the process of integrating available human and material resources for achieving the execution of the programs. The term "Administration" refers to several processes such as planning, organizing, directing, coordinating, controlling, and evaluating the processes. To achieve these, the head of the educational organization plans various programs and activities.(Venkataraman&Manivannan,2017) An administrator works in every level of education, may direct programming, hire and supervise staff, manage budgets, and make decisions that affect the academic community. One of the major problems the world is facing today is several persons are excluded from the educational system. So the aims of the Indian constitution (45article) are not to be achieved and the society is not being developed. As per the census of India (2011), 21 percent (out of the total population) of disabled persons in India live both in rural and urban areas. In this population, some persons are facing different types of problems in the educational system, and as a result, they are excluded from the educational system. In such type of situation, the Indian govt. has started different types of programs/incentives such as Sarva Shiksha Mission (1988), Sarva Shiksha Abhiyan (SSA,2001) District Primary Educational Programmed (DPEP)and the National Curriculum Frame Work(NCF,2005)is just to promote the opportunities for all children to participate, learn and have equal opportunities of the education system.

Components of attitude

Cognitive component: Your thoughts and beliefs about the subject

- Affective component: How the object, person, issue, or event makes you feel
- Behavioral component: How attitude influences your behavior

Attitudes can also be explicit and implicit. Explicit attitudes are those that we are consciously aware of and that influence our behaviors and beliefs. Implicit attitudes are unconscious but still affect our beliefs and behaviors. (Journal of Sociology and Social Welfare. 2011.)

Cognitive Component

The cognitive component of attitudes refers to the beliefs, thoughts, and attributes that we would associate with an object. It is the opinion or belief segment of an attitude. It refers to that part of the attitude that is related to the general knowledge of a person.

Affective Component

The affective component is the emotional or feeling segment of an attitude. It is related to the statement which affects another person. It deals with feelings or emotions that are brought to the surface about something, such as fear or hate. Using the above example, someone might have the attitude that they love all babies because they are cute or that they hate smoking because it harms health.

Behavioral component

The behavior component of an attitude consists of a person's tendencies to behave in a particular way towards an object. It refers to a part of attitude that reflects the intention of a person in the short run or long run.

Attitudes and behavior

We tend to assume that people behave according to their attitudes. However, social psychologists have found that attitude and actual behavior are not always perfectly aligned. (The journal of sociology and social welfare, 2011)

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Attitude towards Drugs and Alcohol among Middle People

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Abstract

The prime objectives of the study were to explore stress vulnerability and Attitude towards Drugs and alcohol among middle-aged people Present Study analysed the differences between socio-demographic details and stress vulnerability and Attitude towards Drugs and alcohol among middle-aged people. The sample was selected by using a convenient sampling method (n=249). The tools used were a self-prepared socio-demographic data sheet stress vulnerability scale (L.H. Miller and A.D. Smith,1985) and a Scale of Attitude towards Drugs and Alcohol (Dr. Poorva Jain and Dr.AmitbDeolia, 2016). The obtained data was analysed using the SPSS tool and conducted a 't' test, ANOVA and Correlation. The study found that there is no significant difference in Stress vulnerability and Attitude towards Drugs and alcohol among middle-aged people based on some demographic factors such as type of gender, age group, residential area, Education status and monthly income. The study showed that there is no difference in stress vulnerability and attitude towards drugs and alcohol.

Keywords: Attitude, Drugs and Alcohol, People

Introduction

According to WHO "Stress can be defined as a state of worry or mental tension caused by a difficult situation. Stress is a natural human response that prompts us to address challenges and threats in our lives. Everyone experiences stress to some degree. The way we respond to stress, however, makes a big difference to our overall well-being".

Stress is our body's natural physical and mental response to challenges or changes. It may help you overcome obstacles and push yourself to new levels of personal growth. When your body's stress response system starts dysfunctioning, though, the same feelings can become barriers and limit your ability to perform at your best. Research has even shown that stress can trigger or aggravate several conditions and impair the functioning of different body systems There are so many things that can trigger the fight-or-flight response, which is your body's natural reaction to stress. When something or someone triggers the stress response, your body goes into immediate action to either confront the threat or flee.

Physically, when you feel stressed, what you're feeling is your nervous system signaling a flood of hormones to be released from your adrenal glands, such as cortisol (the stress hormone) and epinephrine (adrenaline). Adrenaline is responsible for the physical symptoms you experience, such as a rapid heartbeat. (Pugle, 2021)

Types of Drugs

Drugs under international control include amphetamine-type stimulants, coca/cocaine, cannabis, hallucinogens, opiates and sedative-hypnotics, Countries have decided to control these drugs because they pose a threat to health. Physicians have long recognized that different types of drugs affect people differently. Nonetheless, drugs may be categorized or classified according to certain shared symptomatology or effects. The DRE categorization process is premised on these long-standing, medically accepted facts. DRES classify drugs in one of seven categories: central nervous system (CNS) depressants, CNS stimulants, hallucinogens, dissociative anesthetics, narcotic analgesics, inhalants, and cannabis.

1. Legal Drugs

Drugs are chemicals that are known to change the way a body functions. People take them when they are ill and when the doctor prescribes them these medicines. Medicines are legal when they are taken in proper doses and when doctors prescribe them. However, drug abuse is termed illegal. People indulge in an illegal act when they sell or buy and possess and consume drugs banned in a country. Tobacco and alcohol are two drugs that are legal in most countries.

2. Illegal Drugs

Whenever we think or hear of the phrase illegal drugs, images of marijuana, charas, LSD, and other psychotic and hallucinogenic come across our minds, Cocaine, heroin, Cannabis, etc. are some of the popularly known illegal drugs. However, abuse of legal drugs is also considered illegal in many jurisdictions. Illegal drugs or controlled drugs carry penalties for consumption and even possession. There are classes of these drugs with different penalties for different classes of different drugs. Thus, all drugs that are banned or prohibited by law in a country can be considered illegal. One found in possession or dealing with these drugs has to face legal proceedings with a possible prison sentence.

Conclusion

The study demonstrates that individuals with higher stress vulnerability are more likely to develop negative attitudes toward substance abuse, while those with healthier coping mechanisms tend to exhibit more positive attitudes. These insights underscore the importance of addressing stress management strategies and promoting healthy attitudes as essential components in preventing substance misuse and fostering overall well-being. Further research is warranted to explore additional factors that may influence this dynamic relationship.

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Dyadic Adjustment among Spouse of Individuals Having Chronic Diseases

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Abstract

The prime objectives of the study were to explore dyadic adjustment and resilience among spouses of individuals having a chronic disease and also to analyse the differences between socio-demographics. The sample was selected by using a convenient sampling method (N=200). The tools used were self-prepared socio-demographic data sheet and a Revised Dyadic Adjustment Scale and resilience scale. The obtained data was analyzed using the SPSS tool and conducted 't' test, ANOVA, and Correlation. The study found that there is a significant difference in the dyadic adjustment and resilience of spouses of chronic diseases based on some demographic factors such as gender, type of family, occupation, economic status, and income. Further, it revealed that dyadic adjustment was more common in female spouses living in the nuclear family. And also resilience was higher in low economic status with low income of daily wage occupations. Moreover, age was not related to dyadic adjustment and resilience. Any type of changes in age did not affect the dyadic adjustment and resilience of spouses having chronic diseases.

Keywords: Diseases, Cancer, Chronic illness

Introduction

In our modern world, with the advances in science and technology, and the hustle and bustle of daily life, there has also been an increase in lifestyle and stress-related illnesses. Long working hours, productivity stresses, and the competition for scarce resources have led to an increase in stress that people face. Stress, coupled with a more sedentary lifestyle, has contributed to a boom in stress and lifestyle-based illnesses (World Health Organization, 2018; Conner & Norman, 1998). Chronic Illness and Chronic Disease are two distinct terms; however, in practice, are used interchangeably. Chronic diseases are based on biomedical disease classification, whereas chronic illnesses are subjective experiences of living with that disease (Martin, 2007). Overall, a chronic illness or disease has no complete cure; it can only be controlled and is long-standing in nature. Literature suggests that chronic illnesses account for 60% of deaths under the age of 70, with 80% occurring in low and middle-income countries (World Health Organization, 2005; 2015). Cardiovascular diseases account for almost 17.5 million deaths yearly, followed by cancers at 8.2 million, respiratory diseases at 4 million, and diabetes at 1.5 million deaths (World Health Organization, 2015; Mozaffarian et al., 2014). The World Health Organization (2018) reported 57 million deaths globally in 2016. Of those total deaths, 31% were caused by cardiovascular disease, 16% by cancers, 7% by chronic respiratory disease, 3% by diabetes, and 15% were other non-communicable diseases. In 2016, it was seen that 71% of all deaths in the world were from Non-Communicable Diseases. It is estimated that between the ages of 30 to 70, there is a 26% chance of dying from the four major categories of non-communicable diseases (World Health Organization, 2018; Riley & Cowan, 2014).

Chronic Illnesses

Chronic Illnesses could be communicable or non-communicable, are long-lasting; and require individuals to live life and cope with the disorder. It may include unpleasant sensations as well as social stigmas attached to it (Martin, 2007; College of Family Physicians of Canada, 2006; Walker, 2001). Cluff (1981), summarised chronic illnesses as "a condition not cured by medical intervention, requiring periodic monitoring and supportive care to reduce the degree of illness, maximize the person's functioning, and their responsibility for self-care" (Lubkin et

al., 2006). In 2001, chronic diseases contributed to about 60% of deaths. In 2016, it contributed to 71% of deaths and 46% of the global burden of disease (World Health Organization, 2002; 2003; 2018). Obesity and diabetes already affect a huge proportion of the population and have also started to appear much earlier in life. Developing countries are suffering from high levels of health problems, much of which are related to chronic diseases. Of all deaths worldwide due to chronic diseases, 79% occur in developing countries (World Health Organization, 2002; 2003). By 2025, the number of people in developing countries with diabetes will rise to an estimated 228 million (World Health Organization, 2001; 2003). On a global level, developing countries will account for 60% of the total burden of Chronic diseases. In India and China, the incidence and prevalence of cardiovascular diseases are higher than in all the economically developed countries combined (WorldHealth Organization, 2002; 2003; 2018; Mozaffarian et al., 2014). India has a unique problem, a combination of both communicable diseases and Chronic diseases. All prediction nonetheless points to the fact that communicable diseases will continue to occupy a critically important position (Lopez et al., 1996; WHO, 2003). Reports from India suggest that the number of deaths due to chronic diseases has been steadily rising (Mohan, 2014; Patel, 2011; Mohan, 2011; World Health Organization, 2005). The World Health Organization (2018) reported 95,69,000 deaths in India in 2016. Of those total deaths, 27% were caused by cardiovascular disease, 11% by chronic respiratory disease, 9% by cancers, 3% by diabetes, and 13% were other Non-communicable Diseases. In 2016, it was seen that 63% of all deaths were from Non-Communicable Diseases, which is higher than the 60% reported by the World Health Organization in 2014 (World Health Organization, 2018, 2014; Riley & Cowan, 2014)

Diabetics

Diabetes is the most common chronic illness, affecting almost 30 million people worldwide (Gale & Anderson, 1998). The pancreas secretes insulin, which controls blood glucose levels, disruption which results in diabetes. High blood sugar levels (hyperglycaemia) lead to diabetes mellitus (DM). There are two main forms of this: Type I diabetes or Insulin-Dependent Diabetes Mellitus (IDDM) and Type II diabetes or Non-Insulin-Dependent Diabetes Mellitus (NIDDM) All forms of DM are characterised by hyperglycaemia and disturbances in the metabolism of carbohydrates, Fats, and proteins, related to deficiencies of insulin action and/or secretion (Forshaw, 2003; Bradley et al., 1998). Presenting symptoms of diabetes include fatigue, unexplained weight loss, extreme thirst, recurrent infections, unexplained itchiness and excessive urination, and recur if symptoms are left uncontrolled (Bradley et al., 1998). Chronic complications from uncontrolled diabetes include microvascular complications of retinopathy (leading to blindness and nephropathy (leading to renal failure), as well as macrovascular complications (heart disease and stroke). Other complications of autonomic neuropathy (damage to the nerves that control autonomic functions like heart rate, blood pressure, sweating, bowel and bladder functioning) and peripheral neuropathy (damage to the peripheral nerves, causing weakness, numbness, lack of sensations, or pain), as well as impotence, is seen in 40% of diabetics develop diabetic neuropathy, affecting kidney function. Damage to the kidney's filtration system leads to complete failure of the kidneys called End-Stage Renal Disease (ESRD), which requires continuous dialysis or even kidney Transplants (Mayo Clinic, 2016). Diabetes involves a great deal of self-management, taking control, and making necessary lifestyle changes to keep diabetes in check. Lifestyle modification is challenging. The dangers of failing to follow self-care and self-treatment regimes are not immediate and may lead to risks of Neuropathy and Nephropathy, which could show up years later (Forshaw, 2003)

Coronary heart disease

Coronary heart disease (CHD) / ischemic heart disease / atherosclerotic heart disease refers to the hardening of arteries due to clumps of fat called plaques building up inside the arterial

walls. These make the arteries less elastic and narrower, restricting blood flow. Ischemic heart disease results from coronary atherosclerosis (Forshaw,2003). Myocardial ischemia is insufficient blood flow to cardiac tissue. Ischemia may be accompanied by chest pain called angina pectoris. Repeated or severe myocardial ischemia predisposes individuals to life-threatening disturbances in the cardiac rhythm (Arrhythmias), which result in sudden cardiac death. Hypertension is an increase in blood pressure (BP) beyond normal limits, causing stress on the body as well as on the arterial walls, predisposing people to myocardial infarctions (MI), sudden cardiac death, and cerebrovascular accidents (CVA) or strokes. A heart attack, or myocardial infarction (MI), results when cardiac tissue dies because of either a complete blockage of the artery or prolonged or severe ischemia (Forshaw, 2003; Krantz & Lundgren, 1998). Risk factors for CHD include smoking, eating high-fat foods, hypertension, high Lower-Density Lipoprotein (LDL) cholesterol and low levels of low-density lipoprotein (LDL) cholesterol, diabetes, obesity, and a sedentary lifestyle. More risk factors increase the risk of CHD. Medication, surgery and lifestyle change could help to lower the risks of CHD (Forshaw, 2003; Krantz& Lundgren, 1998). Chronic stress, mental, physical, or emotional stress plays a role in CHD by contributing to changes in blood pressure. Excessive reactions to stress are direct risk factors. How one interprets and responds to stress mediates the effects of stress. Social support has a moderating effect. Chronic stress, low social support, and high levels of anger are potential triggers for CHD (Forshaw, 2003; Krantz& Lundgren, 1998). Personality traits, such as hostility and anger, are also risk factors for CHD. Type-A behaviour pattern (TABP) characterised by extreme competitiveness, impatience, and being on the go was thought to be correlated with CHD. However, recent studies report that hostility, which is basic anger at people and things, and an inclination to dislike others, is a better predictor of CHD (Forshaw, 2003; Krantz & Lundgren, 1998).Depression is a poor prognostic factor. The presence of depression is associated with poorer psychosocial rehabilitation and increased morbidity. Depression leads people to “give up”, reducing compliance with medication, exercise and essential lifestyle changes increasing the probability of a cardiac event (Krantz & Lundgren, 1998)

Cancer

Cancer is the growth of uncharacteristic, abnormal cells that do not follow the normal cell cycle, multiply faster, and grow in a disorganized manner. Cancer cells harm the surrounding tissue and can spread to other body parts. Malignancy results in the formation of a mass or a tumour and, if not halted, can metastasize or spread to other body parts. Cancer eventually grows to such an extent that the system it affects cannot perform its function, eventually leading to death (Forshaw, 2003; Nezu et al., 2003). Not everyone diagnosed with cancer dies from it. When not terminal, it is a chronic illness, as it may take years to be successfully treated and may recur (Forshaw, 2003).Depending on their personalities, patients being diagnosed may experience an array of emotions. People’s emotions and cognitions affect the course of the illness. Evidence shows that Type C personalities who repress emotions, tend to be over-cooperative, have lower self-image and social support and do not forgive easily, are more prone to developing cancer (Temoshok, 1987). Bottling up feelings can be associated with cancer development through psycho-neuro- immunology, where holding on to stressful emotions suppresses the immune system and creates an environment where the body may not be able to deal with rogue cells that potentially could be cancerous (Forshaw, 2003). Post-treatment relapses can occur. The fear of re-experiencing the same tests and treatments creates distress. The distress caused by cancer recurrence is far more significant than the distress created by the original diagnosis (Forshaw, 2003).Behaviours Influencing Health, Morbidity, and Mortality Health behaviour can be any activity undertaken to prevent or detect diseases and/or improve well-being (Conner & Norman, 1996b). Behaviours may include health screenings, compliance with medical advice, as well as healthy lifestyle choices in terms of diet, exercise, and reducing

smoking and alcohol (Conner & Norman, 1998). Several lifestyle changes like not smoking, moderating alcohol intake, sleeping properly, exercising regularly, and eating healthy are associated with lower morbidity and higher chances of long-term survival (Belloc, 1973; Belloc & Breslow, 1972; Breslow & Enstrom, 1980). Smoking : Smoking is closely related to overall long-term negative outcomes for health. Doll et al. (1994) and Friedman et al. (1979) found high coronary heart disease (CHD) morbidity and mortality rates for smokers, with a strong positive correlation between the number of cigarettes smoked per day and the incidence of CHD (Friedman et al., 1979; Conner & Norman, 1998). Smoking is linked to lung, throat, stomach, and bowel cancer. Reduced lung capacity may increase the risks of bronchitis (Royal College of Physicians, 1983). In India, nearly half of cancers among males and one-fourth of cancers among females are tobacco-related (Ministry of Health and Family Welfare, 2010). In 2010, the Government of India reported that 34.6% of individuals above fifteen use tobacco. 14% of adults in India smoke. 76% smoke daily. In 2010, it was estimated that smoking caused 9,30,000 adult deaths in India (Jha et al., 2008). Diet: Sedentary lifestyles, excessive calorie consumption, and inadequate exercise have made obesity a prominent health issue. Diet plays a major role in cardiovascular diseases (CVDs), diabetes, obesity, and cancer (Conner & Norman, 1998). The prevalence of hypertension and type 2 diabetes in adults within India has increased significantly from 17.2% to 29.2% in urban (Aguirre, 2013; Anchala et al., 2014; Ministry of Women and Child Development Government of India, 2015). The prevalence of obese individuals increased from 4% to 15% (Kalra & Unnikrishnan, 2012; Ministry of Women and Child Development Government of India, 2015). Children are increasingly diagnosed with Type 2 diabetes, which is usually common in adults (Dabelea, 2014; Ministry of Women and Child Development Government of India, 2015). About 36 % of girls and 22% of boys in post-pubescent children had Insulin resistance (Misra et al., 2004; Ministry of Women and Child Development Government of India, 2015). Exercise: Despite the known benefits of exercise, a major proportion of the population tends to lead a lifestyle (The General Household Survey, 1989; The Allied Dunbar Fitness Survey, 1992). Exercise lowers blood pressure, reduces cardiovascular mortality and morbidity, increases metabolism (Oberman, 1985; Blair et al., 1984; Lennon et al., 1983; Rosenthal et al., 1983), as well as improves mood, and self-esteem, and reduces levels of anxiety and stress (Singer, 1992; Brown, 1991; Sachs, 1984; Folkins & Sime, 1981).

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Career Difference among Adolescents

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Abstract

The primary objective of the study was to evaluate the career conflict among adolescents in Idukki district, Kerala. The study was conducted on a group of 300 adolescents including both males (N=132) and females (N=168). Convenient sampling method was used to select sample. Present study tried to find out any significant difference in adolescents career conflict with respect to their demographic details. The researcher used self-prepared questionnaire and Career conflict scale (2015) for data collection. The data was collected by using survey method. The statistical procedure used to analyze the acquired data were 't' test, ANOVA and correlations. The study found that there is significant difference in career conflict among adolescents based on certain demographic factors such as age group it is higher among age group 14-15 as compared to age group 16-18, gender which is higher among males as compared to females, type of school which is higher among the students of government school as compared to students of CBSE, standard of studying is higher among the students of 9th standard as compared to 10th and +2, place of residence is higher among students residing at rural area as compared to that of urban area. Further it revealed that adolescents' career conflict did not vary on the basis of type of family, religion, birth order, fathers and mothers educational qualification. No relationship was found in career conflict and age.

Keywords: Career, Adolescent, CBSE

Introduction

Career choice is one of the supreme significant decisions in an individual's life but, there are Countable factors that put an influence on the career choice of adolescents. These factors may include personal (self) and environmental factors, gender roles, academic background, peer pressure, parental influences, interest and many more which create conflicts for an adolescent to choose the most suitable career. Amir & Gati (2006) explored that making career decisions is not an easy task. Indeed, career decision making difficulties are among the most prevalent vocational problems of individuals. Adolescence is that period of life when a student must take fair decisions of vocational choices. It is a period of major turning in life. The career will depend upon the subjects selected at this level. Choice of career is the most crucial stage for adolescents. Decisions about career which are wrongly taken may badly affect the future life (physically and mentally) of an adolescent. In Chinese communities, the influence of family in career decision and career development is critical and career choices as well as work related issues are inseparable from relationships, especially in Asian communities (Young et. al., 2003). Abundant influences of family which consists of expectations of family, family support, family responsibilities and commitments, family as a safe in-group and friction between family on career decision making and shaping the values (Fouad et. al., 2008). Adolescents perceive a substantial number of barriers to career goal attainment, including ethnic and sex discrimination, financial problems, family attitudes, social support, perceived lack of ability and lack of interest (Brown, et. al., 2012). Adolescents believe that the career-related barriers currently exist or that may be encountered in the future are not necessarily based on information. Several social science scholars have investigated the influence of socio-economic status on the occupational/career decision of the youth. These studies consistently found that the socio-economic status of family has small but significant (Marjoribanks, 2002) to a large (Schoon & Parsons, 2002) effect on the career choices of the adolescents.

Conclusion

The present finding was contradictory to the study of Smith (1999). The study revealed that there is significant difference in career conflict among adolescents based on age group. Specifically, older adolescents (ages 17-19) reported higher levels of career conflict compared to younger adolescents (ages 14-16). The findings suggested that age could play a role in shaping career-related challenges and decision-making during adolescence. Secondary school is the first step of choosing a career path in a student's life. This decision making requires in-depth research and understanding of various options available. At this age of adolescences, students lack maturity, so a constant support, interaction and guidance is required for them to make a sound career decision. It is highly necessary to provide the students with an accepting and open atmosphere, so that it becomes easy for them to know and understand various fields before coming to any conclusion. Till this age students are usually spoon fed and are dependent on the surrounding like family and school but at this stage it is highly advisable that students do good research and not just rely on the surrounding. It is important for the students to acknowledge their abilities and interests while making the decisions. Not only the students but the teachers and the parents should acknowledge the interests and abilities of the student before influencing them about their preferences related to the student's career. In this era of education there are a lot of options available and many career opportunities coming up, making it difficult for students to choose a particular field of interest.

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Emotional Competence among Urban People

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Abstract

Emotional competence among urban people, similar to any other demographic group, is important for overall well-being, effective social interactions, and successful navigation of the challenges and stresses that urban environments often present. Here are some key considerations regarding emotional competence among urban residents.

Keywords: Emotion, Urban People, Emotional Awareness

Introduction

Promoting emotional competence in urban populations may involve community programs, workshops, and educational initiatives that focus on emotional intelligence, stress management, and interpersonal skills. Additionally, employers in urban areas can play a role by fostering emotionally intelligent workplaces that support employees' well-being. Ultimately, emotional competence contributes to individuals' overall quality of life in urban environments by helping them navigate the unique challenges and opportunities presented by city living.

Emotional Awareness: Urban dwellers should be able to recognize and understand their own emotions. The fast-paced and often stressful nature of urban life can lead to a wide range of emotions, and being aware of these emotions is essential for managing them effectively.

Stress Management: Urban areas can be associated with high levels of stress due to factors like traffic, noise, pollution, and the demands of work and daily life. Emotional competence involves the ability to manage stress through healthy coping mechanisms such as mindfulness, relaxation techniques, or physical exercise.

Adaptability: Urban environments are dynamic and constantly changing. Emotional competence includes the capacity to adapt to new situations, handle uncertainty, and recover from setbacks or unexpected challenges.

Empathy and Social Skills: In urban settings, individuals often interact with a diverse range of people from various backgrounds. Emotional competence includes the ability to understand and empathize with others' emotions and to communicate effectively in diverse social situations.

Resilience: Urban living can be intense, and emotional competence contributes to resilience in the face of adversity. The ability to bounce back from difficult experiences is valuable for urban residents dealing with the pressures of city life.

Relationships: Building and maintaining healthy relationships is crucial in urban environments. Emotional competence helps people navigate the complexities of personal and professional relationships, resolve conflicts, and foster positive connections.

Self-Regulation: The temptations and distractions of city life, such as nightlife and consumerism, may require self-regulation. Emotional competence includes the ability to make responsible decisions and avoid impulsive behaviors.

Community and Support Networks: Urban dwellers can benefit from strong support networks. Emotional competence involves seeking and offering support to others and fostering a sense of community in urban settings.

Mental Health: Emotional competence plays a significant role in mental health. In urban areas, where access to mental health services may be more readily available, individuals should be encouraged to seek help when needed and to maintain positive mental well-being.

Cultural Competence: In diverse urban environments, cultural competence is an important aspect of emotional competence. Understanding and respecting different cultural norms and

values can enhance relationships and reduce misunderstandings

Time Management: Urban life often involves juggling various responsibilities and commitments. Emotional competence includes effective time management and the ability to prioritize tasks to reduce stress and increase productivity.

Environmental Awareness: Urban residents should also be aware of the impact of their emotions on the urban environment, including issues related to pollution, noise, and community well-being. Emotional competence can lead to more responsible and sustainable behaviors.

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Swetha Joy*, Dr. Justine Joseph^{1*}, Mr. Manu Kurian^{1*}, Ms. Droupathy Devi C G^{1*} & Dr. Mathew Kanamala,

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Abstract

The primary objective of the study was to evaluate the conflict resolution and emotional maturity of young adults in Kerala. The study was conducted on a group of 250 young adult including both males (N=100) and females (N=150). A convenient sampling method was used to select the sample. The present study tried to find out any significant difference in young adults' emotional maturity and conflict resolution with respect to their demographic details. The researcher used a self-prepared questionnaire, conflict resolution scale, and emotional maturity scale for data collection. The Conflict Resolution Questionnaire was developed by McClellan (1997) and the Emotional Maturity Scale was developed by Singh & Bhargava (2010). The data was collected by using the survey method. The statistical procedures used to analyse the acquired data were 't'-test, ANOVA, and correlations. The study found that there is a significant difference in the emotional maturity of young adults based on gender and marital status. And there is a significant difference in conflict resolution of young adults based on qualification. Further, it revealed that conflict resolution and emotional maturity of young adults did not vary on the basis of age group, residential area, family type, handling emotions, taking initiative and balanced life. The study also revealed that conflict resolution and emotional maturity have no relation with age, which means age is not an accurate indicator for conflict resolution and emotional maturity of young adults.

Introduction

Conflict arises when individuals or groups encounter goals that both parties cannot obtain satisfactorily. According to David. L. Austin (1972), "It can be defined as a disagreement between two or more individuals or groups with each individual or group trying to gain acceptance of its view or objective over others". Conflict comes from the Latin word for striking, but it isn't always violent. Conflict can arise from opposing ideas. In simple words "Conflict is the perception of differences of interests among people (L. Thompson, The Mind and Heart of the Negotiator, 1998) Conflict will also be found in society, as the basis of conflict may be personal, racial, class, caste, political, or international. A clash of interests, values, actions, or directions often results in conflict. Conflict refers to the existence of that clash. Psychologically, conflict exists when the reduction of one motivating stimulus involves an increase in another so that a new adjustment is demanded. Even when we say there is a potential conflict, people are implying that there is already a conflict of direction even though a clash may not yet have occurred. Conflict may also be emotional, intellectual, and theoretical in which case academic recognition may or may not be a significant motive. Conflict is a common inevitable part of life. It exists because people don't always get along or agree.

A state of conflict is characterised by the following features:

1. It arises when two or more individuals or groups think differently.
2. It is caused by different perceptions that different individuals hold about the same object or goal.
3. While A thinks a course of action is right, B does not hold the same opinion. This leads to conflict of opinion on the same subject.
4. It usually arises because of the scarcity of resources. When people compete for scarce

resources, they hold different views about how best individuals can utilize those resources to achieve the organisational goals.

Interpersonal and other forms of conflicts are an essential, natural, and unavoidable human phenomenon in both homogeneous and diverse societies as daily life increasingly brings individuals with different backgrounds, cultures, values, morals, beliefs, ethics, personalities, and objectives into contact with another. (Ghaffar 2009: Turnukluet al 2009) This diversity often leads to conflicting solutions by and between individuals, organizations, entities, and nation-states. In the context of conflict Dogan (2016) points out that the occurrence of conflicts in every environment in which humans are present appears to be quite normal. Getting involved in conflicts can happen from time to time, but knowing how to handle those conflicts can be difficult, which is why it is so important to have strong conflict resolution skills.

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Employees' Mental Health among Working Women

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Abstract

The primary objective of the study was to evaluate the emotional violence and employees' mental health among working women. The study was conducted on a group of 260 working women including both Married (N=100) and Unmarried (N=160) Convenient sampling method was used to select the sample. The present study tries to find out any significant difference between emotional violence and employees' mental health with respect to their demographic details. The tools used were self self-prepared questionnaire, an emotional violence scale, and an employee mental health scale. The emotional violence scale was developed by Dr. Mrs. S.K Bawa and Mrs. Sumanpreet Kaur and the employee's mental health scale was developed by. The data was collected by using the survey method. The statistical procedures used to analyse the acquired data were the test, ANOVA, and correlations. The study found that there is a significant difference in emotional violence and employee mental health among working women on the basis of age group, type of organisation, marital status, place of residence, working experience, and occupation. The study also reports that there is a significant difference in emotional violence on the basis of religion. The study shows there is a significant difference in employee's mental health on the basis of monthly income. Further, it revealed that emotional violence and employees' mental health did not vary on the basis of education, residential area, and number of siblings. The study also revealed that emotional violence is negatively related to age, which means that as age increases, emotional violence decreases. An employee's mental health is positively related to age, which means that as age increases, the employee's mental health also increases.

Introduction

Violence against women and the threat of violence are the main barriers to women's empowerment and equal participation in society. However, they often go unnoticed and undocumented and therefore unresolved. When stress and violence increase in society in general, as they have in the transition region, women's safety in the home, workplace, and community is often seriously affected. The UN Declaration on Violence against Women, adopted in 1993, defines violence against women as encompassing "any act of gender-based violence that results in or is likely to result in, physical, sexual or psychological harm or suffering to women, including threats of such acts, coercion or arbitrary deprivations of liberty. Whether occurring in public or private life". Violence is considered as an action with observable physical results as the definition that comes to mind first, the limits of the definition are much wider. Studies have shown that "violence" I perceived as physical violence (Saban and Akbulut, 2012; Yurtal and Artut, 2008). There are psychological, sexual, economic, cultural, and social dimensions of violence as well as the physical dimension (Güleç et al., 2012; Yildiz and Sağlam, 2017). According to the definition of the World Health Organization, violence is "the intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, that either result in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment, or deprivation" (WHO, 2002). Violence is described as the situation by Karatas and Kiliçarslan (2013) in which individuals sometimes feel in the form of pressure on the individual, impulsively or indirectly, whose physical and psychological effects cannot be determined. In other words, violence is the various pressures that are felt directly and in a concrete way, whose physical and psychological effects, on individuals cannot be measured exactly. The causes of violence are diverse and

multidimensional. Cultural and social norms also support violence. The characteristics and pressure of the social structure are accepted as important elements shaping violence (Shonkoff and Garner, 2012, WHO, 2010). Violence exposes women to many risks some of which are life threatening (Merriam 2011). The most severe ones include death, severe physical injuries, mental illness, loss of income and property, and separation or divorce. Loss of access to health services can cause death or long-term effects following a small injury or illness that has not been treated (Calves 2009). When exposed to violence women develop long-term and short-term post-traumatic stress disorders (PTSD) which is a severe reaction to trauma. Trauma may lead to miscarriage in some cases and most of all psychological issues (Black, 2011). United Nations Commission [UNC] (1994). Declaration on the Elimination of Violence against Women (EVAW), defines violence as any act of gender based violence (GBV) that causes physical, sexual, or mental injury. According to Merriam (2011), household violence is a pattern of behavior in a household used to gain power and control over a partner. Abuse can be physical, sexual, emotional, and economic, or a combination of all of them. Social empowerment is a way of developing a sense of autonomy and self-confidence and being able to act individually and in groups to change social relationships that exclude women and keep them in poverty (Calves, 2009). To empower women, violent acts need to be reduced and enhance their capacity to decide for themselves (Calves, 2009). Empowering women and making them autonomous go hand in hand in improving their social, economic, and political status which is necessary for sustainable development in all areas of life.

According to the World Report on Violence and Health (WHO, 2002), violence was classified into three groups self-directed violence, interpersonal violence, and collective violence. It is an inevitable fact that these three different forms of violence are closely related to each other. The society consists of individuals. The individual is affected by society and the society from the individual. In addition, individuals are emotionally affected by all kinds of violence. Although the emotional violence experienced by the individual is often ignored, it has implications not only for the individual but also for the whole society.

Emotional Violence

Emotional violence is a form of aggression that involves manipulating, intimidating, or undermining an individual's sense of self-worth and dignity. Emotional violence mostly manifests itself in the form of humiliation, yelling, calling insufficient, jealousy, intimidation (Kocacik and Caglayandereli, 2009). According to Vissing et al. (1991), all kinds of situations such as humiliation, disrespect, discrimination, ridicule, obstruction, display, forcing (to a job) that affect the person's values, qualifications, self-confidence, and mental structure are describe as psychological violence. According to Özgentürk et al. (2012), all kind of action is emotional violence applied to isolate one from society to control or punish, to exploit and humiliate them emotionally, to conduct systematic psychological pressure against them. Iyaloğlu (2006) defines it as all of the acts impairing mental health implemented without physical pressure that are neglecting emotional needs such as affection and support, denying beliefs attributed to religion, race, language, cultural group, or history or forcing to act against them, humiliating and hurting pride in front of others, threatening physical violence, restricting the freedom of the person to express their feelings and thoughts, prohibiting conversation and communication with relatives, restricting the freedom to dress as desired. Cetiner (2006) reports that there is a close relationship between psychological/emotional violence and physical violence, and the degree of physical violence is directly related to the degree of psychological/emotional violence, and although physical violence decreases, psychological/emotional violence usually continues and it continues to be as a threat of the physical violence. For this reason, approximately three-quarters of women who experience physical violence feel that emotional violence has a more negative effect than physical violence. Şahin and Turk (2010) state that

psychological violence is more dangerous than physical violence because psychological violence may have permanent psychological and psychosomatic effects. Westhues (2002) emphasizes that violence is experienced at a more intense level than it is known, or that a greater number of people than it is anticipated are exposed to violent attitudes and behaviors with them being aware or not. Although there are no physical symptoms, emotional violence is one of the most difficult to treat health problems. If emotional violence is continuous, the survivors can develop long-lasting negative impacts on their physical and mental health (Shagun Sharma2021). Across the world, women are subjected to different forms of violence and discrimination. Of all the forms of violence, one is an underestimated form, Emotional Violence. As per UN Women, "Emotional violence includes undermining a person's sense of self-worth through constant criticism; belittling one's abilities; name-calling or other verbal abuse; damaging a partner's relationship with the children, or not letting a partner see friends and family." Emotional violence is different but closely related to psychological violence which is defined as, "Psychological violence involves causing fear by intimidation; threatening physical harm to self, partner or children; destruction of pets and property: 'mind games'; or forcing isolation from friends, family, school, and/or work," by UN Women. Emotional or psychological abuse includes any act intended to denigrate, isolate, or dominate a partner. Emotional abuse is intended to control victims by limiting resources and social contacts; creating actual and emotional dependence; and reducing victims' sense of self-worth. Competence, and value. Emotional maltreatment can include verbal abuse, such as insults, criticism, ridicule, name-calling, discounting, and discrediting, isolation of the victim; control of social and family contacts; denial of access to finances or transportation; demonstration of extreme jealousy and possessiveness; the monitoring of behavior, accusations of infidelity; threats of harm to the victim's family, children, or friends; threats of abandonment or infidelity; and damage to or destruction of personal property. Emotional abuse can happen to anyone at any time in their lives. Women, children, teens, and adults all experience emotional abuse. Emotional abuse can have devastating consequences on relationships and all those involved. Just because there is no physical mark doesn't mean the abuse isn't real and isn't a problem or even a crime in some countries. "Emotional abuse is any kind of abuse that is emotional rather than physical. It can include anything from verbal abuse and constant criticism to more subtle tactics, such as intimidation, manipulation, and refusal to ever be pleased. Emotional abuse can take many forms. Three general patterns of abusive behavior include aggressing, denying, and minimizing'." Even though there is no established definition for emotional abuse, emotional abuse can possess a definition beyond verbal and psychological abuse. Blaming, shaming, and name-calling are a few identifiers of verbal abuse which can affect a victim emotionally. The victim's self-worth and emotional well-being is altered and even diminished by the verbal abuse and the result is an emotionally abused victim. The victim may experience severe psychological effects. This would involve the tactics of brainwashing, which can fall under psychological abuse as well, but emotional abuse consists of the manipulation of the victim's emotions. The victim may feel their emotions are being affected by the abuser so much that the victim may no longer recognize what their feelings are about the issue/s the abuser is trying to control. The result is the victim's self-concept and systematically taken away. Independence is systematically taken away.

JOSEPHINE RESEARCHER

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Social Emotional Competency among Adolescence

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Abstract

The primary objective of the study was to evaluate the social-emotional competency of adolescents in Kerala. The study was conducted on a group of 327 including both males (N=265) and females (N=62). A convenient sampling method was used to select the sample. The present study tried to find out any significant difference in teachers' social-emotional competence with respect to their demographic details. The researcher used self-prepared questionnaire and Teachers' Social Emotional Competency Scale (2008) developed by W.L. Nonglait and E.B. Myrthong for data collection. The data was collected by using the survey method. The statistical procedures used to analyse the acquired data were the 't' test, ANOVA and correlations. The study found that there is significant difference in social social-emotional competency of adolescents based on certain demographic factors such as gender, residential area, marital status, monthly income etc. Further it revealed that the adolescence social emotional competency did not vary on the basis of total experience, religion, qualification and the number of children. The study also revealed that the social-emotional competency of teachers related to age, as the age increased the social-emotional competency of adolescence became reduced.

Introduction

Promoting social-emotional competency among adolescents requires a collaborative effort involving parents, educators, communities, and the adolescents themselves. It's a lifelong skill set that can positively impact their personal and academic success, as well as their overall happiness and well-being. Social-emotional competency among adolescents refers to their ability to understand, manage, and express their emotions effectively, as well as their capacity to form and maintain positive relationships with others. It plays a crucial role in their overall well-being, academic success, and prospects.

Here are some key aspects and strategies for promoting social-emotional competency among adolescents

1. Emotional Awareness: Adolescents should be encouraged to identify and understand their emotions. This involves recognizing various emotions (e.g., happiness, anger, sadness), understanding the triggers for these emotions, and being able to differentiate between different feelings.
2. Emotion Regulation: Adolescents need to develop strategies to manage their emotions constructively. This includes deep breathing exercises, mindfulness practices, and problem-solving techniques. Teaching them how to cope with stress and disappointment can be particularly beneficial.
3. Empathy: Adolescents should be encouraged to understand and share the feelings of others. Developing empathy helps them build better relationships and navigate conflicts more effectively. Activities like volunteering or community service can promote empathy.
4. Interpersonal Skills: Adolescents should learn how to communicate effectively, resolve conflicts, and build positive relationships. These skills include active listening, assertiveness, and negotiation. Group activities and team sports can help foster these skills.
5. Self-esteem and Self-confidence: Helping adolescents develop a positive self-image is essential for social-emotional competence. Encourage them to set realistic goals, celebrate their achievements, and provide positive reinforcement.

6. **Resilience:** Teach adolescents how to bounce back from setbacks and adversity. Resilience involves problem-solving skills, adaptability, and a growth mind-set (the belief that abilities and intelligence can be developed through effort).
7. **Social Awareness:** Adolescents should be encouraged to understand and appreciate diversity, cultural differences, and social norms. This fosters respect and inclusivity, which are important aspects of social-emotional competence.
8. **Positive Decision-Making:** Adolescents need to learn how to make responsible and ethical decisions. Discussing real-life scenarios and their potential consequences can help them develop good judgment.
9. **Peer Support:** Encourage adolescents to seek help and support from trusted peers when needed. Peer relationships can have a significant impact on their social and emotional development.
10. **Adult Mentoring:** Provide opportunities for adolescents to connect with positive adult role models, such as teachers, coaches, or community leaders. These relationships can offer guidance and support.
11. **Family Involvement:** Engage parents and caregivers in promoting social-emotional competency. Schools and communities can offer workshops and resources to help parents support their adolescents' development.
12. **Social-Emotional Learning (SEL) Programs:** Implement SEL programs in schools that explicitly teach these skills through structured curricula and activities. CASEL (Collaborative for Academic, Social, and Emotional Learning) provides evidence-based resources for educators.
13. **Assessment and Feedback:** Regularly assess adolescents' social-emotional skills and provide constructive feedback. This can help them track their progress and identify areas for improvement.

JOSEPHINE RESEARCHER

Part II

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Social Emotional Competency among Teachers

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Abstract

The primary objective of the study was to evaluate the social-emotional competency of school teachers in Kerala. The study was conducted on a group of 327 teachers including both males (N= 265) and females (N=62). A convenient sampling method was used to select the sample. The present study tried to find out any significant difference in teachers' social-emotional competence with respect to their demographic details. The researcher used self prepared questionnaire and Teachers' Social Emotional Competency Scale (2008) developed by W.L. Nonglait and E.B. Myrthong for data collection. The data was collected by using the survey method. The statistical procedures used to analyse the acquired data were the 't' test, ANOVA and correlations. The study found that there is a significant difference in the social-emotional competency of teachers based on certain demographic factors such as gender, residential area, marital status, monthly income etc. Further, it revealed that the teacher's social-emotional competency did not vary on the basis of total experience, religion, qualification and the number of children. The study also revealed that the social-emotional competency of teachers related with the age, as the age increased the social-emotional competency of teachers became reduced.

Introduction

Teaching

Teaching has been considered a noble profession since ancient times. Still, it's a noble profession. The teachers are assigned the noble teaching education work which helps in bringing up our future guardians. The quality of education is determined by the quality of the teacher. The main function of a teacher is to create a learning environment in which the learners are motivated to learn. The role and responsibilities of a teacher are infinite and limitless and the success of any educational system depends much on the requisite qualities of a teacher. The teacher is the axis of the education system. Teachers have a tremendous responsibility in shaping the lives of individuals. Teachers aim to build character and inculcate values that enhance the learning capacity of children; and build confidence to be innovative and creative, which in turn will make them competitive. The responsibility of making the nation is on teachers more than the other members of society. In a classroom situation, the teacher imparts the knowledge to his pupil. Each child is guided to develop their peculiar potentialities. Teaching is a mother profession giving birth to all other professions (Chukwuemeke,2007). Teachers should ignite the minds of the young in such a way that throughout life they have a quest for knowledge and a desire to make this world a place to live in (Loomba,2008). His personality has a vital influence on pupils learning manners, behaviour and above all his character and personality. In present Indian society teacher has a very pivotal role to play in the social reconstruction and the transmission of wisdom, knowledge and experience from one generation to another. The emerging Indian society can achieve all-round development with the help of the teacher who acts as a powerful agency in transmitting its cherished values. A teacher is not only a custodian of a nation's values but also an architect par excellence of new values, the teacher can help our country in the process of reconstruction (Unnisa, 2007). Teaching is an activity, which contributes to the natural development of an individual. It involves, "perceiving the process analytically as constituting a host of activity" (Bhattacharya, 1974, p.17). Teaching is a dynamic interplay between teacher and pupil. Therefore, it is expected that every school teacher must have adequate training in teaching skills and its effective implementation. These skills will enhance the classroom interest and active

participation of the students in classroom activities. To deal with the problems of the students of the state, a teacher must also possess social and emotional competence to enable him to sense the slightest changes in the classroom and makeover the teaching strategies accordingly. An emotionally competent teacher is the heart and soul of a successful educational programme. Thus, to identify and develop such characteristics in secondary school teachers, one needs to assess the influence of teachers' Social-Emotional Competency on classroom behaviour. Therefore, the investigation into this area will help teachers in all spheres of life, especially in imparting knowledge and raising the quality of life of young adolescents. Hence, it is justified to investigate the problem to provide factual findings, suggestions and remedial measures for improvement. Dr. Radhakrishnan, former President (1949) rightly noted, "The position of the educator in the community is very important. They act as an advocate of transmittal intellectual traditions and technical skills through generations and help keep the lamp of progress glowing." Therefore, at the public level, educators are the real protectors and preservers of the community. Chapman and Mahlck (1997), Darling-Hammond (1999), Miguel and Barsaga (1997), and Nye, Konstantopoulos and Hedges (2004) highlighted a positive relationship between teacher quality and student accomplishment. If teachers acquire professional competencies, teaching aptitude, and attitude towards teaching and show a great sense of responsibility in their work and if they are enabled and empowered to perform multiple tasks the result would be a high quality of teaching which will eventually lead to nation-building. A competent teacher is identified through his/her transactional phase of teaching and this transactional phase should be interlinked very closely with the students to whom the teacher is imparting teaching (Allen & Valette, 1997; Quist, 2000). Hence, the teacher is the principal agency for implementing educational programmes at various levels. Therefore, teachers have an important and pivotal place in shaping and moulding students and their skills on the right side. Measured in terms of its members, teaching is the world's largest profession. In the 21st century, it was estimated that there were about 80 million teachers throughout the world. Though their roles and functions vary from country to country, the variations among teachers are general greater within a country than they are between countries. Because the nature of the activities that constitute teaching depends more on the age of the persons being taught than on any other one thing, it is useful to recognize three subgroups of teachers: primary school, or school, teachers; secondary-school teachers; and university teachers. Elementary school teachers are by far the most numerous worldwide, making up nearly half of all teachers in some developed countries and three-fourths or more in developing countries. Teachers at the university level are the smallest group. The entire teaching corps, wherever its members may be located, shares most of the criteria of a profession, namely (1) a process of formal training, (2) a body of specialized knowledge, (3) a procedure for certifying, or validating, membership in the profession, and (4) a set of standards of performance—intellectual, practical, and ethical—that is defined and enforced by members of the profession.

A teacher is someone who helps students learn by imparting knowledge to them and by setting up a situation in which students can and will learn effectively. But teachers fill a complex set of roles, which vary from one society to another and from one educational level to another. Some of these roles are performed in the school, some in the community.

Roles and Responsibilities

Mediator of learning: -

A mediator of learning, also known as an instructional mediator or a learning facilitator, is an individual who assists and guides learners in the process of acquiring knowledge, skills, and understanding. The role of a mediator of learning is to support learners in actively constructing their knowledge and making sense of information. The primary responsibility of a mediation of learning is to create an environment that promotes effective learning, engages learners, and facilitates their progress.

Disciplinarian or controller of student behaviour: -

A disciplinarian is someone who enforces discipline or imposes strict rules and regulations to maintain order and control. They are often associated with authority figures such as teachers, parents, coaches, or supervisors who establish and enforce guidelines and consequences to shape behaviour and ensure compliance

Confidants: -

Confidants are individuals who are trusted with personal and confidential information, often serving as trusted friends, advisors, or companions. They are people with whom one can share their thoughts, feelings, and secrets, knowing that they will keep them in confidence and provide support and understanding.

Judge of achievement: -

A “judge of achievement” refers to an individual or entity responsible for evaluating and assessing the accomplishments or performance of others in a particular domain. This role is often associated with competitions, awards, assessments, or evaluations aimed at recognizing and rewarding excellence or progress in various fields such as academics, sports, arts, or professional endeavors.

Public servant: -

A teacher is often regarded as a public servant due to their role in the education sector. As public servants, teachers work for government-funded educational institutions, such as public schools, and their primary responsibility is to provide quality education to students. Here are some key points highlighting the teacher’s role as a public servant: Public Education, Government Employment, Public Accountability, Public Funding, Public Interactions, Civil Service Benefits,

Public Policy and Advocacy:-

Teachers may also engage in public policy discussions and advocate for changes in the education system. They can voice their opinions, propose reforms, and participate in education-related initiatives to improve the quality of education and address societal needs. It is important to note that while teachers are considered public servants, their role extends beyond mere service delivery. They are educators, mentors, and influencers who shape the lives of students and contribute to the overall progress of society.

Community leader: -

Teachers can also serve as community leaders, playing a significant role in shaping and strengthening the communities they work in. Teachers possess unique knowledge, skills, and influence that enable them to serve as community leaders. Their dedication to education and their commitment to the holistic development of students make them valuable contributors to building strong, cohesive communities. As a teacher, one has the opportunity to be a leader in his community.

Here are some ways in which teachers can be community leaders: Role Model:

Teachers often serve as role models for their students and the community at large. They inspire and motivate students to achieve their full potential and act as positive examples of hard work, integrity, and dedication. By embodying these values, teachers can influence and shape the character of the community; Community Engagement: Teachers frequently engage with the local community by participating in community events, volunteering, and collaborating with community organizations. They establish connections between the school and the broader community, fostering a sense of belonging and partnership; Parental Involvement: Teachers play a crucial role in fostering strong relationships with parents and guardians. They communicate regularly with parents, provide updates on students’ progress, and seek parental input on educational matters. By involving parents in their children’s education, teachers strengthen the bond between the school and the community; Advocacy and Empowerment: Teachers can advocate for community needs and concerns, particularly those related to

education. They have first-hand knowledge of the challenges and opportunities within the community and can use their influence to address these issues. By advocating for quality education, equal opportunities, and resources, teachers contribute to the overall development of the community; Community Problem Solving: Teachers can facilitate community problem-solving initiatives by involving students and community members in projects that address local issues. They can organize service-learning activities, encourage civic engagement, and promote active citizenship among students, thereby fostering a sense of responsibility towards the community; Collaboration with Community Organizations: Teachers can collaborate with various community organizations such as non-profits, local businesses, and government agencies, to enhance educational opportunities and resources for their students. By forging partnerships, teachers can create internships, mentorship programs, and career development opportunities, which benefit both students and the community; Bridging Cultural Divides: In diverse communities, teachers can play a pivotal role in promoting understanding, tolerance, and inclusivity. By fostering a multicultural and inclusive classroom environment, teachers encourage respect for different backgrounds, languages, and perspectives. They help bridge cultural divides within the community and promote harmony.

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അങ്ങേക്കു സ്തുതി

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പ്രബന്ധസംഗ്രഹം

ഫ്രാൻസിസ് മാർപാപ്പയുടെ "Laudato Si" അഥവാ "അങ്ങേക്കു സ്തുതി" എന്ന ചാക്രികലേഖനത്തിന്റെ ഭാരതീയ മാനങ്ങളെക്കുറിച്ചുള്ള ഒരു പരിചിന്തനമാണീ ലേഖനം. വരും തലമുറയുടെ ശോഭനമായ ഭാവി നമ്മുടെ കൈയിലാണെന്നു നമുക്കു മറക്കാതിരിക്കാം. നമുക്ക് ചുറ്റും പൂങ്കാവനം ഒരുക്കണമോ അതോ മരുഭൂമികൾ സൃഷ്ടിക്കണമോ എന്ന് തീരുമാനിക്കേണ്ടത് നാം തന്നെയാണ്. "മാനവസേവയാണു മാധവസേവ" എന്ന ബോധ്യത്തോടെ ഭൂമിയിലെ പാവപ്പെട്ടവന്റെ ശബ്ദമാകുവാൻ നമുക്ക് സാധിക്കട്ടെ.

കീലപദങ്ങൾ: അങ്ങേക്കു സ്തുതി, അഥർവ വേദം, ചാക്രിക ലേഖനം

"ഭൂമിദേവി, ഞാൻ നിന്നിൽ നിന്ന് എന്താണോ കുഴിച്ചെടുക്കുന്നത് അത് വീണ്ടും അതിവേഗം വളർന്നുവരട്ടെ എല്ലാം ശുദ്ധീകരിക്കുന്ന ഭൂമി ദേവി ഞങ്ങൾ നിന്റെ മർമ്മഭാഗങ്ങൾക്കോ ഹൃദയത്തിനോ യാതൊരു പരിക്കുമേൽപ്പിക്കാതിരിക്കട്ടെ " അഥർവ വേദം , ഭൂമി സൂക്തം (12.1)

വേദങ്ങളിൽ നാലാമത്തേതായ അഥർവ വേദം 1500 ബി.സി.ക്കും 1000 ബി.സി.ക്കും ഇടയിൽ എഴുതപ്പെട്ടതാണ്. അതിൽ മനുഷ്യന്റെ ഭൂമിയോടുള്ള പരിപാവനമായ ബന്ധത്തിന്റെ ഹൃദയസ്पर्ശിയായ ഒരു അവതരണമാണു ഈ പ്രാർത്ഥന. ഭാരത തത്വചിന്തയും ആത്മീയതയും ആഴമായ പ്രകൃത്യാവബോധത്തിൽ രൂപീകരിക്കപ്പെട്ടിരിക്കുന്നു: അത് ഇന്നോ ഇന്നലയോ തുടങ്ങിയതല്ല, പ്രത്യുത ഭാരത സംസ്കാരത്തിന്റെ രേഖികൃതമായ ചരിത്രത്തിന്റെ നാൾവഴികളിൽ മുഴുവൻ നിഴലിച്ചു കാണുന്ന ഒരംശമാണു എന്നതിന്റെ വ്യക്തമായ ഒരടയാളമാണ് ഈ സൂക്തം. ഭൂമിയെ ദേവിയായും അമ്മയായും സർവ്വംസഹയായും കാണുന്ന പാരമ്പര്യമാണ് ആർഷഭാരതത്തിന്റേത്. പഞ്ചഭൂതങ്ങൾ മനുഷ്യന്റെ ഇന്ദ്രിയാനുഭൂതികൾ നിർണ്ണയിക്കുന്നു: ഗന്ധംകൊണ്ട് മണ്ണ് (പ്രിഥ്വി), കാഴ്ചകൊണ്ടു അഗ്നി (തീ), സ്പർശംകൊണ്ട് വായു (മായ), രുചികൊണ്ട് വെള്ളം (അപ്പി), ശബ്ദംകൊണ്ട് ആകാശം. അതിനുപുറമേ, നദികളെ ഭൂമിയുടെ ഞരമ്പുകളായും മഹാമേരു പർവ്വതത്തെ (ഹിമാലയം) ഭൂമിയുടെ സുഷുമ്ന കാണുമായും കാറ്റിനെ ഭൂമിയുടെ

ശ്യാസോച്ചാസമായും നാം ഗണിക്കുന്നു. ചുരുക്കത്തിൽ, പ്രകൃതിയെ ബ്രഹ്മാണ്ഡമായും മനുഷ്യനെ സൂക്ഷ്മബ്രഹ്മാണ്ഡമായും പരിഗണിക്കുന്ന ഈ പ്രപഞ്ച ദർശനം മനുഷ്യനും പ്രകൃതിയും ഒരു നാണയത്തിന്റെ രണ്ടു വശങ്ങളാണു അഥവാ പ്രപഞ്ചത്തിന്റെ ഊടും പാവുമാണെന്നുള്ള യാഥാർത്ഥ്യമാണു വിളിച്ചോതുന്നത്. അതുകൊണ്ടുതന്നെ മനുഷ്യനില്ലെങ്കിൽ പ്രകൃതിയില്ല; പ്രകൃതിയില്ലെങ്കിൽ മനുഷ്യനും!

ഇത്തരൂണത്തിൽ, ഭാരതീയ പ്രകൃതിദർശനങ്ങളോട് ചേർന്നു നില്ക്കുന്നതും വളരെ ആനുകാലിക പ്രസക്തവുമായ ഒരു ഉത്തമാഹ്വാനമാണ് ഫ്രാൻസിസ് മാർപാപ്പയുടെ ചാക്രികലേഖനമായ "Laudato Si" അഥവാ "അങ്ങേക്കു സ്തുതി." (ചാക്രിക ലേഖനം -മാർപാപ്പ കത്തോലിക്ക സഭയിലെ അംഗങ്ങളെ ചില പ്രത്യേക വിഷയങ്ങളിൽ സഭയുടെ നിലപാടുകളും പ്രബോധനങ്ങളും അറിയിക്കുവാനായി എഴുതുന്ന പ്രത്യേക ലേഖനം). പരിസ്ഥിതി സംരക്ഷണ പ്രവർത്തനങ്ങളുടെ മധ്യസ്ഥനായി കത്തോലിക്ക സഭ കരുതുന്ന വി. ഫ്രാൻസിസ് അസ്സിസിയുടെ സൃഷ്ടിഗീത പ്രാർത്ഥനയുടെ (ഇതിൽ സൂര്യനെയും കാറ്റിനെയും അഗ്നിയും സഹോദരന്മാരെന്നും ചന്ദ്രനേയും വെള്ളത്തെയും സഹോദരിമാരെന്നും അഭിസംബോധന ചെയ്യുന്നു.) ആരംഭ വചനമാണ് അദ്ദേഹത്തിന്റെ നാമധാരിയായ ഇപ്പോഴത്തെ മാർപാപ്പയുടെ ഈ ചാക്രിക ലേഖനത്തിന്റെപേരും എന്നത് യാദൃച്ഛികമല്ല. ഇതിന്റെ ഉപശീർഷകമായി ഉപയോഗിച്ചിരിക്കുന്നത് "നമ്മുടെ പൊതുഭവനത്തിന്റെ സംരക്ഷണത്തിനു" എന്നാണ്. സാധാരണഗതിയിൽ കത്തോലിക്ക വിശ്വാസികളെയാണു ചാക്രികലേഖനങ്ങൾ അഭിസംബോധന ചെയ്യുന്നതെങ്കിൽ ഇവിടെ ലോകത്തിലുള്ള എല്ലാ സുമനസ്സുകളെയാണു. ആമുഖം കൂടാതെ ആറ് അദ്ധ്യായങ്ങളും 246 ഘണ്ഡികകളുമായി 180 പേജുകൾ ഉള്ള ഇതിന്റെ പ്രധാന പ്രതിപാദ്യ വിഷയം ഏതു തരത്തിലുള്ള ലോകമാണ് നാം വരും തലമുറയ്ക്ക് കൈമാറാൻ പോകുന്നത് എന്ന നമ്മുടെ ഓരോരുത്തരുടെയും ആശങ്ക തന്നെയാണു.ഭൂമിയെ സഹോദരിയായും അമ്മയായും കാണാനുള്ള വലിയൊരു ഉത്തരവാദിത്വബോധമാണ് "അങ്ങേക്കു സ്തുതി" നമുക്ക് സമ്മാനിക്കുന്നത്. പരിസ്ഥിതി സംരക്ഷണവുമായി ബന്ധപ്പെട്ടു വിരചിതമായ ആദ്യ ചാക്രിക ലേഖനമായ ഇതിനെ "പരിസ്ഥിതി സംരക്ഷണത്തിന്റെ മഗ്നാകാർട്ട" എന്നാണ് ലോകം വിശേഷിപ്പിക്കുന്നത്. പരിസ്ഥിതിയുടെ വിലാപം പാവപ്പെട്ടവന്റെ വിലാപമാണെന്ന നിലപാട് സ്വീകരിച്ചിരിക്കുന്ന "അങ്ങേക്കു സ്തുതി" അതിനാൽത്തന്നെ പാശ്ചാത്യ മുതലാളിത്ത വ്യവസ്ഥിതിയുടെ കണ്ണിലെ കരടായിതീർന്നിരിക്കുന്നു.

"അങ്ങേക്കു സ്തുതി"യുടെ ഒന്നാം അദ്ധ്യായത്തിൽ ഭൂമിക്കു എന്ത് സംഭവിക്കുന്നു എന്ന് അന്തരീക്ഷ മലിനീകരണത്തിന്റെയും കാലാവസ്ഥ വ്യതിയാനത്തിന്റെയും ജല ദുർലഭ്യതയുടെയും ജൈവവൈവിധ്യ നഷ്ടത്തിന്റെയും അസമത്വലോകത്തിലെ പാവപ്പെട്ടവന്റെ ദുർബല

മറുപടികളുടെയും വെളിച്ചത്തിൽ വിശകലനം ചെയ്യുന്നു. തുടർന്ന് ജീവജാലങ്ങളും വി. ഗ്രന്ഥവും തരുന്ന സൂചനകളിലൂടെ കടന്നുപോകുന്ന “അങ്ങേക്കു സ്തുതി” പാരിസ്ഥിതിക സംഘർഷത്തിന്റെ മാനുഷികവേരുകൾ ശാസ്ത്ര-സാങ്കേതിക മുന്നേറ്റത്തിന്റെ മനുഷ്യകേന്ദ്രീകൃത മനോഭാവമാണെന്ന ആപത്കരമായ സത്യം നമ്മോടു വിളിച്ചുപറയുന്നു. ഇന്നിന്റെ ആവശ്യം ഒരു സമഗ്രമായ പരിസ്ഥിതി നയമാണെന്നും അതിൽ നമുക്കോരോരുത്തർക്കും പ്രായോഗികമായി വഹിക്കാനുള്ള പങ്കിനെക്കുറിച്ചും അതിനായി മതവും ശാസ്ത്രവും രാഷ്ട്രവും പ്രകൃതിക്കൊപ്പം അണി ചേരണമെന്ന ആഹ്വാനവുമായാണു ഇത് അവസാനിക്കുന്നത്.

പ്രകൃതി സംരക്ഷണ പ്രവർത്തനങ്ങൾക്കുള്ള ഒരോർമ്മപ്പെടുത്തലും അതോടൊപ്പം നമുക്ക് ആത്മപരിശോധനയ്ക്കുള്ള സമയം അതിക്രമിച്ചു കഴിഞ്ഞു എന്ന ശക്തമായ മുന്നറിയിപ്പുമായി ഇത് മാറുന്നു. വരും തലമുറയുടെ ശോഭനമായ ഭാവി നമ്മുടെ കൈയിലാണെന്നു നമുക്കു മറക്കാതിരിക്കാം. നമുക്ക് ചുറ്റും പൂങ്കാവനം ഒരുക്കണമോ അതോ മരുഭൂമികൾ സൃഷ്ടിക്കണമോ എന്ന് തീരുമാനിക്കേണ്ടത് നാം തന്നെയാണ് . “മാനവസേവയാണു മാധവസേവ” എന്ന ബോധ്യത്തോടെ ഭൂമിയിലെ പാവപ്പെട്ടവന്റെ ശബ്ദമാകുവാൻ നമുക്ക് സാധിക്കട്ടെ. “വസുധൈവ കുടുംബകം” (ഭൂമി ഒരു കുടുംബമാണ്) എന്നതാകട്ടെ നമ്മുടെ മനോഭാവം.

“കാത്തിരിക്കുന്നു ഞാൻ ആ നല്ല നാളിന്റെ ആഗമനത്തിനായി മൂകനായി..

ആശ്ചര്യമില്ലാതെ അങ്കലാപ്പില്ലാതെ കാത്തിരിക്കുന്നു ഞാൻ ഏകനായി... ..ഓർക്കുന്നു ഞാനിന്നീ മരുഭൂമിയിൽ നിന്നും ...ദൈവനാടിന്റെ ആ ഗ്രാമ ഭംഗി...” “എന്റെ ഗ്രാമം” സി.വി. അബ്ദുൽ റഷീദ്

സഹായകഗ്രന്ഥസൂചി

ഫ്രാൻസീസ് മാർപാപ്പ, (2014). അങ്ങേക്കു സ്തുതി (ചാക്രികലേഖനം).തിരുവനന്തപുരം: കാർമൽ ഇന്റർനാഷണൽ.

എം പി കുഞ്ഞാമു (വിവ.) (2012) വിജയത്തിലേക്കുള്ള ജീവിതമൂല്യങ്ങൾ. ആചാര്യ മഹാ പ്രജ്ഞ, എ പി ജെ അബ്ദുൽ കലാം (The Family and the Nation) കോട്ടയം: ഡി സി ബുക്ക്സ്

സി.വി.അബ്ദുൽ റഷീദ്. എന്റെ ഗ്രാമം.

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കരുണ: സഭയുടെ ഹൃദയത്തുടിപ്പ്

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ഫ്രാൻസിസ് മാർപാപ്പ പ്രഖ്യാപിച്ച കരുണയുടെ വർഷത്തെയും അതിനോടനുബന്ധിച്ചു കാരുണ്യത്തിന്റെ അസാധാരണ ജൂബിലി പ്രഖ്യാപിച്ചുകൊണ്ടുള്ള കല്പനയായ കാരുണ്യത്തിന്റെ മുഖം എന്ന അപ്പസ്തോലിക ലേഖനത്തിന്റെയും ഒരു സ്വതന്ത്ര അവലോകനം. കരുണ എല്ലാ പ്രതിബന്ധങ്ങളും അതിജീവിച്ച്, എല്ലാ മതിലുകളും തകർത്ത് മനുഷ്യനെ മനുഷ്യനായി കാണുവാൻ അഭ്യസിപ്പിക്കുന്നു. ഹൃദയങ്ങളെയും ജീവിതങ്ങളെയും രൂപാന്തരപ്പെടുത്തുന്നത് കരുണയാണ്.

കീലപദങ്ങൾ: കരുണ, കരുണയുടെ വർഷം, കാരുണ്യത്തിന്റെ മുഖം, സമർപ്പിത ജീവിതം.

കത്തോലിക്ക സഭയുടെ സ്ഥിതിവിവരക്കണക്കു അനുസരിച്ചു 2,09,670 സ്കൂളുകളിലായി 5,76,12,936 കുട്ടികളും കോളേജുകളിലും മറ്റുമായി 55,33,795 വിദ്യാർത്ഥികളും സഭയുടെ സേവനം പ്രതിവർഷം സ്വീകരിക്കുന്നു. ഇതിനു പുറമേ 1,17,205 ആരോഗ്യ- ഉപവി സ്ഥാപനങ്ങളിലൂടെ ലക്ഷക്കണക്കിന് ആളുകളും വർഷം തോറും സഭയുടെ കരുണയുടെ മുഖം ദർശിക്കുന്നവരാണ്. എന്തുകൊണ്ടാണ് സഭ ഇത്രമാത്രം കാരുണ്യപ്രവർത്തികൾ ചെയ്യുന്നത്? സഭയുടെ സമ്പത്ത് രാജാവിനു കൊടുക്കാതെ പാവങ്ങൾക്ക് വിതരണം ചെയ്തതിന്റെ പേരിൽ ഡയക്ലിഷ്യൻ ചക്രവർത്തി വധിച്ച റോമിലെ വി. ലോറൻസും മോളോക്കയിലെ കുഷ്ഠരോഗികൾക്കായി ജീവിതം ഉഴിഞ്ഞുവച്ച വി. ഡാമിയനും ഓഷ് വിറ്റ്സിലെ നാസികയാമ്പിൽ സഹ തടവുകാരന് വേണ്ടി ജീവൻ കൊടുത്ത വി. മാക്സ്മീല്യൻ കോൾബെയും ഉപവിയുടെ രക്തസാക്ഷികളായി മാറിയതും വി. വിൻസന്റ് ഡി പോൾ ഉപവിയുടെ അപ്പസ്തോലൻ എന്നറിയപ്പെടുന്നതും കോൽകോത്തയിലെ വാ. മദർ തെരേസ പാവങ്ങളുടെ അമ്മയായതും സാമൂഹ്യ സേവന പ്രവർത്തനങ്ങൾ സഭയുടെ നീട്ടപ്പെട്ട കരങ്ങളുടെ പ്രതിരൂപമായിത്തീർന്നതും എന്തുകൊണ്ടാണ്? ഇൻഡോറിലെ സി. റാണി മരിയ രക്തസാക്ഷിയായതും മധ്യപ്രദേശിലെ ദയാഭായിയും ദൈവപരിപാലന ഭവനത്തിലെ സി. മേരിലിറ്റിയും അതുപോലെ ആയിരക്കണക്കിനു സന്യസ്ത സഹോദരീ സഹോദരന്മാരും അകാശപ്പറവകളുടെ അനേകം കുട്ടുകാരും നവജീവൻ തോമസുചേട്ടനെപ്പോലുള്ള ധാരാളം സുമനസ്സുകളും

എന്തിനുവേണ്ടിയാണ് തങ്ങളുടെ വിലപ്പെട്ട ജീവിതം വ്യയം ചെയ്യുന്നത്? ഉത്തരം ഒന്നേയുള്ളൂ: “ ദൈവികസൗന്ദര്യത്തിനു വേണ്ടിയുള്ള ദാഹം തങ്ങളുടെ സഹോദരീ സഹോദരന്മാരിൽ വികൃതമാക്കപ്പെട്ടിരിക്കുന്ന ദൈവികച്ഛായയെ ശുശ്രൂഷിക്കാൻ സമർപ്പിതരെ പ്രേരിപ്പിക്കുന്നു. ”(Vita Consecrata, 75) സഭയുടെ ദാഹം ക്രിസ്തുവിന്റെ കരുണയുടെ പ്രവർത്തികൾ തുടരുക എന്നതാണ്. അതിന്റെ പ്രതീകമായാണ് ഫ്രാൻസിസ് മാർപാപ്പ 'കരുണയുടെ വർഷം' പ്രഖ്യാപിച്ചിരിക്കുന്നത്.

ദൈവാത്മാവിന്റെ ശുദ്ധവായു സഭക്കുള്ളിൽ പ്രവേശിക്കട്ടെ എന്ന് പറഞ്ഞുകൊണ്ട് സഭയുടെ കോട്ടവാതിലുകൾ മലർക്കെ തുറന്നിട്ടു രണ്ടാം വത്തിക്കാൻ സൂനഹദോസ് (11 ഒക്ടോബർ 1962 - 8 ഡിസംബർ 1965) സമാപിച്ചതിന്റെ 50-ആം വാർഷിക ദിനമായ 2015 ഡിസംബർ 8 നു റോമിലെ കത്തീഡ്രൽ ദേവാലയമായ സെന്റ് ജോൺ ലാറ്ററൻ ബസിലിക്കയുടെയും അതോടൊപ്പം മറ്റെല്ലാ കത്തീഡ്രലുകളുടെയും വാതിലുകൾ, ദൈവത്തിന്റെ കരുണയുടെ പ്രതീകമായി തുറന്നുകൊണ്ട് ആരംഭിക്കുന്ന കരുണയുടെ വർഷം സമാപിക്കുന്നത് 2016 നവംബർ 20 നു ക്രിസ്തുവിന്റെ രാജ്യത്തിരുന്നാളിലാണ്. ക്രിസ്തുവിന്റെ മണവാട്ടിയായ സഭക്കാവശ്യം കരുണയെന്ന മരുന്നാണ് എന്ന് പറഞ്ഞുകൊണ്ട് വി. ജോൺ 23-ആമൻ പാപ്പ ആരംഭിച്ച സൂനഹദോസ് സമാപിച്ചപ്പോൾ വാ.പോൾ 6-ആമൻ പാപ്പ പറഞ്ഞത് ഉപവി പ്രവർത്തനം ഇതിന്റെ പ്രധാന ലക്ഷ്യങ്ങളിലൊന്നായി മാറിയെന്നാണ്.

ദൈവത്തിന്റെ കരുണ നീതിയെ അതിലംഘിക്കുന്നതാണ്. ദൈവം നീതിമാനാണെങ്കിലും അവിടുന്ന് നീതിയേക്കാളുപരി കരുണക്കാണ് പ്രാധാന്യം നൽകുന്നത്. അതുകൊണ്ടാണ് “ദൈവത്തിനു തന്റെ കരുണ പിൻവലിക്കുന്നതിനേക്കാൾ എളുപ്പം അവിടുത്തെ കോപം ശമിപ്പിക്കുന്നതാണ്” എന്ന് വി. അഗസ്റ്റിൻ പറയുന്നത്. വി. ഗ്രന്ഥം മുഴുവൻ ഉദ്ഘോഷിക്കുന്നത് ദൈവത്തിന്റെ ഈ കരുണയാണ്. പഴയനിയമം മുഴുവൻ പ്രഘോഷിക്കുന്നത് ക്ഷമാശീലനും കാരുണ്യവാനുമായ ദൈവത്തെയാണ്. 136-ആം സങ്കീർത്തനത്തിൽ ആവർത്തിച്ച് പറയുന്നത് 'ദൈവത്തിന്റെ കരുണ എന്നെന്നും നിലനിൽക്കും' എന്നതാണ്. അതുകൊണ്ടാണ് 'പിതാവിനെപ്പോലെ കരുണയുള്ളവരായിരിക്കുവിൻ' (ലൂക്ക 6:36)എന്ന തിരുവചനം ഈ കരുണയുടെ വർഷത്തിന്റെ ആദർശവാക്യമായി പരി. പിതാവ് തിരഞ്ഞെടുത്തിരിക്കുന്നത്.

ക്രിസ്തു ഭൂമിയിലേക്കു വന്നത് ദൈവത്തിനു സ്വീകാര്യമായ വർഷം അഥവാ 'കരുണയുടെ വർഷം' പ്രഖ്യാപിക്കാനാണ് (ലൂക്ക 4:19)എന്ന് പരി. പിതാവ് ഊന്നിപ്പറയുമ്പോൾ ക്രിസ്തുവിലൂടെ പൂർത്തീകരിക്കപ്പെട്ട ദൈവികകാരുണ്യമാണ് അർത്ഥമാക്കപ്പെടുന്നത്. അതുകൊണ്ടാണ് 'ഞാൻ

ഞാൻ തന്നെ' (പുറ. 3:14) എന്ന് സ്വയം വെളിപ്പെടുത്തിയ ദൈവത്തിനു വി. യോഹന്നാൻ 'ദൈവം സ്നേഹമാണ്' (1 യോഹ.4: 8,16) എന്ന സുന്ദരമായ നിർവചനം നൽകുന്നത്.

സഭയുടെ ആണിക്കല്ല് തന്നെ ദൈവിക കാര്യമാണു. 'കരുണയില്ലാത്ത ഒരു ക്രൈസ്തവൻ ഉണ്ടാകുമോ' എന്ന ചോദ്യത്തിനു 'ഇല്ല' എന്ന മറുപടിയാണ് പാപ്പ നൽകുന്നത്.. ഒരു ക്രിസ്ത്യാനി തീർച്ചയായും കരുണയുള്ളവനായിരിക്കണം. കാരണം സുവിശേഷത്തിന്റെ ഹൃദയമാണത്. ക്രിസ്തുവിന്റെ, സഭയുടെ ഈ ഹൃദയത്തുടിപ്പ് തൊട്ടറിഞ്ഞ ഫ്രാൻസിസ് പാപ്പ തന്റെ ആദർശവാക്യമായി തിരഞ്ഞെടുത്തത് 'എളിയവനായിരുന്നിട്ടും എന്നെ തിരഞ്ഞെടുത്തു' എന്ന വി. ബീഡിന്റെ തിരുവചനവ്യാഖ്യാനമാണു. പുണ്യ സ്മരണാർഹനായ ജോൺ പോൾ രണ്ടാമൻ മാർപാപ്പയുടെ ദ്വിതീയ ചാക്രിക ലേഖനമായ "കരുണാ സമ്പന്നൻ" ധൂർത്തപുത്രന്റെ ഉപമയിലെ കരുണാസമ്പന്നൻ ആയ ദൈവപിതാവിനെപ്പോലെ കാര്യങ്ങളുള്ളവരാകാൻ നമ്മെ ക്ഷണിക്കുകയാണ്.

കരുണയുടെ വർഷത്തിൽ ആത്മീയ രംഗത്തും ഭൗതിക രംഗത്തും കാര്യത്തിന്റെ വാതിലുകൾ മലർക്കെ തുറന്നിടുവാനും അതോടൊപ്പം ദൈവത്തിന്റെ കരുണയുടെ അതിരില്ലാത്ത ദയാവായ്പ് അനുരഞ്ജന കൂദാശയിലൂടെ ആവോളം നുകരാനും പാപ്പ നമ്മോട് ആഹ്വാനം ചെയ്യുന്നു. 1216-ലെ രാത്രിയിൽ തനിക്കുണ്ടായ പ്രലോഭനത്തെ അതിജീവിക്കുവാൻ വി.ഫ്രാൻസിസ് അസ്സീസി ആശ്രമ വളപ്പിലെ മുളളുകളുള്ള റോസാച്ചെടികളിൽ കിടന്ന് ഉരുണ്ടതിനെ അനുസ്മരിക്കുന്ന ചരിത്രസംഭവം 'അസ്സീസി നൽകുന്ന പാപമോചനം' (Pardon of Assisi) എന്നപേരിൽ എല്ലാ വർഷവും ആഗസ്റ്റ് 2-ന് അനുരഞ്ജന ദിനമായി സഭയിൽ ആചരിക്കുന്നു. പിന്നീട് തൽസ്ഥാനത്ത് നിന്നിരുന്ന മുളളുകൾ നിറഞ്ഞ റോസാച്ചെടികൾ മുളളില്ലാത്ത ഇനമായി പരിണമിച്ചു. ഇന്നും ആ തായ്ച്ചെടിയുടെ തളിരുകൾ അസ്സീസീയിൽ പടർന്നു നീല്ക്കുന്നുണ്ട്. വി. ഫ്രാൻസിസിനെപ്പോലെ അനുരഞ്ജനത്തിന്റെ കൂദാശയിലൂടെ നമ്മുടെ പാപബന്ധനങ്ങളിൽനിന്നും പുറത്തിറങ്ങി ദൈവികകാര്യം തേടുവാനും, ദിവ്യാകാര്യം സ്വീകരിക്കുവാനുമുള്ള വിളിയാണ് 'അസ്സീസി നൽകുന്ന പാപമോചനം'. അത് ഫലപ്രദമായി ഉപയോഗിക്കാൻ പാപ്പ ഈ വർഷത്തെ അനുരഞ്ജനദിനത്തിൽ പ്രത്യേകമായി സഭയോട് ആഹ്വാനം ചെയ്യുന്നുമുണ്ട്. കരുണ എല്ലാ പ്രതിബന്ധങ്ങളും അതിജീവിച്ച്, എല്ലാ മതിലുകളും തകർത്ത് മനുഷ്യനെ മനുഷ്യനായി കാണുവാൻ അഭ്യസിപ്പിക്കുന്നു. ഹൃദയങ്ങളെയും ജീവിതങ്ങളെയും രൂപാന്തരപ്പെടുത്തുന്നത് കരുണയാണ്. കരുണ മനുഷ്യന് പുതുജീവൻ നൽകുകയും സമൂഹവുമായി വീണ്ടും

കൂട്ടിയിണക്കുകയും ചെയ്യുന്നു. അതിനാൽ നമ്മുടെ ഹൃദയപരിവർത്തനത്തിനുള്ള എല്ലാ സാധ്യതകളെയും നാം ഉപയോഗിക്കുകയും അക്രമത്തിനും അഴിമതിയ്ക്കും വഴിവയ്ക്കുന്ന 'പണമാണ് പരമോന്നതം' എന്ന മൗഢ്യ ചിന്ത വെടിയുകയും നീതിയുടെ മുകളിൽ കരുണ പ്രാമുഖ്യം നേടുകയും ചെയ്യുമ്പോഴാണ് കരുണയുടെ വർഷം ഫലവത്താകുന്നത്.

'ഇതാ ദൈവത്തിന്റെ കൂടാരം മനുഷ്യരോട് കൂടെ' (വെളി. 21:3): ഈ കൂടാരത്തിൽ നമുക്കും വസിക്കാം. സഭയുടെ ഹൃദയത്തുടിച്ചായ കരുണ നമ്മുടെ നെഞ്ചോടു ചേർത്തു പിടിക്കാം. സഭയുടെ കരുണയുടെ നീട്ടപ്പെട്ട കരങ്ങളായി നമുക്കും മാറാം. കരുണയുടെ വർഷത്തിന്റെ സത്ഫലങ്ങളും, അനുഗ്രഹങ്ങളും ചൂടിക്കൊണ്ടു, കരുണയുടെ സുഗന്ധം നമുക്ക് ചുറ്റും വിതറിക്കൊണ്ട് നമുക്കും പിതാവിനെപ്പോലെ കരുണയുള്ളവരാകാം. ഈ ഉദ്യമത്തിൽ കരുണയുടെ അമ്മയായ പരിശുദ്ധ മറിയത്തെയും കരുണയുടെ അപ്പസ്തോലയായ വി. ഫ്രാൻസിസ്കയെയും നമ്മുടെ കൂടാരങ്ങളിലേക്കു നമുക്ക് ക്ഷണിക്കാം...

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സമർപ്പണത്തിൻ ആനന്ദം

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പ്രബന്ധസംഗ്രഹം

ഫ്രാൻസിസ് മാർപാപ്പ പ്രഖ്യാപിച്ച സമർപ്പിത വർഷത്തിന്റേയും അതിനോടനുബന്ധിച്ചു പുറത്തിറക്കിയ “ആനന്ദിച്ച് ആഹ്ളാദിക്കുവിൻ” എന്ന അപ്പസ്തോലിക ഉദ്ബോധനത്തിന്റേയും ഒരു സ്വതന്ത്ര അവലോകനം. സമർപ്പണം ഒരിക്കലും ഒരു വാക്കിൽ അവസാനിക്കുന്നതല്ല മറിച്ച്, അനുനിമിഷം കൂടുതൽ കൂടുതൽ ആഴത്തിൽ അനുഭവിച്ചുകൊണ്ടേയിരിക്കേണ്ട ഒരു ആത്മീയാനുഭൂതിയാണ്.

കീലപദങ്ങൾ: സമർപ്പിത വർഷം, ആനന്ദിച്ച് ആഹ്ളാദിക്കുവിൻ.

“ഇതാണ് സമർപ്പണത്തിന്റെ ചാരുകഥ: അത് ആനന്ദമാണ്, ആനന്ദമാണ്...” 2013 ജൂലൈ ആറാം തീയതി റോമിൽ വെച്ചു നടന്ന സെമിനാരി വിദ്യാർത്ഥികളുടെയും നവസന്യാസാർത്ഥികളുടെയും സമ്മേളനത്തിൽവെച്ച് ഫ്രാൻസിസ് മാർപാപ്പ സമർപ്പിത ജീവിതത്തിന്റെ മനോഹാരിതയെപ്പറ്റി വിശേഷിപ്പിച്ചത് ഇപ്രകാരമാണ്. ഇത് കേവലം സമർപ്പിത- സന്യാസ- പൗരോഹിത്യ - വിളികൾ സ്വീകരിച്ചവർക്കുവേണ്ടി മാത്രമുള്ള ഒരാഹ്വാനമല്ല, പ്രത്യുത ക്രിസ്തുവിൽ വിശ്വസിക്കുന്ന ഏതൊരു വ്യക്തിയുടെയും ജീവിതത്തിന്റെ അന്തസ്സത്തയിലേക്കുള്ള ഒരു നേർക്കാഴ്ചയാണ്. അതുകൊണ്ടു തന്നെ ഇന്നത്തെ ലോകത്തിൽ വിശുദ്ധിയിലേക്കുള്ള വിളിയെക്കുറിച്ചു ഫ്രാൻസിസ് പാപ്പയുടെ അപ്പസ്തോലിക ഉദ്ബോധനത്തിനു “ആനന്ദിച്ച് ആഹ്ളാദിക്കുവിൻ ” (Gaudete et Exsultate - G. E.) എന്ന പേര് തികച്ചും അനുയോജ്യമാണ്. വിശുദ്ധിയാണ് തിരുസഭയുടെ ഏറ്റവും ആകർഷകമായ മുഖമെന്നു പറയുമ്പോഴും (G. E. no. 9) തങ്ങളുടെ അനുദിന ജീവിതത്തിലെ തെറ്റുകളുടെയും പരാജയങ്ങളുടെയും ഇടയിൽപ്പോലും കർത്താവിനു പ്രിയപ്പെട്ടവരായി മുന്നോട്ടു നീങ്ങുകയും (G. E. no. 3) ചെയ്ത പൂർവ്വികരും ഇന്നും ആ പാതയിൽ ചരിക്കുന്ന നമ്മുടെ മാതാപിതാക്കളും ബന്ധുജനങ്ങളുമടങ്ങുന്ന ദൈവജനത്തെ വിശുദ്ധിയുടെ മധ്യവർഗമെന്നാണ് (G. E. no. 7) പാപ്പ വിശേഷിപ്പിക്കുന്നത്. നാം എവിടെ ആയിരുന്നാലും സ്നേഹത്തിൽ അധിഷ്ഠിതമായ ജീവിതം നയിക്കുകയും എല്ലാറ്റിലും ക്രിസ്തുവിനു നേർ സാക്ഷ്യമാവുകയും ചെയ്യുന്നത് വഴി നാമും വിശുദ്ധിയിലേക്കുള്ള വഴിയിലാണെന്നു(G. E. no. 14) പാപ്പാ നമ്മെ ഓർമ്മപ്പെടുത്തുന്നു. ഇപ്രകാരം ക്രിസ്തുവിൽ ആനന്ദിക്കുന്ന ജീവിതം

നയിക്കുക വഴി ഓരോ ക്രൈസ്തവനും സമർപ്പണത്തിന്റെ പൂർണ്ണത തങ്ങളുടെ ഹൃദയങ്ങളിൽ പേറുന്നവരാകുന്നു.

സമർപ്പണം ഒരിക്കലും ഒരു വാക്കിൽ അവസാനിക്കുന്നതല്ല മറിച്ച്, അനുനിമിഷം കൂടുതൽ കൂടുതൽ ആഴത്തിൽ അനുഭവിച്ചുകൊണ്ടിരിക്കേണ്ട ഒരു ആത്മീയാനുഭൂതിയാണ്. "അവിടുത്തെ തിരുമനസ്സ് നിറവേറട്ടെ" എന്ന് പറഞ്ഞുകൊണ്ട് കാൽവരിക്കുമുമ്പിൽ തല കുനിച്ച ക്രിസ്തുവും "ഇതാ കർത്താവിന്റെ ദാസി" എന്നു പ്രത്യുത്തരിച്ച പരിശുദ്ധ അമ്മയും ഈ ചൈതന്യത്തിന്റെ വറ്റാത്ത നീരുറവകളാണ്. സഹാറാ മരുഭൂമിയിലെ ക്രൈസ്തവ താപസനായിരുന്ന വാഴ്ത്തപ്പെട്ട ചാൾസ് ദെ ഫുക്കോൾഡ് ഈ സ്രോതസ്സിൽനിന്നും ആവോളം നുകരാൻ ഭാഗ്യം ലഭിച്ച ഒരു വിശുദ്ധ വ്യക്തിത്വമായിരുന്നു. അതുകൊണ്ടാണ് അദ്ദേഹത്തിന് ഇപ്രകാരം പറയാൻ കഴിഞ്ഞത്, "ദൈവമുണ്ടെന്നു ഞാൻ തിരിച്ചറിഞ്ഞതിനുശേഷം അവിടുത്തെക്കുവേണ്ടി മാത്രമായി ജീവിക്കാതിരിക്കാൻ എനിക്ക് സാധ്യമായിരുന്നില്ല." ഈ തിരിച്ചറിവ് അദ്ദേഹത്തെ നയിച്ചത് രക്തസാക്ഷിത്വ മകുടത്തിലേക്കായിരുന്നു എന്നത് ഈ ആത്മീയാനുഭൂതി അദ്ദേഹത്തിൽ എത്ര ഗാഢമായിരുന്നു എന്നതിന്റെ തെളിവാണ്.

യഥാർത്ഥ സമർപ്പണം സമമായ അർപ്പണമാണ്. അത് സമ്യക്കായ അർപ്പണമാണ്. അതുകൊണ്ടാണ് ഈശോ ഇപ്രകാരം പറയുന്നത് "നിങ്ങളുടെ നിക്ഷേപം എവിടെയോ അവിടെയായിരിക്കും നിങ്ങളുടെ ഹൃദയവും (Mt. 6:21). ആത്മാവും ഹൃദയവും ശരീരവും മനസ്സുമെല്ലാം സമമായി, സമ്പൂർണ്ണമായി ദൈവത്തിനും ദൈവജനത്തിനുമായി സമർപ്പിക്കുമ്പോൾ മാത്രമേ സന്യാസ-പൗരോഹിത്യ-ഏകസ്ഥ സമർപ്പണം സമ്പൂർണ്ണമാകുകയുള്ളൂ. അതിനാലാണ് സമർപ്പിത ജീവിതത്തെക്കുറിച്ചുള്ള അപ്പസ്തോലിക ഉദ്ബോധനമായ "സമർപ്പിത ജീവിത (Vita Consecrata)" ൽ വി. ജോൺ പോൾ രണ്ടാമൻ പാപ്പ ഇപ്രകാരം പറയുന്നത് "ദൈവികസൗന്ദര്യത്തിനായുള്ള അന്വേഷണം സമർപ്പിതരായ ആളുകളെ അവരുടെ സഹോദരീസഹോദരന്മാരുടെ മുഖത്തു് ദൈവത്തിന്റെ വിരുപമാക്കപ്പെട്ട പ്രതിച്ഛായയെ പരിപാലിക്കുന്നതിനു് പ്രേരിപ്പിയ്ക്കുന്നു"(Vita Consecrata no. 75). കുടുംബം സ്നേഹത്താൽ സ്ഥാപിക്കപ്പെടുകയും സജീവമാക്കപ്പെടുകയും ചെയ്യുന്നതിനാൽ അവിടെ ദമ്പതികൾ, മാതാപിതാക്കൾ, മക്കൾ, ബന്ധുക്കൾ എന്നിവരടങ്ങിയ സമൂഹത്തിൽ സ്നേഹത്തിനും ജീവനും പോഷണം നൽകി ദൈവിക സ്നേഹത്തിൽ ചരിക്കുമ്പോഴാണ് കുടുംബാംഗങ്ങളുടെ സമർപ്പണം അമൂല്യമാകുകയുള്ളൂ. സ്നേഹത്താൽ സമൂഹത്തിലേക്ക് തുറന്നിരിക്കുന്ന കുടുംബം ഓരോ വ്യക്തിയിലും മിശിഹായുടെ മുഖം കണ്ടെത്തുന്നു (Apostolic Exhortation "Familiaris Consortio" by St. John Paul II, nos.18, 64). സമർപ്പിത ജീവിതം ജനിക്കുന്നത് ദരിദ്രനും,

കളങ്കമില്ലാത്തവനുമായ യേശുവുമായുള്ള കണ്ടുമുട്ടലിലൂടെയാണെന്നും സമർപ്പിതജീവിതത്തിൽ ദൈവവുമായുള്ള കണ്ടുമുട്ടൽ നവീകരിക്കുന്നതിന് അപരരെക്കൂടാതെ കഴിയുകയില്ലായെന്നും ഫ്രാൻസിസ് പാപ്പ 2018 ഫെബ്രുവരി രണ്ടാം തീയതി യേശുവിനെ ദേവാലയത്തിൽ കാഴ്ചയർപ്പിച്ചതിന്റെ അനുസ്മരണ ആചരിക്കുന്ന തിരുനാൾ ദിനത്തിലെ തന്റെ സന്ദേശത്തിൽ നമ്മെ ഓർമ്മിപ്പിക്കുന്നു.

ഒരു വിധത്തിൽ പറഞ്ഞാൽ എല്ലാ മനുഷ്യരും സമർപ്പിതരാണ്: ചിലർ ദൈവത്തിന്, ചിലർ കുടുംബത്തിന്, ചിലർ സമ്പത്തിന്, ചിലർ അധികാരത്തിന്, ചിലർ ജോലിക്ക്, ചിലർ സാമൂഹ്യ മാധ്യമങ്ങൾക്ക്, ചിലർ കൂട്ടുകാർക്ക്, ചിലർ അലസതക്ക്, അങ്ങനെ പോകുന്നു ഓരോരുത്തരുടെയും സമർപ്പണങ്ങൾ. ചിലർ ഒരു കാര്യത്തിനായി സമ്പൂർണ്ണമായി സമർപ്പിക്കുമ്പോൾ മറ്റു ചിലർ പലതിനായി സമർപ്പിക്കുന്നു. ചിലരുടെ സമർപ്പണം വൈരുധ്യാത്മകമാണ്. അവർ ഉത്തരത്തിൽ ഉള്ളത് എടുക്കുകയും വേണം, കക്ഷത്തിൽ ഉള്ളത് പോകാനും പാടില്ല എന്ന മനോഭാവക്കാരാണ്. അങ്ങനെയുള്ളവരോടാണ് “ദൈവത്തെയും മാമോനെയും ഒരുമിച്ചു സേവിക്കാൻ കഴിയുകയില്ല” എന്ന് ക്രിസ്തുനാഥൻ പറയുന്നത്. അതിനാൽ “ഓരോരുത്തരും അവന്റെ അല്ലെങ്കിൽ അവളുടെ സ്വന്തം മാർഗത്തിൽ” സമർപ്പണം പൂർത്തിയാക്കുവാൻ കടപ്പെട്ടിരിക്കുന്നു എന്ന രണ്ടാം വത്തിക്കാൻ കൗൺസിലിന്റെ ആഹ്വാനത്തിനർത്ഥം “ഓരോരുത്തരും അവന്റെ അല്ലെങ്കിൽ അവളുടെ സ്വന്തം തോന്നലുകൾക്കനുസരിച്ചു” സമൂഹത്തിൽ ജീവിക്കുകയെന്നല്ല, പ്രത്യുത ഏതു ജീവിതാന്തസ്സിലായിരിക്കുന്നുവോ അവിടെ പൂർണ്ണമായി ആയിരിക്കുക എന്നത്രെ. “നീ എവിടെ നടപ്പെട്ടിരിക്കുന്നു അവിടെ ഇത്തിശ്ശക്കണ്ണിയാവുക” എന്നല്ല, മറിച്ച് “നീ എവിടെ നടപ്പെട്ടിരിക്കുന്നു അവിടെ പുഷ്പിക്കപ്പെടുക” എന്നതാണ് ഓരോ ക്രൈസ്തവന്റെയും ധർമ്മം.

ഇപ്രകാരം സമർപ്പണത്തിന്റെ അനുഭവത്തിലായിരിക്കുന്ന ഏതൊരു വ്യക്തിയും ദൈവത്തിനും സഹജർക്കുമായി ആനന്ദത്തോടെ തങ്ങളെത്തന്നെ സമ്പൂർണ്ണമായി വ്യയം ചെയ്യുന്നു.

സഹായകഗ്രന്ഥസൂചി

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തങ്ങൾ കുത്തി മുറിവേൽപ്പിച്ചവനെ അവർ നോക്കി നിൽക്കും

ജോമോൻ കൊട്ടാരത്തിൽ ^{1*}, സി.സി.ജോ ഫ്രാൻസിസ് ^{1*}, സി. ബെറ്റ്സി പോൾ ^{1*} & ബിജു സ്കറിയ ^{1*}
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പ്രബന്ധസംഗ്രഹം

ജീവിതവഴിയിൽ നാം പലപ്പോഴും മുറിവേറ്റവന്റെയും മുറിവേൽപ്പിച്ചവന്റെയും അങ്കികൾ മാറിമാറി അണിയുന്നവരാണ്. മുറിവേറ്റവരാകുമ്പോൾ പഞ്ചക്ഷതയാരിയായ ക്രിസ്തുവിന്റെ ഭാഗധേയമാണ് നമുക്കുള്ളത്. ക്ഷതമുള്ളവൻ ക്ഷമിക്കുന്നവനാകുമ്പോഴാണ് അവൻ ഉത്ഥിതന്റെ സ്വന്തമാകുന്നത്.

കീലപദങ്ങൾ: മുറിവ്, ക്ഷമ

മദ്ധ്യപ്രദേശിലെ ഇൻഡോർ രൂപതയിലെ ഉദയ് നഗറിൽ സുവിശേഷപ്രഘോഷണം നടത്തുകയും അതോടൊപ്പം അവരുടെ സാമൂഹ്യവും സാമ്പത്തികവുമായ ഉന്നമനത്തിനു പ്രയത്നിച്ചിരുന്ന സി. റാണി മരിയ വട്ടാലിൽ എന്ന ഫ്രാൻസിസ്കൻ സന്യാസിനിയെ (വാഴ്ത്തപ്പെട്ട സി. റാണി മരിയ) അവിടുത്തെ ജന്മിമാരുടെ പ്രേരണമൂലം സമുന്ദർ സീങ്ങ് എന്ന വ്യക്തി നാച്ചൻബോർ എന്ന പ്രദേശത്തു വെച്ച് കുത്തി വീഴ്ത്തി. പിന്നീട് സ്വാമിയച്ചൻ എന്നറിയപ്പെടുന്ന ഫാ.മൈക്കിൾ പുറാട്ടുകര സി.എം.ഐയുടെ ഇടപെടലുകളിലൂടെ തന്റെ തെറ്റ് തിരിച്ചറിഞ്ഞ സമുന്ദർ സാധിക്കുമ്പോഴൊക്കെ നാച്ചൻബോറിലെത്തി അവിടെയുള്ള സ്മൃതി മണ്ഡപത്തിൽ ഇപ്രകാരം പ്രാർത്ഥിക്കാറുണ്ട്; "ദീദീ, ഹോ സക്തി ഹേ തോ മാഫ് കർന..." (പ്രിയ സഹോദരീ, എന്നോടു ദയവായി ക്ഷമിച്ചാലും). ആ സ്മൃതിമണ്ഡപത്തിൽ സിസ്റ്ററിന്റെ പേരിനു താഴെ ആലേഖനം ചെയ്തിരിക്കുന്നത് ഇപ്രകാരമാണ്; "പ്രഭു, യഹ് പാപ് ഇൻ പർ മത് ലഗാ..." (കർത്താവേ, ഈ തെറ്റ് ഇവരുടെ മേൽ ആരോപിക്കരുതേ).

മോശ മരുഭൂമിയിൽ ഉയർത്തിയ സർപ്പത്തിന്റെ പ്രതീകം മുതൽ പഴയനിയമത്തിലെ അസംഖ്യം ബിംബങ്ങളും അടയാളങ്ങളും പ്രതീകങ്ങളും ക്രിസ്തുവിന്റെ ഉത്ഥാനരഹസ്യത്തെക്കുറിച്ച് വി. യോഹന്നാൻ ശ്ലീഹയുടെ സുവിശേഷത്തിൽ ഉപയോഗിക്കുന്നുണ്ട്. അതിൽ അവതരണത്തിലും ഉൾക്കാമ്പിലും ഏറ്റവും ശ്രേഷ്ഠമായതും ഉത്ഥാനത്തിന്റെ അർത്ഥതലങ്ങളെ ഏറ്റവും മനോഹരമായി സംവദിക്കുന്നതുമായ പഴയനിയമഭാഗങ്ങളിലൊന്നാണ് "തങ്ങൾ കുത്തിമുറിവേൽപ്പിച്ചവനെ അവർ നോക്കിനിൽക്കും" എന്ന സക്കറിയായുടെ പുസ്തകത്തിലെ 12-ആം അധ്യായത്തിലെ 10-ആം

വചനം. ക്രൂശിതനായ ക്രിസ്തുവിന്റെ കുരിശിനോട് ചേർത്താണ് ഈ തിരുവചനം നിൽക്കുന്നതെങ്കിലും(Jn. 19:17) അവിടുത്തെ മഹത്വീകരണത്തിന്റെ, ഉത്ഥാനത്തിന്റെ മൂന്നാസ്വാദനമായിട്ടാണ് വി. യോഹന്നാൻ സക്കറിയായുടെ ഈ പ്രവചനത്തെ അവതരിപ്പിക്കുന്നത്. ഉയിർപ്പു തിരുന്നാൾ നമ്മുടെയൊക്കെ ഹൃദയങ്ങളിൽ കോറിയിടുന്ന ചില സന്ദേശശകലങ്ങൾ ഇപ്രകാരമുള്ളതാണ്. മുറിവേൽപ്പിച്ചവർ മുറിവേറ്റവനെ നോക്കി "ഇവൻ സത്യമായും ദൈവപുത്രനാണ്" എന്ന് ഉദ്ഘോഷിക്കുകയും മുറിവേറ്റവൻ മുറിവേൽപ്പിച്ചവരെ നോക്കി "നിന്റെ കൈ നീട്ടി എന്റെ മുറിവിൽ വയ്ക്കുക" എന്ന് പറയുകയും ചെയ്യുന്നതിന്റെ ഓർമ്മയാണ്. വാ. സി. റാണി മരിയയുടെയും സമുന്ദർസിങ്ങിന്റെയും ജീവിതത്തിൽ ഈ ദർശനമാണ് നമുക്ക് കാണാൻ സാധിക്കുന്നത്.

ജീവിതവഴിയിൽ നാം പലപ്പോഴും മുറിവേറ്റവന്റെയും മുറിവേൽപ്പിച്ചവന്റെയും അങ്കികൾ മാറിമാറി അണിയുന്നവരാണ്. മുറിവേറ്റവരാകുമ്പോൾ പഞ്ചക്ഷതയാരിയായ ക്രിസ്തുവിന്റെ ഭാഗധേയമാണ് നമുക്കുള്ളത്. ഉത്ഥിതനായ ക്രിസ്തുവിനെ നാം എപ്പോഴും എവിടെയും കാണുന്നത് പഞ്ചക്ഷതയാരിയായാണ്. ക്ഷതമുള്ളവൻ ക്ഷമിക്കുന്നവനാകുമ്പോഴാണ് അവൻ ഉത്ഥിതന്റെ സ്വന്തമാകുന്നത്. ക്രിസ്തുവിന്റെ ബലമെന്നത് അവന്റെ മുറിവുകളായിരുന്നു. മുറിവേറ്റ ക്രിസ്തുവിന്റെ മുറിവുകളിൽനിന്നു നിർഗ്ഗളിച്ചതു സ്നേഹത്തിന്റെ ചോരയും നീരുമായിരുന്നു. അവിടുത്തെ ഹൃദയരക്തത്തിൽ രചിച്ച സ്നേഹത്തിന്റെ കവിതയാണ് ഹൃദയം കുത്തിത്തുറന്നപ്പോൾ പുറത്തുവന്നത്. "സർവ്വനീതിയും പൂർത്തിയാക്കാൻ"(Mt. 3:15) ജ്ഞാനസ്നാനം സ്വീകരിച്ചവൻ, "എനിക്കൊരു മാമ്മോദീസ മുങ്ങുവാനുണ്ട്, അത് പൂർത്തിയാകുന്നതുവരെ ഞാൻ അസ്വസ്ഥനാകുന്നു" (Lk.12:50) എന്ന് പറഞ്ഞവൻ, കുരിശിൽ കിടന്നു തന്റെ അവസാനത്തുള്ളി രക്തവും വാർന്നുകൊണ്ടു പറയുന്നത് "എല്ലാം പൂർത്തിയായി"(Jn. 19:30) എന്നാണ്. മനുഷ്യവംശത്തോടുള്ള തന്റെ സ്നേഹമാണ് മരണത്തേക്കാൾ ശക്തമെന്നു കാണിക്കാനാണ് ആത്മാവിനെ വെടിഞ്ഞശേഷവും രണ്ടുമൂന്നു തുള്ളി അമൃല്യരക്തം "ദൈവിക ലുബ്ധനായ" ക്രിസ്തു തന്റെ ശരീരത്തിൽ "പൂഴ്ത്തിവെച്ചതെ"ന്നാണ് ബിഷപ്പ് ഫുൾട്ടൻ ജെ. ഷീൻ പറയുന്നത്. മുറിവേറ്റ ക്രിസ്തുവിനെ ആദ്യം തള്ളിപ്പറഞ്ഞ പത്രോസ് പഞ്ചക്ഷതയാരിയായ ക്രിസ്തുവിന്റെ പടത്തലവനായി മാറിയ ചരിത്രമാണ് തിരുസഭയുടേതെന്നതും നാം മറന്നുകൂടാ. മുറിക്കപ്പെടുന്നത് തൃപ്തരാകുമ്പോഴും ഭക്ഷിക്കാൻ കൊടുക്കാനാണ് എന്ന് അഞ്ചപ്പവും രണ്ടുമീനും മുറിച്ചു നൽകിയപ്പോൾ അവിടുന്നു നമ്മെ പഠിപ്പിച്ചു. "വിഭജിച്ച് ഭരിക്കുക" എന്ന രാഷ്ട്രമീമാംസ തത്വത്തിന്റെ കാലഘട്ടത്തിൽ "വിഭജിച്ചു പങ്കുവയ്ക്കുക " എന്ന ധാർമിക തത്വമാണ് പെസഹാ

അനുസ്മരണത്തിൽ അവിടുന്ന് തെളിവാക്കുന്നത്. “ വിശ്വാസം മൂലം രക്തസാക്ഷികൾ തങ്ങളുടെ ജീവിതം സമർപ്പിച്ചു. സുവിശേഷത്തിന്റെ സത്യത്തിന് സാക്ഷ്യംവഹിച്ചുകൊണ്ട് അങ്ങനെ ചെയ്തു. ആ സത്യം അവരെ രൂപാന്തരപ്പെടുത്തി. സ്നേഹത്തിന്റെ ഏറ്റവും വലിയ ദാനം നേടാൻ അത് അവരെ ശക്തരാക്കി. തങ്ങളെ പീഡിപ്പിച്ചവരോട് ക്ഷമിക്കാനുള്ള കഴിവാണു് ആ ദാനം.” (വിശ്വാസത്തിന്റെ വാതിൽ, നമ്പർ 13). ആന്തരിക മുറിവുകൾ ജീവിതത്തിൽ നിറയുമ്പോൾ മുറിവേറ്റ സിംഹത്തിന്റെ രൂദ്രഭാവമല്ല മറിച്ച്, മുറിവേറ്റ ക്രിസ്തുവിന്റെ ആർദ്രഭാവമാണ് ഞാൻ ഉൾക്കൊള്ളേണ്ടത് എന്ന് നമ്മെ അനുസ്മരിപ്പിച്ചുകൊണ്ടാണ് ഉയിർപ്പു തിരുന്നാൾ ആഗതമാകുന്നത്.

വി. പൗലോസ് ശ്ലീഹ പറയുന്നതുപോലെ നമ്മുടെ എല്ലാവരുടെയും ശരീരത്തിൽ ബലഹീനതയുടെ ഓരോ മുളളുകൾ നൽകപ്പെട്ടിട്ടുണ്ട് (2. Cor. 12: 7-10). അത് നാം ക്രിസ്തുവിൽ പൂർണ്ണമായ പ്രത്യാശ അർപ്പിച്ചു ജീവിക്കുന്നതിനാണ്. കാരണം എന്റെ ബലഹീനതയിലാണ് അവിടുത്തെ ശക്തി പൂർണ്ണമായും തിരിച്ചറിയാൻ എനിക്ക് സാധിക്കുന്നത്. എന്റെ നിസ്സാരതയെക്കുറിച്ചു എനിക്ക് എത്രമാത്രം ബോധ്യമുണ്ടോ അത്രയധികമായി ദൈവത്തിന്റെ ശക്തി എന്നിൽ പ്രകടമാകും. ഞാൻ എന്റെ ബലഹീനത കൊണ്ട് എന്റെ സഹോദരനെ/ സഹോദരിയെ മനസാ-വാചാ-കർമ്മണാ കുത്തിമുറിവേല്പിച്ചുപോയ അവസരങ്ങളെ തിരിച്ചറിയുകയും ആ മുറിവുകളിലേക്കു നോക്കി “എന്റെ സഹോദരന്റെ കാവൽക്കാരനാ”കേണ്ടിയിരുന്നവനായിരുന്നല്ലോ ഞാൻ എന്ന് പശ്ചാത്താപത്തോടെ ഹൃദയത്തിൽ വിളിച്ചു പറയുകയും ചെയ്യേണ്ട അവസരമാണ് ഉത്ഥാനത്തിരുന്നാൾ. ഞാൻ ആരായാലും ശരി എന്റെ ജീവിതത്തിലെ തെറ്റുകൾ തുടരാനുള്ളതല്ല പിന്നെയോ അവ തിരുത്തപ്പെടേണ്ടതാണ് എന്ന് വി. മരിയ ഗൊരേത്തിയുടെ അന്തകനായ അലക്സാണ്ടറിന്റെയും ഭാരതത്തിലെ ആദ്യ ഏതദേശീയ രക്തസാക്ഷിണിയായ വാഴ്ത്തപ്പെട്ട സി. റാണിമരിയയുടെ ഘാതകനായ സമുന്ദർ സിങ്ങിന്റെയും മാനസാന്തരങ്ങൾ നമ്മെ ഓർമ്മിപ്പിക്കുന്നു. അതോടൊപ്പം ഞാൻ കുത്തിമുറിവേല്പിച്ചവർ സത്യമായും ദൈവാംശം നിറഞ്ഞവരായിരുന്നു എന്നും അവരോട് ഞാനതു ചെയ്തപ്പോൾ “എന്നോട് തന്നെയാണ് നിങ്ങൾ അത് ചെയ്തത്” എന്ന ക്രിസ്തു വാക്യാനുസ്മരണവുമാണ് നമ്മുടെ ഉള്ളിൽ നിറയുന്നത്. അങ്ങനെ എന്റെ ചുറ്റുമുള്ളവരിലെ ദൈവികസാന്നിധ്യത്തെക്കുറിച്ചു ധ്യാനിക്കുവാനും “തങ്ങൾ കുത്തി മുറിവേല്പിച്ചവനെ അവർ നോക്കി നിൽക്കും” എന്ന ഈ തിരുവചനം നമ്മെ ക്ഷണിക്കുന്നു. മോശ മരുഭൂമിയിൽ ഉയർത്തിയ പിള്ള സർപ്പത്തെ നോക്കിയവരെല്ലാം സുഖപ്പെട്ടെങ്കിൽ പിതൃഭവനത്തിൽനിന്നിറങ്ങിവന്നവൻ തിരികെ കയറിപ്പോകുമ്പോൾ അവനെ നോക്കുന്നവർക്കെല്ലാം അവൻ നിത്യരക്ഷയുടെ ഉറവിടമായിരിക്കുമെന്നതിനാൽ ആ മാതൃക

പിന്തുടർന്ന് ക്രിസ്തുവിനെയും അവിടുന്നിൽ മുറിവേറ്റവരെയും പ്രതീക്ഷയോടെ നമുക്ക് നോക്കാം. അതോടൊപ്പം ഞാൻ മൂലം മുറിവേറ്റവരെ പശ്ചാത്താപത്തോടെ നോക്കിക്കൊണ്ട് സ്നേഹത്തിന്റെയും ശുശ്രൂഷയുടെയും പ്രവാചകരാകാൻ ആത്മാർത്ഥമായി പരിശ്രമിച്ചുകൊണ്ടു യഥാർത്ഥ ഉത്ഥിതസമൂഹമായി നമുക്ക് മാറാം. അങ്ങനെ കുത്തി മുറിവേൽപ്പിച്ചവനെ നിർവീകാരതയോടെ നോക്കിനിൽക്കുന്ന ഒരു ജനമാകാതെ അപരന്റെ മുറിവിൽ ലേപനമായി മാറുന്ന ഒരു ദൈവികജനമായി മാറാൻ പരിശ്രമിക്കാം. “മുറിവേറ്റ ക്രിസ്തുവാൻ യഥാർത്ഥ ക്രിസ്തു; മുറിവേറ്റ സഭയാണ് യഥാർത്ഥ സഭ; മുറിവേറ്റ ക്രിസ്ത്യാനിയാണ് യഥാർത്ഥ ക്രിസ്ത്യാനി” എന്ന ബിഷപ്പ് ഫുൾട്ടൻ ജെ. ഷീനിന്റെ ഓർമ്മപ്പെടുത്തൽ ഹൃദയത്തിൽ സ്വീകരിച്ചുകൊണ്ട് “മുറിവേറ്റ സൗഖ്യദായകനായ” ക്രിസ്തുവിന്റെ പാത പിന്തുടരുന്നവരാകാം.

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Fulton J Sheen (1958). Life of Christ. Doubleday

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മനനഭൂവെന്ന കലാലയം

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പ്രബന്ധസംഗ്രഹം

മൗനത്തിലും ശാന്തതയിലുംനിന്ന് ശക്തി സംഭരിച്ചുകൊണ്ട് ജീവിതത്തെ പടുത്തുയർത്തുവാനും നവീകരിക്കുവാനും നമുക്ക് കഴിയണം. പ്രവാചകപ്രമുഖനായ ഏലിയായും പുതിയനിയമത്തിനു വഴികാട്ടിയായ സ്നാപകനും ക്രിസ്തുനാമനുമെല്ലാം മരുഭൂമിയിലെ ഏകാന്തതയിൽ, മനനഭൂവെന്ന കലാലയത്തിൽ തങ്ങളുടെ വിദ്യാഭ്യാസം പൂർത്തിയാക്കിയവരാണ്. അശ്രോവ്യമായതിന്റെ ശ്രവണം നമ്മുടെ കാഴ്ചപ്പാടുകളെ അന്വേ മാറ്റിമറിക്കുന്നു.

കീലപദങ്ങൾ: മൗനം, ശാന്തത, ജീവിതനവീകരണം.

ഭരണനിർവഹണരംഗത്ത് പ്രവർത്തിക്കുന്നവർക്ക് ഗുരുക്കന്മാർ സാധാരണ കൊടുക്കുന്ന ഒരുപദേശമാണ് “കാനനനാദം” എന്ന ഉപമയുടെ സാരാംശം. അതിപ്രകാരമാണ്: എ. ഡി.മൂന്നാം നൂറ്റാണ്ടിൽ ജീവിച്ചിരുന്ന താവോ രാജാവ് തന്റെ മകൻ തായിയെ രാജകലകൾ അഭ്യസിപ്പിക്കാനായി പാൻ-കു എന്ന മഹാഗുരുവിനടുത്തേക്കു അയച്ചു. മഹാഗുരു കാനന നാദം ശ്രവിക്കാനായി തായിയെ മിങ്-ലി വനത്തിലേക്കയച്ചു. ഒരു വർഷത്തിനുശേഷം തിരിച്ചെത്തിയ രാജകുമാരൻ താൻ ശ്രവിച്ച കിളിനാദത്തെക്കുറിച്ചും ചീവീടിന്റെ മൂളലിനെക്കുറിച്ചും മരങ്ങളുടെ മർമ്മരത്തെക്കുറിച്ചും ഗുരുവിനോട് വാതോരാതെ വർണ്ണിച്ചു. തനിക്കു കൂടുതലായി എന്തൊക്കെ കേൾക്കാൻ സാധിക്കുമെന്ന് ഒന്ന് കൂടി നോക്കുവാൻ പറഞ്ഞുകൊണ്ട് തായിയെ മഹാഗുരു വീണ്ടും വനത്തിലേക്കയച്ചു. ഇനിയെന്തുണ്ട് എന്നു കരുതി ഇതികർത്തവ്യതാമൂഢനായി അവൻ ദിനരാത്രങ്ങൾ ചിലവഴിച്ചു. അങ്ങനെ ഒരു സുപ്രഭാതത്തിൽ ഒരു വൃക്ഷച്ചുവട്ടിൽ ധ്യാനാത്മകമായി ഇരുന്ന അവന്റെ കാതുകളിൽ ഇതുവരെ കേൾക്കാത്ത ചില മൃദുലസ്വരങ്ങൾ മുഴങ്ങാൻ തുടങ്ങി. ജ്ഞാനോദയം ഉണ്ടായ അവൻ കൂടുതൽ ജിജ്ഞാസയോടെ കാതു കൂർപ്പിച്ചിരുന്നു. മഹാഗുരുവിനെ സമീപിച്ച അവൻ സന്തോഷത്തോടെ പറഞ്ഞു. “ഗുരോ, ഞാൻ മുഴുമനസ്സോടെ ശ്രവിച്ചപ്പോൾ ആശ്രോവ്യമായിരുന്ന പലതും എനിക്ക് ശ്രോവ്യമായിത്തീർന്നു. പൂക്കൾ വിടരുന്നതിന്റെയും സൂര്യകിരണങ്ങൾ ഭൂമിയെ വാരിപ്പുണരുന്നതിന്റെയും പുൽച്ചെടികൾ തുഷാരബിന്ദുക്കൾ നുകരുന്നതിന്റെയും മൃദുലനാദം ഞാൻ കേട്ടു.” ഗുരു അവനോട് പറഞ്ഞു, “ആശ്രോവ്യമായതു ശ്രവിക്കുക; അത് തന്നെയാണ് നിനക്കുണ്ടാകേണ്ട ഏറ്റവും വലിയ ഗുണം. എങ്കിൽ മാത്രമേ

മറ്റുള്ളവരുടെ ഹൃദയങ്ങളോട് ചേർന്നിരിക്കാൻ, അവരുടെ വെളിപ്പെടാത്ത വികാരങ്ങൾ കേൾക്കാൻ, രഹസ്യമായിരിക്കുന്ന വേദനകൾ അറിയാൻ, പുറത്തുപറയാത്ത പരാതികൾ ഗ്രഹിക്കാൻ, അവരിൽ ആത്മവിശ്വാസം ജനിപ്പിക്കാൻ, അവരുടെ ആവശ്യങ്ങൾ മനസ്സിലാക്കാൻ, ഉപരിപ്ലവമായ സ്തുതിപാഠകവചനങ്ങൾ തിരിച്ചറിയാൻ, തെറ്റുകൾ സ്വയം കണ്ടെത്തി തിരുത്താൻ നിനക്കു സാധിക്കൂ”.

നോമ്പുകാലം ആത്മപരിശോധനയുടെയും സ്വയം വിശകലനത്തിന്റെയും ഒരു കാലഘട്ടമാണ്. ഞാനാരോ ആണെന്ന ഭാവത്തെ ത്യജിച്ച് ഞാനാരാകണം എന്ന് സ്വയം ചോദിക്കേണ്ട ഒരു സമയം. അത് നിശബ്ദതയുടെ, മനനത്തിന്റെ, ചെവിയോർക്കലിന്റെ കാലമാണ്. പ്രവാചകപ്രമുഖനായ ഏലിയായും പുതിയനിയമത്തിനു വഴികാട്ടിയായ സ്നാപകനും ക്രിസ്തുനാഥനുമെല്ലാം മരുഭൂമിയിലെ ഏകാന്തതയിൽ, മനനഭൂവെന്ന കലാലയത്തിൽ തങ്ങളുടെ വിദ്യാഭ്യാസം പൂർത്തിയാക്കിയവരാണ്. “പുലി പതുങ്ങുന്നതു കുതിക്കാനാണ്” എന്നത് “കുതിക്കണമെങ്കിൽ പതുങ്ങിയാലേ സാധിക്കൂ” എന്ന തിരിച്ചറിവാണു നമുക്ക് പകർന്നു തരുന്നത്. സങ്കീർത്തകവചനങ്ങൾ ഇത്തരൂണത്തിൽ ശ്രദ്ധേയമാണ്; “ശാന്തമാകുക, ഞാൻ ദൈവമാണെന്നറിയുക (സങ്കീ. 46.10).

ഹോറെബ് മലയിൽ മൃദുലവും നിശബ്ദവുമായ ഇളംതെന്നലിൽ ദൈവവുമായുള്ള കണ്ടുമുട്ടലിന്റെ ഉച്ചകോടിയിൽ എത്തുന്ന നിമിഷം വരെയും ഓരോ സംഭവവികാസങ്ങളിലും വിശുദ്ധ ഗ്രന്ഥത്തിലെ തന്റെ പ്രതിഛായയ്ക്കു അനുയോജ്യമാംവിധം വിശുദ്ധീകരണത്തിന് വിധേയനായിക്കൊണ്ടും ബോധദീപ്തി ആർജിച്ചുകൊണ്ടും തന്റെ പ്രവാചകശുശ്രൂഷയുമായി മുന്നേറിയ വ്യക്തിയായിരുന്നു ഏലിയാ പ്രവാചകൻ(ഉണർന്നിരിക്കുവിൻ- സന്യസ്തവർഷ പ്രബോധനം (2015), No. 6). സൈന്യങ്ങളുടെ കർത്താവായ ദൈവത്തെക്കുറിച്ചുള്ള തീക്ഷ്ണതയാൽ എറിഞ്ഞിരുന്ന (1 Kings. 19:10) അദ്ദേഹത്തിന് ഭയത്തെയും ശക്തിയെയുംകുറിച്ചുള്ള തന്റെ തന്നെ വിശ്വാസ സങ്കല്പങ്ങൾ ആ പ്രാർത്ഥനാനുഭവത്തിൽ തകർക്കപ്പെടുകയാണ്. താൻ പ്രാർത്ഥിക്കുമ്പോൾ ഉണ്ടായ കൊടുങ്കാറ്റിലോ ഭൂകമ്പത്തിലോ അഗ്നിയിലോ കർത്താവിനെ കാണാൻ കഴിയാതിരുന്ന പ്രവാചകൻ മന്ദമാരുതന്റെ ശാന്തതയിൽ കർത്താവിനെ കണ്ടെത്തുകയാണ്. അതുവരെ പ്രവാചകന്മാരിൽ താൻ മാത്രമേ വിശ്വസ്തനായി അവശേഷിക്കുന്നുള്ളൂ എന്ന തെറ്റിദ്ധാരണയിൽ മാനസികത്തകർച്ച ബാധിച്ചു ജീവിച്ച പ്രവാചകൻ ഏഴായിരത്തിലധികം വിശ്വസ്തസാക്ഷികൾ ഇനിയുമുണ്ടെന്ന തിരിച്ചറിവ് നേടുകയും തുടർന്ന് എലീഷായെ കണ്ടെത്തി തന്റെ പിൻഗാമിയായി അവരോധിക്കുകയും

ചെയ്തു (ഉണർന്നിരിക്കുവിൻ- No. 6). ആശ്രാവ്യമായതിന്റെ ശ്രവണം നമ്മുടെ കാഴ്ചപ്പാടുകളെ അന്വേ മാറ്റിമറിക്കുമെന്നതിനു ഇതിൽപ്പരം ഒരുകാരനും ആവശ്യമുണ്ടോ?

സ്നാനം ചെയ്തുകൊണ്ടിരിക്കുന്ന കാലത്ത് എന്ന തത്ത്വചിന്തകന്റെ വാക്കുകൾ ഇപ്രകാരമാണ്, "അദ്ദേഹത്തിന്റെ നിശ്ചിതയുടെ സുവിശേഷം വ്യാഖ്യാനിക്കാൻ ഇരുപതിലധികം പുസ്തകങ്ങൾ വേണ്ടിവരും". "മരുഭൂമിയിൽ വിളിച്ചു പറയുന്നവന്റെ ശബ്ദം" എന്ന് സ്നാനം ചെയ്തുകൊണ്ടിരിക്കുമ്പോൾ കൊടുങ്കാറ്റിലും അഗ്നിയുടെയും മൃഗങ്ങളുടെയും സംസാരിക്കാതെ മനമാരുതന്റെ മൃഗങ്ങളിൽ ഏലിയാ പ്രവാചകനോട് സംസാരിച്ച ദൈവത്തിന്റെ (1. Kings. 19: 12) പ്രതിനിധിയെന്നും മരുഭൂമിയിലേക്ക് ഹൃദയമായ ഇടത്തുപോലും നിറസാന്നിധ്യമായ വചനത്തിന്റെ പ്രതിബിംബമെന്നും മണൽക്കൊടുമ്പോലെയുള്ള മനസുകളിലേക്ക് പെയ്തിറങ്ങുന്ന ദൈവികസ്വരമെന്നും നമുക്കതിനെ കാണാനാകും. മൗനം വാചാലമാണ് എന്ന് പറയുമ്പോൾ ദൈവികമായ ഈ വാചാലത നാം ശീലിക്കണമെന്നല്ലേ അതിനർത്ഥം?

ക്രിസ്തുനാമന്റെ മരുഭൂമിയനുഭവവും ഇത്തരം തരത്തിൽ തന്നെത്തന്നെ പരസ്യജീവിതത്തിനു ഒരുകുന്ന ഒരു കാലഘട്ടമായിരുന്നു. മൂന്നു വർഷത്തെ പ്രവർത്തനത്തിനു മൂപ്പതു വർഷങ്ങളാണ് അവിടുന്ന് ഒരങ്ങിയത്. തന്റെ ലക്ഷ്യത്തിലേക്കുള്ള യഥാർത്ഥ മാർഗമേതെന്ന് അവിടുന്ന് തിരിച്ചറിയുകയാണ്; അതിന്റെ സാധ്യതകളും ബാധ്യതകളും ഗ്രഹിച്ചുകൊണ്ടു അതിലുണ്ടാകാവുന്ന വാഴ്ചകളും വീഴ്ചകളും വിവേചിക്കാനായിട്ടാണ് നാല്പതു ദിനരാത്രങ്ങൾ അവിടുന്ന് ചിലവഴിച്ചത്. മൂന്നു പ്രലോഭനങ്ങളും സാരാംശത്തിൽ ഒന്ന് തന്നെയാണ്: ഉപരിപ്ലവമായ ദൈവവിശ്വാസത്തിനും അതോടൊപ്പം ദൈവനിഷേധത്തിനുമുള്ള ഒരാഹ്വാനം! (Pope Benedict XVI, Jesus of Nazareth, p. 28). മനുഷ്യചരിത്രത്തിന്റെ ഒരു ധ്യാനാത്മക പുനർവായന ക്രിസ്തുനാമൻ ഇവിടെ നടത്തുന്നതു നാം കാണുന്നു. അതുകൊണ്ടു തന്നെയാണ് മനുഷ്യചരിത്രം രക്ഷാകരമാണെന്നുള്ള പഴയനിയമധ്യാനം അതിന്റെ അവിദ്യാജ്യ ഘടകമായി സുവിശേഷഭാഗത്തു നാം കാണുന്നത്. അതിലൂടെ തന്റെ ദൗത്യം എന്തെന്ന് അതിന്റെ പൂർണ്ണതയിൽ അവിടുന്ന് ഗ്രഹിക്കുന്നു. തൻമൂലം "അവൻ എല്ലാ കാര്യങ്ങളിലും തന്റെ സഹോദരരോട് സദ്യശ്യനാകാൻ" (Heb.2:17) തീരുമാനിക്കുന്നു. ദാരിദ്ര്യവും വേദനയും കഷ്ടതയുമെല്ലാം ദൈവശാപമെന്നു വിചാരിച്ചവരോട് അവ ഭാഗ്യദായകമെന്നും (Mt. 5:1-12) ജനത്തിന്റെ അടിമത്തമെന്നത് യഥാർത്ഥത്തിൽ പാപത്തിന്റെ ബന്ധനമാണെന്നും പല രോഗങ്ങൾക്കും കാരണം മനസിലുള്ള വെറുപ്പും വിദ്വേഷവുമാണെന്നും സഹോദരനോട് ഹൃദയപൂർവ്വം ക്ഷമിക്കുമ്പോൾ

അത് സൗഖ്യദായകമാണെന്നുമുള്ള നവീന ചിന്തയല്ലേ അവിടുന്ന് നമുക്ക് പകർന്നു തരുന്നത്?

ഏകാന്തതയിൽ ക്രിസ്തുവിൽ നിർലീനരാകാൻ വെമ്പിയ ചില ഹൃദയങ്ങളിൽനിന്നാണ് കത്തോലിക്കാ സഭയിലെ സന്യാസജീവിതം മുളയെടുത്തത്. ഈ സന്യാസ ജീവിത മാതൃകകൾ പിന്നീട് സഭയുടെ ജീവശ്വാസമായി മാറി. സഭയെന്ന ശരീരത്തിന്റെ ജീവനാഡിയായി മാറിക്കൊണ്ട് അതിനെ സ്നേഹത്തിന്റെയും സേവനത്തിന്റെയും പര്യായമാക്കുവാനും അങ്ങനെ "ദൈവം സ്നേഹമാണെന്നു" ലൗകായതിക ലോകത്തിൽ പ്രത്യക്ഷ സാക്ഷ്യമാകാനും സന്യാസജീവിതത്തിനു സാധിച്ചത് ഈ ധ്യാനാത്മകതയിൽനിന്നുമാണ്. കേരള നവോത്ഥാന നായകരിൽ അഗ്രഗണ്യനായിത്തീർന്ന വി. ചാവറ കുര്യാക്കോസ് എലിയാസ് എന്ന കർമ്മലീത്ത മിഷനറിയുടെ ജീവിതശൈലി "പ്രാർത്ഥനയിൽനിന്നുരുത്തിരിയുന്ന പ്രവർത്തന"മായിരുന്നു. "മനുഷ്യരാശിയോടുള്ള കാരുണ്യം ലബനോൻ വനംപോലെ ക്രിസ്തുവിന്റെ മനസ്സിൽ തഴച്ചു നിന്നതിനാൽ സ്നേഹത്തിന്റെ വീഞ്ഞും ധ്യാനവും നിറഞ്ഞ മനസ്സുമായി ക്രിസ്തു കുരിശിലേക്കു നടന്നു" എന്നാണ് കെ.പി. അപ്പൻ തന്റെ "ബൈബിൾ: വെളിച്ചത്തിന്റെ കവചം" എന്ന കൃതിയിൽ പറഞ്ഞുവയ്ക്കുന്നത്. അങ്ങനെ അവിടുന്ന് നിന്ദ്യമായതിനെ വന്ദ്യമാക്കിത്തീർത്തു. "ക്രിസ്തുവിലായിരിക്കുന്ന ഒരാൾ സ്വയം പുതിയ സൃഷ്ടിയായിത്തീരുന്നു. അയാൾ അയാളായിത്തന്നെ ഇരുന്നുകൊണ്ട് ക്രിസ്തുവിലേക്കു, കുരിശിലേക്കു വളരണം". എന്നാൽ പലപ്പോഴും 'കുരിശിലേക്കു യാന്ത്രികമായി വളർന്നുകൊണ്ട്' നാം ക്രിസ്തുവിനെ മറക്കുന്നു എന്ന മുന്നറിയിപ്പ് കൂടി അദ്ദേഹം പങ്കുവയ്ക്കുന്നുണ്ട്. ഇത്തരം ആപത്തുകൾക്കുള്ള ഒരു പ്രതിവിധിയാകട്ടെ ഏകാന്തതയിൽ, ഏകാഗ്രമായി, ഏക മനസ്സോടെ, "നാമാ, അരുളിച്ചെയ്താലും, അങ്ങയുടെ ദാസനിതാ/ ദാസിയിതാ ശ്രവിക്കുന്നു"(1 Sam. 3:10) എന്ന മനോഭാവത്തോടെ ആശ്രാവ്യമായതിന്റെ ശ്രവണത്തിനുള്ള ഈ നോമ്പുകാലത്തെ നമ്മുടെ പരിശ്രമം.

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തൊഴിലിടങ്ങളിലെ ചെറുതിരി വെളിച്ചങ്ങൾ

ജോമോൻ കൊട്ടാരത്തിൽ ^{1*}, സി.സിജോ ഫ്രാൻസിസ് ^{1*}, സി. ബെറ്റ്സി പോൾ ^{1*} & ബിജു സ്കറിയ ^{1*}

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പ്രബന്ധസംഗ്രഹം

ഏതൊരു തൊഴിലും മഹത്തരമാണ്; അതിന്റെ മഹത്വമെന്നത് അത് ചെയ്യുന്നവരുടെ മഹത്വത്തെ ആശ്രയിച്ചിരിക്കുന്നു. അന്നദാതാവായ ദൈവപുത്രന്റെ ഭൂമിയിലെ വാസസമയത്തു അന്നനുഭവേണ്ടുന്ന ആഹാരത്തിനായി അധ്വാനിച്ച അദ്ദേഹം തന്റെ നെറ്റിയിലെ വിയർപ്പുകൊണ്ട് അന്നം തേടുന്ന ഏതൊരു വേലയും ഏറ്റവും മഹത്കരമെന്നു തന്റെ സൗമ്യവും ശാന്തവും കുലീനവും എളിമയാർന്നതുമായ തച്ചത്വത്തിലൂടെ നമുക്ക് കാണിച്ചുതന്നു.

കീലപദങ്ങൾ: തൊഴിൽ, അർപ്പണമനോഭാവം, വി. യൗസേപ്പ്

കർണ്ണാടക നിയമസഭാ മന്ദിരമായ വിധാനസൗധയുടെ മുകളിൽ ആലേഖനം ചെയ്തിരിക്കുന്ന വരികൾ ഇപ്രകാരമാണ്; “സർകാരദ കെലസ ദേവര കെലസ” (രാജ്യഭരണം ദൈവികവേലയാണ്). വളരെ മഹത്തായ ഉദ്യമത്തിലാണ് തങ്ങൾ ഏർപ്പെട്ടിരിക്കുന്നത് എന്ന് അവിടെ ജോലിക്കായി എത്തുന്ന ഓരോരുത്തരെയും ഈ പ്രമാണസൂക്തം ഓർമ്മപ്പെടുത്തുകയാണ്. വി.ബൈബിളിലെ ഒരു വചനം നേരിട്ട് ആദർശവാക്യമായി സ്വീകരിച്ചിരിക്കുന്ന ഏക അമേരിക്കൻ സംസ്ഥാനമായ ഒഹിയോയുടെ ആപ്തവാക്യവും ഇത്തരൂണത്തിൽ ശ്രദ്ധേയമാണ്; “ദൈവത്തോടു കൂടി എല്ലാം സാധ്യമാണ്” (Mt.19:26) (Greek: para de Theō panta dynata). ഇപ്രകാരം പല ഭരണകൂടങ്ങളും തങ്ങളുടെ പ്രവർത്തികളിൽ ദൈവികമായ ഒരു അംശം നേരിട്ടോ പരോക്ഷമായോ കാണുവാൻ ആഗ്രഹിക്കുന്നവരാണ്. ഏതൊരു തൊഴിലും ദൈവോന്മുഖമായിരിക്കണമെന്നും തൊഴിൽ ചെയ്യാൻ നമ്മെ ശക്തിപ്പെടുത്തുന്നത് ദൈവമാണെന്നും തൊഴിലിടങ്ങളിലെ ദൈവികസാന്നിദ്ധ്യസ്മരണ നമ്മെ കൂടുതൽ വിവേകത്തോടും അർപ്പണബുദ്ധിയോടും ഉത്തരവാദിത്വങ്ങൾ നിർവഹിക്കാൻ പ്രാപ്തരാക്കുമെന്നും അനുസ്മരിപ്പിക്കുന്നതാണ് ഇത്തരത്തിലുള്ള ആപ്തവാക്യങ്ങൾ. ‘താൻ പാതി, ദൈവം പാതി’ എന്ന പഴഞ്ചൊല്ലും “കർത്താവു ഭവനം പണിയുന്നില്ലെങ്കിൽ പണിക്കാരുടെ അധ്വാനം നിഷ്ഫലമാണ്” എന്ന സങ്കീർത്തക വചനഭാഗത്തിനു അടിവരയിടുന്നതാണ്. തന്നെ ഏൽപ്പിക്കുന്ന ഉത്തരവാദിത്വങ്ങൾ എത്രമാത്രം വിശ്വസ്തതയോടെ നിർവഹിക്കാൻ ഒരു വ്യക്തിക്കു സാധിക്കുമെന്നും സാധിക്കണമെന്നുമുള്ള ചിത്രങ്ങളാണ് ക്രിസ്തുനാഥൻ തന്റെ ജീവിതത്തിലൂടെയും സാരോപദേശങ്ങളിലൂടെയും വരച്ചു കാണിക്കുന്നത്. എല്ലാ ഭക്ഷണപദാർത്ഥങ്ങളും ശുദ്ധമാണെന്നു പ്രഖ്യാപിച്ചവൻ (Mk. 7:19) സാധാരണക്കാരിൽ സാധാരണക്കാരനായി

ജീവിച്ചുകൊണ്ട് തച്ചൻറെ മകനെന്ന പുച്ഛസ്വരത്തിലുള്ള വിളികളെ (Mt.13:55) മനസ്മിതം പൊഴിച്ചുകൊണ്ട് നേരിടുമ്പോൾ, ഭൂമിയിൽ ഏതു ജോലിയും മഹത്തരമെന്നുള്ള മറ്റൊരു പ്രഖ്യാപനമല്ലേ അവിടെ നടത്തുന്നത്?

ഭാരതരത്നജേതാവു മുൻ രാഷ്ട്രപതിയുമായ ഡോ. എ.പി.ജെ.അബ്ദുൾകലാം തൻറെ ജീവിതത്തിലെ ഒരനുഭവം വിവരിക്കുന്നത് ഇപ്രകാരമാണ്. തിരുച്ചിറപ്പള്ളി സെയിന്റ് ജോസഫ് കോളേജിലെ പഠനകാലത്തു ഒരിക്കൽ വീട്ടിൽ ചെന്നപ്പോൾ ഉമ്മയോട് “എൻറെ പ്രായത്തിൽ ഉപ്പ എങ്ങനെയിരുന്നു” എന്ന് ചോദിച്ചപ്പോൾ ഉമ്മ മറുപടി പറഞ്ഞു “അദ്ദേഹം നിന്നെപ്പോലെയായിരുന്നില്ല, അദ്ദേഹം ഒരിക്കലും ഒരു വക്കീലോ പ്രൊഫസറോ മറ്റെന്തെങ്കിലുമോ ആവാൻ കൊതിച്ചില്ല; ഒരു ഭർത്താവാകാൻ, അച്ഛനാകാൻ, മുത്തച്ഛനാകാൻ മാത്രമേ ആഗ്രഹിച്ചുള്ളൂ. ഈ ദീപിൽ അദ്ദേഹത്തിന് മോഹിക്കാവുന്ന ഒരൊറ്റ തൊഴിലെ ഉണ്ടായിരുന്നുള്ളൂ-കഠിനാധ്വാനിയായ ഒരു പുരുഷനാകുക. അദ്ദേഹത്തിൻറെ ധർമ്മാചരണത്തിൽ ആളുകൾ അദ്ദേഹത്തെ സ്നേഹിച്ചു.” നഗരത്തിൽ ശാസ്ത്രം പഠിച്ചു, ഉന്നത ജോലികളിൽ വിരാജിക്കുന്നതു വലിയ കാര്യമായി കരുതിയ താൻ ഉപ്പയുടെ ലളിതവും നങ്കൂരമിട്ടുമായ ജീവിതത്തെ ആരാധനയോടെ വീക്ഷിക്കുന്ന ഉമ്മയെ കണ്ടപ്പോൾ ചമ്മിപ്പോയി എന്നാണ് “Guiding Souls” എന്ന തൻറെ കൃതിയിൽ രേഖപ്പെടുത്തുന്നത്. എന്ത് ചെയ്യുന്നു എന്നതിനേക്കാൾ എങ്ങനെ ചെയ്യുന്നു എന്നതിനാണ് പ്രാധാന്യമെന്നു ഈ സംഭവം നമ്മെ ഓർമ്മിപ്പിക്കുന്നു. കർമ്മലീത സഭാംഗമായ, സ്നേഹത്തിൻറെ കുറുക്കുവഴിയിലൂടെ ദൈവരാജ്യം കരസ്ഥമാക്കിയ ലിസ്യൂവിലെ കൊച്ചുത്രേസ്യ പുണ്യവതി ഇപ്രകാരം പറയുകയുണ്ടായി: “ദൈവദ്യഷ്ടിയിൽ ഒന്നും ചെറുതല്ല എന്ന് ഓർക്കുക, ചെയ്യുന്ന ഓരോ പ്രവൃത്തിയും സ്നേഹത്തോടെ ചെയ്യുക, അതാണ് ദൈവം ആഗ്രഹിക്കുന്നത്.” ഇത്തരൂണത്തിൽ പാവങ്ങളുടെ അമ്മയായ മദർ തെരേസയുടെ വാക്കുകളും പ്രസക്തമാണ്; “നമുക്കെല്ലാവർക്കും വലിയ കാര്യങ്ങൾ ചെയ്യാൻ സാധിക്കണമെന്നില്ല, പക്ഷെ നമുക്ക് ചെറിയ കാര്യങ്ങൾ വലിയ സ്നേഹത്തോടെ ചെയ്യാൻ കഴിയും .”

തൊഴിലിനെയും തൊഴിലാളിയെയും കുറിച്ച് ചിന്തിക്കുമ്പോൾ തൊഴിലാളി മധ്യസ്ഥനായ വി. യൂസേപ്പിതാവിൻറെ ജീവിതമാണ് നമ്മുടെ മുൻപിൽ ആദ്യം തെളിയുക. ചെറിയ കാര്യങ്ങൾ ചെയ്തുകൊണ്ട് വലിയ മാതൃകയായിത്തീർന്ന ഒരു വ്യക്തിത്വമാണ് അദ്ദേഹത്തിൽ നാം ദർശിക്കുക. വി. യൂസേപ്പിനെക്കുറിച്ചുള്ള സഭയുടെ സമീപകാലത്തെ പ്രബോധനങ്ങളിൽ ആദ്യത്തേത് 1870 ഡിസംബർ 8 ന് ഒൻപതാം പിയൂസ് പാപ്പയുടെ Quemadmodum Deus എന്ന ഡിക്രിയാണ്. സാർവത്രിക സഭയുടെ രക്ഷാധികാരിയായി വി. യൂസേപ്പിനെ

പ്രഖ്യാപിക്കുന്ന ഈ ഡിക്രിയിൽ അദ്ദേഹത്തെ വിശേഷിപ്പിച്ചിരിക്കുന്നത് ദൈവത്തിന്റെ സർവ്വസമ്പത്തിന്റെയും വസ്തുവകകളുടെയും നാമനും അധിപനുമായി നിയമിക്കപ്പെട്ടവനും അവിടുത്തെ ഏറ്റവും മികച്ച നിക്ഷേപങ്ങളുടെ കാവൽക്കാരനുമെന്നാണ്. ഭൂമിയിലെ എല്ലാ ജീവജാലങ്ങളുടെയും (Gen.1:26) കരവേലകളുടെയും (Ps.8:6) അധിപനാക്കി മനുഷ്യനെ മാറ്റിയ ദൈവം ഏറ്റവും അമൂല്യനിധിയായ തന്റെ പുത്രന്റെ മേൽനോട്ടം ഏൽപ്പിച്ചത് വി. യൗസേപ്പിനെയാണ്. അത് മുന്തിരിതോട്ടത്തിലെ കൃഷിക്കാരെപ്പോലെയോ പഴയനിയമ ജനതയെപ്പോലെയോ ലാഘവബുദ്ധിയോടെയും നിരുത്തരവാദിത്വപരമായും അദ്ദേഹം ഒരിക്കലും പെരുമാറില്ല. മറിച്ച് യേശുവിന്റെ ഉപമകളിൽ കാണുന്നതുപോലെ ശത്രുവിന്റെ വാളിനുമുൻപിലും കള്ളന്മാരുടെ മുൻപിലും നെഞ്ചുവിരിച്ചുനിന്നുകൊണ്ട്, തന്നെ ഏൽപ്പിച്ച ജോലികൾ നൂറുശതമാനം വിശ്വസ്തതയോടെ ചെയ്യുന്ന നല്ലിടയനാണ് അദ്ദേഹം എന്ന് ദൈവത്തിനു പൂർണ്ണബോധ്യമുണ്ടായിരുന്നതുകൊണ്ടാണ്. അന്നദാതാവായ ദൈവപുത്രന്റെ ഭൂമിയിലെ വാസസമയത്തു അന്നനുഭവേണ്ടുന്ന ആഹാരത്തിനായി അധാനിച്ച അദ്ദേഹം തന്റെ നെറ്റിയിലെ വിയർപ്പുകൊണ്ട് അന്നം തേടുന്ന ഏതൊരു വേലയും ഏറ്റവും മഹത്കരമെന്നു തന്റെ സൗമ്യവും ശാന്തവും കുലീനവും എളിമയാർന്നതുമായ തച്ചത്വത്തിലൂടെ നമുക്ക് കാണിച്ചുതന്നു. ലിയോ പതിമൂന്നാമൻ മാർപാപ്പ QUAMQUAM PLURIES എന്ന ചാക്രിക ലേഖനത്തിൽ കുടുംബങ്ങൾക്കും ജോലിക്കാർക്കും സവിശേഷവും അനുകരണീയവുമായ മാതൃകയായി വി. യൗസേപ്പിനെ നൽകുന്നു. കുന്നോളം ജോലി ചെയ്താലും കുന്നിക്കുരുവോളമെങ്കിലും ആത്മാർത്ഥത ചാലിക്കുമ്പോഴാണ് ഗുണഭോക്താക്കളിൽ തേൻമധുരസ്മൃതിയേകാൻ അതിന് സാധിക്കുക. ജോലിയുടെ അന്തസ്സും സ്ഥാനവലിപ്പവും നോക്കി നെടുവീർപ്പെടുന്ന വ്യക്തികളോടും സമൂഹങ്ങളോടും "എളിയ തൊഴിലുകളിൽ ലജ്ജാകരമായത് ഒന്നുമില്ലെന്നും പിന്നെയോ, അതിൽ ശ്രേഷ്ഠമനോഭാവം കൂട്ടിച്ചേർക്കുകയാണെങ്കിൽ അതിന്റെ ഔന്നത്യം വർധിക്കുമെന്നും" വി. യൗസേപ്പിന്റെ ഉദാഹരണത്തിലൂടെ പാപ്പാ ഉദ്ബോധിപ്പിക്കുന്നു.

തൊഴിലിനോടുള്ള ഈ മനോഭാവം ജീവിതത്തിലെ ഏതൊരു പ്രവൃത്തിയിലും നിഴലിച്ചു കാണാം. തൊഴിലിനോടുള്ള അപകർഷത ജീവിതത്തോടുള്ള അപകർഷതയാണ്. ജീവിതത്തിലെ ഓരോ നിമിഷത്തിന്റെയും സൗന്ദര്യം ആസ്വദിക്കാൻ കഴിയുന്നവന് ജീവിതവും മധുരതരമായിരിക്കും. കർദ്ദിനാൾ വാൻ തുവാൻ തന്റെ ക്രിസ്തുവിശ്വാസത്തെപ്രതി തടവിൽ കിടന്നപ്പോൾ സ്വതന്ത്രനാക്കപ്പെടുന്ന ദിവസം കാത്ത് സമയം കളയാതെ "വർത്തമാനകാലത്തെ സ്നേഹംകൊണ്ട് അതിന്റെ വക്കുവരെ നിറച്ച്

ജീവിച്ചു.” അദ്ദേഹം ഇപ്രകാരം തീരുമാനിച്ചു. “എന്റെ അനുഭവജീവിതസന്ദർഭങ്ങളൊന്നും നഷ്ടമാക്കാതെ സാധാരണ കർമ്മങ്ങൾ അനിതരസാധാരണവിധത്തിൽ ഞാൻ പൂർത്തിയാക്കും.”

Family Wisdom from the Monk who Sold His Ferrari എന്ന കൃതിയിൽ പ്രശസ്ത പ്രചോദനാത്മക എഴുത്തുകാരനായ Robin Sharma പറയുന്നത് ഇപ്രകാരമാണ്; “നാം പലപ്പോഴും ജീവിതത്തിൽ പ്രമുഖ പുരസ്കാരങ്ങൾ ലഭിക്കാതെ പോകുന്നവരാണ്- നോബൽ സമ്മാനം, പുലിറ്റ്സർ, ഓസ്കാർ, മുതലായവ. പക്ഷേ, നാമെല്ലാം ജീവിതത്തിലെ ചില ചെറിയ സന്തോഷങ്ങൾക്കു അർഹരാണ്- ഒരു തലോടൽ, ഒരു ചുംബനം, ഒരു പൂർണ്ണ ചന്ദ്രൻ, ഒരു സദ്യ, ഒരു വർണ്ണാഭമായ സൂര്യാസ്തമനം, മുതലായവ. വലിയ സ്ഥാനമാനങ്ങൾ കിട്ടാത്തതിൽ ആത്മപീഡാക്ലേശം അനുഭവിക്കുന്നവരാകാതെ ചെറിയ ചെറിയ കൗതുകങ്ങളിൽ ഹർഷപുളകിതരാകൂ; അവ നമുക്കെല്ലാവർക്കും ധാരാളമുണ്ട്.”

നമുക്കും നാം ആയിരിക്കുന്ന ചെറിയ ഇടങ്ങളിൽപ്പോലും ആത്മാർത്ഥതയോടെ ആയിരുന്നുകൊണ്ട് അവിടെ ചെറുതിരി വെളിച്ചങ്ങളാകാൻ പരിശ്രമിക്കാം.

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ഹൃദയത്തിൽ മനുഷ്യന്റെ കയ്യൊപ്പുള്ള ദൈവം

ജോമോൻ കൊട്ടാരത്തിൽ ^{1*}, സി.സിജോ ഫ്രാൻസിസ് ^{1*}, സി. ബെറ്റ്സി പോൾ ^{1*} & ബിജു സ്കറിയ ^{1*}

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പ്രബന്ധസംഗ്രഹം

ക്രിസ്തു ഹൃദയത്തിൽ ദൈവത്തിന്റെ കയ്യൊപ്പുമായാണ് ഭൂമിയിലേക്ക് വന്നത്. പക്ഷേ, തിരിച്ചുപോയത് തന്റെ ഹൃദയത്തിൽ മനുഷ്യന്റെ കൈയ്യൊപ്പുകൾ അവശേഷിപ്പിച്ചുകൊണ്ടാണ്. മനുജകുലം സമ്മാനമായി നൽകിയ മുൾക്കിരീടം ഹൃദയത്തോട് ചേർത്തുവെച്ചുകൊണ്ടാണ്.

കീലപദങ്ങൾ: ഹൃദയം, ദൈവത്തിന്റെ കയ്യൊപ്പു, മനുഷ്യന്റെ കൈയ്യൊപ്പ

മലയാളത്തിന്റെ നലം തികഞ്ഞ കഥാകാരനായ പെരുമ്പടവം ശ്രീധരന്റെ സാർവ്വത്രിക- സാർവ്വകാലീനഭാവങ്ങൾ ഉൾക്കൊള്ളുന്ന അമൂല്യ കലാസൃഷ്ടിയാണ് "ഒരു സങ്കീർത്തനം പോലെ" എന്ന നോവൽ. "ദൈവത്തിന്റെ കയ്യൊപ്പു പതിഞ്ഞ നോവൽ" എന്നാണ് മലയാള സാഹിത്യലോകം ഈ ഉത്കൃഷ്ടരചനയെ വാഴ്ത്തുന്നത്. അതിലെ കേന്ദ്ര കഥാപാത്രങ്ങൾ വിശ്വവിഖ്യാതനായ റഷ്യൻ സാഹിത്യകാരനായ ദസ്തയേവ്സ്കിയും അദ്ദേഹത്തിന്റെ പുതിയ നോവൽ എഴുതുവാൻ സഹായത്തിനു വന്ന അന്ന എന്ന പെൺകുട്ടിയുമാണ്. ഒരു മദ്ധ്യവയസ്കനായ ചിത്രകാരനും നന്നേ ചെറുപ്പക്കാരിയായ പെൺകുട്ടിയുമായുള്ള സ്നേഹബന്ധത്തിന്റെ കഥ പറയാനാഗ്രഹിച്ച ദസ്തയേവ്സ്കി അവസാനം അന്നയെ പ്രണയിച്ച കഥയാണ് ഇതിന്റെ ഇതിവൃത്തം. "ഹൃദയത്തിൽ ദൈവത്തിന്റെ കയ്യൊപ്പ് പതിഞ്ഞ ഒരാൾ" എന്നാണ് ഇവിടെ ദസ്തയേവ്സ്കിയെന്ന സാഹിത്യമഹാമേരുവിനെ പെരുമ്പടവം വിശേഷിപ്പിക്കുന്നത്. ക്രിസ്തുവും ഹൃദയത്തിൽ ദൈവത്തിന്റെ കയ്യൊപ്പുമായാണ് ഭൂമിയിലേക്ക് വന്നത്. പക്ഷേ, തിരിച്ചുപോയത് തന്റെ ഹൃദയത്തിൽ മനുഷ്യന്റെ കൈയ്യൊപ്പുകൾ അവശേഷിപ്പിച്ചുകൊണ്ടാണ്, മനുജകുലം സമ്മാനമായി നൽകിയ മുൾക്കിരീടം ഹൃദയത്തോട് ചേർത്തുവെച്ചുകൊണ്ടാണ്. കുരിശിൽക്കിടക്കുമ്പോഴും മനുഷ്യവംശത്തോടുള്ള സ്നേഹാഗ്നി ജ്വാലയാൽ എരിഞ്ഞിരുന്ന ക്രിസ്തുവിന്റെ ഹൃദയത്തിൽനിന്ന് താൻ സ്നേഹിച്ച ജനത്തിന്റെ കൗതുമനയേറ്റതിന്റെയും മുൾക്കിരീടമുറിവിന്റെയും പരിണിതഫലമായി രക്തം വാർന്നുകൊണ്ടിരിക്കുന്ന വൈരൂഢ്യാത്മകതയാണ് തിരുഹൃദയചിത്രം പലപ്പോഴും നമ്മെ ഓർമ്മപ്പെടുത്തുന്നത്.

വെറുക്കപ്പെട്ട വ്യക്തിത്വങ്ങളായി പലരും എഴുതിത്തള്ളിയവരെയെല്ലാം

അവൻ ഹൃദയത്തോട് ചേർത്തുപിടിച്ചു; അവന്റെ ഹൃദയതാളത്തിന്റെ ലയവിന്യാസങ്ങൾക്കിടയിൽ അവർ തങ്ങളുടെ ജീവിതതാളങ്ങൾ പാടിപ്പിടിച്ചു; അവന്റെ വായ്ത്താരികൾ അവർക്കു ഉണർത്തുപാട്ടുകളായി. എങ്കിലും എല്ലാറ്റിന്റെയും അന്ത്യം മനുഷ്യസഹജമായ ആ വാസന തന്നെയായിരുന്നു-അവർ അവനെ വധിക്കാനായി വിധിച്ചു! നെഞ്ചോടുചേർന്നുനിന്നവൻ ചേർത്തുപിടിച്ചവനെ കമാവശേഷനാക്കുന്നതു പലപ്പോഴും ചലച്ചിത്രകാരന്മാരുടെ ഇഷ്ട വിഷയമാണ്, രാഷ്ട്രീയത്തിലെ നിത്യസംഭവവുമാണ്. എന്നാൽ ഇത്തരമൊരു ഹീനത്വമാർന്ന ജീവിതാനുഭവത്തെ ക്രിസ്തു ചിത്രീകരിക്കുന്നത് എത്ര മധുരവും മനോജ്ഞവും മാതൃകാപരവുമായിട്ടാണ്. കിട്ടിയതൊന്നും അവൻ നഷ്ടപ്പെടുത്തിയില്ല; തന്നതൊന്നും സ്വീകരിക്കാതെയുമിരുന്നില്ല. എല്ലാം തന്റെ ആത്മാവോട് അവൻ ചേർത്തുവെച്ചു.അതിൽ തനിക്കു കിട്ടിയ പരിഹാസമുണ്ടായിരുന്നു; സഹനത്തിന്റെ പാനപാത്രങ്ങളുണ്ടായിരുന്നു; തന്റെമേൽ കാർക്കിച്ചു തൂപ്പിയ തൂപ്പലുണ്ടായിരുന്നു; മുൾക്കിരീടമുണ്ടായിരുന്നു; മുളളാണികളുണ്ടായിരുന്നു; ചക് കുത്തിപ്പിളർന്ന കുന്തമുണ്ടായിരുന്നു. താഴെ വെച്ചാൽ ഉറുമ്പരിക്കും തലയിൽ വെച്ചാൽ പേനരിക്കും എന്ന് പറയുംപോലെ, പ്രപഞ്ചത്തിലെ ഏറ്റവും അമൂല്യനിധിപോലെ .അതീവശ്രദ്ധയോടെ തന്റെ നെഞ്ചോട് ചേർത്തുവെച്ചു. ഒരു കുട്ടി തനിക്കു കിട്ടുന്ന പ്രിയപ്പെട്ട കളിപ്പാട്ടുമെല്ലാം ദൂരദേശത്തു ജോലിചെയ്യുന്ന തന്റെ പിതാവ് വരുമ്പോൾ കാണിക്കാനായി സൂക്ഷിച്ചു വയ്ക്കുന്നതുപോലെ അവൻ അവയെല്ലാം ശേഖരിക്കുകയും തന്റെ ഉത്ഥാനത്തിനുശേഷം തന്റെ പ്രിയപ്പെട്ടവർക്കെല്ലാം അതിന്റെ മിന്നൊളി ദർശനം നൽകുകയും ചെയ്തു. ഈ ആനന്ദാതിരേകത്തിലാണ് തോമാശ്ലീഹാ ക്രിസ്തുവിന്റെ പഞ്ചക്ഷതങ്ങളിലേക്കു കണ്ണോടിച്ചപ്പോൾ "എന്റെ കർത്താവേ, എന്റെ ദൈവമേ" എന്ന് ദീഗന്തങ്ങൾ മുഴങ്ങുമാറ് ഉദ്ഘോഷിച്ചത്; ക്ലയർവോയിലെ വി.ബർണാർഡും അസ്സീസീയിലെ വി. ഫ്രാൻസിസും ക്രിസ്തുവിന്റെ തിരുമുറിവുകളെക്കുറിച്ചു ധ്യാനിച്ചതും പ്രഘോഷിച്ചതും; വി.മാർഗരറ്റ് മേരി അലക്കോക്ക് 17-ആം നൂറ്റാണ്ടിൽ തിരുഹൃദയ ഭക്തിയുടെ പ്രചാരകയായതു; 19-ആം നൂറ്റാണ്ടിൽ ജീവിച്ചിരുന്ന തിരുഹൃദയത്തിന്റെ വാ.മേരി എന്ന നല്ലിടയസഭാ സന്യാസിനി സർവ്വലോകത്തെയും തിരുഹൃദയത്തിനു പ്രതിഷ്ഠിക്കാൻ പതിമൂന്നാം ലിയോ മാർപ്പാപ്പയോട് ആവശ്യപ്പെട്ടത്. തന്റെ ആനന്ദത്തിനു സാക്ഷികളാകാൻ അവിടുന്ന് തന്റെ സ്നേഹിതരെയും ക്ഷണിക്കുകയാണിവിടെ.

"നമ്മുടെ ദുഃഖങ്ങളാണ് അവൻ ചുമന്നത്... അനേകരുടെ പാപഭാരം അവൻ പേറി; അതിക്രമങ്ങൾക്കുവേണ്ടി മാധ്യസ്ഥ്യം വഹിച്ചു."(ഏശ.53:4-12) എന്ന ഏശയ്യാ പ്രവാചകന്റെ

സഹനദാസനെക്കുറിച്ചുള്ള പ്രവചനം ദൈവപുത്രനായ ക്രിസ്തു തന്റെ ശരീരത്തിൽ സ്വീകരിക്കുവാനിരുന്ന 'മനുഷ്യന്റെ കയ്യൊപ്പി'നെ സൂചിപ്പിക്കുന്നതാകാം. അതുവഴിയായി മനുഷ്യനോട് കൂടുതൽ താദാത്മ്യപ്പെടുവാനും പെസഹാക്കുത്താടിനെപ്പോലെ മനുഷ്യ വർഗ്ഗത്തിനുമുഴുവൻ വേണ്ടി തന്നെത്തന്നെ കാഴ്ചയായി നൽകാനും അവിടുന്ന് തിരുമനസ്സായി. അതിൽമാത്രം ഒരുങ്ങിനിൽക്കാതെ ക്രിസ്തുനാഥൻ നമ്മെ അടുത്തുതപ്പെടുത്തുന്ന മറ്റൊരു സമ്മാനം കൂടി നൽകുകയാണ്. "അവർക്കു ഞാൻ ഒരു പുതിയ ഹൃദയം നൽകും; ഒരു പുതിയ ചൈതന്യം അവരിൽ ഞാൻ നിക്ഷേപിക്കും. അവരുടെ ശരീരത്തിൽനിന്ന് ശിലാഹൃദയം എടുത്തുമാറ്റി ഒരു മാംസളഹൃദയം ഞാൻ കൊടുക്കും. അങ്ങനെ അവർ എന്റെ കൽപ്പനകൾ അനുസരിച്ചു ജീവിക്കുകയും എന്റെ നിയമങ്ങൾ ശ്രദ്ധയോടെ പാലിക്കുകയും ചെയ്യും. അവർ എന്റെ ജനവും ഞാൻ അവരുടെ ദൈവവും ആയിരിക്കും" (എസ.11:19-20). ഈ പുതിയ മാംസളഹൃദയം ക്രിസ്തുവിന്റെ തിരുഹൃദയവും പുതിയ ചൈതന്യം പരിശുദ്ധാത്മ ചൈതന്യവും പുതിയ ജനമെന്നത് ക്രിസ്തുവിൽ രൂപപ്പെട്ട പുതിയ ദൈവജനവുമായി നാം ദർശിക്കുമ്പോൾ ക്രിസ്തുവിന്റെ തിരുഹൃദയച്ചായ പേറുന്നവരാകാൻ നമുക്കോരോരുത്തർക്കും ലഭിക്കുന്ന അനന്തസൗഭാഗ്യത്തിലേക്കുള്ള ഒരു ചുണ്ടുപലകയാണി തിരുവചനമെന്നതു സുവ്യക്തമാണ്.

"നിങ്ങൾ മക്കളായതുകൊണ്ടു ആബ്രാ- പിതാവേ എന്നു വിളിക്കുന്ന തന്റെ പുത്രന്റെ ആത്മാവിനെ ദൈവം നമ്മുടെ ഹൃദയത്തിലേക്ക് അയച്ചിരിക്കുന്നു" (ഗലാ.4:6). വലിൽ ജിബ്രാന്റെ "പ്രവാചകൻ" പറയുന്നതിപ്രകാരമാണ്, "സ്നേഹിക്കുമ്പോൾ ദൈവം എന്റെ ഹൃദയത്തിലുണ്ട് എന്ന് നിങ്ങൾ പറയരുത്; ഞാൻ ദൈവത്തിന്റെ ഹൃദയത്തിലുണ്ട് എന്ന് പറയുക." മനുഷ്യ -ദൈവ മനോഭാവങ്ങളുടെ ഇത്തരമൊരു സമജ്ഞസവും ഔന്നത്യമാർന്നതുമായ മുർത്തിമദ്ഭാവമാണ്, ഈ ദൈവഭാവങ്ങളും സംയോജിപ്പിക്കുന്ന ഏകജാലകമാണ്, ഈ പിതൃ-പുത്ര ബന്ധത്തിന്റെ ഹൃദയവാതിലാണ് ക്രിസ്തു. ദൈവവിചാരമെന്നത് ദൈവ-മനുഷ്യ ഹൃദയങ്ങൾ തമ്മിലുള്ള ആശയവിനിമയമാണെന്ന് ചേർത്തും പേർത്തും നാം അയവിറക്കുമ്പോൾ തിരുഹൃദയവാതിലിലൂടെ ദൈവമനുഷ്യഹൃദയങ്ങളുടെ സംവാദമാണ് നടക്കുന്നതെന്ന് നാം പറയാതെ പറയുകയാണ് ചെയ്യുന്നത്. തോട്ടക്കാരനെന്ന് തെറ്റിദ്ധരിച്ച മഗ്ദലനക്കാരിയെ പേരുചൊല്ലിവിളിച്ചതും എമ്മാവൂസിലേക്ക് നാടുവിട്ടുപോയവരുടെ ഹൃദയത്തിൽ വചനമായി ജ്വലിച്ചതും പേടിച്ചരണ്ട് മുറിയിൽ കതകടച്ചിരുന്നവരോട് സമാധാനമായിരിക്കൂ എന്ന സമാശ്വാസവചനങ്ങൾ ഉച്ചരിച്ചതും കടലിൽ മീൻപിടിക്കാൻ പോയവർക്ക് അപ്പവും മീനും കരുതി കരയിൽ കാത്തിരുന്നതും

തള്ളിപ്പറഞ്ഞവനോട് എന്റെ ആട്ടിൻപറ്റത്തിന്റെ മേൽനോട്ടം ഇനിമുതൽ നിനക്കായിരിക്കുമെന്ന് ചുമതലയേൽപ്പിച്ചതും ഒരു സങ്കീർത്തനം പോലെ ക്രിസ്തുസഭ്യശ്യമായ സ്നേഹത്തിന്റെ മാത്രം സവിശേഷതയാണ്. ക്രിസ്തുവിന്റെ ജീവിതത്തിൽ മനുഷ്യന്റെ കയ്യൊപ്പു ചാർത്തിയിരുന്നതിനാൽ “മനുഷ്യനിലുള്ളത് എന്താണെന്ന് അവൻ വ്യക്തമായി അറിഞ്ഞിരുന്നു”. അതുകൊണ്ടുതന്നെയാണ് ആർക്കുവേണമെങ്കിലും എപ്പോഴും സമീപിക്കാവുന്നവിധം ക്രിസ്തുവിന്റെ തിരുഹൃദയം ഇത്രമേൽ മാധുര്യമേറിയതായത്, അവിടുന്ന് അതിനെ മാധുര്യമുള്ളതാക്കിത്തീർത്തത്.

ഒരു മനുഷ്യഭൂണത്തിൽ ആദ്യം രൂപപ്പെടുന്നതും അവൻ അന്ത്യശ്വാസം വലിക്കുമ്പോൾ മാത്രം നിശ്ചലമാവുന്നതുമായ അവയവം അവന്റെ ഹൃദയമാണ്. മറ്റൊരുവിധത്തിൽ പറഞ്ഞാൽ ഒരുവന്റെ അസ്തിത്വം നിർണ്ണയിക്കുന്നത് അവന്റെ ഹൃദയമാണ്. അതുപോലെതന്നെ ഒരുവന്റെ വ്യക്തിത്വത്തിന്റെ അളവുകോൽ എന്നത് അവന്റെ ഹൃദയതയാണ്. ഹൃദയകേന്ദ്രീകൃതമായിട്ടാണ് ശരീരം വളരുന്നതും വികസിക്കുന്നതും. അപ്പോൾ തിരുഹൃദയകേന്ദ്രീകൃതമായ ആത്മീയവളർച്ച തീർത്തും അർത്ഥവത്താണ്. നാം ഹൃദയാലുതയെക്കുറിച്ചും ഹൃദയവിശാലതയെക്കുറിച്ചും ഹൃദയതയെക്കുറിച്ചും ഹൃദയസ്പൃക്കായ സംഭാഷണത്തെക്കുറിച്ചും ഹൃദയചോരനായ ആത്മാർത്ഥ സുഹൃത്തിനെക്കുറിച്ചുമെല്ലാം വാതോരാതെ സംസാരിക്കാറുണ്ട്. അതോടൊപ്പം തിരുഹൃദയനാമനെക്കുറിച്ചുള്ള ദിവ്യസ്മൃതികളും ചിരസ്മരണയായിത്തീരട്ടെ. “നിങ്ങളുടെ ഹൃദയം വസന്തത്തെ കിനാവ് കാണുന്നു” (ജിബ്രാൻ -“പ്രവാചകൻ”): തിരുഹൃദയവസന്തത്തെ കിനാവുകാണുന്നവരായി നമ്മുടെ ഹൃദയങ്ങൾ മാറട്ടെ.

സഹായകഗ്രന്ഥസൂചി

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ഉണർന്നിരിക്കുന്നവരോടൊത്തിരിക്കുന്നവൾ

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പ്രബന്ധസംഗ്രഹം

കർമ്മലചൈതന്യത്തിന്റെ പൈതൃകമാണ് ഏലിയാ പ്രവാചകനിൽ നാം കാണുന്നതെങ്കിൽ ആ ചൈതന്യത്തിന്റെ മാതൃത്വവും ഒളിമങ്ങാത്ത ദീപവും കെടാവിളക്കും വഴിവിളക്കും വഴിത്താരയും എന്തിന് ആ ചൈതന്യം തന്നെയാണ് കർമ്മലീത്തരുടെ വിശിഷ്ടമാതൃകകളിൽ രണ്ടാമതായി കാലചക്രക്രമത്തിൽ നാം കാണുന്ന കർമ്മലനാഥയായ പരി.മാതാവ്.

കീലപദങ്ങൾ: ഏലിയാ പ്രവാചകൻ, കർമ്മലമല, കർമ്മല മാതാവ്

ഇറ്റലിയുടെ തെക്കു ഭാഗത്തുള്ള കലാബ്രിയ റീജിയന്റെ ആസ്ഥാനമായ പാൽമി എന്ന സ്ഥലം അതിന്റെ ഭൂപ്രകൃതിയുടെ സവിശേഷതകൊണ്ട് മെസ്സിന കടലിടുക്കിന്റെ മട്ടുപ്പാവ് എന്നാണ് വിശേഷിപ്പിക്കപ്പെടുന്നത്. 1540ൽ കർമ്മലീത്താ സന്യാസികളുടെ സാന്നിധ്യത്താൽ അനുഗ്രഹിതമായതുതൽ കർമ്മല മാതാവിനോടുള്ള ഭക്തി പുലർത്തുന്ന ഒരു ദേശമാണത്. കർമ്മല മാതാവിന്റെ അനുഗ്രഹത്താൽ പാൽമിയിലെ ജനം തങ്ങളുടെ ചരിത്രത്തിൽ സുവർണ്ണ ലിപികളിലെഴുതുന്ന അവിസ്മരണീയ ദിനമായി 1894 നവംബർ 16 മാറി. 1894 ഒക്ടോബർ 31 മുതൽ 17 ദിവസം കർമ്മല മാതാവിന്റെ തിരുസ്വരൂപത്തിൽ മുഖഭാവങ്ങളുടെ വ്യതിയാനവും മിഴിച്ചലനവും അസാധാരണമാം വിധത്തിൽ ദർശിച്ച ജനതതി നവംബർ 16 ന് തിരുസ്വരൂപവുമായി വർണ്ണശബളമായ നഗരപ്രദക്ഷിണം നടത്തി. അത് പട്ടണത്തിന്റെ അതിർത്തിയിലെത്തിയപ്പോൾ അതിഭീകരമായ ഒരു ഭൂകമ്പം പാൽമി ദേശത്തെയാണാകെ പിടിച്ചു കുലുക്കി. അവിടുത്തെ ഭവനങ്ങളെയൊന്നടങ്കം വിഴുങ്ങിയെങ്കിലും 9 പേരുടെ മാത്രമേ ജീവൻ നഷ്ടമായുള്ളൂ. ഈ മഹാതടുതത്തിന്റെ സ്മരണാർത്ഥം നവംബർ 16 ആ ദേശത്തിന്റെ കൃതജ്ഞതാദിനമായി മാറി. കർമ്മലാംബികയുടെ സവിശേഷമായ ഒരു സ്വഭാവസവിശേഷത നമുക്കീ വിസ്മയാവഹമായ സംഭവത്തിൽ ദർശിക്കാനാകും; ഉണർന്നിരിക്കുന്നവരുടെ ചാരെ അവരെ പുണർന്ന് ഉണർന്നിരിക്കുന്ന ഒരമ്മ!

ദൈവവഴിയിൽ കണ്ണും കാതും കൂർപ്പിച്ചിരിക്കുന്ന ഒരു ജനതയുടെ പിൻതലമുറക്കാരാണ് കർമ്മലീത്ത സഹോദരരോരുത്തരും. മറ്റു ക്രിസ്തീയ സന്യാസസമൂഹങ്ങൾ തങ്ങളുടെ ക്രിസ്താനുകരണത്തിന്റെ ഊടും പാവും നെയ്യാനായി പുതിയനിയമപാതകൾ തേടുകയും ക്രിസ്തുവിനെ കൂടുതൽ അടുത്തനുകരിച്ചുവരെ അടുത്തനുകരിക്കാനായി പുതുവഴികൾ തേടുകയും ചെയ്തപ്പോൾ

പഴയനിയമത്തിലെ ഓരോ ഭാഗത്തും എഴുതിയിരിക്കുന്ന ക്രിസ്താനുസൃതമായ തിരിഞ്ഞവരാണ് കർമ്മലീത്തർ. ഒരു കത്തോലിക്കാ സന്യാസസഭയുടെ കാരണഭൂതമെന്നോ മാതൃകയെന്നോ മാർഗ്ഗദർശിയെന്നോ ഒക്കെ വിശേഷിപ്പിക്കപ്പെടുന്ന ഏക പഴയനിയമ പ്രവാചകനായിരിക്കും ഏലിയനിയ്യ. സൈന്യങ്ങളുടെ ദൈവമായ കർത്താവിനെ പ്രതിയുളള തീക്ഷ്ണതയാൽ എരിഞ്ഞുകൊണ്ടിരിക്കുന്നവൻ (1 രാജാ.19:10) എന്നു തന്നെത്തന്നെ വിശേഷിപ്പിക്കുമാൻ ദൈവോപാസനയിൽ അനുവിടാതെ നിർലീനനായ മഹാത്മാവ്. മണവാളനെ എതിരേൽക്കാൻ കാത്തിരുന്ന അഞ്ച് വിവേകമതികളെപ്പോലെ, കിട്ടിയ താലൻ പൂഴ്ത്തിവയ്ക്കാതെ വിവേകപൂർവ്വം വ്യാപാരം ചെയ്തവനെപ്പോലെ, എൽപ്പിക്കപ്പെട്ട ഉത്തരവാദിത്വങ്ങളോട് അനുനിമിഷം നിതാന്തജാഗ്രത പ്രകടിപ്പിച്ച കാര്യസ്ഥനെപ്പോലെ “ജാഗരൂകരായിരിക്കുവിൻ” എന്ന കൃസ്തീയാഹ്വാനത്തോട് കൂറ് പുലർത്തുവാൻ മുൻപേ പറന്ന പക്ഷിയാണദ്ദേഹം. തന്റെ വാത്സല്യത്തിന്റെയും സ്നേഹത്തിന്റെയും കൃപയുടെയും അനുഗ്രഹത്തിന്റെയും ആത്മാവാകുന്ന അങ്കിയുടെ ഇരട്ടിപകു പ്രിയശിഷ്യൻ ലഭിക്കണമെന്നാഗ്രഹിച്ച യഥാർത്ഥ ഗുരുവരനാണ് കർമ്മലയിലെ സുഗന്ധപുഷ്പങ്ങളുടെ ആദ്യമാതൃകയെന്നതിൽ കർമ്മലമക്കൾ തീർച്ചയായും ഭാഗ്യവാന്മാരാണ്. കർമ്മലമലയിലെ ഐതിഹാസികബലിയും മഴയ്ക്കുവേണ്ടിയുളള അദ്ദേഹത്തിന്റെ പ്രാർത്ഥനയും ആകാംക്ഷാഭരിതമായ കാത്തിരിപ്പും മനുഷ്യകരത്തോളമുളള കാർമ്മേഘത്തിൽനിന്ന് ഒരു നാടിനെ മുഴുവൻ നന്നാക്കാനും ഹരിതാഭമാക്കാനും ദാഹമകറ്റാനും ജീവസമൃദ്ധിയുണ്ടാക്കുവാനും ഉതകുമാൻ അതിൽ ദൈവപരിപാലനദർശിക്കുകയും ചെയ്ത ഈ പ്രവാചകശ്രേഷ്ഠൻ ദൈവരാജ്യസമാഗമനത്തിനുവേണ്ടി ഉണർന്നിരിക്കുന്നവരുടെയെല്ലാം പ്രതീകമാണ്. മനുഷ്യകരത്തോളമുളള ഈ മേഘത്തുണ്ട് മനുഷ്യകുലത്തൊടൊത്തുളള പരി.മാതാവിന്റെ സാന്നിധ്യത്തിന്റെ മൂന്നാസ്വാദനമായിരുന്നു എന്ന് പല ദൈവശാസ്ത്രജ്ഞരും വ്യാഖ്യാനിക്കുന്നുണ്ട്.

കാർമ്മൽ എന്ന ഹീബ്രു പദത്തിനർത്ഥം ഉദ്യാനം അഥവാ പൂന്തോട്ടഭൂമി എന്നാണ്. പഴയനിയമകാലം മുതൽ കർമ്മലമലയിലും പരിസരപ്രദേശങ്ങളിലും തപസും പ്രാർത്ഥനയുമായി നീതിനിഷ്ഠരും ദൈവഭക്തരും ഇസ്രായേലിന്റെ ആശ്വാസവും രക്ഷയും പ്രതീക്ഷിച്ചിരുന്നവരുമായ (ലൂക്ക.2:25,38) “യഹോവയുടെ പാവപ്പെട്ടവരുടെ” (The Anawim of Yahweh) ഒരു ചെറിയ സമൂഹം നിലനിന്നിരുന്നു. പരി.അമ്മയും സ്നാപകയോഹന്നാനുമെല്ലാം ഈ ചെറിയ അജഗണത്തിന്റെ ഭാഗമായിരുന്നുവെന്നും സ്നാപകന്റെ

ശിഷ്യർ പന്തക്കുസ്ത ദിനത്തിൽ മാമ്മോദീസ സ്വീകരിക്കുകയും കർമ്മലമലയിൽപോയി താമസമുറപ്പിക്കുകയും പിന്നീട് പരി.അമ്മയുടെ നാമധേയത്തിൽ ദേവാലയം സ്ഥാപിക്കുകയും ചെയ്തു എന്നും അങ്ങനെ ക്രിസ്തീയ സന്യാസത്തിന്റെ പിള്ളത്തൊട്ടിലായി ഇവിടം മാറിയെന്നും അവർ "കർമ്മല മലയിലെ പരി.മാതാവിന്റെ സഹോദരർ" എന്ന പേര് സ്വീകരിച്ചു എന്നും പറയപ്പെടുന്നു. ഏതായാലും 12-ആം നൂറ്റാണ്ടുമുതലുള്ള കർമ്മലീത്ത സന്യാസികളും മാതാവിന്റെ നാമധേയത്തിലെ ദേവാലയവും ചരിത്രത്തിലുണ്ട്. കർമ്മല സഭയെ പ്രതിസന്ധി ഘട്ടങ്ങളിൽ കൈപിടിച്ച് നടത്തിയ പരി.കന്യകാമറിയത്തിന്റെ അവച്യമായ സംരക്ഷണം കർമ്മലീത്തരുടെ അവകാശമാണെന്നു പറയാനുതകുന്നതാണ് വി. സൈമൺ സ്റ്റോക്കിന് പരി.അമ്മ നേരിട്ട് നൽകിയതെന്നു വിശ്വസിക്കപ്പെടുന്ന കർമ്മലോത്തരീയം. ലൂർദിൽ 1858ൽ പരി.മാതാവ് ഏറ്റവും അവസാനം പ്രത്യക്ഷപ്പെട്ടത് കർമ്മലമാതാവിന്റെ തിരുനാൾ ദിനമായ ജൂലൈ 16 നാണ്. അതുപോലെതന്നെ 1917 ഒക്ടോബർ 13 നു ഫാത്തിമയിൽ പ്രത്യക്ഷപ്പെട്ട പരി.അമ്മയുടെ വേഷം കർമ്മലമാതാവിന്റെതായിരുന്നു എന്ന് സി. ലൂസിയ സാക്ഷ്യപ്പെടുത്തുന്നു. ഇതൊക്കെ വിരൽചൂണ്ടുന്നത് കർമ്മലമാതാവിന്റെ അനിർവ്വചനീയ സംരക്ഷണവലയം ഇന്നും എന്നും സഭയോടൊത്തുണ്ട് എന്നതിലേക്കാണ്. കർമ്മലചൈതന്യത്തിന്റെ പൈതൃകമാണ് ഏലിയാ പ്രവാചകനിൽ നാം കാണുന്നതെങ്കിൽ ആ ചൈതന്യത്തിന്റെ മാതൃത്വവും ഒളിമങ്ങാത്ത ദീപവും കെടാവിളക്കും വഴിവിളക്കും വഴിത്താരയും എന്തിന് ആ ചൈതന്യം തന്നെയാണ് കർമ്മലീത്തരുടെ വിശിഷ്ടമാതൃകകളിൽ രണ്ടാമതായി കാലചക്രക്രമത്തിൽ നാം കാണുന്ന കർമ്മലനാമയായ പരി.മാതാവ്.

കർമ്മലീത്ത സഭാസമുദ്ധാരകയായ വി. അമ്മത്രേസ്യയുടെ ജീവിതം പൂർണ്ണമായും പരി.അമ്മയുടെ കീർത്തനഗാനമാണ്. വി. അമ്മത്രേസ്യ 12 - ആം വയസ്സിൽ പെറ്റമ്മ മരിച്ചപ്പോൾ ഇച്ഛാഭംഗത്തോടെ പരി.അമ്മയോട് തന്റെ അമ്മയായിരിക്കണമെന്ന് പ്രാർത്ഥിച്ചു. തന്റെ നിഷ്കളങ്കതകൊണ്ടാണ് പ്രാർത്ഥിച്ചതെങ്കിലും തന്റെ ജീവിതകാലം മുഴുവൻ അമ്മയുടെ സഹായവും കൃപയും ലഭിച്ചുവെന്നും എന്നാൽ അമ്മയോട് പൂർണ്ണമായി വിശ്വസ്തയാകാൻ സാധിച്ചില്ലെന്നും അമ്മത്രേസ്യ പുണ്യവതി തന്റെ ആത്മകഥയിൽ വിലപിക്കുന്നു. തന്റെ ആത്മീയപിതാവും കർമ്മല സഭാനവീകരണത്തിന്റെ പിതാവുമെന്നറിയപ്പെടുന്ന ഫാ.ഗ്രേഷ്യനു ദൈവവിളിയെക്കുറിച്ചുള്ള പ്രതിസന്ധി ഉണ്ടായ ഘട്ടത്തിൽ അമ്മത്രേസ്യ നൽകുന്ന ഉപദേശവും "പരി.അമ്മയോടുള്ള ഭക്തിയിൽ വളരുക; തന്റെ സംരക്ഷണത്തിൻ കീഴിൽ സമർപ്പിക്കുന്നവന് പരി.അമ്മയുടെ സഹായം നിരന്തരം

ലഭിക്കും"മെന്നുമാണ്. ഇന്ത്യയിലെ ആദ്യ ഏതദ്ദേശീയ സന്യാസസഭാസ്ഥാപകനും കേരള നവോത്ഥാന നായകരിൽ അഗ്രഗണ്യനും കർമ്മലീത സന്യാസിയുമായ വി. ചാവറ കുര്യാക്കോസ് ഏലിയാസച്ചനും ഇമ്മട്ടിലുള്ള ചില ചിന്തകൾ തന്റെ ആത്മകഥാനുവാഖ്യാനികയായ "ആത്മാനുതാപം" എന്ന കാവ്യാത്മക രചനയിൽ അതിവിനയത്തോടും ഈശ്വരാനുഭൂതിയോടും കൂടെ വർണ്ണിച്ചിരിക്കുന്നു. പൈതലായിരിക്കെ രാത്രിയിൽ ഉണരുമ്പോൾ പാതിരാവിലും പ്രാർത്ഥനാനിമഗ്നയായ തന്റെ അമ്മയെ കാണുന്നതും വെച്ചൂർ പള്ളിയിൽ മാതാവിന് അടിമ വച്ചതും "നിന്നുടെ നാമ മാതാവവൾക്ക് ദാസൻ നീയേയെന്നിതു മനസ്സതിലെപ്പോഴും സ്മരിക്കേണം" എന്ന മാതൃഉപദേശവുമെല്ലാം ഇന്നലെ നടന്നവ പോലെ അദ്ദേഹം ഓർത്തെടുക്കുകയാണ്. തന്റെ ജീവിതം പോലും മറ്റൊരു മാതൃസ്തവമാണെന്ന് അദ്ദേഹം ഈ കൃതിയിലൂടെ പറയാതെ പറയുകയാണ്. കർമ്മലസഭയെ പരിപൂഷ്ടിപ്പെടുത്തിയ വിശുദ്ധ ജീവിതങ്ങളോരോന്നും വിശുദ്ധ ജനനിയുടെ അങ്കിളുകളിൽ തങ്ങളുടെ ജീവിതങ്ങളെ ഭരമേല്പിച്ചു നല്കിയവരായിരുന്നുവെന്നതിന്റെയും പിടക്കോഴി കണ്ണിമവെട്ടാതെ തന്റെ കുഞ്ഞുങ്ങളെ കാക്കുന്നതുപോലെ അമ്മ അവരെ കാത്തുപരിപാലിച്ചിരുന്നുവെന്നതിന്റെയും ചില ഓർമ്മപ്പെടുത്തലുകളാണ് ഇവിടെ നാം ദർശിച്ചത്.

കർമ്മലമലയെന്ന പൂന്തോട്ടത്തിൽ കർമ്മലനാമയെന്ന വടവൃക്ഷത്തിന്റെ തണലിൽ നമുക്കും അഭയം തേടാം.ഏലിയാ പ്രവാചകൻ തന്റെ അങ്കി ശിഷ്യന് നൽകിയെങ്കിൽ പരി.കന്യക തന്റെ കർമ്മല അങ്കികൊണ്ട് ശിഷ്യഗണങ്ങളെ പൊതിഞ്ഞു സംരക്ഷിക്കുന്നവളാണ്.പരിശുദ്ധാത്മ പ്രചോദനങ്ങൾക്ക് ചെവി ചായിക്കുകയും അവയോട് ക്രിയാത്മകമായി പ്രത്യുത്തരിക്കുകയും പരിശുദ്ധാത്മാവിനോട് അനവരതം സംവദിക്കുകയും ചെയ്ത കർമ്മലനാമ ദൈവസ്വരം തിരിച്ചറിയാൻ നമ്മെ പ്രാപ്തരാക്കട്ടെ. ദൈവത്തിനുവേണ്ടി ഉണർന്നിരിക്കുന്നവരോടുകൂടെ, ദൈവവേലയിൽ സദാ മുഴുകുന്നവരോടുകൂടെ ആ നിരസാന്നിധ്യം നമുക്ക് പ്രതീക്ഷിക്കാം. കർമ്മലസഭയുടെ അലങ്കാരമായ രാജ്ഞി നമ്മുടെ ഉറക്കമൊഴിഞ്ഞ രാവുകളിൽ നമ്മോടൊത്തു ഉണർന്നിരിക്കുമെന്ന് നമുക്ക് പ്രത്യാശിക്കാം.കർമ്മലനാമയോട് തന്റെ അങ്കിളുകളിൽ നമ്മെയും പൊതിഞ്ഞു കാക്കണമേ എന്ന് നമുക്കും പ്രാർത്ഥിക്കാം.

സഹായകഗ്രന്ഥസൂചി

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പ്രബന്ധസംഗ്രഹം

കുരിശുകൾക്കിടയിപ്പെട്ടു തെരുങ്ങുന്നവർക്കുള്ള ഒരു ഉത്തേജനമരുന്നാണ് ഏണസ്റ്റ് ഹെമിംഗ് വെയുടെ "കിഴവനും കടലും" എന്ന കൃതി. കുരിശിൽനിന്നു കുരിശിലേക്കുള്ള ഒരു യാത്രയായി നമ്മുടെ ജീവിതം മാറിക്കൊണ്ടിരിക്കുന്നു. കടലിനെ ശാന്തമാക്കിയവൻ കടൽത്തീരപോലെ ആർത്തീരമ്പുന്ന തന്റെ മനസ്സിനെയും ശാന്തമാക്കാൻ പരിശീലിപ്പിച്ചിട്ടുണ്ടായിരുന്നു. "കിഴവനും കടലും" എന്ന കൃതിയുടെ വെളിച്ചത്തിൽ മനുഷ്യസഹങ്ങളിലേക്കൊരു തിരിഞ്ഞുനോട്ടമാണി ലേഖനം.

കീലപദങ്ങൾ: കിഴവൻ, കടൽ, കുരിശ്, വേദന, പുഞ്ചിരി

അമേരിക്കൻ സാഹിത്യകാരനായ ഏണസ്റ്റ് ഹെമിംഗ് വെയുടെ സാഹിത്യനോബേൽ സമ്മാനം നേടിയ കൃതിയാണ് "കിഴവനും കടലും". കടലിന്റെ ചൂരും ചൊരും കരയിലും പിന്തുടരപ്പെടുന്ന ഹതഭാഗ്യനെന്ന് ഏവരാലും വിശേഷിപ്പിക്കപ്പെട്ടിരുന്ന സാന്റിയാഗോ എന്ന കിഴവനായ മുക്കുവന്റെ ജീവിത പ്രാരാബ്ധങ്ങളോടുള്ള ക്രിയാത്മകമായ പടവെട്ടലിന്റെയും പോരാട്ടവീര്യത്തെ സ്വപ്നങ്ങളായി നെയ്തെടുത്തു അവയുടെ സാക്ഷാത്കാരത്തിനായി അഹോരാത്രം ജീവിക്കുന്നതിന്റെയും കഥയാണിത്. ഒരു പരിധി വരെ കഥയല്ലിതു ജീവിതം തന്നെയാണ്; കഥാകൃത്തിന്റെയും അവന്റെ സമൂഹത്തിന്റെയും അതിജീവനത്തിന്റെ നേർക്കാഴ്ച! കുരിശുകൾക്കിടയിപ്പെട്ടു തെരുങ്ങുന്നവർക്കുള്ള ഒരു ഉത്തേജനമരുന്നാണിത്.

കാഴ്ചയിൽ കിഴവനെക്കിലും കടൽനീലക്കണ്ണുകളും കനൽ കെടാത്ത മനസ്സും സാന്റിയാഗോയ്ക്ക് സ്വന്തമായുണ്ടായിരുന്നു. തകർന്ന ശരീരവും തകരാത്ത മനസ്സുമായി ജീവിതത്തോടു യുദ്ധം ചെയ്തുകൊണ്ട് അയാൾ മുന്നേറുകയായിരുന്നു. നീണ്ട എൺപത്തിനാല് ദിവസങ്ങൾ വലവീശിയിട്ടും ഒരു ചെറുമീൻ പോലും കൂടുങ്ങാതിരുന്നിട്ടും എൺപത്തിയഞ്ചു എന്റെ ഭാഗ്യനമ്പരാണ് എന്ന് പറഞ്ഞുകൊണ്ട് അടുത്ത ദിവസം ജീവിതത്തെ തോൽപ്പിക്കാൻ അയാൾ വീണ്ടും കടലിലേക്ക് പുറപ്പെടുകയാണ്. മൂന്നുനാൾ താഴ്ചയിൽ ചൂണ്ടയെറിഞ്ഞപ്പോൾ ഭീമാകാരനായ ഒരു മാർലിൻ മത്സ്യം അയാളുടെ ചൂണ്ടയിൽ കുടുങ്ങി. പിന്നീട് മൂന്നുദിവസം ആ മത്സ്യം

അയാളെയുംകൊണ്ട് കടലിലൂടെ ചുറ്റിയശേഷമാണ് പൊങ്ങിവന്നത്. വള്ളത്തെക്കാൾ വലുപ്പമേറിയ ആ മത്സ്യത്തെ വള്ളത്തിൽ കേറ്റിവലിച്ചുപോരുമ്പോൾ തുടർന്നുള്ള യുദ്ധം ചോരയുടെ മണത്തിൽ ആകൃഷ്ടരായി അടുത്തുകൂടിയ വമ്പൻ സ്രാവുകളോടായിരുന്നു. കരകാണാക്കടലിലെ ആ യുദ്ധത്തിൽ തന്റെ പണിയായുധങ്ങൾ ഓരോന്നോരോന്നായി നഷ്ടപ്പെട്ട സാന്റിയാഗോയുടെ എല്ലാ പ്രതീക്ഷകളും കരക്കെത്തുമ്പോൾ വീണ്ടും തല്ലിക്കൊടുത്തപ്പോൾ; അയാൾ പിടിച്ച മീനിന്റെ അസ്ഥികൂടം മാത്രമേ കരയിൽ എത്തുമ്പോൾ അവശേഷിച്ചിരുന്നുള്ളൂ. ഈ നിർഭഗ്നാവസ്ഥയിലും അയാൾ രാത്രി കിടക്കുമ്പോൾ സ്വപ്നം കാണുന്നത് ആഫ്രിക്കയിലെ സിംഹങ്ങളെയാണ്!

അതിതീക്ഷ്ണവിശ്വാസിയല്ലെങ്കിലും തിരുഹൃദയത്തിന്റെയും കോബ്ര മാതാവിന്റെയും ചിത്രങ്ങൾ കൂടലിൽ സൂക്ഷിക്കുന്ന, ജീവിതാനുഭവങ്ങളിൽ ദൈവഹിതം ദർശിക്കുന്ന, പ്രതിസന്ധിയുടെ മുർദ്ധന്യത്തിൽ പലപ്പോഴും കർത്തൃപ്രാർത്ഥനയും നന്മനിറഞ്ഞ മറിയവും ചൊല്ലുന്ന സാന്റിയാഗോ എന്ന പടുവൃദ്ധന്റെ കഥ പറയുന്ന "കിഴവനും കടലും" എന്ന ഈ കൃതിയുടെ രചനയിൽ ക്രിസ്തുവിന്റെ ബിംബം തെളിവാകുന്നു എന്നാണ് പല സാഹിത്യ നിരൂപകരും അഭിപ്രായപ്പെടുന്നത്. ക്രൈസ്തവ ബിംബങ്ങളുടെ തടവുകാരൻ എന്ന് വിമർശകർ പലപ്പോഴും വിശേഷിപ്പിക്കുന്ന, അധുനാതന മലയാള സാഹിത്യനിരൂപണ പ്രസ്ഥാനത്തിന് ദിശാബോധം നൽകിയ നിരൂപകനായ കാർത്തികയിൽ പത്മനാഭൻ അപ്പൻ എന്ന കെ പി അപ്പൻ ഇക്കാര്യം തന്റെ "ബൈബിൾ വെളിച്ചത്തിന്റെ കവചം" എന്ന കൃതിയിൽ അസന്ദിഗ്ദ്ധമായി പ്രസ്താവിക്കുന്നുണ്ട്. 'പായ്മരവും തോളിലേറ്റി കൂടലിലേക്കുള്ള സാന്റിയാഗോയുടെ യാത്ര കാൽവരിയിലേക്ക് മരക്കുരിശുമേന്തിയുള്ള ക്രിസ്തുവിന്റെ അവസാനത്തെ യാത്രയെ അനുസ്മരിപ്പിക്കുന്നു' എന്ന് സാഹിത്യനിരൂപകരായ ജോൺ ഗ്രോത്തും മാക്സ് ഈസ്റ്റ്മാനും എലിയറ്റ് പോളും ആൽഫ്രഡ് കസിനും ലിയോ ഗൂർക്കോയും ജെയിംസ് ഗ്രെയുമൊക്കെ പറയുന്നതിന് വളരെ മുൻപേ ഈ ദർശനം ബൈബിൾ വായനയിലൂടെ താൻ ആർജിച്ചിരുന്നു എന്ന് അഭിമാനത്തോടെ അദ്ദേഹം പറയുന്നു. പീഡാസഹനത്തിനു വിധേയരായ മനുഷ്യരെക്കുറിച്ചു പറയുന്ന ഏതു മികച്ച കൃതിയും തനിക്കു സമാന്തരസുവിശേഷങ്ങളായിത്തീർന്നുവെന്നും അത്തരം കൃതികളിലെ കഥാപാത്രങ്ങളിൽ ക്രിസ്തുവിന്റെ യാതനകളുടെ നിഴൽ വീണ്ടു കിടക്കുന്നുവെന്നും അദ്ദേഹത്തിനു അനുഭവപ്പെട്ടിരുന്നു.

സാന്റിയാഗോയുടെ ജീവിതത്തിൽ കാണുന്നപോലെ പ്രാരാബ്ധങ്ങളാകുന്ന കുരിശുകളിലേക്ക് നോക്കുവാനും അവയിലേക്ക് വളർന്നുകൊണ്ടു അവയെ ഉത്ഥാനരഹസ്യങ്ങളാക്കി മാറ്റാനും

സാധിക്കുക എന്നത് സാധാരണ മനുഷ്യന് പലപ്പോഴും അപ്രാപ്യമാണ്. 'കുരിശാണ് രക്ഷ, കുരിശിലാണ് രക്ഷ' എന്നൊക്കെ നാം പലവുരു ആവർത്തിക്കാറുണ്ടെങ്കിലും കുരിശുകൾ യഥാർത്ഥത്തിൽ നമ്മെ ഭയവിഹ്വലരാക്കുകയല്ലേ ചെയ്യുന്നത്? അനുഭവ ജീവിതത്തെക്കുറിച്ചുള്ള നമ്മുടെ വിലാപം 'ഒരു വേദന തീരും മുൻപേ മറ്റൊന്ന് വന്നു കഴിയുന്നു' എന്നുള്ളതാണ്. അങ്ങനെ കുരിശിൽനിന്നു കുരിശിലേക്കുള്ള ഒരു യാത്രയായി നമ്മുടെ ജീവിതം മാറിക്കൊണ്ടിരിക്കുന്നു. ദുരിതങ്ങളിൽനിന്ന് തീവ്രദുരിതങ്ങളിലേക്കുള്ള ഒരു പുറപ്പാടായിരുന്നു ബെത്ത്ലഹേമിൽനിന്നു കാൽവരിയിലേക്കുള്ള ക്രിസ്തുവിന്റെ യാത്രയെന്നത് സ്മരണാർഹമാണ്. കുരിശിൽക്കിടക്കുമ്പോൾ ഉള്ള കാഴ്ചയും അതിദയനീയമായിരുന്നു. ആശ്വാസത്തിനായി ഇടത്തേക്കും വലത്തേക്കും തിരിഞ്ഞപ്പോൾ അവിടെയും കുരിശുകൾ! താഴേക്കുനോക്കിയപ്പോൾ അനാഥത്വത്തിലേക്കു തള്ളിവിടപ്പെട്ട അമ്മയും പ്രിയ ശിഷ്യരും! മുകളിലാകട്ടെ മനസ്സുപോലെത്തന്നെ കാർമ്മേലാവൃതമായ ആകാശവും! ഇങ്ങനെ നാനാവശത്തുമുള്ള കുരിശുകൾക്കുള്ളിൽക്കിടന്നു നീറുന്നതിനിടയിലാണ് നല്ല കള്ളനെ ആശ്വസിപ്പിക്കാനും അമ്മയുടെ സംരക്ഷണം പ്രിയ ശിഷ്യനെ ഏൽപ്പിക്കാനും പ്രിയ ശിഷ്യരുടെ മാതൃകയും മാർഗ്ഗദർശിയുമായി പ്രിയമാതാവിനെ വിട്ടുകൊടുക്കാനും ഉന്നതങ്ങളിലുള്ള പ്രിയപിതാവിന്റെ ഹിതത്തിനു തന്നെത്തന്നെ ഭരമേല്പിക്കാനും അവിടുന്ന് തയ്യാറാകുന്നത്. കടലിനെ ശാന്തമാക്കിയവൻ കടൽത്തീരപോലെ ആർത്തിരമ്പുന്ന തന്റെ മനസ്സിനെയും ശാന്തമാക്കാൻ പരിശീലിപ്പിച്ചിട്ടുണ്ടായിരുന്നു.

നീറുന്ന വേദനയിലും പുഞ്ചിരിക്കാനും നല്ല കാലം വരും എന്ന് പ്രത്യാശയോടെ കാത്തിരിക്കാനും കഴിയുക എന്നത് എല്ലാവർക്കും സാധിക്കുന്ന കാര്യമല്ല. നമ്മുടെയൊക്കെ മാതാപിതാക്കളോ പൂർവികരോ ഒക്കെ ഒരുപക്ഷേ ഈ പാതയിൽ ചരിച്ചവരായിരിക്കാം. കുരിശുവഹിക്കുക എന്നത് ജീവിതത്തിലെ സനാതന സത്യങ്ങളിലൊന്നാണ്. ഒന്നിൽനിന്നു ഓടി മാറിയെന്നു നാം ആശ്വസിപ്പിക്കുമ്പോൾ അതിനേക്കാൾ ഭീകരമായ മറ്റൊന്ന് നമ്മെത്തേടിയെത്തും. അതിനാൽ "സന്തോഷത്തോടെ കുരിശു വഹിച്ചാൽ അത് നമ്മെ ചുമന്നു ആഗ്രഹിക്കുന്ന ലക്ഷ്യത്തിലെത്തിക്കും; മനസില്ലാതെയാണ് അത് വഹിക്കുന്നതെങ്കിൽ അതിന്റെ ഭാരം വർദ്ധിക്കും; വ്യഥാ വലിയ ഭാരം നിന്റെമേൽ നീ ഏറ്റുന്നു. സ്വമനസാ കുരിശിനു തന്നെത്തന്നെ കീഴ്പെടുത്തുമ്പോൾ അനർത്ഥങ്ങളുടെ ഭാരമെല്ലാം ദൈവികാശ്വാസം ലഭിക്കുമെന്ന പ്രത്യാശയായ് മാറും" (ക്രിസ്താനുകരണം 2.12.). കുരിശിന്റെ പുകഴ്ചയുടെ അന്തസത്തയും ഇതുതന്നെയല്ലേ? കുരിശുകൾ രക്ഷാകരമാകുന്നതും ഇങ്ങിനെയല്ലേ? ഇതിനൊരുദാത്ത മാതൃകയാണ് 'പുഞ്ചിരി ഒരു തിരിവെട്ടമാണ്',

വേദനിക്കുന്നവരുടെ നേരെ നോക്കി കരുണയോടെ ഞാൻ പുഞ്ചിരിക്കും' എന്ന് പറഞ്ഞ സഹനപുത്രിയെന്നു നാം വിശേഷിപ്പിക്കുന്ന വി. അൽഫോൻസാമ്മ. യഥാർത്ഥത്തിൽ പുഞ്ചിരിയെ പ്രണയിച്ചു പുണ്യവതിയാണവൾ. സഹനമെന്ന തീച്ചുളയെ പുഞ്ചിരിയെന്ന തേനമൃതാക്കിയ മുശയായിരുന്നു അൽഫോൻസാമ്മ.

“കുരിശിനാലെ ലോകമൊന്നായ് വീണ്ടെടുത്തവനേ” എന്ന് ക്രിസ്തുവിനെ വിശേഷിപ്പിക്കുമ്പോൾ അവിടുത്തെ കുരിശു ഭോഷത്തമല്ല ദൈവത്തിന്റെ ശക്തിയാണെന്ന പരമാർത്ഥം നാം ഏറ്റുപറയുകയാണ്. നീ എന്നെ എത്രത്തോളം സ്നേഹിക്കുന്നു എന്ന ചോദ്യത്തിന് കുരിശോളം കൈ വിരിച്ചു “ഇത്രത്തോളം” എന്ന് പറയുമ്പോൾ ഭൂമിയെ അതിരുകളില്ലാതെ സ്നേഹിക്കുന്ന ക്രിസ്തു സ്നേഹമാണ് വെളിവാക്കപ്പെടുന്നത്. “ഒരാൾ പീഡാസഹനത്തിനു വിധേയനാകുമ്പോൾ ക്രിസ്തുവിന്റെ കുരിശിലെ സഹനം ചെറിയ തോതിലെങ്കിലും ചരിത്രത്തിൽ പുനരാവിഷ്കരിക്കപ്പെടുകയാണ്. ജീവിക്കുന്ന രക്തസാക്ഷിയായി മാറിക്കൊണ്ട് ആ നിമിഷങ്ങളിൽ പെസഹാ രഹസ്യത്തിലെ ക്രിസ്തുവിനെ അയാൾ ഉൾക്കൊള്ളുന്നു. ഈ നിമിഷങ്ങൾ ക്രിസ്തുവിന്റെ സംവത്സരങ്ങൾ അവസാനിക്കുകയില്ലെന്ന സന്ദേശം നമ്മെ അറിയിക്കുന്നു”(ബൈബിൾ വെളിച്ചത്തിന്റെ കവചം).

ക്രിസ്തുസ്നേഹത്തെ പിന്തുടരുവാനാണ് നാമും വിളിക്കപ്പെട്ടിരിക്കുന്നത്:ക്രിസ്തുവിനോളം, ക്രിസ്തുവിനോടുകൂടി, ക്രിസ്തുവിൽ കുരിശു ചുമക്കാൻ! ജീവിതത്തിൽ അകാരണമായുണ്ടാകുന്ന സഹനങ്ങളെക്കുറിച്ചു ഫ്രാൻസിസ് പാപ്പ ഇപ്രകാരം പറയുന്നു.“നമ്മുടെ ജീവിതങ്ങളെ വികലമാക്കാനോ അവയെ ചെറുതാക്കാനോ വേണ്ടി അവയിൽ പ്രവേശിക്കാൻ അവിടുന്ന് ആഗ്രഹിക്കുന്നില്ല. പ്രത്യുത അവയെ പൂർത്തീകരണത്തിലേക്കു ആനയിക്കാനാണ് അവിടുന്ന് ആഗ്രഹിക്കുന്നത്. ദൈവത്തിന്റെ രഹസ്യത്തെ സമീപിക്കാൻവേണ്ടി നമ്മെത്തന്നെ പിന്നിൽ ഉപേക്ഷിക്കുന്ന ഒരു ആധികാരിക പ്രക്രിയയാണത്”(ആനന്ദിച്ച് ആഹ്ലാദിക്കുവിൻ no.175). സാന്റിയാഗോയെപ്പോലെ, അൽഫോൻസാമ്മയെപ്പോലെ ക്രിസ്തുവിന്റെ കുരിശിന്റെ രഹസ്യം സ്വായത്തമാക്കുവാൻ നമുക്ക് പരിശ്രമിക്കാം.കുന്നോളം കുരിശുകൾ കുമിത്തുകൂടിയാലും അതിനും മുകളിൽ കയറിനിന്ന് മന്ദസ്മിതം പുകാൻ നമുക്ക് കഴിയട്ടെ!

സഹായകഗ്രന്ഥസൂചി

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സവിശേഷ സുവിശേഷമാകുക

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പ്രബന്ധസംഗ്രഹം

ഫ്രാൻസിസ് പാപ്പയുടെ Eximius Missionis Mensis യുടെ ഒരു കേരളീയ വായന. എൻറെ ജീവിതമാണ് എൻറെ സന്ദേശം" എന്ന ഗാന്ധിസ്മൃതംപോലെ വ്യക്തിപരമായ ക്രിസ്താനുഭവവും മറ്റൊരു സുവിശേഷമാക്കാനുള്ള സവിശേഷവിളിയാണ് നാം ഓരോരുത്തരുടെയും.

കീലപദങ്ങൾ: മാമ്മോദീസാ, ദൗത്യം, പ്രേഷിതൻ

ബെനഡിക്ട് പതിനഞ്ചാമൻ മാർപാപ്പയുടെ അപ്പസ്തോലിക ലേഖനമായ Maximum Illud 1919 നവംബർ 30 നു പുറത്തിറക്കിയതിന്റെ നൂറാം വാർഷികത്തോടനുബന്ധിച്ച് ഫ്രാൻസിസ് പാപ്പ 2019 ഒക്ടോബർ മാസം അസാധാരണ പ്രേഷിതമാസമായി (Eximius Missionis Mensis) പ്രഖ്യാപിച്ചിരുന്നു. ഒരു ചാക്രിക ലേഖനമല്ലെങ്കിലും സഭയുടെ പ്രേഷിതാഭിമുഖ്യത്തിനും അതിന്റെ സ്വഭാവത്തിനും പുതിയൊരു ദിശാബോധം നൽകിയതിനാൽ 1919-1959 കാലഘട്ടത്തിൽ ഇറങ്ങിയതും സഭയുടെ പ്രേഷിതാഭിമുഖ്യത്തെ പുനഃവ്യാഖ്യാനം ചെയ്തതുമായ അഞ്ചു ചാക്രിക ലേഖനങ്ങളിൽ ആദ്യത്തേതായി Maximum Illudനെ പലരും കരുതുന്നു. "ജ്ഞാനസ്നാനപ്പെട്ട് അയക്കപ്പെട്ടവർ: പ്രേഷിതദൗത്യവുമായി ക്രിസ്തുവിന്റെ സഭ ലോകത്തിൽ" (Baptized and Sent: The Church of Christ on Mission in the World) എന്നതാണ് അസാധാരണ പ്രേഷിതമാസത്തിന്റെ വിചിന്തന വിഷയം.

മാമ്മോദീസാവഴിയായി നമുക്ക് സൗജന്യമായി ലഭിക്കപ്പെട്ട ദൈവികജീവൻ പ്രഘോഷിക്കാനും പങ്കുവയ്ക്കാനുമുള്ള നമ്മുടെ ഉത്തരവാദിത്വമാണ് പ്രേഷിതപ്രവർത്തനത്തിന്റെ അന്തഃസത്ത. അത് ക്രിസ്ത്യാനിയുടെ ഉത്തരവാദിത്വമാണ് (മത്താ.28:19-20) അതുകൊണ്ടാണ് സഭ സ്വഭാവത്താൽ തന്നെ പ്രേഷിതയാണെന്നും സുവിശേഷപ്രഘോഷണം എല്ലാവരുടെയും കടമയാണെന്നും തിരുസഭ പഠിപ്പിക്കുന്നത് (Ad Gentes 2). ജ്ഞാനസ്നാനം സ്വീകരിച്ച എല്ലാവരും സഭയിലെ അവരുടെ സ്ഥാനമോ വിശ്വാസത്തിലെ അവരുടെ പ്രബോധനതലമോ എന്തുതന്നെയായിരുന്നാലും, സുവിശേഷവൽക്കരണത്തിന്റെ പ്രതിനിധിയാണ് (സുവിശേഷത്തിന്റെ ആനന്ദം 120). "എല്ലാ കത്തോലിക്കാ പ്രവർത്തങ്ങളിലും വെച്ച് ഏറ്റവും മഹത്തും പരിശുദ്ധവുമായത് പ്രേഷിതപ്രവർത്തനമാണ്"(ഒൻപതാം പിയൂസ് പാപ്പ). ഈ ദൗത്യം നമ്മുടെ തനിമയുടെ ഭാഗമായതിനാൽ പിതാവിന്റെ ദത്തുപുത്രരാകാനുള്ള തങ്ങളുടെ വിളി മനസിലാക്കാൻ

സകലമനുഷ്യരെയും പ്രാപ്തരാക്കാനുള്ള കടമയും നമുക്കുണ്ട്.

ഓരോ വ്യക്തിയും ഓരോ മിഷൻ(ദൗത്യം) ആണെന്നു ലോകപ്രേഷിതദിനത്തോടനുബന്ധിച്ചുള്ള മാർപാപ്പയുടെ സന്ദേശം നമ്മെ ഓർമ്മപ്പെടുത്തുന്നു.'ശിഷ്യർ' , 'പ്രേഷിതർ' എന്ന വ്യത്യാസമില്ലതെ നാമെല്ലാം 'പ്രേഷിതശിഷ്യർ ആണ്'. ക്രിസ്തുവിനെ കണ്ടമാത്രയിൽ പ്രഘോഷിച്ച ആദ്യശിഷ്യരും (യോഹ.1:41) സമരിയക്കാരി സ്ത്രീയും(യോഹ. 4:39) അവൾ വഴി ക്രിസ്തുവിനെ അറിഞ്ഞമാത്രയിൽ അതേറ്റുപറഞ്ഞ സമരിയക്കാരും (യോഹ. 4:42) ഉത്ഥിതനായ ക്രിസ്തുവിനെ കണ്ട മഗ്ദലനമറിയവും (യോഹ. 20:18) ശിഷ്യരും (യോഹ.20:25) ക്രിസ്തുവിനെ അനുഭവിച്ച സാവൂൾ എന്ന പൗലോസും (അപ്പ.പ്രവ.9:20) "ഉടൻതന്നെ ക്രിസ്തുവിനെ പ്രഘോഷിച്ചു". ദൈവത്തിന്റെ രക്ഷാകരസ്നേഹം യഥാർത്ഥത്തിൽ അനുഭവിച്ചവർക്കു ആ സ്നേഹം പ്രഘോഷിക്കാൻ അധികം സമയമോ പരിശീലനമോ ആവശ്യമില്ല(സുവിശേഷത്തിന്റെ ആനന്ദം 120). അവരോരുത്തരും തങ്ങൾ അനുഭവിച്ച ക്രിസ്തുവിനെയാണ് പ്രഘോഷിച്ചത്. "എന്റെ ജീവിതമാണ് എന്റെ സന്ദേശം" എന്ന ഗാന്ധിസൂക്തംപോലെ വ്യക്തിപരമായ ക്രിസ്താനുഭവവും മറ്റൊരു സുവിശേഷമാക്കാനുള്ള സവിശേഷവിളിയാണ് ഓരോ ക്രിസ്ത്യാനിയുടേതും.

"ഓരോരുത്തരെയും അവന്റെ അല്ലെങ്കിൽ അവളുടെ മാർഗ്ഗത്തിൽ കർത്താവു വിളിക്കുന്നു." എന്ന് രണ്ടാം വത്തിക്കാൻ കൗൺസിൽ നമ്മെ അനുസ്മരിപ്പിക്കുന്നു (Lumen Gentium 11). ഓരോ വിശുദ്ധരും അവരുടെ തനതായ ശൈലിയിൽ ക്രിസ്തുവിനു സാക്ഷ്യം നൽകിയവരാണ്. അത് അതേപടി പകർത്തുകയെന്നതല്ല നമ്മുടെ ദൗത്യം. അങ്ങനെ വന്നാൽ കർത്താവിനു നമ്മെക്കുറിച്ചുള്ള പദ്ധതിയിൽനിന്ന് നാം അകന്നുപോയെന്നുവരാം എന്ന വലിയ ദൗർഭാഗ്യത്തെക്കുറിച്ചു ഫ്രാൻസിസ് പാപ്പാ മുന്നറിയിപ്പ് തരുന്നു. അവരവർക്കുവേണ്ടി ഉദ്ദേശിച്ചിട്ടില്ലാത്ത ചിലതു അനുകരിക്കുന്നതിനേക്കാൾ ഉത്തമം ഓരോരുത്തരും സ്വന്തം പാത വിവേചിച്ചറിയുക എന്നതാണ് (ആനന്ദിച്ചു ആഹ്ളാദിക്കുവിൻ 11). ദൈവത്തിന്റെ ജീവൻ ചിലർക്ക് ഒരുവിധത്തിലും മറ്റു ചിലർക്ക് വേറൊരു വിധത്തിലുമാകയാൽ(കുരിശിന്റെ വി. യോഹന്നാൻ, സ്നേഹഗീത 2) അവരവരുടെ ഹൃദയങ്ങളിൽ ദൈവം നിക്ഷേപിച്ചിട്ടുള്ള ഏറ്റവും വ്യക്തിപരമായ ദാനങ്ങൾ പുറത്തുകൊണ്ടുവരിക എന്നതാണ് ഒരുവനെ സംബന്ധിച്ചു ഏറ്റവും അഭിലഷണീയം. ദൈവാത്മാവ് ഓരോരുത്തരിലും വിഭിന്നമായ രീതിയിലാണ് പ്രവർത്തിക്കുന്നത്. ഒരേ ആത്മാവ് ദൈവമക്കൾക്കു വിവേകത്തിന്റെ വചനവും ജ്ഞാനവരവും വിശ്വാസവരവും രോഗശാന്തിവരവും അത്ഭുതശക്തികളും പ്രവചനവരവും ഭാഷാവരവും വ്യാഖ്യാനവരവുമെല്ലാം തരുന്നത് ഒരേ

ആത്മാവിൽ ഏകശരീരത്തിലെ അവയവങ്ങൾ പോലെ ഒരുമയോടെ എന്നാൽ വ്യതിരിക്തധർമ്മങ്ങളോടെ നാം ജീവിക്കാനാണ്(1 കോറി.12:1-31).

പ്രേഷിതൻ സ്വന്തം ചുറ്റുപാടിന്റേയും സംസ്കാരത്തിന്റേയും വേലിക്കെട്ടുകൾ പൊളിച്ചുകളഞ്ഞു സഭാതരുവിന്റെ വിത്തു ഏതു മണ്ണിലാണോ വീണത് ആ മണ്ണിന്റെ സുഗന്ധവും പരിമളവും പരത്തുന്ന പ്രേഷിതനാകുകയെന്നതാണ് അവന്റെ വെല്ലുവിളി. അതുകൊണ്ടാണ് ആടിന്റെ മണമുള്ള ഇടയന്മാരാകാൻ ഫ്രാൻസിസ് പാപ്പാ ആഹ്വാനം ചെയ്യുന്നത്. എന്റെ സംസ്കാരവും പാരമ്പര്യവും ആശയങ്ങളും ചിന്തയും വംശമഹിമയും ആഡ്യത്വവും അപ്രമാദിത്വവും പ്രേക്ഷകരിലേക്ക് പകരുക എന്നതല്ല പ്രേഷിത ദൗത്യമെന്ന് പാപ്പാ നമുക്ക് മുന്നറിയിപ്പ് തരുന്നുണ്ട്. പന്തക്കുസ്താദിനത്തിൽ ശിഷ്യർ സംസാരിച്ചത് ഓരോരുത്തരും അവരവരുടെ മാതൃഭാഷയിലാണ് ശ്രവിച്ചത് എന്ന് അപ്പസ്തോല പ്രവർത്തനങ്ങൾ സാക്ഷ്യപ്പെടുത്തുന്നത് (അപ്പ.പ്രവ.2:1-11) ഭാവി സുവിശേഷപ്രവർത്തകർക്കുള്ള ഒരു മാർഗ്ഗരേഖയാണ്. ബെൽജിയൻ മിഷണറിയായിരുന്ന ഫ്രഡറിക് വിൻസന്റ് ലെബ്ബെ (1877 - 1940) ചൈനയിൽ പ്രേഷിതപ്രവർത്തനം ചെയ്യവെയാണ് ചൈനയിൽ ആദ്യത്തെ തദ്ദേശീയ മെത്രാൻ അഭിഷിക്തനാകുന്നത്. “ചൈന ചൈനക്കാർക്ക് വിട്ടുകൊടുക്കുക അപ്പോൾ ചൈനക്കാർ ക്രിസ്തുവിലേക്ക് തിരിയും” എന്ന മുദ്രാവാക്യവുമായി തദ്ദേശീയ മെത്രാനുവേണ്ടിയുള്ള അദ്ദേഹത്തിന്റെ പരിശ്രമം Maximum Illudനെയും പിയൂസ് 11-മൻ പാപ്പയുടെ Rerum Ecclesiae എന്ന ചാക്രിക ലേഖനത്തെയും സ്വാധീനിച്ചു. പാശ്ചാത്യമെത്രാന്മാർ നിയമപരിരക്ഷയുടെ സുരക്ഷിതമേഖലയിൽ വിരാജിച്ചപ്പോൾ അവയെല്ലാം നിസ്വമായിക്കരുതി അദ്ദേഹം ചൈനീസ് പൗരത്വം സ്വീകരിക്കുകയും പീഡനങ്ങൾ സഹിച്ചു മരിക്കുകയും ചെയ്തുകൊണ്ട് ഈ ദർശനത്തിന്റെ ഉദാത്ത മാതൃകയായി മാറിയതുപോലെ തദ്ദേശീയ ജീവിതശൈലി സ്വാംശീകരിക്കുക എന്നത് പ്രേഷിതപ്രവർത്തനത്തിന്റെ ഫലപ്രാപ്തിക്കു അനിവാര്യമാണ്.

ക്രിസ്ത്യാനിയുടെ പ്രേഷിതദൗത്യം ദൈവത്തിന്റെ പിതൃത്വത്തിലും സഭയുടെ മാതൃത്വത്തിലും വേരുറച്ചതാണ്. ദൈവം പിതാവായിട്ടുള്ളവൻ സഭ മാതാവായിട്ടുണ്ടാകുമെന്നു വി.സിപ്രിയാൻ പറയുന്നത് ഇത്തരൂണത്തിൽ സ്മരണീയമാണ്. അതിനാൽത്തന്നെ മാതൃവാത്സല്യത്താൽ നിറഞ്ഞ, എല്ലാ മനുഷ്യരെയും ഉൾക്കൊള്ളുന്ന തുറന്ന ഹൃദയവുമായിട്ടാണ് സഭാമാതാവിനെ ഫ്രാൻസിസ് പാപ്പാ 'സുവിശേഷത്തിന്റെ ആനന്ദ'ത്തിൽ അവതരിപ്പിച്ചിരിക്കുന്നത്. തന്റെ പുത്രൻ തിരികെ വരുമ്പോൾ പ്രവേശിക്കുന്നതിനുവേണ്ടി എപ്പോഴും വാതിലുകൾ തുറന്നിട്ടിരിക്കുന്ന യൂർത്തപുത്രന്റെ

പിതാവിനെപ്പോലെയാകണം സഭ എന്നാണ് പാപ്പാ ആഗ്രഹിക്കുന്നത്(45).ആത്മാവാൽ പ്രചോദിതരായി ദൈവത്തെ തേടി എത്തുന്ന ഒരുവനും നിരാശനാകാതിരിക്കാൻ എപ്പോഴും തുറന്നുകിടക്കുന്ന ദേവാലയ വാതിലുകൾ പോലെ കൂദാശയുടെ വാതിലുകളും ഹൃദയവാതിലുകളും സഹോദരീസഹോദരർക്കായി സദാ തുറന്നുകൊടുക്കാൻ നമുക്ക് സാധിക്കണം. മാമ്മോദീസ്സായിൽ നാം എല്ലാ പിതൃത്വത്തിൻറെയും യഥാർത്ഥ മാതൃത്വത്തിൻറെയും ഉറവിടത്തെ സ്വീകരിക്കുന്നവരാകയാൽ സ്വർഗ്ഗപിതാവിൻറെയും സഭാമാതാവിൻറെയും ചോദനകളോട് ക്രിയാത്മകമായി പ്രത്യുത്തരിക്കുന്നവരാകുവാൻ നാം ബാധ്യസ്ഥരാകുന്നു.

മാമ്മോദീസ സ്വീകരിച്ച ഓരോ വ്യക്തിയും ഓരോ സുവിശേഷങ്ങളാണ്; ഒരേ സന്ദേശമാണ് നൽകുന്നതെങ്കിലും അതിൻറെ പശ്ചാത്തലവും ഭാഷയും അവതരണവും ശൈലിയും പ്രേക്ഷകരും എല്ലാം വ്യത്യസ്തമാണ്. അസാധാരണ പ്രേഷിതമാസത്തിൽ കേരളസഭയ്ക്കു സന്തോഷം പകരുന്ന ഒരു വാർത്തയാണ് സാധാരണക്കാരിയായി ജീവിച്ചു അസാധാരണ വിധത്തിൽ ക്രിസ്തുവിനെയും സഭയെയും സമൂഹത്തെയും മനസ്സിലാക്കി സുവിശേഷമായിത്തീർന്ന വാഴ്ത്തപ്പെട്ട മറിയം ത്രേസ്യയുടെ വിശുദ്ധപദവി. 2019 ഒക്ടോബർ 13 നു അവർ വിശുദ്ധപദവിയിലേക്കുയർത്തപ്പെടുമ്പോൾ സുവിശേഷ സുവിശേഷങ്ങളാകാനുള്ള നമ്മുടെ പരിശ്രമത്തിനു അത് പുതുചൈതന്യം നൽകട്ടെ. ഈ വിളിയെ അതിൻറെ പൂർണ്ണതയിൽ ആസ്വദിക്കാനും പങ്കുവെക്കാനും നമുക്ക് സാധിക്കട്ടെ.

സഹായകഗ്രന്ഥസൂചി

Pope Benedict XV (1919).Maximum Illud. L’ Osservatore Romano.
 Pope Francis (2019).Eximius Missionis Mensis. L’ Osservatore Romano.

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^{1*} സെൻറ്. ജോസഫ്സ് കോളേജ്, മൂലമറ്റം

പ്രബന്ധസംഗ്രഹം

ആംഗലേയ സാഹിത്യകാരനായ ടി. എസ്. എലിയറ്റിന്റെ വശ്യതയാർന്ന ക്രിസ്തുമസ് കവിതയായ 'പൂജരാജാക്കന്മാരുടെ യാത്ര'യുടെ ഒരു പുനഃർ വായനയാണി കുറിപ്പ്. ക്രിസ്തുവിന്റെ ഉത്ഥാനരഹസ്യത്തിലൂടെ സംജാതമായ പുതിയ ലോകവ്യവസ്ഥിതിയെക്കുറിച്ചും അജ്ഞതയാർന്ന കവി ക്രിസ്തുവിനെ സ്വീകരിച്ചപ്പോൾ വ്യക്തിപരമായുണ്ടായ മാറ്റത്തെക്കുറിച്ചുമെല്ലാം ഇവിടെ വ്യംഗ്യമായി സൂചിപ്പിക്കുന്നു.

കീലപദങ്ങൾ: ക്രിസ്തുമസ്, പൂജരാജാക്കന്മാർ, യാത്ര, മാറ്റം

ആംഗലേയ സാഹിത്യകാരന്മാരിൽ അഗ്രഗണ്യനായ ടി. എസ്. എലിയറ്റിന്റെ വശ്യതയാർന്ന ക്രിസ്തുമസ് കവിതയാണ് "പൂജരാജാക്കന്മാരുടെ യാത്ര" (The Journey of the Magi). മൂന്നു ഭാഗങ്ങളിലായി വെറും നാല്പ്പത്തിമൂന്നു വരികൾ മാത്രമുള്ള ഈ കവിത അദ്ദേഹത്തിന്റെ പുതുജന്മത്തിന്റെകൂടി കഥയാണ്. ക്രിസ്തുവിന്റെ ജനനത്തിനു സാക്ഷ്യം വഹിക്കാൻ കിഴക്കുനിന്നെത്തിയ പൂജരാജാക്കന്മാരിലൊരാൾ യാത്രയെക്കുറിച്ചു നടത്തുന്ന ആത്മാവലോകനമാണിത്. ആയിരത്തി അറുനൂറുകളിൽ ഇംഗ്ലണ്ടിലെ മെത്രാപ്പോലീത്തയായിരുന്ന ലാൻസിലോട്ട് ആൻഡ്രൂസിന്റെ ക്രിസ്തുമസ് സന്ദേശത്തിലെ വരികൾ കടമെടുത്തു തുടങ്ങുന്ന കവിത അവസാനിക്കുന്നത് പുരാതന ലോകത്തിന്റെയും പുരാണിക മതത്തിന്റെയും പഴയ മനുഷ്യന്റെയും മരണവും നവീന ലോകത്തിന്റെയും ആധുനിക മതത്തിന്റെയും പുതിയ മനുഷ്യന്റെയും ജനനവും ഉദ്ഘോഷിച്ചുകൊണ്ടാണ്, സമൂലമാറ്റത്തിന്റെ പ്രകാശകിരണങ്ങൾ പ്രഭ വിതരുന്ന പുതിയ കാഴ്ചകളുടെ കേളികൊട്ടുമായാണ്.

പാരമ്പര്യമായി രാജകീയസഞ്ചാരങ്ങൾ സുസ്ഥരണാർഹവും ആനന്ദദായകവുമായി വർണ്ണിക്കപ്പെടുമ്പോൾ "വർഷത്തിലെ ഏറ്റവും പ്രതികൂല കാലാവസ്ഥയിലാണ് ഞങ്ങൾ ഈ യാത്ര ആരംഭിച്ചിരിക്കുന്നത്; ഭൂമി തണുത്തുറയാൻ തുടങ്ങിയിരിക്കുന്നു; മരണത്തണുപ്പിന്റെ കരാളത ചുറ്റിലും ദർശിക്കുന്നു; വഴികളാകട്ടെ ദുർഘടവും. ഞങ്ങളെ വഹിച്ചിരുന്ന ഒട്ടകങ്ങൾക്കുപോലും ഇത് ദുസ്സഹമായിത്തോന്നി." എന്നുള്ള ഒരു വിലാപഗാനമായി കവിതയുടെ

ഒന്നാം ഭാഗം മാറിയിരിക്കുന്നു. തങ്ങൾ നടത്തുന്നത് വിരസമായ ഒരു സഞ്ചാരമായിത്തോന്നിയ ഒട്ടകനോട്ടക്കാരുടെ പിറുപിറുപ്പും മുറുമുറുപ്പും മുതൽ കടന്നുപോകുന്ന പട്ടണങ്ങളിലെ ആളുകളുടെ ശത്രുതാമനോഭാവത്തോടെയുള്ള പെരുമാറ്റവും ഗ്രാമീണരുടെ മുതലെടുപ്പും പലപ്പോഴും അഭയമില്ലാതെ അലയേണ്ടിവന്നതും ഉറക്കമൊഴിഞ്ഞ നിശകളുമെല്ലാം ചിലപ്പോഴെങ്കിലും കൈവിട്ട സൗഭാഗ്യത്തിലേക്കു തിരികെച്ചെല്ലാൻ അവരുടെ മനസ്സിനെ പ്രലോഭിപ്പിച്ചുവെന്നാണ് കവി പറയുന്നത്.

ദൈവപുത്രനായ ക്രിസ്തു ഭൂമിയിലേക്ക് കടന്നുവന്നതും അവിടുത്തെക്ക് മനുഷ്യരിൽനിന്നു നേരിടേണ്ടിവന്ന നിന്ദാപമാനങ്ങളും സ്പഷ്ടമാകപ്പെടുന്ന മനോജ്ഞമായ ഒരു ചെറുകവിതയാണിത്. അതോടൊപ്പം ക്രിസ്തുവിന്റെ ഭൗമിക മാതാപിതാക്കളായ യൗസേപ്പിനും മറിയത്തിനും ബെത്ത്ലഹേം യാത്രയിൽ അഭിമുഖീകരിക്കേണ്ടിവന്ന തിരസ്കൃതാനുഭവങ്ങളും ഇവിടെ വിവക്ഷിക്കപ്പെടുന്നുണ്ട്. വി. ചാവറപ്പിതാവ് തന്റെ "ആത്മാനുതാപം" എന്ന കാവ്യത്തിൽ വർണ്ണിക്കുന്നതുപോലെ,

"ഇരപ്പോർക്കുള്ളദാനം പരപ്പിൽ സമുദ്രംപോ-
ലിരട്ടിച്ചുള്ള പാപം കെടുത്തും മമ സഖേ-
യിങ്ങനെകണ്ടു ചൊല്ലി മറ്റൊരുത്തനോടപ്പോ-
ളങ്ങുന്നു മുൻവന്നെങ്കിൽ മേ ഭാഗ്യം വർധിച്ചേനെ"

(തലചായ്കാനൊരിടത്തിനായി നാട് മുഴുവൻ വലഞ്ഞ യൗസേപ്പിതാവ് ഒരുവനോട് 'യാചിക്കുന്നവർക്കു ദാനം കൊടുത്താൽ വിസ്തൃതമായ സമുദ്രം പോലെ ഇരട്ടിയായുള്ള പാപം മുഴുവനും ഇല്ലാതാകുകയും ഭാഗ്യം വരുകയും ചെയ്യൂ'മെന്ന് പറഞ്ഞപ്പോൾ 'സുഹൃത്തേ, താങ്കൾ നേരത്തെ വന്നിരുന്നെങ്കിൽ എന്റെ ഭാഗ്യം ഇരട്ടിച്ചു വിശാലമാകുമായിരുന്നല്ലോ' എന്ന് പരിഹസിക്കുകയാണ് ചെയ്തത്.) തീർത്തും പരിഹാസ്യവും ദുരിതപൂർണ്ണവുമായിരുന്നു അവരുടെയും യാത്ര. പക്ഷേ,

"എന്നുടനഗരവും ഗോത്രവും ബന്ധുക്കളും-
മെന്നുള്ളൊരഹംമതിയൊക്കെയും ഫലം നാസ്തി"
(എന്റെ നഗരമാണിത്, എന്റെ ഗോത്രമാണിത്, എന്റെ ബന്ധുക്കൾ ഇവിടെയുണ്ട് എന്നെല്ലാം വിചാരിച്ചു അഹങ്കരിക്കുന്നത് അർത്ഥശൂന്യമത്രെ) എന്ന തിരിച്ചറിവ് ഇതവർക്കു നൽകുന്നു.

ആത്മാവിന്റെ ഇരുണ്ടരാത്രികളിലൂടെ കടന്നു പോകുന്ന ഏതൊരു വിശ്വാസിയുടെയും ആത്മീയ-മാനസികാവസ്ഥകളുടെ പ്രതീകമാണീ പൂജരാജാക്കന്മാർ. ഉണ്ടായിരുന്ന സൗഭാഗ്യങ്ങളൊക്കെയും ത്യജിച്ചു ഇല്ലായ്മയുടെയും വല്ലായ്മയുടെയും മാർഗ്ഗത്തിൽ തീർത്ഥാടനം

ചെയ്യുന്ന സാത്വികരെയും ഈ രാജാക്കന്മാർ പ്രതിനിധാനം ചെയ്യുന്നു. അവരെ സംബന്ധിച്ചിടത്തോളം അത് വയലിൽ ഒളിപ്പിച്ചുവെച്ചു നിധിക്കു തുല്യമാണ് (Mt.13:44). അതിനുവേണ്ടി തനിക്കുള്ളതെല്ലാം വിറ്റു അവൻ ആ വയൽ വാങ്ങുകയും ചെയ്യുന്നു. കാണുന്നവനാകട്ടെ ഇവൻ ഒരു ഭോഷനാണല്ലോ എന്ന് പലപ്പോഴും പരിഹസിക്കുന്നു. ചിലപ്പോഴെങ്കിലും ഈ യാത്ര തിക്തമാകുന്നു. പന്നികൾക്കു നൽകിയിരുന്ന തവിട്ടുകൊണ്ടെങ്കിലും വിശപ്പടക്കാൻ ആഗ്രഹിച്ച ധൂർത്തപുത്രന് അതുപോലും കിട്ടാതിരുന്നപ്പോൾ അവൻ സ്വഭവനത്തിലെ സൗഭാഗ്യത്തെക്കുറിച്ചു ചിന്തിച്ചതുപോലെ (Lk. 15:16-17) ഈ പരിഹസയാവസ്ഥ തങ്ങൾ വിട്ടുപോന്ന കൊട്ടാരങ്ങളുടെയും രാജകന്യകമാരുടെയും സുഭിക്ഷതയുടെയും ചിന്തകൾ അവരിൽ ഉയർത്തിയിരിക്കാം. എമ്മാവൂസിലേക്കു തിരിച്ച ശിഷ്യരെപ്പോലെ 'നടന്നതെല്ലാം മിഥ്യയായിരുന്നു' എന്ന് ആരോ തങ്ങളുടെ ചെവികളിൽ മന്ത്രിക്കുന്നതുപോലെ അവർക്കനുഭവപ്പെട്ടിരിക്കാം. ഇന്നത്തെ സാമൂഹിക ചുറ്റുപാടിൽ, നവമാധ്യമങ്ങളുടെ അതിപ്രസരണം പരിഹസിക്കാനായി ഒത്തുകൂടുന്ന കാഴ്ചക്കാരുടെ എണ്ണത്തെ അത്യധികമായി വർദ്ധിപ്പിക്കുന്നുണ്ട്. 'എന്തിനു ഇതൊക്കെ കേൾക്കണം? സഹിക്കണം? ഈ യാത്ര വ്യർത്ഥമോ?' തുടങ്ങിയ ആത്മഗതങ്ങൾ തീർത്ഥാടകരുടെ മനസ്സിനെ മമിക്കുന്നു. ഇവിടെയെല്ലാം പുജരാജാക്കന്മാരുടെ നിശ്ചയദാർഢ്യം നമുക്ക് കൈമുതലാക്കാം.

എലിയറ്റിന്റെ കവിതയുടെ അവസാനഭാഗം തിരിച്ചറിവിന്റെ അത്യന്തം സുന്ദരമായ ഒരു പ്രകരണമാണ്. "ഞങ്ങൾ ജനനത്തിലേക്കോണോ അതോ മരണത്തിലേക്കോണോ നയിക്കപ്പെട്ടത്? ജനന-മരണങ്ങൾ വ്യത്യസ്തമാണെന്നാണ് ഞാൻ കരുതിയത്. പക്ഷേ, ഈ പിറവി മൃത്യുവിനെപ്പോലെതന്നെ വിഭ്രാന്തകമാണ്; മൃത്യു തരുന്ന കയ്പേറിയ വേദനയാണിരിക്കാഴ്ച സമ്മാനിക്കുന്നത്. ഞങ്ങൾ ഞങ്ങളുടെ രാജ്യത്തിലേക്ക് മടങ്ങിയെത്തി; പക്ഷേ, പഴയതൊന്നുമായി സമരസപ്പെടാൻ ഞങ്ങൾക്ക് കഴിയുകയില്ല. പഴയതെല്ലാം ഞങ്ങൾക്കിപ്പോൾ അന്യമാണ്; അവയെ സംബന്ധിച്ചിടത്തോളം ഞങ്ങൾ മരിച്ചിരിക്കുന്നു. അതിൽ ഞാൻ സന്തോഷിക്കുന്നു." ക്രിസ്തുവിന്റെ ഉത്ഥാനരഹസ്യത്തിലൂടെ സംജാതമായ പുതിയ ലോകവ്യവസ്ഥിതിയെക്കുറിച്ചും അജ്ഞയവാദിയായിരുന്ന കവി ക്രിസ്തുവിനെ സ്വീകരിച്ചപ്പോൾ വ്യക്തിപരമായുണ്ടായ മാറ്റത്തെക്കുറിച്ചുമെല്ലാം വ്യംഗ്യമായി സൂചിപ്പിക്കുകയാണിവിടെ. ക്രിസ്തുവിന്റെ ജനനം തന്നിലെ പഴയ മനുഷ്യന്റെ മരണമായിത്തീർന്നു. തന്നിൽത്തന്നെ ഒരേ സമയം ജനനവും മരണവും ദർശിക്കപ്പെട്ടു. തന്റെ ദേശത്തു താൻ പുതിയൊരു മനുഷ്യനായിത്തീർന്നു; കാഴ്ചപ്പാടുകളിൽ, മനോഭാവങ്ങളിൽ, ഇടപെടലുകളിൽ എല്ലാം ഈ മാറ്റം പ്രതിഫലിക്കുന്നു.

കാൻറർബറി ആർച്ച്ബിഷപ്പായിരുന്ന റൊവാൻ വില്യംസ് പറയുന്നതുപോലെ വിശ്വാസ ജീവിതത്തെ എല്ലാ ചോദ്യങ്ങൾക്കും സന്തോഷകരമായ ഉത്തരം തരുന്ന ഒരുപകരണമായി കാണുന്നതിനുപകരം വളരെ ആഴമായ ഒരു ആന്തരികമാറ്റം ദ്യോതിപ്പിക്കുന്ന, ജീവിതത്തെ മറ്റൊരു വീക്ഷണകോണിലൂടെ നോക്കാനുപകരിക്കുന്ന, ക്ഷീണിതവും തണുപ്പൻ മനോഭാവവുമുള്ള ലോകത്തിൽ പുതിയൊരുതരം അസ്വസ്ഥത സൃഷ്ടിക്കാനുതകുന്ന ഉത്പ്രേരകമാവുകയെന്നതാണ് അഭികാമ്യം. ക്രിസ്തുവിനെ ദർശിച്ചു, ക്രിസ്തുമസ് ദർശിച്ചു ക്രിസ്ത്യാനിക്കുണ്ടാകേണ്ട മാറ്റത്തെക്കുറിച്ചു ഇത് നമ്മെ ഓർമ്മപ്പെടുത്തുന്നു. ക്രിസ്തുവിനെ കാണുംമുമ്പ് ഹേറോദേസിന്റെ ആതിഥ്യം സ്വീകരിച്ചവർ ക്രിസ്തുദർശനം നേടി മറ്റൊരു വഴിക്കാണ് യാത്ര ചെയ്തത് (Mt.2:12). അതുപോലെ "നിങ്ങളുടെ പഴയ ജീവിതരീതിയിൽനിന്നു രൂപംകൊണ്ട വഞ്ചന നിറഞ്ഞ ആസക്തികളാൽ കലുഷിതനായ പഴയ മനുഷ്യനെ ദൂരെയെറിയുവിൻ. നിങ്ങൾ മനസ്സിന്റെ ചൈതന്യത്തിൽ നവീകരിക്കപ്പെട്ടെ. യഥാർത്ഥമായ വിശുദ്ധിയിലും നീതിയിലും ദൈവത്തിന്റെ സാദൃശ്യത്തിൽ സൃഷ്ടിക്കപ്പെട്ട പുതിയ മനുഷ്യനെ നിങ്ങൾ ധരിക്കുവിൻ" (Eph. 4:22-24). ഇങ്ങനെ ക്രിസ്തുമസ് നമ്മുടെ ജീവിതത്തിൽ മാറ്റത്തിന്റെ മണിമുഴക്കമായിത്തീരട്ടെ!

സഹായകഗ്രന്ഥസൂചി

T. S Eliot (1927). The Journey of the Magi.

JOSEPHINE RESEARCHER

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മാനാനം കുന്നിലെ മെയ് മാസപ്പൂക്കൾ

ജോമോൻ കൊട്ടാരത്തിൽ ^{1*}, സി.സി.ജോ ഫ്രാൻസിസ്^{1*}, സി. ബെറ്റ്സി പോൾ^{1*} & ബിജു സ്കറിയ^{1*}

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പ്രബന്ധസംഗ്രഹം

ബെൻ ജോൺസന്റെ ചെറുകവിതയാ ഉത്കൃഷ്ടപ്രകൃതി യുടെ പശ്ചാത്തലത്തിൽ നിന്നുകൊണ്ട് മാനാനം കുന്നിൽ സ്ഥാപിതമായ വലിയൊരു ആത്മീയ- സാമൂഹ്യ മുന്നേറ്റത്തെ നോക്കിക്കാണുന്നു.

കീലപദങ്ങൾ: ലില്ലിപ്പൂക്കൾ, മാനാനം 17-ആം നൂറ്റാണ്ടിലെ സുപ്രസിദ്ധ നാടകകൃത്തും കവിയുമായിരുന്നു ബെൻ ജോൺസൺ. അനശ്വര നാടകകൃത്തായ ഷേക്സ്പിയർ ഒരു കാലത്തു ഇദ്ദേഹത്തിന്റെ നാടകകമ്പനിയിൽ അഭിനേതാവായിരുന്നു. ബെൻ ജോൺസന്റെ ഒരു ചെറുകവിതയാണ് "ഉത്കൃഷ്ടപ്രകൃതി (The Noble Nature)". അതിലെ അതിമനോഹരവും അർത്ഥവത്തുമായ വരികൾ ഇപ്രകാരമാണ്.

"മരം പോലെ അത് വളരുന്നില്ല
മനുഷ്യനും ഭീമാകാരനായതിനാൽ മെച്ചപ്പെട്ടവനാകണമെന്നില്ല;
മുന്നൂറു വയസ്സു താണ്ടുന്ന കരുവേലമരം പോലെയുമാകേണ്ട,
മരക്കഷണമായി വരണ്ടുണങ്ങി ഒരുന്നാൾ അത് നിപതിക്കുന്നു:
ദിനാന്തം കൊഴിയുന്ന ലില്ലിപ്പൂക്കൾ
ചാരതയേകിടുന്നേ മെയ് മാസത്തിനു
വാടിവീണൊരാ നിശീമിനിയിൽ കമാവശേഷയാകിലും
ദീപ്തമാക്കുമതിൻ പൂഷ്പാമൃതത്തെ.
സൗന്ദര്യ ദർശനത്തിൻ ചെറുഭാഗമെങ്കിലും
ജീവിതപൂർണ്ണതയ്ക്കുദാത്തമാത്യക."

ആകാരഭംഗിയും വലിയും ബന്ധു-മിത്ര ഗണങ്ങളുമല്ല, പ്രത്യുത ജീവിതഗുണമാണ് വ്യക്തിത്വത്തിന്റെ കാതൽ എന്ന അഗോചരസത്യമാണ് കവിഭാവനയിൽ വെളിപ്പെടുന്നത്. മരങ്ങളെപ്പോലെ ബലവും കരുവേലമരത്തെപ്പോലെ നൂറ്റാണ്ടുകൾ നീളുന്ന ആയുർദൈർഘ്യവും ലഭിച്ചാലും അവയുടെ അന്ത്യം ദുരന്തപൂർണ്ണമായിരുന്നു. ഹേ മനുഷ്യാ, നിന്റെ വിധിയും ഇതുതന്നെയായിരിക്കും. അതിനാൽ നമുക്ക് ദിനമാത്രം കൊഴിയുന്ന ലില്ലിപ്പൂക്കളെ പോലെയാകാം. മെയ് മാസത്തിനു തന്റെ ചാരതകൊണ്ട് ഉടുപ്പുതുണുകയാണവൾ. ദിനാന്ത്യത്തിൽ താനും ഭൂമിയോട് അലിഞ്ഞുചേരുമെന്നറിഞ്ഞിട്ടും പകലിനെ അവൾ കൂടുതൽ പ്രകാശമാനമാക്കുന്നു. അവളുടെ മനോഹാരിതയുടെ നൈമിഷികദർശനമാണ് മിനലൊളിപോലെ തൂവുന്നതെങ്കിലും അത് ഒരുവനിലുണ്ടാക്കുന്ന നിറവ് അവാച്യമാണ്. 'ജീവിച്ചു വർഷമല്ല,

വർഷിച്ച ജീവിതമാണ് ആയുസ്സിന്റെ പുസ്തകത്തിൽ എണ്ണപ്പെടുക എന്ന് സാരം.

മെയ് മാസത്തിലെ ലില്ലിപ്പൂക്കൾ നമ്മുടെ നാട്ടിലെയും നയനമനോഹരമായ ഒരു കാഴ്ചയാണ്; വേനൽമഴയുടെ തണലുപറ്റി നാടു പച്ചപിടിച്ചു തുടങ്ങുമ്പോൾ അവിടവിടെയായി പുഷ്പിച്ചു നിൽക്കുന്നവ, ചിലയിടത്തല്ലാം പൂപ്പാടങ്ങൾ തീർക്കുന്നവ, അങ്ങനെയെല്ലാം... വേനലിന്റെ അത്യുഷ്ണത്തിൽനിന്നു മഴക്കാലത്തിന്റെ ആർത്തിരമ്പിലേക്കുള്ള മാറ്റത്തിനിടയിലെ ഹ്രസ്വകാലത്തെ ഓർമ്മിപ്പിക്കുന്ന, ലോലമായ തണ്ടും മൃദുലമായ പൂക്കളുമുള്ള ലില്ലിപ്പൂക്കൾ ദേശാതിവർത്തികളാണ്.

മെയ് മാസം നമ്മുടെയുള്ളിലുയർത്തുന്ന മറ്റു ചില ചിന്തകൾ കൂടിയുണ്ട്; മെയ് ദിനം അഥവാ അഖിലലോക തൊഴിലാളി ദിനവും തൊഴിലാളി മധ്യസ്ഥനായ വി. യുസേപ്പിതാവിന്റെ തിരുനാളും മെയ് മാസറാണിയായ പരി.കന്യകാമറിയത്തിന്റെ വണക്കമാസ കാലവുമാണിത്.

മെയ് മാസത്തിന്റെ ഈ പ്രത്യേകതകൾക്കപ്പുറം, എന്നാൽ ഇവയെയെല്ലാം സ്വാംശീകരിക്കുന്ന കേരളക്കരയിലെ മറ്റൊരു ചരിത്ര സംഭവം കൂടിയുണ്ട്;

200 വർഷങ്ങൾക്കുമുൻപ് നമ്മുടെ കേരളക്കരയിൽ വിരിഞ്ഞ ചില ലില്ലിപ്പൂക്കളുമായി ബന്ധപ്പെട്ടതാണ്. മെയ് മാസപൂക്കളെപ്പോലെ ഹ്രസ്വമായ ജീവിതമെങ്കിലും ദീർഘമായ വിക്ഷണം അവർക്കു കൈമുതലായുണ്ടായിരുന്നു; അറുപത്തിയാറാം വയസ്സിൽ ഇഹലോകവാസം വെടിഞ്ഞ പാലക്കൽ തോമ മല്പാനും (1775-1841) വി.ചാവറ കുര്യാക്കോസ് ഏലിയാസച്ചനും (1805-1871), വെറും നാല്പത്തിയേഴു വർഷം മാത്രം ജീവിച്ച പോരൂക്കര തോമ കത്തനാരും (1799-1846), കണിയാന്തറ യാക്കോബ് സഹോദരനുമായ (1800-1898) താപസതേജസ്സികളായിരുന്നു ഈ ലില്ലിപ്പൂക്കൾ. ഓരോ മേയ്മാസവും മെയ് ദിനത്തിന്റെയും മെയ് മാസറാണിയുടെയും ഓർമകളോട് ചേർന്ന് കേരള സഭയ്ക്ക് സമ്മാനിക്കുന്നത് ഈ മേയ്മാസ പൂക്കളുടെയും സ്മരണകളാണ്. വിളക്ക് കൊളുത്തി പറയുടെ അടിയിൽ വയ്ക്കാതെ പീഠത്തിന്മേൽ വയ്ക്കുമ്പോൾ അത് സകലർക്കും പ്രകാശമേകും എന്ന തിരുവചനാസൂത്രം 1831 മെയ് 11-ആം തീയതി മാർ മൗറീലിയോസ് മെത്രാപ്പോലീത്തയുടെ അനുഗ്രഹാശിസ്സുകളോടെ ആ പൂക്കൾ കൊളുത്തിവെച്ച ദീപം, കേരളത്തിൽ ഇന്നുള്ളതിൽ ഏതദ്ദേശീയവും ഏറ്റവും പുരാതനവുമായ സന്യാസസഭ, ഇന്ന് ലോകത്തിനുമുഴുവൻ പ്രഭയേകുന്നു. മാനാനം കുനിൽ പരി. അമ്മയുടെ നാമത്തിലുള്ള സന്യാസസഭ വി. യുസേപ്പിതാവിന്റെ നാമധേയത്തിലുള്ള ആദ്യ ഭവനവുമായി ഒരു മെയ് മാസത്തിൽ സ്ഥാപിതമായെങ്കിൽ തീർച്ചയായും

അത് മെയ് മാസപൂർണ്ണമായ ഈ ദൈവികമനുഷ്യരിലൂടെ ദൈവം പ്രവർത്തിച്ചതാണ്. 1955 ലാണ് പിയൂസ് പന്ത്രണ്ടാമൻ പാപ്പാ ലോക തൊഴിലാളി മദ്ധ്യസ്ഥനായി വി. യൂസേപ്പിനെ പ്രഖ്യാപിച്ചത്; 1965ൽ പോൾ ആറാമൻ പാപ്പാ Mense Maio എന്ന ചാക്രികലേഖനത്തിലൂടെ മെയ് മാസ ഭക്തി ഔദ്യോഗികമായി പ്രഖ്യാപിച്ചു. എന്നാൽ പരി. കന്യാകാമറിയത്തോടുള്ള മെയ് മാസ ഭക്തിയും തൊഴിലാളി ദിനാചരണവും തൊഴിലാളി മദ്ധ്യസ്ഥനായ വി. യൂസേപ്പ് പിതാവിന്റെ തിരുനാളാചരണവുമെല്ലാം മെയ് മാസത്തിന്റെ പ്രത്യേകതകളായി ലോകത്തിൽ അംഗീകരിക്കപ്പെടുന്നതിനു ഒരു നൂറ്റാണ്ടു മുൻപേ തന്നെ ഇവയെല്ലാം സംയോജിപ്പിക്കുന്ന ഒരു ജീവിതരീതിയും സന്യാസചര്യയും കേരളനാടിനു സമ്മാനിക്കപ്പെട്ടുവെന്നത് 'ദൈവത്തിന്റെ സ്വന്തം നാടെ'ന്ന കേരളത്തിന്റെ അപരനാമത്തെ അരക്കിട്ടുറപ്പിക്കുന്നു.

മെയ് മാസം വേനലിനെയും മഴയെയും ബന്ധിപ്പിക്കുന്നതെങ്കിൽ വാച്ചവനവാസത്തിനും ലോകത്തിനുമിടയിൽ ഒരു പാലമായിരിക്കാൻ അവർ ആഗ്രഹിച്ചു. പകലിന്റെ പ്രകാശത്തെ കൂടുതൽ പ്രകാശമാനമാക്കുവാൻ അവർ തങ്ങളുടെ ജീവിതം വ്യയം ചെയ്തു. കുറഞ്ഞജീവിതത്തിലെ കൂടുതൽ ആത്മാവും ജീവനും അവർ ദൈവത്തിനും നാടിനുമായി സമർപ്പിച്ചു. നാടിനെ പച്ചപ്പിടിപ്പിക്കാനും അതിന്റെ പുഷ്പീകരിക്കലിനും കൈ-മെയ് മറന്നു അധ്വാനിച്ച അവർ തന്നെയാണ് മെയ്ദിനത്തിന്റെ കേരള മാതൃക. ബലഹീനപാത്രമെന്നു ശാരീരികമായി തോന്നുകിലും കാരിരുമ്പുപോലെ കരുത്തുറ്റ മനസ്സും ഓജസ്സും തേജസ്സും നിറഞ്ഞ ആത്മാവും അവർക്കു കൈമുതലായിരുന്നു; നിറകൂടം തുളുമ്പില്ല എന്ന പഴഞ്ചൊല്ലുപോലെ ആ ഭാവമൊന്നും അവരിൽ ലവലേശം പ്രകടമായിരുന്നില്ല താനും. ലില്ലിപ്പൂക്കളെപ്പോലെ അവർ സ്ഥാപിച്ച സിഎംഐ സന്യാസസഭയും ദേശാതിവർത്തിയായും കാലാന്തരങ്ങൾ താണ്ടിയും നിലനിൽക്കുന്നു. കന്യാവ്രതക്കാരുടെ രാജ്ഞിയും മാതൃകയുമായ പരി. മറിയത്തിന്റെയും കന്യാവ്രതക്കാരുടെ മദ്ധ്യസ്ഥനായ വി. യൂസേപ്പിന്റെയും കാലടികൾ ഒരുപോലെ പിഞ്ചെന്നവരാണവർ. മെയ് മാസ വണക്കത്തിന്റെ അന്തരീകാർത്ഥം ആഴത്തിൽ ഗ്രഹിച്ച അവർ മാനാനം കുന്നിൽ നമുക്കായി വിരിഞ്ഞ മെയ് മാസപ്പൂക്കൾ തന്നെയാണ്.

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ഈ ഊഷര പ്രണയകാലത്ത്...

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പ്രബന്ധസംഗ്രഹം

സ്നേഹത്തിന്റെ ഏറ്റവും സമൃദ്ധമായ ഭാവമാണ് ഉദാത്തസ്നേഹം. ഏറ്റവും പരിശുദ്ധവും കറപുരളാത്തതുമായതിനാൽ ശാരീരിക സൗന്ദര്യത്തിനും സൗഹൃദത്തിനും രക്തബന്ധത്തിനുമനപ്പുറമാണിത്. യാതൊരു വ്യവസ്ഥകളുമില്ലാതെ സ്നേഹിക്കുക; സ്നേഹിച്ചുകൊണ്ടേയിരിക്കുക എന്നതിനാൽ സാർവത്രികസ്നേഹമെന്നാണിതിനെ വിളിക്കുന്നത്. പ്രണയം ഉദാത്തസ്നേഹമായി വളരേണ്ടതിന്റെ ആവശ്യകതയിലേക്കു ഇവിടെ വിരൽ ചൂണ്ടുന്നു.

കീലപദങ്ങൾ: പ്രണയം, സൗഹൃദം, വാത്സല്യം, ഉദാത്തസ്നേഹം, വിശ്വവിദ്യാതനായ ആംഗലേയ സാഹിത്യകാരൻ വില്യം ഷേക്സ്പിയറിന്റെ അനശ്വരസ്നേഹഗീതമാണ് "Sonnet 116" അഥവാ "ഗീതിക 116". അതിന്റെ സ്വതന്ത്രവിവർത്തനം ഇപ്രകാരമാണ്: ഹൃദയംഗമസ്നേഹപ്രതീകമാം പ്രാണപ്പെരുത്തത്തിൽ തടസ്സമായി ഞാനില്ല. സ്നേഹം സ്നേഹമല്ലാതാകും അതിൽ കുത്തിത്തരിപ്പുകളുണ്ടെങ്കിൽ, അഥവാ അതിലൊന്ന് വ്യാജമെങ്കിൽ: അങ്ങനെയൊരിക്കലുമില്ല! സ്നേഹമൊരു പ്രകാശഗോപുരം കടൽത്തീരമാലകളുതിനെക്കുലുകുലിക്കില്ല; നഷ്ടയാനങ്ങൾക്ക് ധ്രുവനക്ഷത്രവുമത്, അതിൻമൂല്യമജ്ഞാതമത്രെ, ഔന്നത്യമറിയിടിലും. സമയത്തിൻ കാരുണ്യമതു കേഴാറില്ല, അംഗലാവണ്യങ്ങളെ കാലചക്രം തൻ കോയ്ത്തരിവാളാൽ ഇറുത്തീടിലും; പക്ഷവിനാഴികകൾക്കഭേദ്യമാം സ്നേഹം, ജീവിതാന്ത്യത്തോളമതിൻപ്രഭുവിതറുന്നു. ഇസ്സനേഹചിന്തകളിലൊന്നു പിഴവുറ്റതെങ്കിൽ, ഞാനൊന്നുമെഴുതിയിട്ടുമില്ല, ലോകരാരും സ്നേഹിച്ചിട്ടുമില്ല.

ആത്മാർത്ഥ സ്നേഹത്തിന്റെ വക്താവകാൻ വെമ്പൽ കൊള്ളുന്ന ഹൃദയാഭിലാഷമാണ് ഇവിടെ കാണുന്നത്; ഇത് കവിയുടെ മാത്രമല്ല, ഓരോ സഹൃദയന്റെയും അഥവാ നമ്മു നിറഞ്ഞ ഓരോ മനുഷ്യന്റെയും വികാരമാണ്. നിർവ്യാജസ്നേഹത്തിന്റെ ശക്തി അപാരമാണ്; സ്വാധീനം അനിർവചനീയവും. ശരീരവടിവും ആകാരഭംഗിയും കാലക്രമേണ അപ്രത്യക്ഷമായാലും ഉദാത്തസ്നേഹം

ചിരഞ്ജീവിയാണ്. സ്നേഹമെന്ന പദത്തെക്കുറിച്ചു ആയിരക്കണക്കിന് പുസ്തകങ്ങൾ എഴുതാൻ സാധിച്ചേക്കാം; എന്നാൽ ആ പദത്തിന്റെ അർത്ഥം അതിന്റെ പൂർണ്ണതയിൽ എത്രമാത്രം ജീവിക്കാൻ സാധിക്കുമെന്ന് നമ്മുടെ മുൻപിലുള്ള വലിയൊരു ചോദ്യചിഹ്നമാണ്. അരുമയാം സ്നേഹം അഭ്യസിക്കുന്നവർക്കു ജീവശ്വാസത്തിനു തുല്യമാണത്; സ്നേഹം നിലയ്ക്കുന്നത് ശ്വാസനം നിലയ്ക്കുന്നതിനു സമാനമാണവർക്ക്.

കാല്പനിക സ്നേഹത്തിന്റെ ഉച്ചസ്ഥായിയായ ഭാവമായിട്ടാണ് പ്രണയം വിശേഷിപ്പിക്കപ്പെടുന്നത്. സ്ത്രീയും പുരുഷനും അവരുടെ വികാര തീക്ഷ്ണതയുടെ പാരമ്യത്തിലേത്തി നിൽക്കുന്ന സ്നേഹമാണിത്. അനശ്വര പ്രണയ കാവ്യങ്ങൾ പലതും രൂപപ്പെട്ടിരിക്കുന്നത് ഇതിനെ കേന്ദ്രീകരിച്ചാണ്. റോമൻ ആഘോഷമായിരുന്ന Lupercalia യുടെ ചുവടുപിടിച്ചാണ് ഇന്ന് പ്രചുരപ്രചാരമായ Valentine's Day തുടങ്ങിയതെന്ന വാദമുണ്ട്. ഒരു പരിധിവരെ പ്രാചീനകാല യുദ്ധങ്ങളുടെ പ്രധാന കാരണങ്ങളിലൊന്ന് പ്രണയമായിരുന്നു. കഥകളുടെയും കവിതകളുടെയും നോവലുകളുടെയും നാടകങ്ങളുടെയുമെല്ലാം അവിഭാജ്യഘടകമായി പ്രണയം ഇന്നും നിലകൊള്ളുന്നു. റോമിയോ-ജൂലിയറ്റ്, മാർക്ക് ആൻറണി-ക്ലിയോപാട്ര, ഷാജഹാൻ-മുംതാസ് തുടങ്ങിയ പ്രണയജോടികൾ നമുക്ക് സുപരിചിതമാണല്ലോ.

പ്രേമത്തിനു കണ്ണില്ല എന്നാണല്ലോ പറയാറ്. അന്യമായ സ്നേഹത്തിന്റെ പര്യായമത്രെ പ്രണയം. അനശ്വരവും ആത്മാർത്ഥവുമായ പ്രണയത്തെക്കുറിച്ചുള്ള ഏറ്റവും സുന്ദരമായ ഗീതകങ്ങൾ ആണ് ബൈബിളിലെ ഉത്തമ ഗീതങ്ങൾ. പാട്ടുകളുടെ പാട്ടെന്നറിയപ്പെടുന്ന ഉത്തമഗീതത്തിൽ ദൈവ - മനുഷ്യസ്നേഹഗീതങ്ങളാണ്; അസാമാന്യ സൗന്ദര്യമുള്ള പ്രണയഗീതമെന്ന് വിശേഷിപ്പിക്കപ്പെടുന്ന ഇത് ദൈവവും ദൈവജനവും തമ്മിലുള്ള അഗാധമായ പ്രണയത്തിന്റെ വിവരണമാണ്.

പ്രണയപുഷ്പങ്ങൾ പൂവിടുന്ന കുളിർമയിൽ നിന്ന് നിർവികാരതയുടെ ഊഷരതയിലേക്കുള്ള സഞ്ചാരമാണ് ഫെബ്രുവരിയുടെ യാത്ര. മനുഷ്യജീവിതവും പലപ്പോഴും ഇതിനു സമാനമായിത്തീരുന്നു. നന്നുത്ത പ്രണയങ്ങൾ ഊഷരജീവിതങ്ങളായി അവസ്ഥാന്തരം പ്രാപിക്കുന്നു. പ്രാണനേകുന്നതാണ് പ്രണയം എന്നതിൽനിന്ന് പ്രാണൻ എടുക്കുന്ന പ്രണയത്തിലേക്ക് ലോകം മാറിയിരിക്കുന്നു. അമ്മ കുഞ്ഞുങ്ങളെ മറക്കുന്നു; പ്രാണൻ വേണ്ടി വാവിട്ടു നിലവിളിക്കുന്ന പൈതങ്ങളെ അപ്പന്മാർ നിശബ്ദരാക്കുന്നു. സ്ത്രീകൾ ഭാര്യത്വവും മാതൃത്വവും മറന്ന് ഇന്നലെ പരിചയപ്പെട്ടവന്റെ കൂടെ ഒളിച്ചോടിപ്പോകുന്നതും ചതിയിലകപ്പെട്ടു ജീവിതം തന്നെ നശിക്കപ്പെടുന്നതും ഇന്ന് സാധാരണ

സംഭവമായിരിക്കുന്നു. എട്ടും പൊട്ടും തിരിയാത്ത പാവപ്പെട്ട പെൺകുട്ടികളെ വളച്ചെടുത്ത് അവരുടെ ജീവിതങ്ങൾ പിച്ഛിച്ഛിത്തുന്ന നരാധമന്മാരുടെ സംഖ്യ അനുഭവം വർധിക്കുന്നു. കണ്ണും കൈയും കാട്ടി പുരുഷന്മാരുടെ കത്തിയിൽ പാറ്റയിടുന്ന സ്ത്രീജന്മങ്ങളും ഇന്ന് കുറവല്ല. മാതാവിന്റെ നെഞ്ചിടിപ്പും പിതാവിന്റെ നെഞ്ചിലെ ചുടും കുഞ്ഞുങ്ങൾക്ക് ഇന്ന് അന്യമായിക്കൊണ്ടിരിക്കുന്നു.

പ്രണയമെന്ന പദത്തിന്റെ ആർദ്രത തുലോം നഷ്ടമായിക്കൊണ്ടിരിക്കുന്ന ഒരു കാലഘട്ടമാണിത്. പഞ്ചേന്ദ്രിയങ്ങളെ തൃപ്തിപ്പെടുത്തുന്നതിനപ്പുറം സ്മായിയായ സ്മൃതിയാകാൻ സാധിക്കുന്നില്ല എന്നതാണതിൻ പരാജയം. ആഘോഷപൂർവ്വമായ ആരംഭവും അലോസരമായ അവസാനവുമാണ് പലപ്പോഴും പ്രണയത്തിനുള്ളത്. ഒരു പരിധിവരെ ഉപരിപ്പവമായ സ്നേഹത്തിന്റെ പരിണിതഫലമാണ് ലോകത്തിൽ ഇന്ന് കാണുന്ന ദാമ്പത്യപരാജയങ്ങൾ. കവികൾ വാഴ്ത്തിപ്പാടുന്ന പ്രണയത്തിന്റെ മാധുര്യം എങ്ങോ പോയ് മറഞ്ഞിരിക്കുന്നു. ചില പ്രണയങ്ങളെങ്കിലും വെറും മുഖംമൂടികളാണെന്ന് നാം തിരിച്ചറിഞ്ഞുകൊണ്ടിരിക്കുന്നു; നമ്മുടേതും മറ്റുള്ളവരുടേതും. അനശ്വര പ്രണയങ്ങൾ നൈമിഷിക ചേതോഹരങ്ങൾക്ക് വഴിമാറുന്നു. ഇന്നത്തെ ലോകം പ്രണയത്തെ കുറിച്ച് വാതോരാതെ സംസാരിക്കുന്നു; എന്നാൽ അതിന്റെ ചുമതലകൾ അവർക്ക് താങ്ങാനാവാത്ത ചുമട്പോലെ ഭാരമേറിയതായിരിക്കുന്നു. പ്രണയത്തിലവസാനിക്കുന്നതല്ല ജീവിതം; അതിനിനിയും വളരാനുണ്ട്; വളരേണ്ടിയിരിക്കുന്നുമുണ്ട് എന്ന് നാം മനസിലാക്കേണ്ടതുണ്ട്. ഗ്രീക്ക് തത്വചിന്തപ്രകാരം സ്നേഹത്തിന് 4 ഭാവങ്ങളുണ്ട്: അതിലൊന്നുമാത്രമാണ് പ്രണയം(Eros). സൗഹൃദം(Philia), വാത്സല്യം (Storge), ഉദാത്തസ്നേഹം (Agape) എന്നിവയാണ് മറ്റുള്ളവ.

സൗഹൃദം(Philia): സമാനമനസ്ക്കർക്കിടയിൽ കാണപ്പെടുന്ന സ്നേഹമാണ് സൗഹൃദം. ഒരേ മനസ്സും ഒരേ ഹൃദയവുമായി മുന്നേറുന്നവരെ കൂട്ടിയിണക്കുന്ന കണ്ണിയാണിത്. പരസ്പരവിശ്വസമാണിതിന്റെ ആണിക്കല്ല്. ആർജിക്കുന്ന സൽപ്പേരും വിശ്വാസ്യതയും ഇതിനെ ദൃഢമാക്കുന്നു. പ്രണയങ്ങൾ സൗഹൃദത്തിലേക്കു രൂപാന്തരപ്പെടുമ്പോൾ ആസക്തിയിൽനിന്നുയർന്നു ജീവിതതത്വങ്ങൾ രൂപപ്പെടുത്താനുള്ള പ്രചോദനമായി സൗഹൃദം മാറുമെന്നാണ് പ്ലേറ്റോ പറയുന്നത്. വി. ഫ്രാൻസിസ് അസ്സീസി- വി. ക്ലാർ, വി.യോഹന്നാൻ ക്രൂസ്-ആവിലായിലെ വി. അമ്മ ത്രേസ്യ, വി. ഫ്രാൻസിസ് സാലസ്-വി. ഫ്രാൻസിസ് ഷന്താൾ തുടങ്ങിയ വിശുദ്ധരും അവരുടെ സൗഹൃദവും സഭയ്ക്കും ലോകത്തിനും നൽകിയിട്ടുള്ള നന്മകൾ ഇത്തരൂണത്തിൽ സ്മരണീയമാണ്.

വാത്സല്യം (Storge) : ഏറ്റവും പ്രകൃതിദത്തമാണിത്. സ്നേഹിക്കപ്പെടുന്നയാൾ അതിനർഹനാണോ എന്ന് നോക്കാറില്ല. മൂലം നോക്കാതെ സ്നേഹിക്കുക. കുടുംബബന്ധത്തിലാണ് ഈ സ്നേഹഭാവം കൂടുതൽ വെളിപ്പെടുന്നത്. മാതാപിതാക്കളും മക്കളും തമ്മിലുള്ള സ്നേഹബന്ധത്തിലാണിത് തെളിവായി കാണുക. മാതൃത്വവും പിതൃത്വവും തുളുമ്പുന്ന ഹൃദയങ്ങളിൽനിന്ന് പുറപ്പെടുന്ന സ്നേഹമാണിത്: പുത്രസ്നേഹത്താൽ അന്ധമാകുന്ന വ്യക്തികളായി നാം മാറരുത് എന്നൊരു മുന്നറിയിപ്പുംകൂടി ഇതിനുണ്ട്. നൊമ്പരങ്ങൾ സമ്മാനിക്കുന്ന മക്കൾക്കുപോലും വാത്സല്യം മാത്രം തിരികെക്കൊടുക്കുന്ന മാതാപിതാക്കൾ ഇതിനു മകുടോദാഹരണമാണ്. പഴയനിയമത്തിലെ പൂർവ്വപിതാക്കന്മാരായ യാക്കോബ്-ജോസഫ്, രക്തസാക്ഷിത്വം വരിച്ച ശീമോണിയും ഏഴുമക്കളും(2 മക്ക.7) മകൻറെ മാനസാന്തരത്തിനായി കണ്ണീരോടെ പ്രാർത്ഥിച്ച വി. മോനിക്കയും മകൻ അഗസ്റ്റിനും വി.ചെറുപുഷ്പവും അവളെ വാത്സല്യത്തോടെ വളർത്തി ക്രിസ്തീയസ്നേഹം പകർന്നു നൽകിയ മാതാപിതാക്കളായ വി. മാർട്ടിനും വി.സെലിഗ്ഗാരിനും കുടുംബബന്ധത്തിലെ വാത്സല്യമനോഭാവത്തിന്റെ പ്രതിബിംബങ്ങളാണ്.

ഉദാത്തസ്നേഹം (Agape): സ്നേഹത്തിന്റെ ഏറ്റവും സമ്യക്കായ ഭാവമാണിത്. ഏറ്റവും പരിശുദ്ധവും കറപുരളാത്തതുമായതിനാൽ ശാരീരിക സൗന്ദര്യത്തിനും സൗഹൃദത്തിനും രക്തബന്ധത്തിനുമനപ്പുറമാണിത്. യാതൊരു വ്യവസ്ഥകളുമില്ലാതെ സ്നേഹിക്കുക; സ്നേഹിച്ചുകൊണ്ടേയിരിക്കുക എന്നതിനാൽ സാർവത്രികസ്നേഹമെന്നാണിതിനെ വിളിക്കുന്നത്. ക്രിസ്തുവിന്റെ കുരിശിലെ സ്നേഹത്തിലാണിത് പൂർണ്ണമായി ദർശിക്കുക.

ഏറ്റവും ശ്രേഷ്ഠനായ സ്നേഹഗായകൻ ക്രിസ്തുവാണ്; ഏറ്റവും ശ്രേഷ്ഠമായ സ്നേഹവചനം 'നിന്നെപ്പോലെ നിന്റെ അയൽക്കാരനെ സ്നേഹിക്കുക' എന്നതാണ്; ഏറ്റവും ശ്രേഷ്ഠമായ സ്നേഹഗീതം 1 കോറി 13:1 -13 ആണ്; ഏറ്റവും ശ്രേഷ്ഠമായ സ്നേഹകാവ്യം വിശുദ്ധഗ്രന്ഥമാണ്. ക്രിസ്തുമതത്തെ സ്നേഹമതമെന്നാണ് പലരും വിശേഷിപ്പിക്കുന്നത്. ടൈം മാഗസിനിൽ എഴുതിയ ഒരു ലേഖനത്തിൽ ബൈബിളിന്റെ സാരാംശംതന്നെ "തന്റെ ഏകജാതനെ നൽകാൻ തക്കവിധം ദൈവം ലോകത്തെ അത്രമാത്രം സ്നേഹിച്ചു" (യോഹ. 3: 16) എന്ന വചനമാണ് എന്നൊരു പത്രപ്രവർത്തകൻ പറയുന്നു. ദൈവത്തെപ്പോലും സ്നേഹം എന്ന ഒറ്റ വാക്കിൽ വി.യോഹന്നാൻ സംഗ്രഹിക്കുന്നു (1 യോഹ. 4:8, 16)! നമുക്കും ഈ ഉദാത്ത സ്നേഹത്തിന്റെ ബഹിർസ്ഫുരണങ്ങളാകാം. ഓർക്കുക; 'വിശ്വാസം, പ്രത്യാശ, സ്നേഹം ഇവ മൂന്നും നിലനില്ക്കുന്നു. എന്നാൽ സ്നേഹം ആണ് സർവ്വോത്കൃഷ്ടം' (1 കോറി 13:12-13). അതിനാൽ 'കുഞ്ഞുമക്കളേ, വാക്കിലും സംസാരത്തിലുമല്ല നാം സ്നേഹിക്കേണ്ടത്;

പ്രവൃത്തിയിലും സത്യത്തിലുമാണ്' (1 യോഹ.3:18).

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Solid Dispersions in Drug Delivery

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Abstract

Drug formulation is critical in pharmaceutical development, comprising active pharmaceutical ingredients (APIs), excipients, and dosage forms. Solid dispersions are vital for enhancing the solubility and bioavailability of poorly water-soluble drugs. This review deals with various methods, including fusion, solvent evaporation, hot melt extrusion, spray drying, co-precipitation, and melt agglomeration, which are employed to prepare solid dispersions, improving drug delivery and patient outcomes.

Keywords: Drug delivery, Solid dispersions, Excipient

Introduction

The drug is essentially composed of two components namely the excipient and the Active Pharmaceutical Ingredient (API). According to World Health Organization (WHO), API is "a substance used in a finished pharmaceutical product (FPP), intended to furnish pharmacological activity or to otherwise have direct effect in the diagnosis, cure, mitigation, treatment or prevention of disease, or to have direct effect in restoring, correcting or modifying physiological functions in human beings". There are also cases like multiple therapies, wherein more than one API is present, to treat different symptoms and act in different ways. The excipient is defined as a "substance(s) other than the API which has been appropriately evaluated for safety and is included in a drug delivery system to either aid processing of the system during manufacturing or protect, support or enhance stability, bioavailability or patients compliances or assist in product identification and enhance any other attributes of overall safety and effectiveness of drug product during storage or use", by the International Pharmaceutical Excipients Council. Rarely, the excipients also possess pharmacological activity. Excipients are also classified as binders, fillers, lubricants, glidants, compression aids, colors, sweeteners etc., based on their functions.

Amorphous Solid Dispersions

Oral drug delivery is regarded as the easiest, simple and widely accepted method for drug administration. However, in many cases, this method is found to be inefficient for several reasons, such as poor bioavailability of drugs. The most important problem in a drug formulation is the poor bioavailability and dissolution rate of poorly water-soluble drugs. Several approaches have been employed to overcome these issues, such as the preparation of solid dispersions, crystallization, nanosuspensions, lipid-based drug delivery systems etc. Among these, solid dispersions have gained considerable interest as the most effective approach for improving the bioavailability and the dissolution rate. Sekiguchi and Obi were the first ones to describe solid dispersion in the year 1961. In general solid dispersions can be defined as the dispersion of one or more pharmaceutical ingredients in a carrier or matrix in a solid state. The matrix can be amorphous or crystalline. Based on the arrangement, solid dispersions can be broadly classified into three categories viz. eutectics, amorphous precipitations in the crystalline matrix and solid solutions. Eutectic mixtures are composed of two components that are completely miscible in the liquid state and also, often, to a lesser extent, in the solid state. They are generally prepared by the melt fusion method. The second category, is similar to an eutectic mixture and the only difference is that the drug is precipitated in the amorphous state. In solid solutions, both components crystallize together in a single-phase system and are generally prepared by solvent evaporation or co-precipitation methodologies.

With reference to the Biopharmaceutical Classification System (BCS), drugs are classified into four categories. Solid dispersion strategy is the most promising technology being

employed for BCS class II drugs, i.e. drugs with high permeability and low aqueous solubility. Drug delivery involves many important aspects such as delivery to a specific target size, fast release of low-solubility drugs, and sustained release of drugs that are soluble in aqueous solutions. According to the fundamental principle of general oral drug formulation, an ideal drug delivery system should deliver the API to the required site in a controlled manner, which in turn, reduces the frequency of dosage.

Different methods for the preparation of solid dispersions

Melting and solvent evaporation methods are the most commonly used methods for the preparation of solid dispersions.

Melting method

The melting method also known as the fusion method was first proposed by Sekiguchi and Obi. In this method, the physical mixture of the drug and the excipient is directly heated until melting occurs. The mixture is then rapidly cooled in an ice bath with vigorous stirring and solidified. The final product obtained is then crushed, pulverized and finally sieved. Although this technique is easier and simpler, still there exist serious concerns associated with this technique. Firstly, there are chances for the drug or the carrier to decompose or evaporate at the higher temperature employed. Secondly, the drug and the carrier may be immiscible, resulting in inhomogeneity or separation between the drug and the excipient. These limitations were overcome to a great extent by modified melt methods such as the hot melt extrusion method, melt agglomeration method, etc.

The hot Melt Extrusion (HME) method is highly similar to the melting method except that the mixing of the components is induced with the aid of an extruder. Herein, the drug-carrier powder blend is introduced into a heated barrel provided with a rotating screw via a hopper. Inside this barrel, the components are mixed in the liquid state and moved towards a die, which shapes the blend according to our requirements as pellets, tablets films etc. In this case, too, the miscibility of the drug and the carrier is a matter of serious concern. Also, the amount of heat and the high shear forces applied an issue for heat-sensitive substances. Unlike the melting method, this method suggests the opportunity for continuous production. Again, this method is disadvantageous for thermally labile materials, which cannot withstand high temperatures and works have been carried out in this line wherein a reduction in processing temperature was achieved with the use of CO₂.

Meltrex™ is a patented method for the preparation of solid dispersion and is also considered a modified melting method, just like HME. The major aids included in the Meltrex™ manufacturing setup are the use of a twin screw extruder and two independent hoppers to provide a broad temperature range. In this setup, the residence time of the components in the extruder is lowered, ensuring continuous mass flow, and thereby reducing thermal stress experienced by the drug and the carrier.

Melt agglomeration is yet another modified melting method, wherein the solid dispersions are prepared in conventional high-shear mixers. In this method, the mixture containing the drug, carrier and excipient is heated to a temperature within or above the melting point of the carrier. This method offers stable solid dispersions, when prepared in a rotary processor. The binder type, manufacturing method and particle size are the major parameters that decide the final nature of solid dispersions prepared via melt agglomeration method.

This technique is the most commonly used one for the preparation of solid dispersions. In this method, the physical mixture of the drug and the carrier is dissolved in a common solvent and later evaporated. As already mentioned, one of the major limitations faced by the melting method namely, the degradation of the drug or the carrier, can be prevented by adopting this technique, since only low temperatures are required for the evaporation of organic solvents. One of the major drawbacks of this technique is the difficulty associated with the complete removal of the solvent, negatively affecting the chemical stability of the drug. The use of

organic solvents and higher cost of preparation are also known to be its demerits. Based on the method adopted for the evaporation of the solvent, this technique can be classified into different classes such as vacuum drying, slow evaporation of the solvent at low temperatures, use of rotary evaporators, a stream of nitrogen, freeze-drying, spray-drying, heating of the mixture on a hot plate etc. Among those listed, spray-drying and freeze-drying are the most common ones and herein spray-drying the physical mixture of drug and the carrier dissolved in the solvent is sprayed into a stream of heated airflow. In the freeze-drying method, the physical mixture of the drug and carrier solubilized in the solvent is immersed in liquid nitrogen until completely frozen and later this solution is lyophilized.

Conclusion

In conclusion, understanding the basic drug formulation components and the significance of solid dispersions is crucial for pharmaceutical development. Solid dispersions play a pivotal role in addressing the solubility and bioavailability challenges associated with poorly water-soluble drugs. The choice of preparation method depends on drug characteristics and desired outcomes, highlighting the importance of tailored formulation strategies to enhance drug delivery and ultimately improve therapeutic effectiveness for patients.

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Controlled Release Urea Fertilizers

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Abstract

This review highlights the vital role of urea fertilizer in global agriculture while emphasizing the need for controlled release mechanisms to optimize its efficacy. Controlled-release urea fertilizers, including polymer-coated, encapsulated, and sulphur-coated variants, are explored in detail. These innovative formulations offer sustained nutrient release, minimizing environmental impacts and enhancing crop yields.

Keywords: Urea, Fertilizer, Controlled

Introduction

Urea is probably the most vital and widely used fertilizer due to its high nitrogen content (46%), ease of application, and low cost of production. The major drawback associated with the application of urea is the fast and premature decomposition, disabling the efficient absorption of nitrogen by the plant. Before the plant absorbs the nutrient, the evolution of ammonia occurs via the action of water, volatilization, urease enzyme etc. Urea undergoes various physico-chemical and biological transformations when applied to soil and produces various plant-available nutrients. Plants require very small amounts of nutrients in their initial stages and higher amounts for their upcoming stages of growth. Also, higher chances for leaching, surface run and vaporization of urea need to be considered. Consequently, major amounts of the nutrient will be absorbed by the plant at its initial stage of growth. Approximately, 40 to 70% of nitrogen escapes to the environment and only the remaining nitrogen uptake takes place. Globally, the current scenario is to go in tune with the rising agricultural production and over the years, research efforts were focused in this direction and their paramount aim was to develop highly efficient, biodegradable and low-cost cost-fertilizers. This issue is addressed by the development of CRFs and SRFs.

Controlled Release Urea Fertilizers

The first and foremost method adopted for the controlled release of urea was sulphur-coating. In one of the adopted procedures, urea was initially coated using wax which acts as a sub-coating, followed by spraying with sulfur and finally, plasticizers (such as polyethylene) were adhered to the sulfur surface to prevent cracking of the coated surface. In another procedure, urea was coated with molten sulfur using a spouted fluidized bed under temperature-pressure conditions. Urea was also coated using an outer polymer coating and an inner sulfur coating. This double coating provided more resistance to abrasion and cracks while handling it. A three-layer method of urea coating using sulfur is also reported. All these sulfur coated urea showed significantly good results with respect to controlled release. However, the major disadvantage associated with the use of sulfur is that it is prone to brittleness and the formation of microscopic pores due to the crystalline nature of sulfur. Also, it takes much time for the disintegration of sulfur into the soil and may end up in the acidification of the soil. On account of these, researchers began to investigate the viability of using polymer-based coatings for urea. The use of solvents for spray-coating of polymer on urea was too hazardous and this was replaced with aqueous polymer solutions. Also, urea was coated with polyurethane. Although expensive, the coating was observed to be very thin, and these thin coatings are reported to be superior and the entire urea was released in forty to fifty days.

Certain polymers with excellent swelling capacity and the ability to withstand high osmotic pressure were also used as coating materials for urea. Han et al. developed three different coatings for urea namely Ca-Mg Phosphate, polyolefin, polyolefin plus dicyanamide. All three

were observed to act as good CRFs. The feasibility of using poly(lactic acid-co-ethylene terephthalate) as a coating material for urea was investigated and the research group concluded that morphology played a vital role in deciding the extent of controlled release. Coating of urea granules using polyhydroxy butyrate and ethyl cellulose combination shows the fast release of urea, in approximately five minutes, which is too low for its application in the agricultural sector.

Polymer-based coatings, despite their ability to supply nutrients with respect to the plant needs and being inert against microorganisms, their usage has been reduced due to the continuous use of solvents and the complications in the coating methods. Super-absorbent polymer materials, known for their ability to absorb water, were used for the preparation of controlled-release urea. Double-coated urea such as inner coating of starch and outer coating of acrylic acid and acrylamide, inner coating of urea-formaldehyde and outer coating of cross-linked poly(acrylic acid)/organo-attapulgitic composite, inner layer of polystyrene and outer layer of cross-linked poly(acrylic acid), all these were identified to act as moderately good controlled release urea fertilizers. Triple-layer polymer coatings of urea using polyethylene, poly(acrylic acid-co-acrylamide), and poly (butyl methacrylate) were also studied and good results were observed.

However, upon realizing the importance of environment conservation together with stringent environmental protection rules, the use of all the above-mentioned CRFs reduced tremendously since most of them were observed to be non-biodegradable, toxic and highly expensive. This was followed by the discovery of a large number of environmentally friendly coatings. Even today, some of the commercially available fertilizers have coatings made from polyurethane, alkyl resin etc, which are highly non-biodegradable and may adversely affect the soil properties. Therefore, utmost attention must be kept while choosing coating materials for fertilizers and must ensure that the coating material applied is environmentally benign in all aspects.

Starch being inexpensive, abundant and biodegradable, is a choice for the design of CRFs. The hydrophilic nature of starch limits its application, but upon pertinently modifying starch with various materials, it may be used for this purpose. Different starch-based coatings discussed are dual coating using starch and isobutylidendiurea, coating using a solution of starch, polyethylene glycol and acrylic acid etc. These starch-based coatings couldn't gain much attention in this sector since it was not found to be compatible with the plant's needs. Controlled release of urea using lignin was also investigated. Neem and neem oil-based controlled urea fertilizer has gained considerable interest in recent years since it was scientifically proven that neem is an effective nitrification inhibitor. Neem-coated urea is one of the widely used commercial urea fertilizers. Likewise, still researchers are in search of suitable green coatings for urea.

Conclusion

In conclusion, urea fertilizer holds immense importance in agriculture, yet its conventional application can lead to nutrient loss and environmental issues. Controlled-release urea fertilizers, such as polymer-coated and encapsulated forms, offer a promising solution by ensuring gradual nutrient release, reducing wastage, and mitigating environmental impacts. Adoption of these advanced formulations can enhance crop productivity while promoting sustainable and responsible farming practices in the face of increasing global food demand and environmental concern.

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Solvent Attributes of Carbon Dioxide

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Abstract

The use of liquid and supercritical carbon dioxide (CO₂) as an eco-friendly solvent platform has been a cornerstone of green chemistry. This approach has spawned numerous inventive industrial techniques, harnessing CO₂'s innate properties like straightforward solvent removal and customizable solvent characteristics. To harness CO₂ effectively as a solvent, it is crucial to comprehensively evaluate its solvent attributes. This chapter focuses on a detailed discussion of CO₂'s solvent attributes, shedding light on its pivotal role as a green and versatile solvent in various applications, thus contributing to sustainable and environmentally conscious industrial processes.

Keywords: Carbon dioxide, Supercritical, Polar

Introduction

To effectively utilize CO₂ as a solvent, one needs to examine the solvent attributes of CO₂. Generally, scCO₂ is considered a feeble solvent for ionic, highly polar, and high molecular weight compounds because of its low dielectric constant.

CO₂ is a linear triatomic molecule belonging to the D_{∞h} point group and is thus considered a non-polar solvent. The zero dipole moment of CO₂, arising directly as a consequence of the shape of the molecule is responsible for its very low dielectric constant. The rule of thumb for solvation is “like dissolves like”. So, normally one would expect that the non-polar hydrocarbons and amphiphilic systems will be soluble in the “non-polar CO₂”. The dielectric constant of liquid/scCO₂ is even lower than that of hydrocarbons and so it was expected that CO₂ could be a good replacement for the hydrocarbon solvents. Contrary to these expectations, Consani and Smith showed that many of the hydrocarbon-based molecular systems are insoluble in CO₂. This led researchers to examine the microscopic aspects of solvation in more detail.

Despite the net dipole moment of the CO₂ molecule being zero, it has a significant quadrupole moment associated with it and on that account, CO₂ was often referred to as a quadrupolar solvent. Dipole-quadrupole interactions were used to explain the anomalous solvent attributes of CO₂. The idea of more site-specific interactions was also evoked to explain solvation in scCO₂. One important study that sheds more light on this is the comparison between the solvation of CO and CO₂ in H₂O. CO being a smaller molecule than CO₂ and a molecule having a non-zero dipole moment, one would expect CO to show high solubility in H₂O. But contrary to these expectations, CO₂ shows high solubility in H₂O. This may be attributed to a profound, specific, solute-solvent interaction arising because of hydrogen bonding between the oxygen atom of CO₂ and the hydrogen atom of H₂O since charge separation in CO₂ is on par with the H₂O molecule. Sato et al. have provided evidence for the solute-solvent interaction in the solvation of CO₂ by H₂O with the aid of a molecular dynamics study. Such site-specific, solute-solvent interactions are less important between CO and H₂O molecules. It was concluded that CO₂ can be considered a non-polar solvent with polar attributes.

1.4.2. Solvation of fluorocarbons in CO₂

By the late 1980's the use of scCO₂ as an alternative solvent was almost dismissed by researchers due to the poor CO₂-philicity of most common molecular systems. This made researchers think of identifying CO₂-philic molecular systems that can be attached to enhance the solubility of otherwise CO₂-insoluble molecules. Interestingly, in 1992, for the first time,

DeSimone et al. reported the solubility of poly(perfluoroalkyl acrylate) (Poly(FOA)) with a larger number of repeating units in CO₂ and accordingly suggested the synthesis of polymers and copolymers using fluorinated monomers. It was also demonstrated that the fluorocarbon systems have high solubility in CO₂ while the corresponding non-fluorous counterparts were completely insoluble in CO₂. Thereupon, a lot of research was focused on explaining the CO₂-philic nature of fluoro compounds to investigate if there are any site-specific interactions existing between CO₂ and the fluorinated compounds with the aid of FT-IR, ¹H, and ¹⁹F NMR, etc. A research team led by Yee et al. investigated the CO₂-philic nature of these compounds using FT-IR spectroscopy, but couldn't observe any interactions rather could conclude that the high repulsive nature of fluorocarbon-fluorocarbon interactions is responsible for its high solubility. Later, Dardin et al. examined the solubility of n-hexane (C₆H₁₄) and perfluoro-n-hexane (C₆F₁₄) in CO₂ with the aid of ¹H and ¹⁹F NMR technique, although they could not observe any specific interaction between C₆H₁₄ and CO₂, but could observe a chemical shift in C₆F₁₄ spectra, which they attributed to van der Waals interactions between C₆F₁₄ and CO₂. Kazarian et al. also investigated the interactions between poly(vinyl fluoride) and CO₂ and observed a small splitting in the CO₂ bending mode of vibration and hence concluded that weak CO₂-F interactions are responsible for its solubility in CO₂. The discrepancies in NMR results for different compounds compared were reported to be due to structural and electronic differences between these molecules. Even now, there are conflicting views among researchers regarding the solvation dynamics of fluorinated compounds in scCO₂. It is that the non-directional, dispersive interactions are largely responsible for the high miscibility of fluoro compounds in liquid and scCO₂.

1.4.3 Polar attributes of scCO₂

Previous studies indicated that one needs to have a detailed, microscopic understanding of the solvation phenomena in CO₂ to enable the utilization of scCO₂ as an alternative solvent. CO₂ is a charge-separated molecule with a partial negative charge on the electronegative oxygen atoms and a partial positive charge on the carbon atom. Thus the carbon atom can act as a weak Lewis Acid (LA) and the oxygen atoms as a weak Lewis Base (LB) making it a solvent system wherein LA-LB type interactions can govern the solvation in it. A comparison of the atomic charges and bond dipoles on individual atoms of H₂O and CO₂ was reported by Raveendran et al. and is shown in Figure 1. It reveals that the charge separations in both molecules resemble very closely. It must be borne in mind that charges are only an abstract representation of the electron density distribution in the molecule. One observes a significant difference in the solvent behaviour of CO₂ and water. Water, with its extensive networks of cooperative hydrogen bonds, can act as an excellent solvent for polar units. These hydrogen bond networks break down when water is brought to supercritical conditions leading to a low dielectric constant. A faster, intra-chain, proton transfer mechanism was suggested in such situations to explain the observed reaction selectivity and enhanced reaction rates in such situations.

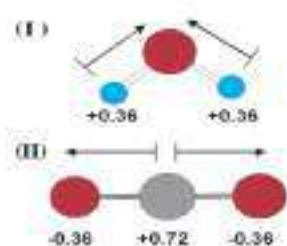


Figure I Illustration of bond dipoles and atomic charges on atoms of (I) H₂O and (II) CO₂

Based on the ab initio quantum chemical calculations on several carbonyl-containing prototype molecules, Raveendran et al suggested that carbonyl-containing compounds may be solvated in CO₂.

Interactions between CO₂ and sp³ C atoms of methanol and dimethyl ether were also reported. Forester groups, both ether oxygen and the carbonyl group contribute to the solvation in CO₂. The same was responsible for the solubility of certain polymers in liquid/scCO₂. Raveendran et al. also demonstrated that for systems such as methyl acetate, the oxygen atom in CO₂ can also form a cooperative C–H···O hydrogen bond with electron-deficient hydrogen atoms attached to the α-carbon atom attached to the carbonyl group.

Conclusion

In conclusion, the exceptional solvent attributes of carbon dioxide, particularly in its supercritical state are discussed in this review. Its environmentally friendly and versatile nature makes it a compelling choice for processes ranging from extraction and purification to green chemistry solutions, paving the way for innovative and sustainable advancements.

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A Review of Controlled Release Fertilizers

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Abstract

The escalating global food demand, driven by population growth, has outpaced food production. Consequently, the agricultural sector has intensified fertilizer use, posing environmental and health concerns. In response, researchers have explored controlled-release fertilizers, a novel category that enhances agricultural productivity while mitigating ecological and environmental impacts. This review focuses on controlled-release fertilizers, with an emphasis on urea, the most widely used nitrogenous fertilizer.

Keywords: Controlled release, Urea, fertilizers

Introduction

The practice of using fertilizers in agriculture has become very common due to the inadequate supply of essential nutrients in natural soils for optimal plant growth and productivity. However, the availability of cultivable land has declined due to factors such as urbanization, industrialization, and land degradation from events like heavy flooding, leading to reduced agricultural output. To address the increasing global demand for food, there has been a significant rise in fertilizer use. To ensure global food security while minimizing the environmental impact, it is imperative to explore and implement efficient and sustainable agricultural systems that boost production while mitigating environmental burdens.

6.1.1 Controlled and Slow-Release Fertilizers

Controlled and slow-release fertilizers (CRFs and SRFs) release the nutrient in a controlled, slow manner and release the nutrient as and when required by the plants. These fertilizers ensure efficient nutrient uptake by reducing the loss of nutrients via leaching, runoff, volatilization, etc. thereby improving the crop yield. The basic difference between CRFs and SRFs is that the rate, pattern, and duration of release of CRFs are well controlled and for SRFs the rate, pattern and duration of release are not controlled and these vary with the change in the climatic and soil conditions. According to the Association of American Plant Food Control Officials (AAPFCO), controlled and slow-release fertilizers contains plant nutrient that is of two forms : (a) the one that delays the availability and uptake for the plant as well as its utilization after application, (b) the one which is available to the plant for a period longer than the 'rapidly available nutrient fertilizer'. Likewise, CRFs are also described as fertilizers coated with a natural, semi-natural, and environmentally benign macromolecule material such that the nutrient is released at a slow pace such that a single uptake could meet the essential nutrient requirement for model plant growth.

6.1.2 Classification of CRFs

CRFs are broadly classified into three categories.

1. The first category (organic compounds) can further be subdivided into naturally occurring organic compounds and synthetically produced organic compounds. The latter consists of the condensation products from urea and aldehyde. This can be further divided into biologically decomposing compounds such as urea-acetaldehyde and chemically decomposing compounds such as isobutylene-diarrhea.
2. The second category consists of water-soluble fertilizers in which certain physical barriers control the nutrient release. Fertilizers coming under this class appears as granules coated with a hydrophobic polymer or as matrices in which the active water-soluble nutrient are dispersed in a continuum via hydrophobic polymers that leads to controlled nutrient dissolution and the

latter is less common compared to the former. The former one, i.e., coated CRFs are further classified into those coated with organic materials and those coated with inorganic materials. Likewise, the materials used for the preparation of matrices can be sub-categorised into hydrophobic materials and gel-forming polymers which are hydrophilic.

3. The third category includes inorganic low-solubility compounds such as metal ammonium phosphates and partially acidulated phosphate rock.

6.1.3 Advantages/disadvantages of CRFs

The use of CRFs is considered advantageous in many aspects, especially, when their use reduces toxicity due to high ionic concentrations associated with the fast dissolution of the fertilizer. Due to the reduced toxicity and salt content of fertilizers, they can be utilized for a prolonged time; thereby reducing the frequency of usage. Also, the use of CRFs meets the complete nutrient requirement of the plant. They also reduce the loss of nutrients which occurs either by evaporation, loss of ammonia, loss of nitrate nitrogen, etc. CRFs also lead to a reduction in gas emissions.

The use of CRFs is also known to have some drawbacks. The lack of a standardized method for the determination of controlled release of fertilizer is a major disadvantage. Consequently, the laboratory results and actual results upon field applications show large differences. Various coatings such as urea-formaldehyde, urea-sulfur, urea-polymer coatings, etc. possess one or the other drawbacks, say, in the case of urea-formaldehyde, it was noticed that some portion of nitrogen was getting released very slowly or sometimes not at all. Likewise, the use of urea-sulfur fertilizers resulted in increased acidity of the soil and they released the nutrient very fast at its initial stages, causing damage to the plant itself. Polymer-based coatings resulted in the deposition of undesired residues of synthetic substituents into the soil. Besides all these, the cost requirements are too high for the manufacture of CRFs.

Conclusion

This review emphasizes the critical need for controlled-release fertilizers. It delves into the various types of controlled-release fertilizers currently in use, outlining their respective advantages and disadvantages. While these fertilizers have already demonstrated their potential in enhancing nutrient efficiency and reducing environmental impact, further research in this field holds the promise of developing economically viable and environmentally friendly fertilizers.

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Advanced Drug Delivery using Supercritical Carbon Dioxide-Based Approaches: A Review

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Abstract

The use of liquid and supercritical carbon dioxide (CO₂) as an environmentally friendly solvent platform aligns with the principles of green chemistry. This approach has led to the development of novel industrial strategies, harnessing its unique properties, including facile solvent removal and adjustable solvent parameters. In the pharmaceutical sector, liquid and supercritical CO₂ present substantial advantages as a greener and safer solvent platform. This review explores various supercritical carbon dioxide-based technologies employed in drug delivery, highlighting their benefits and addressing associated challenges.

Keywords: Carbon dioxide, Drug, Supercritical

Introduction

Supercritical Fluid (SCF) technology has emerged as a promising asset in pharmaceuticals. CO₂, being low-cost, abundant, non-toxic, recyclable, and requiring low critical temperature and pressure, is predominantly employed in SCF processes. This versatile solvent offers advantages such as controlled drug release, particle formation, and efficient extraction. SCF techniques enhance drug bioavailability, ensuring precise dosage delivery. Moreover, they minimize the use of organic solvents, reducing environmental impact. SCF-based methods are pivotal in drug development, offering a sustainable and economically viable approach to pharmaceutical formulations, encapsulation, and drug delivery systems.

Supercritical fluid methods

Supercritical fluids exhibit both liquid-like and gas-like properties. This has enabled the SCF technology with notable applications in the pharmaceutical industry such as micronization to enhance the bioavailability of poorly water-soluble drugs. In this process, the average particle size of API is reduced to a micrometer or sub-micron range. Conventional methods that are being employed for this purpose are milling, bashing, and grinding. All these methods work on the phenomenon of friction and thence are energy and time-consuming ones. SCF technology has emerged as a promising one, which could overcome the curbs of conventional processing methodologies. Additionally, this technique ensures a clean or a 'solvent-free' process. Among the various supercritical fluids available in industry, SCF technology is most commonly applied with scCO₂ taking into consideration its environmentally benign features and economically promising aspects. SCF methods are primarily classified into two broad categories based on the role played by scCO₂.

(I) scCO₂ as solvent

(II) scCO₂ as antisolvent

SCF used as a solvent

In this SCF method, SCF is utilized as a solvent for both API and excipient. A typical example is the Rapid Expansion of a Supercritical Solution (RESS), demonstrated first by Hannay and Hogarth. This is a two-step process. First, the solid is dissolved in SCF under pressure. The SCF solution thus obtained is then expanded and finally suddenly depressurized. This rapid depressurization leads to supersaturation and superfluid nucleation and hence results in the generation of sub-micron or nano-sized particles.

SCF used as antisolvent

Bleich and coworkers were the first to demonstrate the use of SCF as an antisolvent and the related SCF techniques. The low solubility of most of the pharmaceutical ingredients in SCF limited the production of micro or nanosized particles using RESS and modified RESS methods. Here, SCF is regarded as an antisolvent and this must be completely miscible with the liquid solvent used. Also, the solute must be insoluble in the antisolvent.

Based on the modes of mixing between SCF and the antisolvent, antisolvent processes are classified into different categories which are briefly described in the coming sessions.

1. Gas Anti Solvent (GAS)

Here, the solute is dissolved in the solvent and the gas is flowed through this in a closed chamber. Upon increasing the pressure, the concentration of gas increases, which in turn reduces the solvation power of the solvent for the solute particles, thus leading to the precipitation of the solute particles.

2. Precipitation with Compressed Antisolvent (PCA)

This method involves the spraying of the drug/polymer solution through a nozzle into a chamber containing SCF as the antisolvent. SAS process shows higher drug loading capacity over GAS since very small particles could be achieved in this method. This may be attributed to immediate contact between solute and SCF achieved via this method, which further leads to faster nucleation.

(a) Supercritical Antisolvent Recrystallization (SAS)

The SAS method is similar to PCA. The basic difference between PCA and SAS is that PCA utilizes liquid or supercritical antisolvent whereas SAS makes use of SCF as antisolvent. Recently, many advancements have been reported for the SAS process such as supercritical-assisted injection in a liquid anti-solvent (SAILA) and expanded liquid anti-solvent (ELS) methods.

(b) Aerosol Solvent Extraction System (ASES)

ASES method was patented by Müller and Fischer in 1989. The working principle is based on the extraction properties of supercritical gases. In this method, the drug/polymer mixture and the organic solvent (soluble in scCO₂) are sprayed into a chamber containing SCF. Thereafter the organic solvent is extracted leading to the formation of particles of smaller size.

3. Solution Enhanced Dispersion by Supercritical Fluids (SEDS)

SEDS is considered a modified SAS technique with the only difference observed in the design of the nozzle. In SEDS coaxial nozzle is used and it aids the dispersion of the drug solution by SCF, thereby leading to enhanced mass transfer and formation of particles with small size and fast nucleation rate.

4. Particles from Gas Saturated Solutions (PGSS)

In the PGSS method, SCF plays the role of a co-solute. SCF is initially dissolved in a drug-solvent suspension and finally depressurized through a nozzle. This results in the formation of particles of smaller size. This method has found wide application for micronization of formulation for BCS class II drugs.

Advantages and challenges of the SCF technologies

SCF's strategy provides a promising technology platform for the design, manufacture, and modification of pharmaceutical substances. SCF-based methods have been widely explored for controlling the morphology, crystallinity, etc. of the pharmaceutical ingredients, thereby controlling the drug-release kinetics of the preparations.

Toropainen et al., studied the variation in morphology of a commonly used excipient γ -cyclodextrin (γ -CD) using the SEDS process and observed that upon increasing the processing temperature, the crystallinity of γ -CD was completely lost and got transformed into an

amorphous state. The nanosizing of Ibuprofen and Naproxen drugs via the RESOLV method has already been reported. Micronization of Cyclosporine carried out via RESS and PGSS techniques was carried out by Tandy et al. This process resulted in the formation of micron-sized cyclosporine. Generally, this drug exists as a liquid crystal and this was evidenced by DSC results too. However upon scCO₂ processing, the solid to liquid crystal transition peak vanished. Tsivintzelis et al. studied the effect of pressure, temperature, and rate of depressurization on the structure of polystyrene and poly (D, L-lactic acid).

Conclusion

In conclusion, this review underscores the significance of liquid and supercritical carbon dioxide (CO₂) as a green and safer solvent platform in the pharmaceutical industry. It provides a comprehensive overview of CO₂'s solvent properties and its diverse applications, particularly in drug delivery technologies. While highlighting the considerable advantages, this review also acknowledges the existing challenges. It advocates for continued research efforts to further harness the potential of supercritical carbon dioxide, paving the way for innovative advancements and expanding its role in pharmaceutical applications.

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Binding of Tetracycline to Human Serum Albumin Unfolded by Urea

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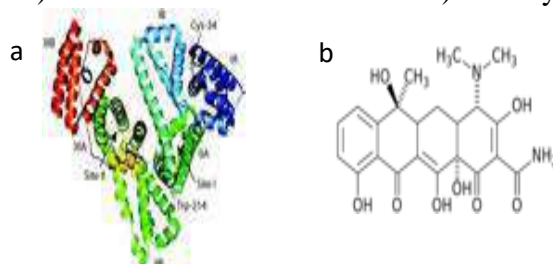
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Introduction

Human serum albumin (HSA) is the most abundant circulatory protein having 585 amino acid residues.¹ Under physiological conditions, HSA adopts a heart-shaped three-dimensional structure having three homologous domains I-III.¹⁻² Each of these three domains is further subdivided into two subdomains A and B.² The principal regions of ligand binding to HSA are located in hydrophobic cavities in subdomains IIA and IIIA.³⁻⁴ These binding sites are known as Sudlow I and Sudlow II, respectively⁵ and the sole tryptophan residue (Trp214) in HSA is located in Sudlow I.⁵ Despite the complexity in shape and size, the single Trp residue makes it very convenient to study the structure and dynamics of the protein using intrinsic fluorescence.² In general, more than 90% of the drugs used in humans are bound to this specific protein. A conformation alteration of serum albumin can result in weaker drug-protein interaction and consequently increases the drug concentration in the blood. Sometimes this effect can cause toxic poisoning or even lead to death. Therefore, studies on the binding of drug(s) with HSA in the absence and presence of chemical denaturants (like urea) can improve our interpretation regarding the metabolism and transporting process of drugs inside the human body.⁵

Tetracycline (TC) molecule is a four-ring system as shown in Scheme 1 to which a variety of functional groups are attached. TCs are a group of broad-spectrum polyketide antibiotics that act as protein synthesis inhibitors. These drugs after ingestion are solubilized inside the gut and are subsequently transported to the target sites through blood, bound to serum proteins.²

Scheme 1: Structure of a) Human Serum Albumin and b) Tetracycline



In the present work, we have investigated the interaction of TC with HSA which has been subjected to denaturation induced by various concentrations of urea. For this purpose, we have used steady-state emission spectroscopy measurements to characterize the effect of the added TC to the HSA in the presence of urea. Modified Stern-Volmer plots have been used to determine the binding constant of TC to the protein

Experimental Section:

a. Materials: HSA was purchased from Sigma-Aldrich, USA. Tetracycline hydrochloride (TC, molecular weight = 480.9) was purchased from HIMEDIA, and urea from SPECTROCHEM. For the steady-state experiments, the concentration of HSA was 5 μM which was ascertained spectrophotometrically. The pH of the Tris buffer solution (10 mM) was adjusted to 7.4. For the denaturation of HSA, solutions of different concentrations of urea were prepared in a buffer solution which was added to 5 μM HSA and incubated overnight.

b. Steady-State Measurements: The absorption and fluorescence emission spectra were recorded on a Cary 100 UV-vis spectrophotometer and Fluorolog 3-111 fluorometer, respectively with appropriate background corrections using freshly prepared solutions. The stock solution of TC (3 mM) was prepared in anhydrous methanol. A 2 mL solution, containing an appropriate concentration of native or denatured HSA, was titrated by successive additions of a 3 mM solution of TC. Titrations were done manually by using a micropipette. The fluorescence spectra were measured with a 10 mm path-length quartz cuvette. HSA was excited at 295 nm to minimize the contribution from tyrosine. The fluorescence emission was collected from 300 to 550 nm. The emission and the excitation slits were kept at 1 and 2 nm, respectively.

RESULTS:

The intrinsic fluorescence of HSA is mainly contributed by the Trp residue alone in the hydrophobic cavity of subdomain IIA (Sudlow I) because the Phe residue has a very low quantum yield and the fluorescence of Tyr is almost totally quenched when it is ionized or nearby an amino group, a carboxyl group, or a Trp.⁶ Fig. 1 shows the fluorescence emission spectra of native HSA (in the absence of urea) with varying concentrations of TC following an excitation at 295 nm. It could be observed that the fluorescence intensity of HSA dropped regularly with the increase in TC concentration, indicating that the drug may bind in Sudlow site I in subdomain IIA. The degree of quenching depends on the interaction between Trp214 and the drug⁶ or the degree of overlap between the fluorescence of the donor (Trp214) and absorption of the acceptor (TC).

A valuable feature of intrinsic protein fluorescence is the high sensitivity of Trp to its local environment. When HSA was subjected to chemical denaturation by urea, a distinct red shift was observed in the fluorescence emission maxima of Trp214 due to increased exposure of Trp214 to a more hydrophilic environment. The variation of emission maxima of Trp214 with increasing concentrations of urea has been pictorially represented in Fig. 2.

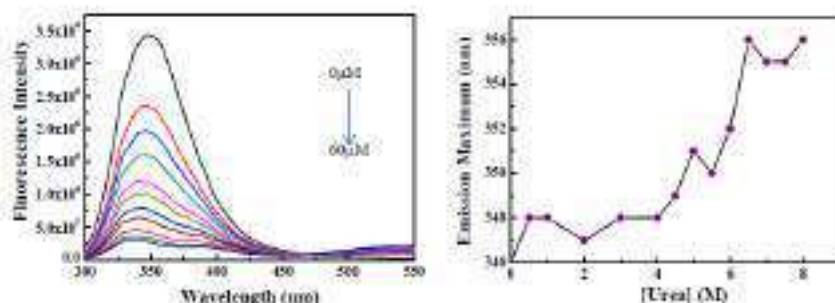


Fig 1: Fluorescence emission spectra of native HSA in the presence of various concentrations of TC

Fig 2: Variation of the emission wavelength maxima of Trp214 as a function of [Urea]

Binding of TC to HSA at Various Concentrations of Urea:

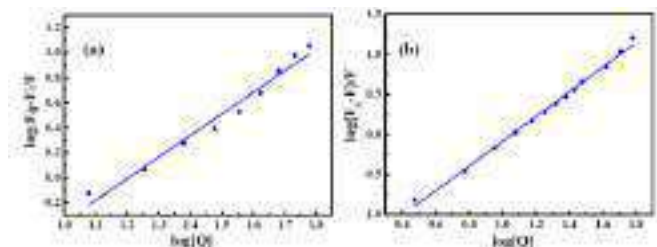
A quantitative assessment of the drug-protein binding interaction at various concentrations of HSA can be derived in terms of evaluation of the binding constant (K) for the HSA-TC interaction process. For the quenching process, the equilibrium between free and bound molecules is given by the modified Stern-Volmer equation:

$$\log\left(\frac{F_0 - F}{F}\right) = \log K + n \log [Q] \quad (1)$$

where, F and F₀ are respectively, the fluorescence intensities of HSA in the presence and absence of varying concentrations of TC, K is the binding constant, n is the binding affinity and [Q] is the quencher concentration (here TC).⁵ Fig. 3 represents a plot of log (F₀-F)/F versus log [Q] based on Eq. (1) in the absence and presence of 8 M urea and having various

concentrations of TC. The various binding parameters obtained from the intercepts and slopes of such plots are summarized in Table 1.

Fig 3: Modified Stern-Volmer plots for (a) 0M b) 8M [urea]



[Urea] (M)	$K \times 10^{-4} (M^{-1})$	n
0	0.84	1.72
2	1.7	1.55
4	0.79	1.86
6 Table 1: Binding parameters of HSA denatured by different concentrations of urea and TC		
8		

From the values of K as seen in Table 1, we can infer that the binding of TC to HSA is not affected to a large extent due to the presence of lower concentrations of urea. Up to 4 M urea, the environment in and around Trp214 seems to be almost the same which has also been supported by our steady-state results, whereby the emission maxima shift only by ~ 2 nm. However, beyond 4 M urea, there is a drastic red shift of the emission maxima of Trp214 and the values of K change significantly. It has been documented⁷ that subdomain IIA of HSA gets unfolded beyond 4 M urea and hence the addition of TC gets more facile as seen from our results.

Conclusions

From our studies, we can conclude that the binding of TC to HSA which has been subjected to denaturation induced by various concentrations of urea was not affected greatly by the latter up to 4 M urea concentration. Beyond 4 M urea, the microenvironment of Trp214 gets altered and the binding of TC to HSA gets affected.

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2D Nanomaterials: Graphene and Beyond

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Introduction

Material science is an interdisciplinary field where scientists study existing materials and create new ones. It is a dynamic and ever-evolving field that continuously discovers new materials with unique properties and potential applications. Two-dimensional (2D) nanomaterials have fascinated material scientists since it is highly versatile and suitable for a wide range of applications in electronics, photonics, energy storage, catalysis, sensing, and beyond. 2D nanomaterials are composed of thin layers that may have a thickness of at least one atomic layer. Contrary to bulk materials, these nanomaterials have a high aspect ratio (surface-area-to-volume ratio) and therefore have many atoms on their surface. The first material in this new class is Graphene. Graphene is one of the most widely used and most important 2D materials, and has unique properties that result in its widespread use in various industries. Over time several other 2D nanomaterials with exceptional properties and applications have been added to this list. This article discusses a few important of them.

Graphene

Graphene consists of a single layer of carbon packed in a hexagonal lattice with a C–C distance of 0.142 nm.[1] Being the building block of graphite, graphene may not appear like a “new” material. But before 2004, the isolation of stable graphene sheets was considered impossible. So it was a surprise when Andre K. Geim and Konstantin S. Novoselov of Manchester University did it through mechanical exfoliation of graphite crystal using scotch tape.[1] They were awarded the Nobel Prize in Physics in 2010 for this. Several methods have been identified to produce graphene since then which include mechanical and liquid phase exfoliation, chemical vapor deposition, chemical reduction of graphene oxide, chemical synthesis from organic precursors etc.

Graphene is an incredibly strong material; 100 times stronger than steel. At the same time, it is flexible. Graphene exhibits extremely high electrical conductivity, even surpassing that of copper. Its unique electronic structure allows electrons to move through the material virtually without resistance. Graphene also possesses exceptional thermal conductivity. It can efficiently conduct heat, making it valuable in applications like thermal management and heat dissipation. Regarding transparency, graphene is nearly transparent across a broad range of the electromagnetic spectrum, including visible light. This property makes it suitable for transparent conductive films in electronic devices, such as touchscreens and displays. Graphene is also chemically stable and can withstand a wide range of chemical environments.

Being impermeable to gases and liquids, it is used to create gas barriers and membranes. [2, 3] Because of its exceptional qualities, graphene is widely employed in electronics, materials science, energy storage, sensors, medicine, water purification and more.[4]

Transition Metal Dichalcogenides (TMDs)

Transition metal dichalcogenides (TMDs) are a class of two-dimensional materials that have the chemical formula MX_2 , where M represents transition metals from groups VI, V and VI, and X represents a chalcogen such as sulfur, selenium or tellurium. Common examples of TMDs include molybdenum disulfide (MoS_2), tungsten disulfide (WS_2), molybdenum

diselenide (MoSe_2), and tungsten diselenide (WSe_2). TMDs have a layered crystal structure, similar to graphene. Single-layer TMDs often exhibit different electronic properties compared to bulk TMDs. Unlike graphene, which is a zero-band-gap material, TMDs exhibit a tuneable band gap that depends on factors such as the type of transition metal, the number of layers, and strain.[5] They are mechanically robust and flexible at the same time. Their unique properties make them suitable for applications in various fields, including electronics, photonics, energy, and catalysis.

Hexagonal Boron Nitride (h-BN)

h-BN has a similar structure to graphene with alternating boron (B) and nitrogen (N) atoms arranged in a hexagonal lattice. h-BN is often referred to as "white graphene" due to its similar hexagonal structure and its white colour in its bulk form. h-BN is a wide bandgap material with an intrinsic band gap (E_g) of 5.9 eV when compared to the highly conductive graphene. It does not conduct electricity and can be used as an insulating material in electronic applications. But at the same time it is thermally conductive and thermally stable.[6] Being chemically inert, it can withstand extreme conditions, making it useful in high-temperature and corrosive environments. It is a versatile material with applications in electronics, optics, thermal management, biomedical solid lubrication etc.

MXene

MXenes are two-dimensional (2D) transition metal carbides, nitrides and carbonitrides reported in 2011. MXenes have the general structure of $\text{M}_{n+1}\text{X}_n\text{T}_x$, where M is an early transition metal (Sc, Y, Ti, Zr, Hf, V, Nb, Ta, Cr, Mo, W), X is a carbon and/or nitrogen and T_x stands for surface terminations, such as O, OH, F or Cl, and $n = 1-4$. Since MXenes are typically synthesized topochemical from their parent MAX phases via selective etching of the A element (Al, Si or Ga), the chemical composition and preparation protocol of the MAX affects the chemistry of the resultant MXene.[7] Furthermore, the surface chemistry (which depends on etching conditions), intercalated species and even the flake size significantly affect MXene properties. MXenes find applications in various fields like energy, storage, electronics, photocatalysis, sensing, medicine and more.

Graphitic carbon nitride (g- C_3N_4)

Graphitic carbon nitride consists of carbon and nitrogen atoms arranged in a planar, layered structure. It forms a network of hexagonal units similar to graphene but with alternating carbon and nitrogen atoms. These layers are held together by van der Waals forces and can be peeled apart to create individual g- C_3N_4 sheets.

g- C_3N_4 is a semiconductor material with a band gap in the visible light range. This property makes it suitable for various optoelectronic and photocatalytic applications. However, the band gap of g- C_3N_4 can be modified by adjusting the synthesis conditions or by introducing functional groups. g- C_3N_4 has gained attention for its photocatalytic properties, which make it useful in water splitting, pollutant degradation, and solar energy conversion.[8] It has a nanoporous structure, providing a large surface area for catalytic reactions and adsorption processes.

Conclusion

With fast advancements in novel exfoliation processes, the development of 2D framework materials is seeing a highly dynamic expansion. In addition to the above 2D materials there exists others like Borophene, Phosphorene, Silicene, Germanene, Stanene and so

forth with Molybdenene introduced very recently.[9] While the future of 2D materials is promising, it is not without challenges. Issues with stability, production scalability, and integration into existing technologies must be addressed. However, these challenges also present opportunities for innovation and discovery. As researchers and engineers worldwide continue to explore the potential of 2D materials, the coming years will undoubtedly bring exciting developments.

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The Role of Curcumin as a pH Indicator

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Introduction

Curcumin is a bright yellow chemical produced by plants of the *Curcuma longa* species. It is the principal curcuminoid of turmeric, a member of the ginger family. Chemically, curcumin is a diarylheptanoid, belonging to the group of curcuminoids, which are phenolic pigments responsible for the yellow color of turmeric. Curcumin is extracted from fresh turmeric. Fresh turmeric contains up to 5% curcumin. Curcumin is the active substance of turmeric and curcumin is known as C.I 75300 or natural yellow. Systematic chemical name is (1E,6E)-1,7-Bis(4-hydroxy-3-methoxyphenyl)-1,6-heptadiene-3,5-dione. It is extracted by dissolving in methanol and refluxing it for 3-4 hours. Curcumin can exist in tautomeric forms, keto and enol. The keto form is preferred in the solid phase and the enol form is in solution. Curcumin is a pH indicator. In acid solutions (pH<7.4) it turns yellow, whereas in basic solutions (pH8.6) it turns bright red.

Results and Discussion

Curcumin is a p^H indicator. In acidic solution it turns yellow and in basic solution it turns bright orange red. Curcumin can be used as a p^H indicator in acidimetry titrations. Also, colorimetry can be used to make this a qualitative test. The turmeric indicator changes color between roughly a P^H of 7.4 and 8.6. If turmeric is exposed to neutral or acidic substances it will retain its yellow coloration. If turmeric is exposed to a more alkaline substance it becomes a dark pink/red. Because turmeric contains a yellow pigment called curcumin, which is P^H sensitive.

- Curcumin in an acidic solution (pH 3.5)
- curcumin in a neutral solution (pH 7.4);
- Curcumin in a basic solution



- The colour of curcumin remains yellow in neutral and acidic medium
- Colour changes in basic medium
- So basic medium affects colour of curcumin
- So basic medium affects structure of curcumin

TLC using Curcumin

Turmeric powder is used for the preparation of many curries. Turmeric powder is used for cosmetics. Since they have great demand in the market, there is a possibility of adulteration in these samples. This can be checked by thin-layer chromatography. We can use con. HCL, dil. HCL, dil. H₂SO₄, 1% diphenylcarbazide in ethanol. We use natural homemade curcumin, Curcuma aromatic and commercially prepared curcumin. From the R_f value, we can determine the quality or adulteration.

Curcumin is almost insoluble in water and readily soluble in polar solvents like methanol, ethanol, acetonitrile, chloroform, and ethyl acetate. It is sparingly soluble in hydrocarbon solvents like cyclohexane and hexane.

The above-mentioned are the properties or applications of curcumin. The main advantage is that it is cheaper and it is also pollution free and can be obtained naturally.

50 grams of fresh turmeric is taken. It is then chopped into small pieces and kept aside. This turmeric is added with 250ml of methanol taken in a beaker. Then it is kept in methanol for 2-3 days in a 1000ml RB flask. This is refluxed for 3-4 hours. Then the solution is cooled and filtered using filter paper.

Results and Discussion

Curcumin which is used as an indicator is found to be very effective in strong acid - strong base titration and weak acid - strong base titration. It can be used as an indicator instead of phenolphthalein. Phenolphthalein shows its endpoint with a color change from pink to colorless. Curcumin shows its color change from orange-red to yellow. Phenolphthalein is a costly indicator but curcumin can be prepared very cheaply.

In strong acid - strong base titration, the endpoint in both the titration based on phenolphthalein and curcumin is the same.

Conclusion

From this project we can conclude that curcumin can be used as an indicator instead of phenolphthalein. It is an effective indicator used in strong acid - strong base titrations and weak acid-strong base titrations. Curcumin which shows a color change from orange to yellow can be used in titrations that show a color change from pink to colorless. Curcumin is a cheap indicator that can be prepared from turmeric and methanol.

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Aqueous Magnesium Ion Batteries using Tunnel Type $\text{KMn}_8\text{O}_{16}$ as Electrode Material

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Introduction

Electroanalytical chemistry is that branch of chemical analysis that employs electrochemical methods to obtain information related to the amounts, properties and environments of chemical species¹. Electroanalytical methods are a class of techniques in analytical chemistry that study an analyte by measuring the potential (volts) and/or current (amperes) in an electrochemical cell containing the analyte¹. Battery is an electrochemical cell collection where electrons flow by the chemical reaction in the circuit. Batteries provide a way to store electric potential in a portable container. The Sodium-ion batteries (SIBs) and potassium-ion batteries (KIBs) are then considered as the next possible alternative to LIBs due to their advantage of the abundance and relatively cheap availability of sodium and they have the same chemical properties as lithium. The main disadvantage of using them was that they had low energy density, used highly toxic and flammable electrolytes and had high operation cost and security issues². To overcome these limitations in non-aqueous batteries a new promising class of Aqueous rechargeable batteries has come into operation. They being more environmentally benign, low cost, high operational safety, and aqueous electrolytes offer 2 orders of magnitude higher ionic conductivities ($\sim 1 \text{Scm}^{-1}$) than non-aqueous electrolytes²

Synthesis and characterization of the cathode

All chemicals were of analytical grade and were used directly without any further purification. Cryptomelane-type $\text{KMn}_8\text{O}_{16}$ was synthesized by a Combustion method. The $\text{KMn}_8\text{O}_{16}$ was synthesized by using KMnO_4 and $\text{Mn}(\text{CH}_3\text{COO})_2 \cdot 4\text{H}_2\text{O}$ as reactants. KMnO_4 and $\text{Mn}(\text{CH}_3\text{COO})_2 \cdot 4\text{H}_2\text{O}$ were mechanically mixed in the molar ratio of 2:3 in an agate mortar and an appropriate amount of water was added to obtain a rheological phase. This rheological phase mixture was heated at 150°C and an appropriate amount of water was added to obtain a rheological phase. This rheological phase mixture was heated at 150°C for 12 hours in a muffle furnace. The mixture was cooled down to room temperature then it was again mixed in an agate mortar for about 30 minutes. Mixing the mixture is very much necessary as it will help in the intercalation of ions into it. Then a precursor was obtained which was heated at 500°C for 5 hours in the furnace. Thus $\text{KMn}_8\text{O}_{16}$ was obtained.

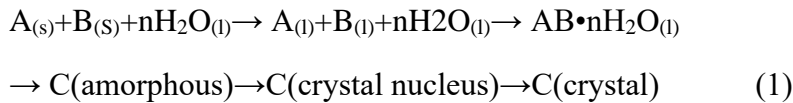
The structure and crystallinity of $\text{KMn}_8\text{O}_{16}$ were characterized using an X-ray diffractometer (XRD, PANalytical X-ray diffractometer). The cryptomelane-type $\text{KMn}_8\text{O}_{16}$ has lattice parameters $a=b=9.815 \text{ \AA}$, $c=2.847 \text{ \AA}$ and $\alpha=\beta=\gamma=90^\circ$.

Results and Discussion

Rheological Phase reaction method

The rheological phase reaction method is a process of preparing compounds or materials from solid-liquid rheological mixture. That is, the solid reactants are fully mixed in a proper molar ratio, made up by adding a proper amount of water or other solvents to a solid-liquid rheological body, in which the solid particles and liquid substance are uniformly distributed. Then after reaction under suitable conditions, the products are obtained. Under the solid-liquid rheological state, many substances will have new reaction properties. A typical rheological phase reaction must go through the following five steps: dissolution, diffusion,

reaction, nucleation, and growth. For the rheological phase reaction, reaction steps may be expressed in (1).



The crystalline structure of as-obtained products after heat treated at 500°C in air for 5 hr was analyzed by XRD. It can be observed from Fig. 4 that all the diffraction peaks of the sample at $2\theta = 12.745^\circ$, 25.651° , 37.62° , and 42.029° can be readily indexed to (110), (220), (310), and (211) which are in good agreement with the pure tetragonal cryptomelane structures of KMn_8O_{16} (JCPDS card No. 29-1020; space group: $I4/m(87)$, $a = b = 9.815 \text{ \AA}$, $c = 2.847 \text{ \AA}$, and $\alpha = \beta = \gamma = 90^\circ$).

Conclusion

KMn_8O_{16} with a tunnel-type structure is found to be a reversible intercalation cathode for aqueous magnesium batteries. The solid-state synthesised KMn_8O_{16} compound facilitates reversible magnesium intercalation with discharge and charge capacity of 81 and 73 mAh/g respectively during the initial cycle. Even though the first cycle is promising, extended cycling only can show the performance of the material. Further studies may include xrd characterization of cycled electrodes to explore structural changes in the pristine electrode. Moreover, manganese dissolution as well as plating also could be a potential problem for real applications

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Extraction and Thin Layer Chromatography of Curcumin

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Introduction

Curcumin is extracted from fresh turmeric. Fresh turmeric contains up to 5% curcumin. Curcumin is the active substance of turmeric and curcumin is known as natural yellow. Systematic chemical name is (1E, 6E)-1, 7-bis (4-hydroxy-3-methoxyphenyl)-1, 6-heptadiene-3, 5-dione. It is extracted by dissolving in methanol and refluxing it for 3-4 hr. Curcumin has the chemical formula C₂₁H₂₀O₆. Curcumin can exist in tautomeric form, keto and enol. The keto form is preferred in the solid phase and the enol form in the solution. Curcumin is a pH indicator. In acid solution (pH < 7.4) it turns yellow, whereas in basic solutions (pH 8.6) it turns bright red. Curcumin contains many functional groups in its structure. The aromatic ring system in curcumin is phenols and these phenols are connected by α,β -unsaturated carbonyl group. These natural group phenols present in curcumin are responsible for the yellow color of turmeric. Along with curcumin the plant extract also contains lesser quantities of 2-demethoxycurcumin and 3-bis-demethoxycurcumin.

Results and Discussion

Extraction of Curcumin

A clean beaker having known weight is taken. The turmeric powder is weighed on electronic balance and it is packed in filter paper like a bag. About 500ml chloroform is taken in Soxhlet apparatus. Turmeric powder which is packed in the hardened filter paper is placed in the extraction tube. The flask is then heated. The vapour rises through the side tube and soaks the minimum amount of solvent that suffices for the extraction. The process is continued for 3 hours, the burner is removed from the flask and the extracted material is transferred into a 250ml beaker.

Preparation of chromatogram

Glass plates of uniform thickness are selected. These are thoroughly cleaned and all greasy matter is removed from its surface. Slurry of silica gel (chromatography grade) in water is prepared. After this, a thin coating of adsorbent is applied to the glass plate. Then it is placed in a microwave oven for 1 hour. Before sample application, mark a starting line at the height of 1-20mm from the bottom of the chromatate plate. It is called the base layer. Also, mark another line called the finish line about 10 cm from base line. Apply the sample on base line with fine capillary. Keep the area of application as small as possible. Immerse the chromatate plate in the tank and make it stand in the solvent leaving against the side of the tank. Apply the lid on the tank and make it stand in the solvent leaving against the side of the tank and allow the chromatogram to remain inside the tank for about 15 minutes. Remove the plate from the tank as soon as the solvent has reached the finishing line at the top end of the chromatate plate. Now let the solvent evaporate. Record the distance moved from the origin by the compound and the distance moved from the origin by the solvent. R_f value can be calculated.

The standard reference value of curcumin in 100% chloroform is 0.61. Sample 2 shows more resemblance in R_f value with standard R_f value and are of better grade than sample 1 and 3. Hence we can conclude that homemade curcumin; naturally occurring is better than the commercial sample.

Conclusion

The project is based on the extraction of curcumin from turmeric powder using the Soxhlets apparatus. By using this apparatus we can extract curcumin from commercial, natural and Kasturi Manjal. As turmeric powder undergoes several adulterations, we conducted several purification tests to find out about the presence of lead oxides in turmeric powder. There are chances of the presence of chalk powder, which increases the weight of turmeric powder. Also, there will be the presence of lead chromate, which is used as a coloring agent in turmeric powder. Thin layer chromatography of curcumin in commercial, natural and Kasturi Manjal is also conducted. It can be concluded that natural curcumin is better than commercial curcumin. From this project, we can conclude that naturally occurring curcumin (homemade) is better than commercial curcumin. The naturally occurring curcumin shows more resemblance in Rf value with standard Rf value.

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A Short Study of Electro Chemical Properties of Solgel Synthesized LiMn₂O₄

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Introduction

Electrochemistry is the study of electricity and how it relates to chemical reactions. In electrochemistry, electricity can be generated by the movements of electrons from one element to another in a reaction known as redox or oxidation-reduction reaction[1]. The reaction involves the movement of an electric charge between the electrode and an electrolyte. Thus electrochemistry is the interaction between electrical energy and chemical change. Battery is an electrochemical cell collection where electrons flow by the chemical reaction in the circuit, which stores electric potential. A battery consists of an anode a cathode and an electrolyte. The negative terminal is the anode and the positive terminal is the cathode. The electrons flow from the anode to the cathode through an external circuit. An electrolyte is a substance that reacts with anode and cathode. Basically, there are two types of batteries primary batteries and secondary batteries. Primary batteries are designed to be used once and discarded and not recharged with electricity and reused like a secondary cell. Primary batteries are predominantly zinc anode systems and some types of secondary rechargeable batteries are lead-acid, nickel-cadmium, nickel-zinc, silver-cadmium, silver-zinc etc. The increasing energy demand has transferred power generation from nuclear sources and fossil fuels to renewable energy sources. The batteries should be safe to operate ,economically viable and environmentally friendly.

Synthesis and characterization of the cathode

All chemicals were of analytical grade and were used directly without any further purification. The cathode material LiMn₂O₄ was synthesized by the Sol gel method using oxalic acid as a chelating agent. At manganese, acetate was dissolved in de-ionized water to give a salt solution. To this solution, lithium carbonate is added slowly with mild stirring. Then add magnesium carbonate to this solution. A saturated aqueous solution of oxalic acid is added. The pH of the mixed solution was maintained at 7.0 by adding an ammonium hydroxide solution. Then the solution was heated to 80°C for 4hr with vigorous stirring to remove excess ammonia and water. The precipitate formed was dried in an oven for 10 hr at 400°C. After drying the precursors were decomposed at 600°C for 6hr in a muffle furnace.

Electrochemical measurements

The electrochemical performance of LiMn₂O was tested in a test cell system. The working electrode was prepared by mixing of 70 wt% LiMn₂O₄, 10 wt% polyvinylidene fluoride (PVDF) and 20 wt% % acetylene black on agate mortar for about an hour. Then being blended in N-methyl pyrrolidinone (NMP) the mixed slurry was spread uniformly on stainless steel and dried in a vacuum for 8-7 hours at 100°C.

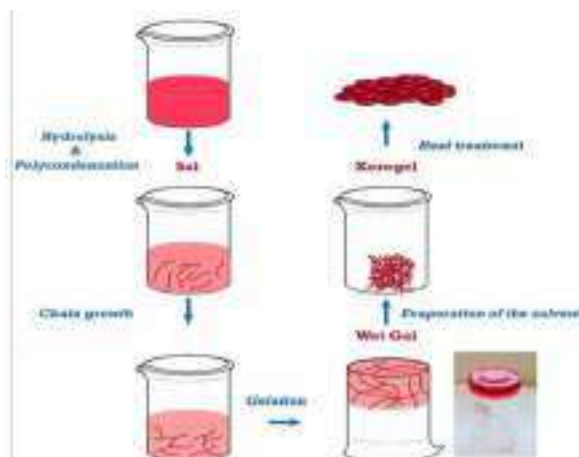
Results and Discussion

Solgel synthesis

The solgel synthesis is a wet chemical technique that use either a chemical solution or colloidal particles to produce an integrated network (gel).This chemical technique involves several steps in order, hydrolysis and poly condensation, gelation, aging, drying,

densification, and crystallisation. It is a good method to prepare novel metal oxide as well as oxide composites. The mixture of LiCO_3 , $\text{Mn}(\text{CH}_3\text{COO})_2 \cdot 4\text{H}_2\text{O}$, MgCO_3 , and were dissolved in deionized water that is the precursor underwent rapid hydrolysis to produce a metal hydroxide solution followed by immediate condensation which led to the formation of the three-dimensional gel. After, the obtained gel is subjected to a drying process around 400 oc more than 10 hr.

Different steps involved in the solgel synthesised LiMn_2O_4



Conclusion

LiMn_2O_4 is found to be a reversible intercalation cathode for aqueous lithium batteries. The sol gel synthesized LiMn_2O_4 compound facilitates reversible lithium intercalation with discharge and charge capacities of 130 mAh/and 55 mAh/g respectively during the initial cycle. Even though the first cycle is promising, extended cycling only can show the performance of the material. Sol gel synthesis is an effective method for the synthesis of LiMn_2O_4 cathode for aqueous lithium ion batteries.

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Chemistry of Composites

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Abstract

A composite material is a combination of two materials with different physical and chemical properties. When they are combined, they create a material that is specialised to do a certain job, for instance to become stronger, lighter or resistant to electricity. They can also improve strength and stiffness. This review chapter discusses the salient features of composites ranging from micro composites to nanocomposites with potential applications.

Keywords: Composites, micro composites, nanocomposites, Carbon black and Carbon nanotubes

1. Introduction

Composites (Composite materials) are natural or synthetic materials fabricated from two or more components with belongings that are different from those of individual constituents. The common day-to-day examples of composites are wood, bone, mud bricks, concrete, fiberglass, etc... Composites are a combination of materials in which one of the materials is called the reinforcing phase, is in the form of fibers, sheets, or particles and is embedded in the other material called the matrix phase. By choosing an appropriate combination of matrix and reinforcing material, a new material can be made that exactly meets the requirements of a particular application. Both components add strength to the composite and their combination often compensates for the weakness in the individual components. The concept of improved performance is broad and includes increased strength or reinforcement of one material by the addition of another material, as well as increased toughness, decreased coefficient of thermal expansion, and increased thermal or electrical conductivity.¹

Composites are generally categorized into three groups based on matrix material; (a) Metal Matrix Composites (MMC), (b) Ceramic Matrix Composites (CMC) and (c) Polymer Matrix Composites (PMC). Polymer composites are further classified into three types based on reinforcing materials (1) particle reinforced, (2) fiber reinforced, and (3) structural reinforced polymer composites.

2. Polymer Composites

The effectiveness of filler in composites depends on characteristics such as particle size, shape, size of the agglomerate, concentration and more significantly surface activity (strength of polymer–filler interaction). Increasing the area of contact between polymer matrix and filler particles seems to be the most important factor for ensuring a strong reinforcing effect and the surface area of the interface is controlled by the size of the filler particles and their volume fraction. The usage of fillers for the enhancement of polymer behaviors especially in the domain of mechanical properties has been extensively studied.² If the polymer matrix is reinforced by traditional filler particles in the micrometer range, we get polymer micro composites.⁶² The common examples of microreinforcing agents are carbon black, talc, glass fiber, calcium carbonate, etc. If at least one of the components in the polymer matrix has nanometer dimensions, these materials are termed Polymer nanocomposites.

Multiphase solid material where one of the phases has one, two or three dimensions of less than 100 nanometers (nm) are generally defined as nanocomposites. Minute amount of nanometer-sized filler with high surface area is the salient feature of a nanocomposite. High

mechanical strength and better aspect ratio are feasible for polymer nanocomposites with the incorporation of reinforcing nanofillers like clay, nanotubes, graphene, etc.

3. Polymer Micro composites and Nano Composites

Among polymer micro composites, carbon black reinforced composites are the most studied and industrially utilized polymer composites.³ Carbon nanotube-polymer nanocomposite has emerged as a hot research topic in material science and is due to its versatile applications. The effectiveness of filler in polymer micro composites and nano-composites depends on its characteristics, such as particle size, shape, size of agglomerate; concentration and most significantly the strength of polymer-filler interaction. As we went through the literature on polymer composites, we found that composites and nanocomposites using carbon black (CB) and carbon nanotube (CNT) occupied a higher position based on citation and application.

“The use of carbon black is as old as the rubber industry itself but still it is evergreen in industry and the research domain. Carbon black (CB) is a versatile reinforcing filler and is the generic term used to indicate a family of materials made up of elementary carbon. It represents a group of finely divided forms of amorphous carbon. It can be produced by the thermal decomposition of hydrocarbons in a shortage of air (pyrolysis). Furnace black and thermal black techniques are the common manufacturing process used for the synthesis of carbon black. The salient features of CB are generally summarized in three headings; particle size (size of spherical particles), structure (size of particle chain), and surface chemistry (composition of groups on the surface of CB). The incorporation of CB in elastomers and plastics not only retards the cost of the end product but also modifies the electrical and optical properties of the polymer matrix. There has been intensive research on the reinforcement of rubber by CB. The entanglement of rubber molecules on the carbon black surface has a dominant role in designing the reinforcement effect of CB in an elastomeric matrix. As the physical adsorption on the surface of CB enhances, the reinforcement effect increases. The rubber-carbon black interaction can be evaluated through bound rubber evaluation, mechanical properties, small angle X-ray scattering, and electrical conductivity measurements. This protocol of characterization supported by morphological analysis helped to fabricate material with tailored properties.

Carbon nanotubes can be visualized as cylinders consisting of a planar hexagonal arrangement of carbon-carbon bonds formed by rolling of graphene layers and as a consequence of this unique bonding arrangement, they show outstanding properties. During growth, depending on the synthesis methods, they can assemble either as concentric tubes (multiwall nanotubes, MWNTs) or as individual cylinders (single-wall nanotubes, SWNTs). The main techniques usually adopted for the synthesis of CNT are arc-discharge,⁴ laser ablation and various catalytic chemical vapour deposition (CCVD) techniques.

Applications

Carbon nanotubes (CNT) with exceptional electrical and mechanical behaviors have been successfully utilized in the fabrication of new-generation nano-composite material with ultra-lightweight, high strength and enhanced electrical conductivity.⁵ Interfacial interaction and filler dispersion are the crucial parameters for enriched properties, especially in the mechanical domain of the corresponding polymer composite. A huge number of articles were published in the field of polymer nano-composites using CNT (either single-walled -SWCNT or multi-walled MWCNT) as the efficient reinforcing agent. Different protocols have been adopted to optimize the CNT dispersion⁹¹ within the polymer matrix. The orientation of CNT in a polymer medium plays a crucial role in mechanical reinforcement. CNT reinforcement is

much more effective for ductile materials than those in brittle matrix.⁶ Poor dispersion and lack of interfacial adhesion between tubes are the major limiting factors for the complete realization of filler capability.⁷ Use of CNT in elastomeric matrix has been extensively reported. Carbon nanotube-polymer composite exhibits percolation behavior,⁸ in which the presence of an inter-connected nanotube network results in a dramatic increase of their electrical conductivity. CNT composite does not show enhancement in thermal conductivity with reference to CNT itself. Up to now, the progress in mechanical properties of the neat polymer by carbon nanotube incorporation remains modest with regard to expectations based on nanometer-scale reinforcement.

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Characterization Protocols for IPNS

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Abstract

Interpenetrating Polymers (IPNs) are a special type of polymer blends with special features. Their characterization follows special modalities. This chapter summarizes the different characterization protocols in the domain of IPNs.

Keywords: Polymer Blend, Interpenetrating polymer networks, Characterization methods

Introduction

Interpenetrating polymer networks (IPNs) are one of the most rapidly growing areas in multi-component polymeric systems. IUPAC Compendium of chemical terminology defines “IPNs as polymers, comprising two or more networks that are at least partially interlaced on a molecular scale but not covalently bonded to each other and cannot be separated unless chemical bonds are broken”.¹ IPNs are a combination of incompatible polymer networks, at least one of which is synthesized and/or cross-linked in the presence of the other. IPNs are a special class of polymer blends. The two characteristic features of IPNs that distinguish them from the other types of multiphase polymer systems are as follows: (a) IPNs swell but do not dissolve in solvents and (b) creep and flow are suppressed in IPNs.

The term “interpenetrating polymer network” had been assigned before the present interpretation of phase separation and morphology were assumed. Molecular level interpenetration is absent in almost all IPNs and usually they have finely divided domain size of nanometer range with dual phase continuity.² True interpenetration occurs only at phase boundaries and most of them are phase-separated to a certain extent. Molecular level interpenetration occurs in the case of total mutual solubility only. IPN is a polymer alloy with special features.

IPN can show the synergistic effect of their component polymers and consequently avoid their limitations to a considerable extent. Normal mixing of two or more polymers/copolymers does not lead to the creation of an IPN.³ An IPN formation can be schematically represented in Figure 1.1.

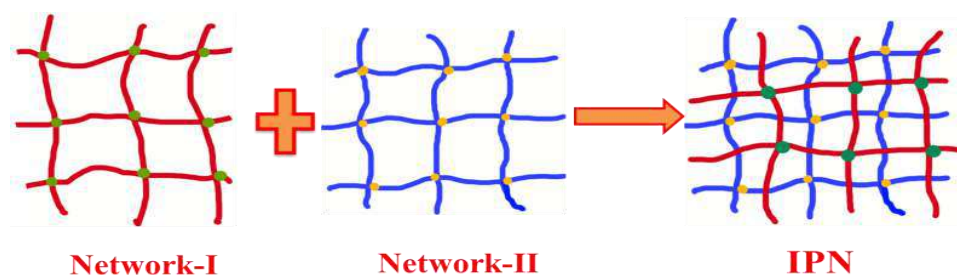


Figure 1.1: Schematic representations of component networks and IPN.

1. Characterization

IPNs represent a blend with less extensive phase separation. Reinforcement of IPN by suitable filler leads to the formation of IPN composites.⁴ The properties of IPN and IPN composites are dependent on several factors like distribution of components, filler-polymer interaction, molecular interaction at phase boundaries, phase continuity, kinetic retardation of phase separation, morphology, cross-link density, size and shape of filler, interfacial

interaction, domain size of components etc... A study of mechanical, morphological, viscoelastic, transport and free volume characterization narrates the specific properties of resultant IPN and corresponding composite systems.⁵ The properties of the IPNs fall into two categories.

The first category narrates the approximate simple averages of the properties of constituent polymeric systems. The second class of properties is those which at least in certain IPNs can show maxima or minima in those properties of component systems. In IPN composites, reinforcing effect of filler and IPN framework⁶ behaviors have their contributions. The synergistic effect between reinforcement and IPN formation is the expected outcome in this area. Blend ratio, efficiency of filler, morphological features and localization of fillers have decisive roles in the resultant behaviors of IPN composites.

Modern instrumental methods are used to characterize the interpenetration and ultimate behaviors of IPNs. Various characterization protocols are there to elucidate the morphology, thermal properties, physical properties and other characteristics of IPNs. The interpenetration in IPN may be identified by (1) Comparing the shift of dynamic glass transition temperatures of IPNs with their homo polymers. (2) Comparing the morphologies (micro- or nano-scale) and distribution of phase domains, shape and sizes. The existence of interpenetration is generally better judged through the combination of the aforementioned inferences.¹²⁶ The Reinforcement effect of filler in IPN composites can be evaluated through mechanical, thermo-mechanical and morphological analysis. Its behaviors can be compared with initial polymeric systems, reinforcing agents and also with IPNs.

2. Conclusions

The morphological properties of IPNs are best characterized by using scanning electron microscopy (SEM) and transmission electron microscopy (TEM). Differential scanning calorimetry (DSC), thermal gravimetric analysis (TGA), differential thermal analysis (DTA) and so on have been extensively used to study the thermal properties of IPN. The composition and nature of the constituent polymeric network define the mechanical properties of IPN. Common mechanical properties used to characterize IPN are tensile strength, elongation at break, Young's modulus and hardness. Mechanical properties (tensile stress-strain behavior, tensile stress relaxation and tensile creep) were extensively used to elucidate the composition of IPN. The spectroscopic methods that are widely used in structure elucidation are nuclear magnetic resonance (NMR), infrared (IR), confocal Raman, positron annihilation lifetime spectroscopy (PALS) and electron spin resonance (ESR) techniques. Dynamic mechanical analysis (DMA)⁷ is widely used for the measurement of the viscoelastic behavior of IPNs. DMA is a technique used to characterize IPN properties as a function of temperature, time, frequency, stress or a combination of these parameters.

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Morphological features of IPNS

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Abstract

Interpenetrating Polymers (IPNs) are a special type of polymer blends with special features. Their morphological characterization follows special protocols. This chapter summarizes the different morphological characterization protocols in the domain of IPNs.

Keywords

Polymer Blend, Interpenetrating polymer networks, morphology, characterization methods

Introduction

Interpenetrating Polymeric Networks (IPNs), perform a strategic role in contemporary Material science especially in the domain of polymer technology owing to the potential applications and multi-functionalities. Polymer blend (Poly blends) can be broadly defined as a mixture of at least two polymers or copolymers. They are generally categorized into two-miscible and immiscible blends.¹

The golden history of IPN began with its discovery by J.W. Aylsworth in 1914. This was an IPN (based on the language of modern concepts) of natural rubber. An interesting fact is that in 1914, the words polymer, network, IPN etc. had not yet been invented, as a result Aylsworth's patent did not mention these terms. The term interpenetrating polymeric network was introduced by J.R. Millar in 1960. He had designed an IPN consisting of Poly (styrene) as the two phases (homo-IPN) with ion exchange application.²

The morphology of IPNs is governed by chemical compatibility, interfacial tension, cross-link densities, types of components, mode and kinetics of polymerization and domain size of components. In sequential IPNs, the network first formed is most likely to be the continuous network. Its cross-link density is the controlling factor in determining the morphology of the system. Based on morphological pattern, IPNs are classified into three types; (a) with a domain size of a few microns, (b) with a domain size in the range of 1000Å⁰, (c) with no resolvable domain structure.

1. Morphology

The morphological properties of IPNs are best characterized by using scanning electron microscopy (SEM) and transmission electron microscopy (TEM). The micrographs obtained using the SEM and TEM appears to be useful in detecting the interpenetration of phase domains, shape, and structures of the order of magnitude of a micron to a tenth of a micron and the degree of mixing. High-resolution transmission electron microscopy was successfully employed to directly probe the interphase region of IPNs. Hydrogen bonded supra molecular IPN network of 2-ureido-4-[1H]-pyrimidinone (UPy) telechelic poly (ethylene-co-1-butene) (SPEB) with hydroxyl-terminated polybutadiene (HTPB) was reported by T.J. Korely and et al.³ In this highly cited work, they employed TEM images to differentiate the interphase at different blend ratio.

The cross-linking effect in shape memory polymer systems based on the IPN format of cross-linked poly (methyl methacrylate) and poly (ethylene oxide) can be visualized through

SEM micrographs. Atomic force microscopy (AFM) analysis also provides valuable information on the IPN morphology.⁴ It helps to differentiate the continuous phase and dispersed phase in IPN. AFM is also used to identify the domain size of the components in IPN. In the characterization of polyisobutene (PIB) –PMMA IPN. Confocal laser-scanning microscopy (CLSM) also provides some useful insight into IPN morphology. It helps to identify the hydrophilic and hydrophobic regions of hydrogel-type IPN. X-ray scattering experiments are widely used for enlightening the morphology of IPN. It can be used for the visualization of interpenetrating channels in IPN. Energy dispersal X-ray analysis (EDAX) explains the distribution of dispersed phases in the IPN matrix. Raman mapping is an efficient technique to understand the phenomenon of interpenetration in IPN. Diamino-modified Graphene/ Polyaniline (PANI) Semi-interpenetrating system with high thermoelectric performance was reported by Yu-Sheng Hsiao et al.⁵

2. Conclusions

Morphological characterization provides a tool and guide for the distribution and dispersion of components in IPN. In IPN research, different innovative techniques have evolved.

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IPN Composites – Challenges and Possibilities

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Abstract

Interpenetrating Polymeric composites are a special type of polymer composite with special features. Their characterization follows special protocols. This chapter summarizes the summarizes the concept of IPN composites.

Keywords: Polymer Blend, Interpenetrating polymer networks, IPN composites

Introduction

IPN composite is an emerging field in polymer technology that utilizes the merits of IPN framework¹⁰⁶ and the flexibility of composite formation. In IPN composites, the polymer matrix is interpenetrating polymeric networks. Here materials in micro or nano form are incorporated into this IPN matrix. It utilizes the benefits of both the IPN matrix and its composite formation with improved performance. If the incorporated filler materials exist on the nanoscale, it is called IPN nanocomposite, on the other hand if the filler phase is on a micro-scale, it could be called IPN micro-composite.¹ IPN composite is an emerging field in material science especially in drug delivery systems and in hydrogels.

IPN Composites

The chemical, thermal and often electrical performance of IPN composites are controlled by the IPN matrix² while the mechanical performance is dictated by the effectiveness of the reinforcement. Two general protocols are employed in the fabrication of IPN composite. The first protocol for the synthesis of IPN composite consists of polymer composite formation (by addition of filler into a suitable polymer matrix) followed by the creation of IPN framework (by incorporating a second polymer part). S. Amnuaypanich et al.³ utilize the above-mentioned order of preparation for the fabrication of NR/PVA semi-IPN composite reinforced by zeolite. They dissolved zeolite in a PVA solution to form a composite.⁴ NR latex is added to this composite along with a cross-linker to form an IPN framework and as a result, an IPN composite is prepared.⁵

IPN framework formation followed by reinforcing filler addition is the second protocol for IPN composite synthesis and is commonly adopted for biological IPN composites especially in drug delivery systems. This specific approach had been utilized in the first successful design of semi-IPN hydrogel–silver nanocomposites by Y. Murali Mohan and et al. In that article, acrylamide with initiator and cross-linker along with and polyvinyl pyrrolidone ((PVP) form an IPN framework. To this framework, silver nitrate is added. The reduction of silver nitrate by sodium borohydride (NaBH₄) in the IPN format produces nano-silver in the IPN framework.⁶

Conclusions

Crosslinking sequence and filler incorporation play a major role in the morphology and properties designing of resultant IPN composites. IPN composites have wide applications in the field of damping. It is clear that the range and depth of IPN composite is very high and there is enough room for research in this area.

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Applications of IPNs

Jose James^{1*}, George V. Thomas^{1*}, Dr. Sr. Sijo Francis^{1*}, Dr. Anu Antony^{1*}, Dr. Jobi K V^{1*}

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Abstract

Interpenetrating Polymeric networks (IPN) are a special type of polymer blend with special features. Their characterization follows special modalities. This chapter summarizes the important applications of IPNs.

Keywords: Polymer Blend, Interpenetrating Polymer Networks, Applications

Introduction

The central motive in material science especially in polymer technology is to fabricate a material with effective performance, excellent peculiarities, and an optimum cost-to-benefit ratio. Polymer blend (Poly blends) can be broadly defined as a mixture of at least two polymers or copolymers. Interpenetrating polymer networks (IPNs) are one of the most rapidly growing areas in multi-component polymeric systems. IUPAC Compendium of chemical terminology defines "IPNs as polymers comprising two or more networks that are at least partially interlaced on a molecular scale but not covalently bonded to each other and cannot be separated unless chemical bonds are broken".¹ IPNs are a combination of incompatible polymer networks, at least one of which is synthesized and/or cross-linked in the presence of the other.

Applications of IPNs

IPNs have a variety of applications and they are commercially successful forms of polymer blends, probably owing to the cross-linked structure that provides better thermal stability,² mechanical properties, chemical resistance, and so on. IPNs are traditionally used as damping materials, impact-resistant materials, adhesives, and so on. Their unique properties of specificity, mechanical strength, swelling capacity, nutrient and oxygen permeability, durability in the body, and sensitivity can be identified.

IPN-supported scaffold is one of the growing areas of polymer blends.³ Nanocomposite polymer IPN hydrogels are new-generation materials useful for a wide variety of applications. They are used as responsive hydrogels, medical implants, porous scaffolds or catalyst supports, self-healing materials, thermo-sensitive materials, contact lenses, and so on. The new applications of IPN are controlled drug delivery systems, energy storage materials, corneal transplantation and use in fuel cells.⁴ IPNs have immense scope in tissue engineering and as uterus stents. Thus IPN holds many advancements and future applications that will be of immense help to mankind. The literature survey of the latest works on IPN reveals that the current thrust areas of IPN are hydrogel polymer solar cells, controlled drug release, fuel cell membrane, and thermo-sensitive IPN for wound dressing. IPN hydrogels are called hungry networks or intelligent polymers due to their potential technological application in medicine, industry, biology,¹⁶⁵ and environmental clean-up. One of the shining future aspects of IPN is in the manufacture of solar cells. Here, an incoming photon from the sun creates an exciton (electron-hole pair) that travels to the interface where charge separation occurs, producing useful voltage. IPN has found immense use in various biomedical applications and biochemistry. IPN electrolyte is another thrust area in the polymer research field.⁵ IPN composite usually enhances the properties of parent IPNs. The current trends in IPN composite research include green

composite fabrication, shape-memory materials, drug-releasing agents, fibre reinforcing materials, electrolytes, and cryo composites.

Conclusions

The outlook for IPNs and IPN composites is exceedingly bright and is a hot research area. The data from the ISI Web of Science indicate that China, the United States and India are the leaders in the IPN research area, and currently about 500 papers per year are being published in this research field. Processing techniques for the synthesis of eco-friendly IPN and IPN composites and clear differentiation of physical and chemical interpenetration using characterization techniques are the remaining gaps in this field. Despite many advances, numerous challenges and opportunities remain for making an impact in the field of smart interpenetrating polymeric systems.

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A Study on Crisis Faced by Pineapple Industry with Special Reference to Vazhakulam, the Pineapple City

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Abstract

In Kerala, Vazhakulam is a village in the Muvattupuzha Taluk of the Ernakulam district. This town is known as Pineapple City due to its large-scale pineapple farms. The Vazhakulam pineapple is cultivated in an area that spreads to about 45km north, 40km west, 35km east, and 110km south of Vazhakulam, the heartland of pineapple.

Introduction

Pineapple is one of the most commercially important fruit crops in India. Total annual world production is estimated at 28.65 million metric tons of fruits. India is the fifth-largest pineapple producer in the world, producing 1.2 million metric tons of pineapple annually. 8.2% of the world's total production of pineapple is produced in India. Other leading producers are Thailand, Philippines, Brazil, China, Nigeria, Mexico, Indonesia, Colombia and U.S.A. Pineapple has been commercially grown in the Vazhakulam area for more than 50 years. It is an excellent fruit for fresh consumption. The Vazhakulam area is ideally suited for the production of pineapple. Planting is done in almost all the months. Except during the heavy monsoon days. Vazhakulam is considered the biggest pineapple market in India. From there, the fruits are transported to all the south Indian states and most of the north Indian states.

Statement of The Problem

People in the Vazhakulam area cultivate pineapple along with other crops. Most of them use pineapple cultivation as a way of life. They face many problems in this sector. A pineapple farmer faces many problems through pineapple cultivation. Scarcity of factors of production and the aids, price fluctuations of the pineapple and how this will affect the farmers, etc. The project tried to analyze the main problems faced by the pineapple industry.

Objectives of The Study

- To study the main reasons for crisis mainly faced by the pineapple farmers in workplace
- To study the development of Vazhakulam through pineapple cultivation

Source of Data

In this study, the main source of data is primary data, which is collected using a structured questionnaire. Secondary data was obtained from magazines, websites, etc.

Sampling Techniques

The convenience sampling method is used for collecting data from the population; the convenience sampling method is one of the main types of non-probability sampling methods.

Theoretical Framework

Pineapple (*Ananas comosus*) is an important fruit in India. Pineapple is cultivated in an area of 89 thousand hectares, and the total production is 1415 thousand tons. It is abundantly grown in almost the entire North East region, including West Bengal, Kerala, Karnataka, Bihar, Goa, and Maharashtra states. The major pineapple-growing countries in the world are Brazil, Thailand, the Philippines, Costa Rica, China, and India. The total area under pineapple cultivation in the world is 909.84 thousand Hectar, with production around 19412.91 thousand tons.

Data Analysis and Interpretation

Major problems of cultivators

Sl. No	Major problems	Number of respondents	Percentage
1	Price decline	26	52
2	Deformation	5	10
3	Accumulation of sludge	7	14
4	Natural calamity	12	24
5	If others	-	-
Total		50	100

Source: Primary data

Table showing development occurred in Vazhakualem after it was known as pineapple city

Sl. No	Developments	Number of respondents	Percentage
1	New industries	18	36
2	Employment opportunities	12	24
3	Advanced marketing facilities	9	18
4	Easy availability of funds	7	14
5	More government intervention	4	8
Total		50	100

Source: Primary data

Findings

- 52% of the workers respond that price decline is the major problem for cultivators.
- Through pineapple cultivation, Vazhakualem was developed by new industries, employment opportunities, advanced marketing facilities, easy availability of funds, and more government intervention.

Suggestions

- The government should ensure that providing subsidies for cultivators continues and must ensure that all cultivators are receiving the subsidy.
- Provide floor prices and cell prices for the pineapple products and reduce the problem of price fluctuation.
- The pineapple sector faces many crises during this period, so utilize maximum resources such as land, fertilizers, and government aid to overcome the situation.

Conclusion

The pineapple sector plays an important role in the economy. More than 5 lakh people in Kerala are cultivating pineapple. Most of them have been cultivating pineapple for more than 40 years; they couldn't think of another crop. While cultivators are facing a huge crisis, the government must take adequate measures to protect the pineapple

sector. The government must not hesitate to implement the national pineapple policy, which will help the pineapple sector.

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A Study on Customer Attitude towards Ecofriendly Products

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Abstract

Today, our environment faces a series of problems related to plastic. This study has been conducted to analyze customer attitudes towards eco-friendly products. For this, a structured questionnaire has been framed and has been surveyed. Data were collected on the basis of convenient sampling. The main factors that induce people to purchase eco-friendly products are quality and environmental protection.

Introduction

Eco-friendly means that the manufacturer of the particular product took the proper steps to ensure that the environment was not harmed during its manufacturing process. The raw materials used in the product were derived from sustainable sources. And the production should have a low impact on the environment regarding waste, carbon emissions, and energy use. A product is considered earth-friendly if it is biodegradable, meaning that it will pose no threat to the earth and environment when it is released into the air, water, or earth while in use or when disposed of. These types of products usually decompose much quicker in landfills than similar items that are not biodegradable. Products that are manufactured through technology and that cause no environmental hazards are called eco-friendly products. The promotion of products is necessary for the conservation of natural resources. Solar light and solar heaters make use of solar energy. Solar power products are innovative mechanisms that help conserve energy. Solar products are environment-friendly and usually cost-effective as well.

Statement of The Problem

In modern world, people are concerned about the environment. These products have a vital role in the protection of the environment as they do not have a negative impact on nature. A company can increase its competitive position by providing eco-friendly products. This study was conducted to know the attitudes of people towards products like solar power products, paper bags, handy craft items, and clay products.

Objectives of The Study

- To analyze those factors that induce people to purchase eco-friendly products.
- To study the reusable habit of eco-friendly products towards customers.

Sources of Data

The primary data used for the study was obtained from the customers. It was collected through a questionnaire given to the customers. The secondary data was collected from websites, brochures, and reference texts

Sampling Plan

The population of the study consists of customers attitudes towards eco-friendly products. The sample size used for the study is 40. A sampling method has been adopted for the study.

Theoretical Framework

According to Merriam-Webster, the official definition of eco-friendly is “**not environmentally harmful.**” When it comes to products, that means everything from production to packaging needs to be considered safe for the environment. Products that are made of environmentally friendly materials are Eco-friendly products or green products. It has qualities that will protect the environment. It has replaced artificial ingredients with natural ingredients. Green products are:

- energy-efficient, durable, and often have low maintenance requirements.
- They are free of ozone-depleting chemicals and toxic compounds and don't produce toxic by-products.
- Often made of recycled materials or content or from renewable and sustainable sources.
- Biodegradable or easily reused, either in part or as a whole.

Solar products are innovative mechanisms that help conserve energy. Solar products are environmentally friendly and usually cost-effective as well. **Solar lights** have good demand and acceptance in the modern world. There are several companies providing solar lights. **Solar water heaters** have better acceptance because of their benefits and durability. The cheap availability and low cost of plastic bags make them popular among people. But plastic bags cause a lot of problems for our environment.

Data Analysis and Interpretation

Table showing what induces consumers to purchase these products

Interest on the purchase	Number of participants	Percentage
Quality and environmental production	20	48.8
More benefits	4	9.3
Safety	9	23.3
All	7	18.6
TOTAL	40	100

Interpretation:

Out of the total responses, 48% purchased based on quality and environmental production. 23% purchased on the basis of safety, 9% based on more benefits, and 18% of them considered all of the above.

Table showing eco-friendly products that can be reusable

Reusable	Number of participants	Percentage
Yes	32	79.1
No	8	20.9
TOTAL	40	100

Interpretation:

Out of the total responses, 79% of the products can be reusable, and 21% of them are not. Most of the products are derived from nature, so they can be easily recycled and reused without any harmful effects.

Findings

- The main factors that induce people to purchase eco-friendly products are quality and environmental protection, and these are now gaining more popularity in society.
- 65% of people have good opinion about the quality of the product, although 20% of them have excellent opinion about the quality of the product, even though 2% of them have a poor opinion.
- 98% of people believe that green products will contribute to the sustainable future.
- 80% of the purchased products can be reused, while 20% of the products cannot be reused.

Suggestions

- Consumers are to be well educated about importance of eco-friendly products like paper bags, handicraft items, and clay products.
- In order to increase the sale of paper bags, handicraft items and clay products, there is a need to undertake promotional activities
- Provide information about eco-labels to those who are not aware of them.
- Take measures to avoid the problem of unavailability of the products.

Conclusion

Eco-friendly products have a prominent role in conservation of environment. So there is a need to promote green products. From this study, it is clear that most people are in the habit of purchasing eco-friendly products like solar lights, solar heaters, paper bags, handicraft items, and clay products. Most of the customers are willing to pay higher price for these products because of their quality and environmental protection. This study reveals that people have positive opinions about paper bags and solar light. On the other hand, handicraft items, solar heaters, and clay products are not very attractive to the respondents.

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A Study on Effectiveness of Visual Media Advertisement in Building Brand Equity and Brand Motive on FMCG and Consumer Durables

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Abstract

Nowadays, the most common promotional activity is advertising. The visual advertisement is more effective than other advertisements. The main objective of this study is to measure the effectiveness of different visual media advertisements in generating brand equity and buying motives for FMCG and consumer durables.

Introduction:

Advertising is now not only an information provider but also a factor that increases the psychic value of the product and hence is considered an investment. In terms of business, an investment has to generate income in the future. The impact of advertisements may be in different segments, which start from brand awareness to sales. A good number of studies are being done in this segment to prove the impact of advertisement effectiveness at different levels.

Statement of the problem:

Advertising initially incarnated as a solution for knowledge and information. Initially, advertisement emerged in the form of non-verbal communication, then evolved through print media and now reached visual media. If India is growing at such a pace, print media advertising will become outdated and probably be extinguished, as in developed nations. Hence, the study is only confined to visual media advertisement effectiveness.

Objectives of the study

- To measure the effectiveness of different visual media advertisements in generating brand equity and buying motives for FMCG and consumer durables

Research Methodology

Tools for data collection and analysis

Primary data is collected through questionnaires, and secondary data is collected from books, other documents, websites, etc. The data collected have been classified, sorted, tabulated, and suitably condensed to facilitate ready comprehension. Tables and diagrams are used as tools for the study. Simple statistical tools such as charts, graphs, and percentages have been used to interpret data.

Theoretical Framework

This chapter is divided into three parts, in which the first segment deals with the history of advertising, the second segment pertains to brand management, and the third segment narrates buying motive, the effectiveness of advertisement in building brand equity (considered to be Sookshmastiti), and building buying motive (assumed to be Stoola stiti). Branding helps to ensure the desired quality of the product, as grading is possible through branding.

Data Analysis and Interpretation

TABLE- Classification according to the visual ad which the respondents saw most

Response	No. of Response	Percentage
Television	35	35%
Internet	60	60%
Others	5	5%
Total	100	100

(Source: Primary Data)

Interpretation: Citing the modes of advertisement, 35% of consumers prefer television, 60% prefer internet and 5% prefer other mediums, hinting that internet was the main medium where ad had to make a mark

Findings and Suggestions

- The majority of respondents are seeing advertisements through internet, i.e., 60%; 35% are seen through television; and rest of them through other modes, i.e., 5%.
- a) The majority of the respondents agree that the ad reveals durability and reliability.
- Almost all of the respondents agree that the ad reveals or communicates the safety of buying, and least of the respondents strongly disagree with it.

Suggestions

1. Brand equity is generated by all forms of advertisements on FMCG and Consumer durables in Kerala. But, Advertisement with dialogue is heavily influential in procreating brand equity in Kerala.
2. The advertisers should give due care and more importance in telecasting advertisements with dialogue, both for promoting FMCG and consumer durables.
3. Buying motive and brand equity are affected by all forms of advertisements significantly, it is evidenced that more effectiveness is visible on Consumer durables. The study recommends that heavy budget would be set aside only on consumer durables.

Conclusion

The output of the study concludes that both brand equity and buying motives are significantly generated by all types of visual media advertisements, i.e., advertisements with dialogue, advertisements without dialogue, and animated advertisements on FMCG and consumer durables in Kerala.

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A Study on Role of Strategic Human Resource Management on Organisational Effectiveness

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Abstract

Today, many companies are facing a conflict over giving their employees rightful bonuses for the hard work they produce for the welfare of the company, so the system would like to make a possible solution to this by evaluating the automation of the performance rate according to what would be stated in their automated performance rating in the system. The higher the rating of performance, the higher the possibility that certain employees would be enlisted first for a promotion that, of course, would be from the higher management of the company. The study, entitled A Study on the Role of Strategic Human Resource Management on Organizational Effectiveness, analyzes the facts relating to it.

Introduction

Human resources are regarded as one of the most important sources for today's firms. Human resource management is more important than other competitive sources because these people use other assets in organizations, create competitiveness, and realize objectives. Thus, firstly, organizations must understand the expectations of employees, which will enable the desired behavior of employees in the organization. Some of the desired outcomes of the organization in managing their workforce are: competence; cooperation of employees with managers; cooperation of employees between them; showing the capabilities of employees; motivation, commitment, and satisfaction; attitude and presence; and employee behavior.

Statement of The Problem

The human resource management system will automate the performance of employees with regard to what is monitored. The study analyzes the role of strategic human resource management practices in the organizational effectiveness of private banks and aims to understand the benefits of strategic human resource management among private banks.

Objectives of The Study

- To study the role of strategic human resources management practices in organizational effectiveness of private banks
- To understand the benefit of Strategic human resources management among private banks in Idukki

Source of Data

- Primary data were collected through questionnaire.
- The secondary data used for the study were collected from magazines and other books related to the study.

Sampling Techniques

Convenient sampling methods were used for the study. A convenience sample is obtained by selecting a convenient population. The sample size selected for the study was 60.

Theoretical Framework

Strategic human resource management (SHRM) is the main concern of managers who are expanding their businesses at a global level. It provides new avenues for the promotion of team

learning in the organization. The main purpose of this article is to explore literary facts pertaining to this key area. On the basis of a review of literature on SHRM, its importance for nurturing team learning behavior among the diverse workforce of global business organizations to develop learning organizations and sustainably intelligent knowledge workers is presented and analyzed.

Keye (1984) studied the relationship between performance appraisal and career development and showed that both performance appraisal and career development have potential for developing human resources, potential that can be increased by linking them together to meet the needs of other individual employees and organizations.

Data Analysis and Interpretation

CLASSIFICATION ON THE BASIS OF INCREASED ORGANIZATIONAL EFFECTIVENESS THROUGH SHRM

OPINION	NO. OF RESPONDENTS	PERCENTAGE
Strongly Agree	25	42%
Agree	25	42%
Neither	3	5%
Disagree	3	5%
Strongly disagree	4	6%
TOTAL	60	100%

Source: Primary Data

Interpretation:

Table 3.19 shows that TQM increased organizational effectiveness. 42% of the respondents strongly agreed. 6% of the respondents strongly disagree. 5% of the respondents are neither agreeing nor disagreeing.

Classification On The Basis Of Performance-Related Benefits

OPINION	NO. OF RESPONDENTS	PERCENTAGE
Highly satisfied	15	25%
Satisfied	36	60%
Neutral	2	3%
Highly dissatisfied	2	3%
Dissatisfied	5	9%
TOTAL	60	100%

Source: Primary Data

Interpretation:

Table 3.26 shows the performance-related benefits of the respondents. Out of the 60 respondents, 60% are satisfied. 25% of the respondents are highly satisfied. 9% of the respondents are dissatisfied. 3% of the respondents are neutral and highly dissatisfied.

Findings

- From the study, it is clear that the majority of the respondents are concerned about the

strategic human resource management effectiveness of the organization.

- The majority of the respondents agree that strategic human resource management affects the performance of the organization.

Suggestions

- To eliminate conflict between management and employees and enhance communication and relationships with them.
- To provide awareness to employees about the objectives and vision of the organization.

Conclusion

In a rapidly changing competitive environment, human resources are an important source of competitive advantage. The human resource system can contribute to sustained competitive advantage by facilitating the development of competencies that are firm-specific. This study investigates the effect of strategic human resource management on various private sector banks in Kattappana municipality. According to this study, the majority of the respondents are aware of the role of strategic sources in then effectiveness of organizations, and they are satisfied with the welfare measures implemented by the organization. The majority of respondents agree that strategic Strategic Human Resource Management effect the performance of the organization.

They clearly understand the objectives and goals of the organization and feel free to express their opinions and suggestions about the organization. This study concluded that strategic human resource management will contribute to the performance of the organization and ensure good working conditions for the employees.

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A Study on the Morale of employees at Mar Sleeva Medicity, Palai

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Abstract

This study explores the critical issues of employee morale within the context of Mar Sleeva Medicity, Palai, Kerla. With healthcare institutions facing unique challenges related to employee well-being and job satisfaction, this chapter delves into the factors affecting morale among healthcare professionals.

Introduction

Morale is the attitude, feelings, and emotions of employees that play a vital role in determining their performance and behavior. These, in turn, determine the success and growth of the organization. It is for these reasons that human resources experts as well as line managers are now paying increasing attention to the problems of motivation and morale in industry. Morale is a state of mind or willingness to work which in turn affects the individuals and organizational objectives. Morale resides in the minds, attitudes and emotions of individuals themselves and in the reactions of their group. It affects the employees and executives in their interactions. Ultimately it affects the consumers and the community.

Statement of The Problem

It is said that satisfied employee is a productive employee, any kind of grievance relating to organizational or personal to a great extent influence on the job. So, every organization is giving higher priority to keep their employees with satisfaction by providing several facilities which improves satisfaction and which reduce dissatisfaction. If an employee is not satisfied with job there are chances for absenteeism, job turnover, lower productivity, committing mistakes etc. Purpose of this study is to describe current level of "morale of employees at Mar Sleeva Medicity, Palai."

Objectives of The Study

- To find out the level of employee morale at Mar Sleeva Medicity, Palai
- To know the level of satisfaction of the employees towards the organization.

Sources of Data

- The primary data were collected through questionnaire.
- The secondary data used in the study were collected from books, journals, magazines, articles, websites, and other publications.

Sampling Technique

Convenient sampling methods were used for the study. There are various statistical tools that are used in analyzing data. Such tools are percentage, diagrams, charts, tables etc.

Theoretical Framework

Robert Heller, founding editor of Britain's top management magazine, *'Management Today,'* has come forward with so many managerial skills and ideas on managing employees in an organization by motivating them and thereby creating a positive morale

towards the organization.

About the work place morale, he says that it is important to measure the work place morale on a regular basis to discover if and why staff are experiencing problems. If someone experiences a rise in departures, suspects that motivation is low, or finds absenteeism is increasing, employee attitude surveys give a broad indication of morale. Another method to check employee morale is to take a random opinion poll. After all, the results or findings will help us sort out the risk causing further demotivation.

Data Analysis and Interpretation

Level of Employee Morale

Department	No. of Employees (Sample)	High Morale	Moderate Morale	Low morale
Nursing	40	45%	35%	20%
Administration	10	60%	25%	15%
Physicians	20	58%	26%	16%
Support staff	15	46%	38%	16%
Technicians	15	37%	35%	28%
Total	100			

Source: Primary Data

Level of satisfaction of Employees

Department	No. of Employees	Satisfied	Nuetral	Dissatisfied
Nursing	40	50%	25%	25%
Administration	10	55%	30%	15%
Physicians	20	48%	12%	40%
Support staff	15	36%	27%	37%
Technicians	15	52%	30%	18%
Total	100			

Source: Primary Data

Findings

- The majority of the respondents agree that the institution is working with high morale
- It is observed that most of the employees are satisfied with their job and the working conditions offered to them. Also, they are satisfied to work with Mar Sleeva Medicity in Palai.

Suggestions

- Organizations should take care of the work load of employees.
- Supervisors should show appreciation to employees when they complete the work.
- Organizations should improve their feedback systems to ensure complete satisfaction because it helps to improve worker performance.

Conclusion

The study on employee morale helped to find out the morale of employees working at Mar Sleeva Medicity, Palai. It gives an opportunity to see the daily routine of an organization with mass production and helps to know the conditions of the employees working there. The morale of employees must be boosted to increase their confidence and satisfaction level. A change in the working environment can bring a change in the

attitudes of the employees towards work. Employees play an important role in the efficient management of the organization. If the employees are not efficient, then the organization will not be able to function properly. So, it is needed to motivate the employees through training and development programs and solve their problems. thus making them more competent and increasing their morale.

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A Study on the Perception of College Students towards Entrepreneurship

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Abstract

In developing economies like India, there is always a problem of unemployment. There is always a huge shortage of jobs on the job market. To address this issue, the government is making a lot of strategic plans, and one such initiative is boosting entrepreneurial intent among people. 'Entrepreneurship' can be simply defined as the intent among people to start a business. This study intends to understand the perceptions of college students towards entrepreneurship.

Introduction

The ultimate desire and aspiration of the youth in school and of their parents or sponsors is to see them gainfully employed soon after graduation. In the face of the current global economic recession and expanding population, however, opportunities for employment are becoming scarcer. This is more so as industries are shrinking in size or folding, and those that survive continuously downsize their workforce, thereby compounding the already high numbers of the unemployed. Entrepreneurship is timeless. Today, youngsters are exhibiting great intention when setting up an enterprise. It is crucial to identify these youngsters early and cultivate their entrepreneurial energy.

Statement of the Problem

Entrepreneurship is the capacity of individuals to innovate, to bear risk, to foresee the prospects of a project, and to have the confidence and competence to meet unforeseen and adverse conditions. The activities of entrepreneurs are crucial to the economic growth and prosperity of modern society. Hence, the present study attempts to know the perception of college students towards entrepreneurship and the different types of perceived barriers faced by the college students while selecting entrepreneurship as a career.

Objectives of the Study

- To study the general awareness of students regarding entrepreneurship.
- To identify the perception and attitude of students towards entrepreneurship.

Sources of Data

- Primary data is the original data collected by the researcher from the sample respondents. Here, primary data have been collected using questionnaires.
- Secondary data is gathered from published records like website, theses, etc.

Sampling Technique

Simple, convenient random sampling is used for the data analysis. 100 respondents from Nedumkandam Grama Panchayat were selected using convenient sampling.

Theoretical Framework

The framework of entrepreneurship is defined as a dynamic process of creating incremental wealth by entrepreneurs who take responsibility for the major risks in terms of equity, time, and career commitment.

E. Douglas (1999), in his study, investigated that the association between the intention of individuals to start own business and their attitude towards income independence, risk, and work effort is positively related.

Data Analysis and Interpretation

Response regarding consideration of starting own business

Response	No. of Respondents	Percentage
Yes	58	58%
No	42	42%
Total	100	100%

Source: Primary Data

Interpretation: From the above table, we can interpret that 58% of the respondents thought about starting their own business, and 42% of the respondents are not thinking about starting their own business.

Response regarding awareness about procedural formalities and regulations to start a business

Response	No. of respondents	Percentage
Aware	25	25%
Unaware	75	75%
Total	100	100%

Source: Primary Data

Interpretation: From the above table, we can interpret that 75% of the respondents are not aware of the procedural formalities and regulations for starting a business. Only 25% of the respondents are aware of the procedural formalities and regulations for starting a business.

Findings

- Most of the respondents want to start their own business to become independent.
- Most of the respondents say that lack of awareness and lack of finance are also barriers faced by students when selecting entrepreneurship as a career.

Suggestions

- This study suggest that the students need to be updated through entrepreneurial workshop and conferences in various fields to establish new ventures.
- Integrate entrepreneurship-related programs and activities into the established curriculum across different academics so that it may add value to college students.
- Entrepreneurship Development Club should enhance their activities and encourage participation from all departments in their activities.

Conclusion

The study on the perception of college students towards entrepreneurship revealed that there is a change in the attitude toward careers these days. Many of the students feel that entrepreneurship can be considered a career option in today's globalized environment and may feel that entrepreneurship is a rewarding career. The majority of the students are interested in this area. The mode of raising funds is very important in the creation of new ventures. The education system also affects entrepreneurship among students. Lack of awareness, availability of capital, fear of failure, etc. are some of the main barriers faced by students when starting a new venture. The result of the study is mainly related to the perception of college students towards entrepreneurship, and it shows a positive result in the perception of college students towards entrepreneurship. They are highly passionate about becoming entrepreneurs.

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A Study on the Wellness Programs Adopted in the IT sector

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Abstract

Employee wellness programs are those approaches taken by companies that aim at an employee's overall well-being. It can include health screenings, seminars on education, exercise, healthy eating habits, stress reduction, etc. Many companies offer a lot of wide-ranging wellness programs to employees. Yet very little research has been done on what types of initiatives have been taken by employers regarding employee wellness programs. Employee wellness programs are helpful for employers and employees to adopt and maintain healthy behaviors. It also comprises benefits like greater productivity, behavior changes, a decrease in labor turnover and absenteeism, and a healthier work environment

Keywords: Employee Wellness Program, Healthy work environment, Employee Retention

Introduction

People are becoming more conscious that health should not be viewed only through the lens of pathogenic illnesses. Individuals' health is substantially influenced by factors such as living habits and lifestyles. This new public fascination with 'Wellness' is taking on a global scale. The content of television shows, ads, popular periodicals, and daily newspapers exemplifies this. Thousands of projects and programs have been launched worldwide by governmental and non-governmental organizations and private individuals to emphasize the importance of community members adopting healthy lifestyles.

Wellness programs are designed to support employees in understanding their health risks and adopting healthy behaviors to decrease these risks. These programs can include health risk management (screening for elevated cardiovascular disease risk factors such as elevated cholesterol and blood pressure), behavioral health like smoking cessation, substance abuse, and psychological counseling, and primary care promotion and lifestyle management, especially on weight loss, fitness, and nutrition. Such programs aim for decreases in more costly health care utilization, including emergency room visits, hospitalizations, surgeries, and specialist visits, as well as reductions in absenteeism, increases in productivity, and a better quality of life.

Objectives of the study

1. To establish the factors that influence the adoption of employee wellness programs in the IT sector.
2. The study's goal is to learn more about the employee wellness initiatives that IT companies are doing.

Outcome of the Study

Employee happiness is usually a sign of a good workplace

1. Consider introducing some entertaining workplace wellness challenges if you desire this for your firm. These will motivate your staff to develop healthy habits, socialize, and become more productive and engaged as a result of them.
2. The mental health of the workers declined during the period of COVID-19 pandemic. Following its inception, it ushered in the work-from-home era, which caused a significant amount of stress among employees due to a sense of isolation.
3. The pandemic wreaked havoc on the economy, resulting in a financial crisis for many people, which had a negative impact on their mental health.

4. Wellness service providers are using virtual methods to provide services, such as sessions with psychologists and health coaches, to combat the problem.
5. Corporate wellness programs are a collection of policies, programs, and perks that target a variety of risk factors and conditions while influencing both employees and the firm as a whole.
6. According to the National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP), corporate wellness and health initiatives, as well as disease prevention plans, have the potential to influence more than 150 million employees in the United States, lowering healthcare costs significantly.
7. Employees are encouraged to live a healthy lifestyle, which helps businesses increase productivity and cut costs by boosting employee wellness. In the future, the overall costs of missed productivity owing to illness-related absenteeism are predicted to exceed USD 150 billion.
8. Increased insurance costs result from the rise in obese and overweight people, putting financial strain on companies.
9. Businesses have discovered strategies to safeguard and prioritize their employees physically as a result of the COVID-19 epidemic by giving tech assistance to promote social distancing in the adoption of new leave rules.
10. Employers' priorities have switched to preventive and constructive management, which includes assisting employees in adapting to new requirements.

Conclusion

The pressing need of the hour is to primarily raise awareness about wellness in corporates, especially among the highly stressed workforce in the information technology industry. Wellness is a grossly misunderstood term and is usually perceived as a periodic master health check. Wellness goes beyond medical laboratory reports. Wellness should rather be considered a way of life where all dimensions relating to the body are held as important to foster a balanced state. This means that one should constantly monitor the mental (cognitive and intellectual), the physical, and the spiritual being in order to coexist peacefully with fellow workers, thereby establishing synergy and unity of work to eventually achieve prescribed goals.

It must be understood that the absence or indifference of any element will disturb the wellness of the employee and may lead to disastrous consequences, including conflicts, unruly behavior, digression of focus, and loss of property and life well-being, which can also contribute to their happiness

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Accessibility and Usability of Different Payment System

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Introduction

A payment system is any system used to settle financial transactions through the transfer of monetary value. This includes the institutions, instruments, people, rules, procedures, standards, and technologies that make its exchange possible. Payment systems are used in lieu of tendering cash in domestic and international transactions. This consists of a major service provided by banks and other financial institutions. Traditional payment systems include negotiable instruments such as drafts and documentary credits such as letters of credit. The term electronic payment refers to a payment made from one bank account to another using electronic methods; electronic payment refers to e-commerce, a payment for buying and selling goods or services offered through the Internet, or broadly to any type of electronic funds transfer

Statement of the Problem

Electronic payment systems are highly expensive because they include set-up costs, machine costs, management costs, etc., and this mode of payment will take more time than the physical mode of payment. This study has been conducted in order to understand how online payments have found their way into the world. It also analysis the security and safety of different payment systems

Objectives of the Study

1. To know about the Purpose of using online transactions.
2. To measure the awareness of electronic payment systems.

Sources of Data

Primary data are those that are collected from a fresh source for the first time and thus happen to be original in character. The primary data for the study was collected from 90 people residing in the Thodupuzha area through structured questionnaire.

Sampling Plan

The population of the study consists of people in Thodupuzha Taluk. The sample size used for the study is 100. A convenient sampling method has been adopted for the study.

Theoretical Framework

The 'payments system' refers to arrangements that allow consumers, businesses, and other organizations to transfer funds usually held in an account at a financial institution to one another. This includes debit cards, credit cards, electronic funds transfers, direct credits, direct debits, internet banking, and e-commerce payment systems. Payment systems may be physical or electronic, and each has its own procedures and protocols. E-payment systems have become increasingly popular due to the widespread use of internet-based shopping and banking.

Data Analysis and Interpretation

Awareness about online payment systems

Particulars	No. of respondents	Percentage
Yes	45	90%
No	5	10%
Total	50	100%

Source: primary data

Interpretation: The table shows awareness about online payment systems. 90% of respondents were aware of online payment systems, while 5% of respondents were not aware of online payment systems.

Purpose of using online transactions

Particulars	No. of respondents	percentage
Money transfer	13	20%
The utility of bill payment	6	9%
Recharge	6	9%
All of the above	41	62%
Total	50	100%

Source: primary data

INTERPRETATION: The table shows the purpose of using online transaction. 62% were using it for money transfers, bill payments, and recharge. 20% were using it for money transfer only and 9% were using it for bill payment and recharge

Findings

1. From the survey, we know that 90% of the respondents have knowledge about online payments.
2. The majority of respondents were interested in digital payments.
3. The time-saving feature of digital payment is the reason for using it
4. Majority 4. The majority says that modern payment is not so risky.
5. The most attractive feature of online payment is its easy accessibility.

Suggestions

1. In the study, whenever people use digital payment, they look for new features like premium offers and discounts; therefore, new features can be introduced among them, and more people will switch to digital payment.
2. In order to make the transactions more safe, fast, and flexible, the connection of banks with these e-payments needs to be improved a lot.

3. Increase the speed of network to avoid hindrances during online payment. Many people face network issues while making urgent payments. In rural areas, the strength of network is very weak, which will make people not use E-payment.
4. Provide purposeful guidance about usability of online payment system so that it can attract more digital payment users. Now, people are also aware of the safety and security of online payments. So they avoid digital payments.
5. Introduce online payment system for public transportation like buses, autorickshaws, and taxis, which will avoid the hassle of making liquid payments.

Conclusion

The adoption of e-payment, or digital payment, was much more than what we had anticipated at our initial assumption. Many E-payments, programs, and semesters like Paytm, Phonepe, Amazon Pay, and Google Pay were introduced and gained wide acceptance. Everyone who uses digital payment providers is satisfied with their services. From the data collected, it is clear that majority is satisfied with online payment, and people find it the easiest way of making payment. But still, many others prefer direct banking transactions due to fear of losing money, safety issues, and a lack of knowledge about internet. This study was focused on all categories of generation and therefore, the response that we had received was an overall opinion about E-payment

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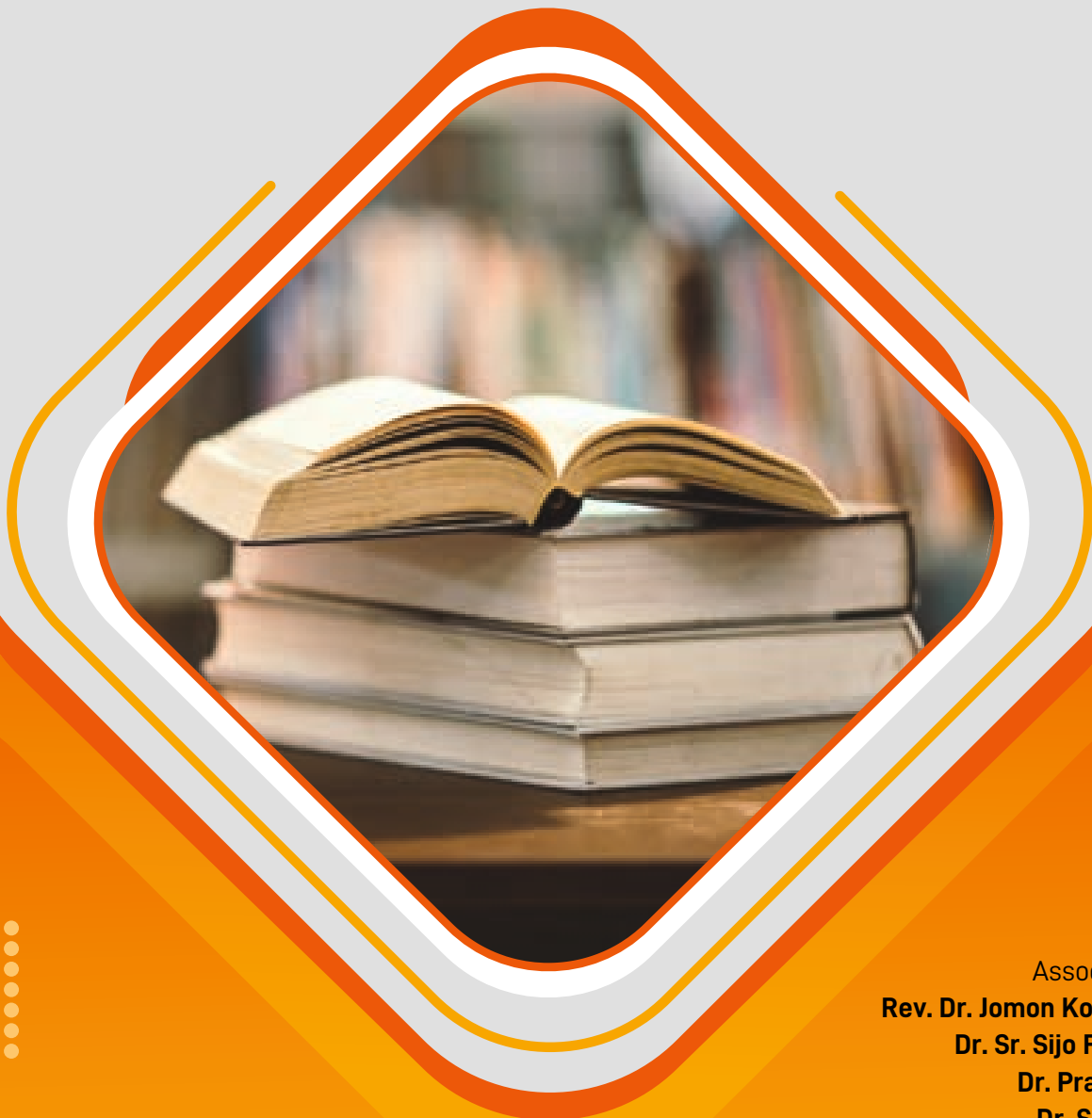
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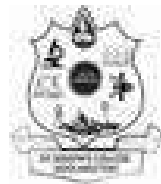
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A. SOCIAL SCIENCE & COMMERCE

CASE STUDY ON BREAKUP OF HERO HONDA AND ITS CURRENT CHALLENGES

Dr. Joseph George

Department of Management Studies, St. Joseph's College, Moolamattom

Introduction

Hero Honda Motors Limited, based in Delhi, is the world's third largest manufacturer of motorcycles. Hero Honda is a joint venture that begins in 1984 between the Hero Group of India and Honda of Japan. It has been the world's largest manufacturer of two-wheeled motorized vehicles since 2001, when it produced 1.3 billion motorbikes in a single year.

Hero Honda's *splendor* was the world's largest selling motorcycle that time. Its two plants are in Dharuhera and Gurgaon, both in India. Third plant is at Haridwar, Uttaranchal has also started production by April 2018. It will have production facilities such as lean manufacturing concept, more flexible lines and stream line material flow, within and proximity to achieve Just-In-Time manufacturing. It specializes in dual use of motorcycles that are low powered but very fuel efficient.

Hero Honda Motors is one of the most prominent company of India and it is also one of the constituent of NIFTY. The company is the largest two-wheeler manufacturer in the world and also in India, where it has

a market share of about 37.1% in the two wheeler industry. Hero Honda Motorcycles where popular in the market because of their fuel economy and low cost.

History of Hero Honda Motors Ltd.

Before the HERO and HONDA come together as a joint venture, HERO was a brand name used by Munjal Brothers to manufacture HERO motorcycles in 1956. HONDA on the other hand was the last Japanese two-wheeler giant to enter Indian Motorcycle Industry after Yamaha, Suzuki and Kawasaki.

There was a rule in India that any foreign company wants to start a business in India, they need to start a joint venture with Indian company. So in 1984, HONDA and HERO came together as a joint venture to manufacture motorcycles under the brand name HERO HONDA and formed HERO HONDA MOTORS LIMITED.

HERO HONDA is world's third largest two-wheeler maker. India has the largest number of two-wheelers in the world with 41.6 million vehicles. India has a mix of 30% automobiles and 70% two-wheelers in the country. India was the second largest manu-

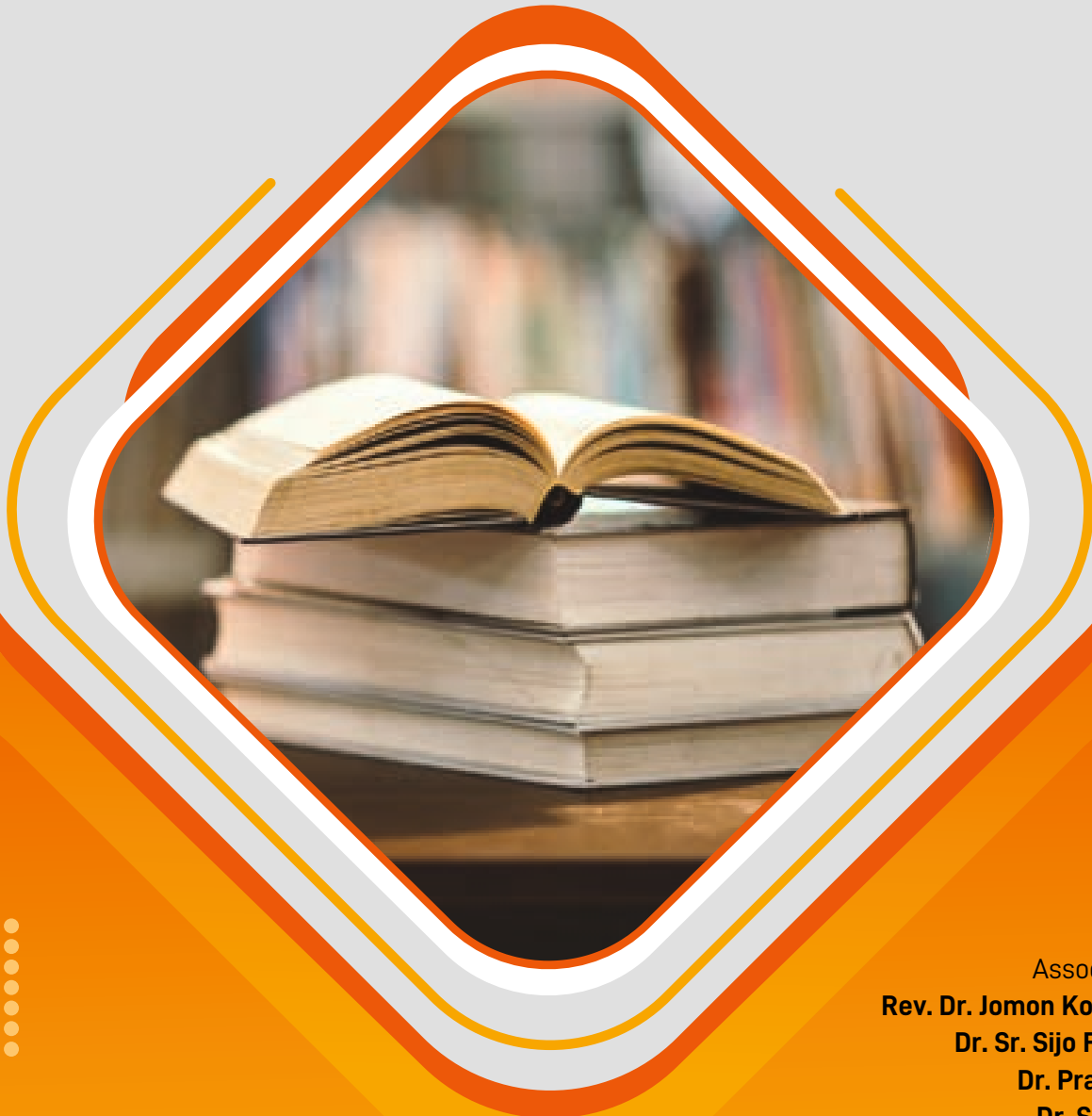
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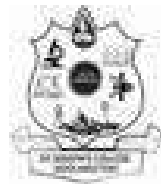
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INTELLECTUAL PROPERTY RIGHTS: AN OVERVIEW

Mrs. Droupathy Devi C.G.

Librarian UGC (Stage II), St. Joseph's College Moolamattom

ABSTRACT

Intellectual property rights (IPR) have been defined as ideas, inventions, and creative expressions based on which there is a public willingness to bestow the status of property. IPR provide certain exclusive rights to the inventors or creators of that property, in order to enable them to reap commercial benefits from their creative efforts. There are several types of intellectual property protection like patent, copyright, trademark, etc. Patent is recognition for an invention. IPR is prerequisite for better identification, planning, commercialization, rendering, and thereby protection of invention or creativity. Each industry should evolve its own IPR policies, management style, strategies, and so on depending on its area of specialty.

Keywords: Intellectual Property, Patents, copyright, trademarks

Introduction

IPR plays vital role today. Intellectual property rights (IPR) refers to the legal rights given to the inventor or creator to protect his invention or creation for a certain period of time. IPR refers to any original creation of the human intellect such as artistic, literary, technical, or scientific creation. IPR grants the inventor/creator an exclusive right for a certain period of time for use of his invention/creation.

The laws and administrative procedures relating to IPR have their roots in Europe. The trend of granting patents started in the four-

teenth century. The first known copyrights appeared in Italy. Patent act in India is more than 150 years old. The inaugural one is the 1856 Act, which is based on the British patent system and it has provided the patent term of 14 years followed by numerous acts and amendments.

Types of IP Protection

A variety of Intellectual efforts including:

1. Patents
2. Trademarks
3. Copyright
4. Geographical Indications

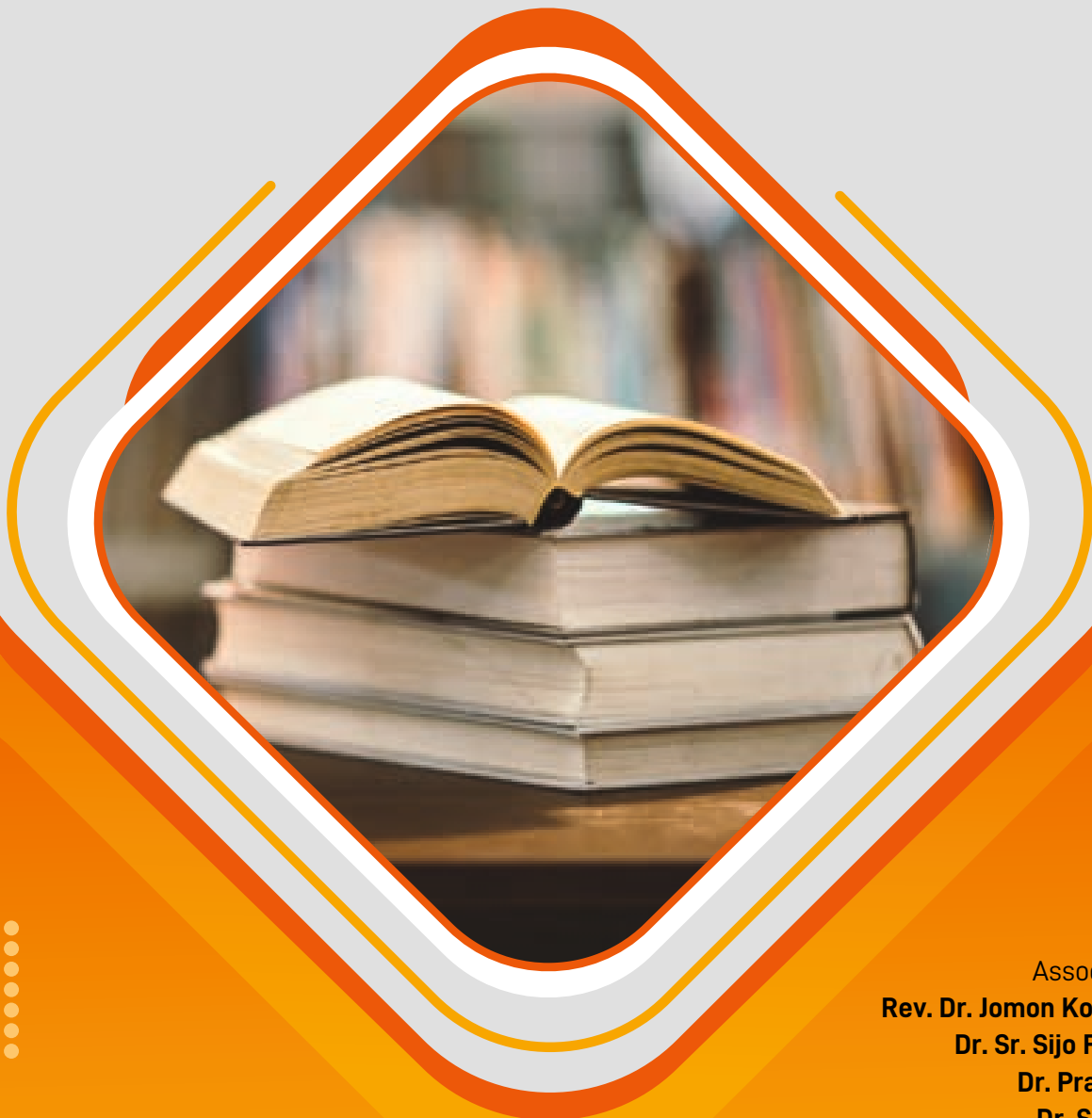
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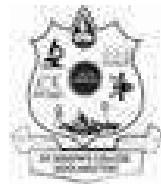
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DESIRE FOR SOCIAL FREEDOM AMONG MARRIED WOMEN

Varada Gireesh R¹, Dr. Justine Joseph², and Dr. Mathew Kanamala³

¹Professional social worker. ²Assistant professor in Psychology, St. Joseph's College, Moolamattom, Mahatma Gandhi University, Kerala. ³Head, Department of Social Work, St. Joseph's College, Moolamattom, Mahatma Gandhi University, Kerala.

ABSTRACT:

The major objective of the study was to evaluate the perspectives on desire of social freedom in accordance with marital status. Questionnaire method was used to collect data from 327 participants including Females (N=251) and Males (N=76) in the age group of 18-40 from southern Kerala. Convenient sampling method was used to select participants. The study revealed that, marital status influenced the perspective on desire for women's social freedom. The unmarried people showed more desire for women's social freedom than the married people. Further, the perspectives on desire for women's social freedom significantly varied among different age groups.

Keywords: Women's Social freedom, marital status, Age group

Introduction

Marriage is an institution that admits man and woman to family life. It is a stable relationship in which a man and a woman are socially permitted to live together without losing their status in the community. Marriage is not merely concerned with the couple; rather it affects the whole society and future generations. The responsibilities it entrusts a couple with are thus both heavy and delicate. In Hindu view, marriage is not a concession to human weakness, but a means for spiritual growth. Man and woman are soul mates who, through the institution of marriage, can direct the energy associ-

ated with their individual instincts and passion into the progress of their souls. The institution of marriage has been regarded as the central feature of all forms of human society. It lays down the nucleus of society. It is one of the most important social institutions of all the societies of the world. There is no greater event in a family than a wedding, dramatically evoking every possible social obligation, kinship bond, traditional value, impassioned Sentiment, and economic resource (Jain, 2019). Marriage in India is considered as an important social event and is supposed to transmit traditional values across generations. Hence, in orthodox so-

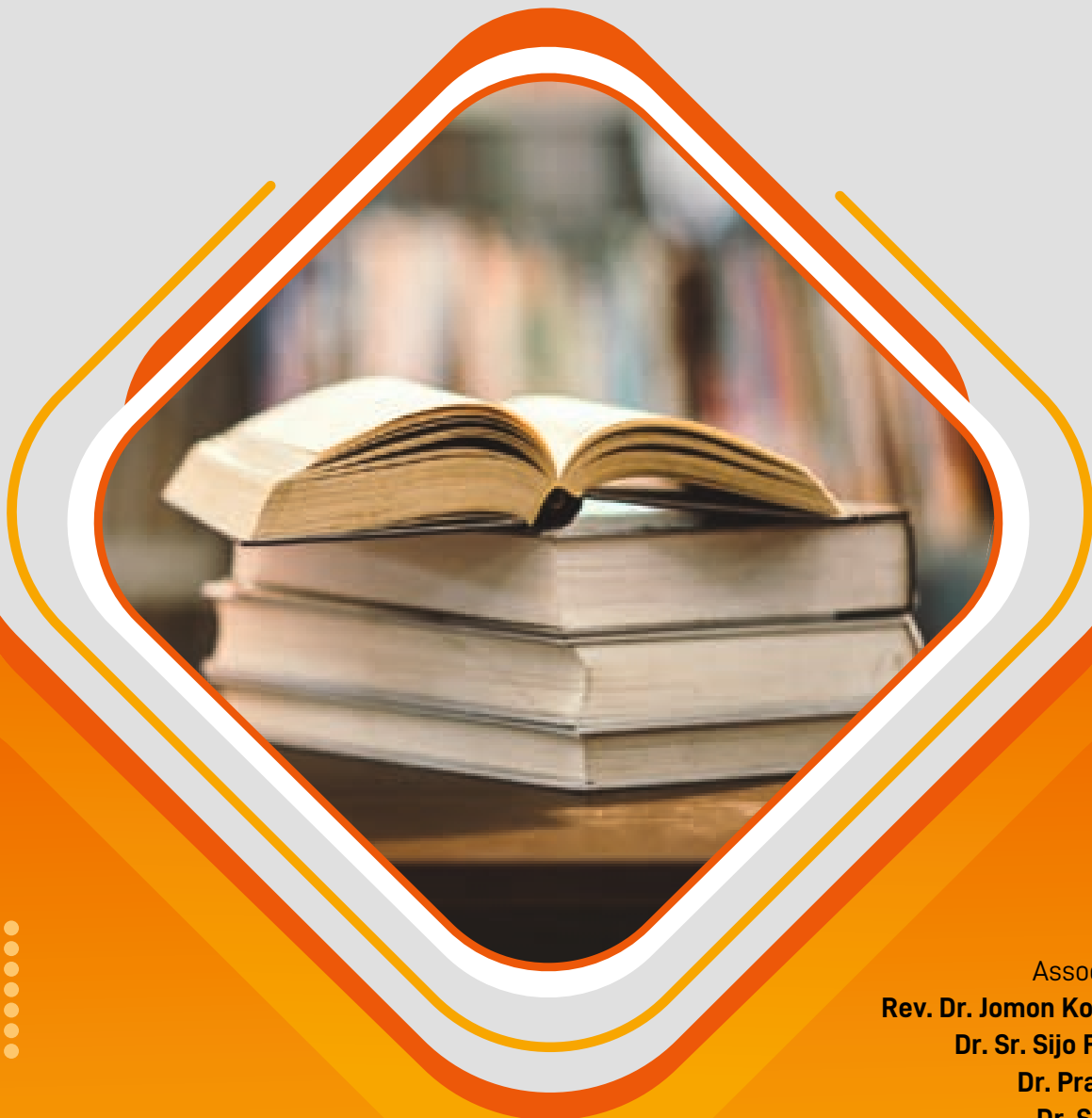
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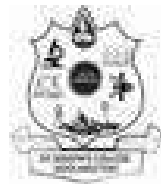
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MACHIAVELLIANISM AND SELF – ESTEEM IN ADOLESCENTS

Beevimol Assis & Manu Kurian

1. Assistant Professor, Sree Sabareesa College, Murikkumvayal Mahatma Gandhi University, Kerala
2. Assistant Professor, St. Joseph's College, Moolamattom Mahatma Gandhi University, Kerala

ABSTRACT

The study aims to explore machiavellianism and Self-esteem in Adolescents. machiavellianism in adolescents has been found to be risk factors for a variety of antisocial behaviours, from entitlement and exploitation to self-absorption and defensive egotism to violent psychopathology. Researcher suggests that machiavellianism lacks empathy and emotion. Adolescents have varying levels of self-esteem, which appears to be influenced by such factors as gender, ethnicity, and social class. The current study expands how the personality trait is associated with anti-social and manipulated behaviours in adolescents and how it is affecting their self-esteem. The sample consisted of 450 adolescents including girls (N=229) and boys (N=221) aged between 12–18. The Children's Machiavellian Scale developed by Mach and Nachame (1969) was used in the study. The Self-esteem inventory developed by Immanuel Thomas and Sam Sananda Raj (1985) was used to assess the self-esteem of Adolescence developed. The results suggested machiavellianism related with age, but no relationship was observed with self-esteem. machiavellianism is negatively related to age but not related with self-esteem. Further, the study revealed that religion influenced machiavellianism. The obtained data were analysed using 't' test, ANOVA and correlation.

Key words: machiavellianism, self-esteem, adolescents

Introduction

Machiavellianism is “the employment of cunning and duplicity in statecraft or in general conduct”. The word comes from the Italian Renaissance diplomat and writer Niccolò Machiavelli, born in 1469, who wrote *Il Principe* (The Prince), among other works. In modern psychology, machiavellianism is

one of the dark triad personalities, characterized by a duplicitous interpersonal style, a cynical disregard for morality, and a focus on self-interest and personal gain. The 1992 review by Fehr and colleagues described Machiavellian motivation as one of cold selfishness or pure instrumentality. Rather than having a unique set of goals, individu-

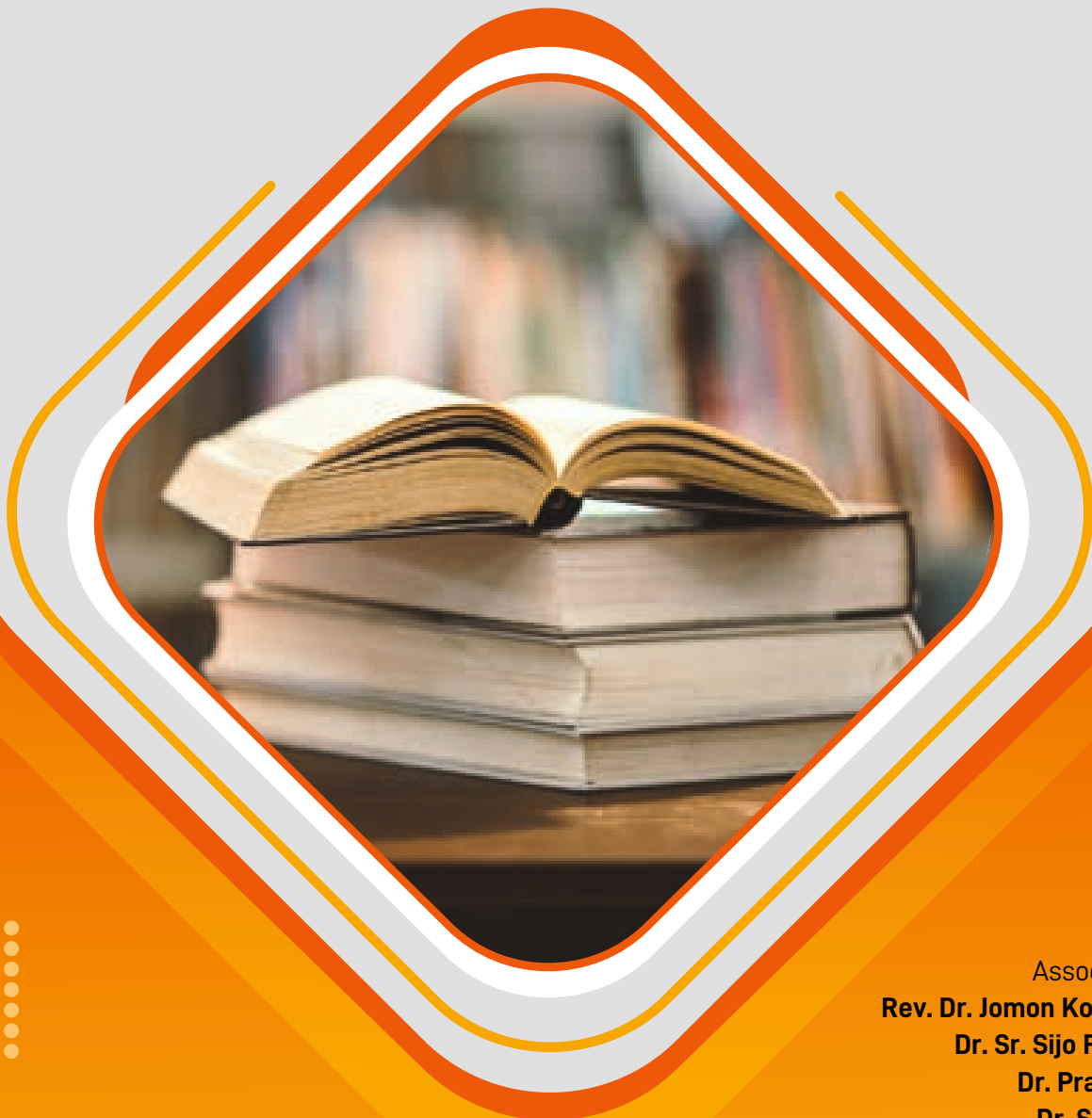
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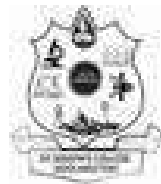
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IMPACT OF COVID-19 PANDEMIC IN ONLINE SHOPPING

Joice Mary Vincent

(Assistant Professor on Contract, Department of Commerce
St. Joseph's College, Moolamattom)

ABSTRACT

With the spread of COVID-19 pandemic the importance of e-commerce had a tremendous growth. COVID-19 outbreak has turned the purchasing of necessary things from physical shops miserable. It was serious issue affecting everyone across the world. It's mostly caused by the fear of spreading virus. The goal of the study is to examine how the COVID-19 has affected the internet buying habits of people. For this a constructed questionnaire has been framed and surveyed on the basis of convenient sampling. And the results showed that COVID-19 played a major role in online shopping and 90% of respondents were recommend online shopping during COVID-19 as a safety measure.

Introduction

Online shopping is method of buying products and services through electronic devices such as mobile or computers by using internet. E-Commerce platforms have transformed the retail scene due to the advancement of internet and digital technologies. In online shopping consumers can monitor price changes, compare functionality of identical items, can see the opinion of others who purchased the product etc...

As the COVID-19 pandemic continues to influence the world, online shopping, online food deliveries etc... have increased in demand. Consumers shopping habits have been dramatically changed as a result of

lockdown. The global spread of COVID-19 has been accompanied by a lot of uncertainty and the humans respond to this crisis in different ways. Anyway no one can left behind without any resource. This pandemic were made changes in shopping behavior of the people all over the world. This study concentrates on investigating how the COVID-19 outbreak influenced the online shopping behavior of rural consumers and their satisfaction level.

Literature Review

1. **Bindia Daroch, Gitika Nagrath and Asshutosh Gupta(2021):** This research paper speaks about the consumer behav-

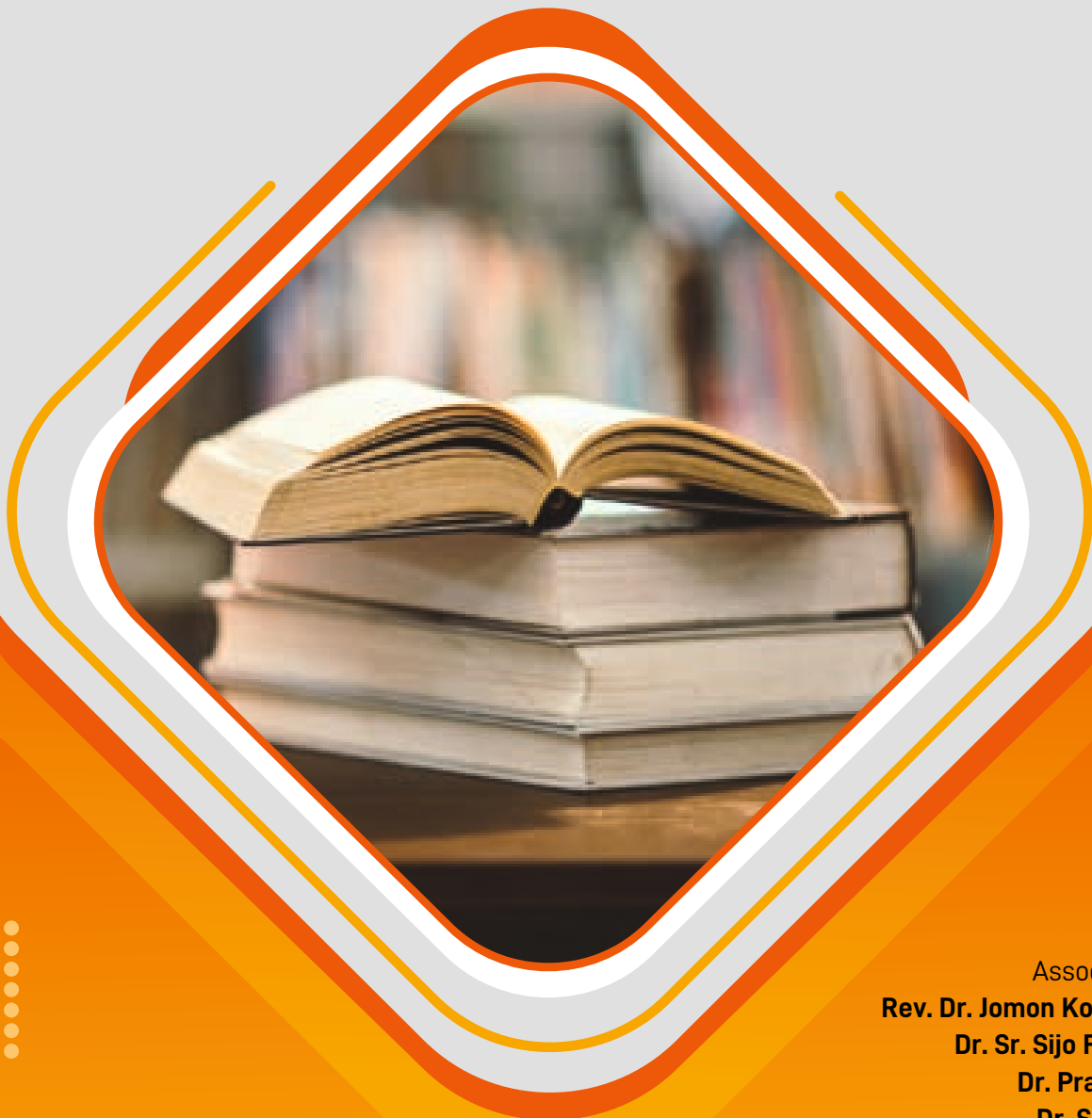
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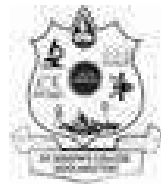
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AN ANALYSIS OF CHALLENGES FACED BY WOMEN ENTREPRENEURS

Anu Saju

(Assistant Professor on contract
Department of Commerce, St. Joseph's College, Moolamattom)

ABSTRACT

Women entrepreneurs face a series of problems right from the beginning till the enterprise functions. Women in rural areas have to suffer still further. This study has been conducted to analyze the major challenges faced by women entrepreneurs with special reference to Thodupuzha Taluk. For this a structured questionnaire has been framed and has been surveyed. Data collected on the basis of convenient sampling. And the results, challenges are always there but majority of respondents get enough support from family, government and financial institutions.

Introduction

Women constitute around half of the world population. India. In traditional societies women were confined to the four walls of the houses, performing household activities. In the modern societies women have participation in all sorts of activities. Women have been performing exceedingly well in different spheres of activities like education, politics, administration, space, social work and so on. Women entrepreneurs occupy a critical in the process of economic development of a country. The entry of women into business is a recent phenomenon in India. It is found that women enter in business as an extension of their household activities. In certain businesses, women entrepreneurs are

doing exceedingly well and excelling their male encounters. This study attempts to find out the challenges faced by women entrepreneurs in Thodupuzha Taluk and to analyze their role in the economic development of our nation.

Statement of the Problem

This study attempts to analyze the challenges faced by women entrepreneurs Thodupuzha taluk and to analyze their role in the economic development of our nation. It is a study conducted with special reference to Thodupuzha Taluk. There are lot of problems faced by women entrepreneurs regarding raising of funds ,marketing their products, competition, male domination and so on. Also this study attempts to analyze the

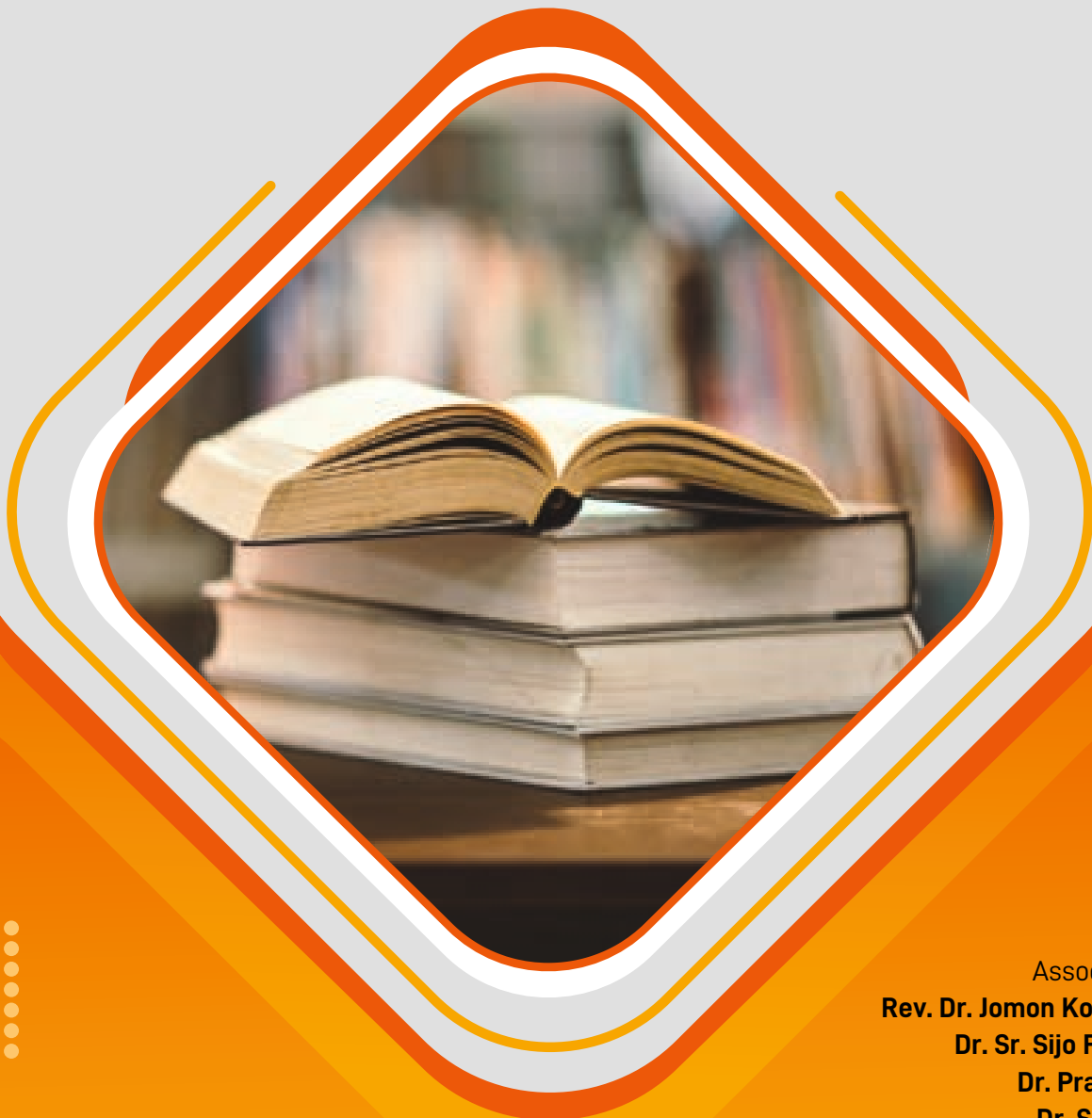
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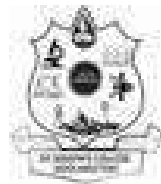
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A STUDY ON THE IMPACT OF FIIS ON INDIAN STOCK MARKET

Steffy Tom

Guest Lecturer at St. Joseph's College, Moolamattom

ABSTRACT

FII inflows and control have emerged as important policy issue in India. Among the Indian policy makers, FII flows are believed to have a positive impact on the country's development. FII inflows, to the equity market increase stock prices, lower cost of equity capital and encourage the investment by Indian firms and lead to improvements in securities market design and corporate governance. The FII inflows have the potential of influencing the process of economic development of India through the positive impacts on macro-economic fundamentals of the country. Present study is very broader and covers capital market indices and its comparison with FII. But, study is only going to cover foreign investments in form of equity. The time period is from 2008 to 2018 as it will give exact impact in both the bullish and bearish trend. The study will provide a very clear picture of the impact of foreign institutional investors on Indian stock indices. In order to analyse the collected data statistical tools such as correlation and regression have been used.

Keywords: FIIs, NIFTY, SENSEX

Introduction

Since 1990-91, the Government of India embarked on liberalization and economic reforms with a view of bringing about rapid and substantial economic growth and move towards globalization of the economy. As a part of the reforms process, the Government under its New Industrial Policy revamped its foreign investment policy recognizing the growing importance of foreign direct investment as an instrument of technology transfer,

augmentation of foreign exchange reserves and globalization of the Indian economy. Simultaneously, the Government, for the first time, permitted portfolio investments from abroad by foreign institutional investors in the Indian capital market. The entry of FIIs seems to be a follow up of the recommendation of the Narasimhan Committee Report on Financial System. While recommending their entry, the Committee, however did not elaborate on the objectives of the suggested policy.

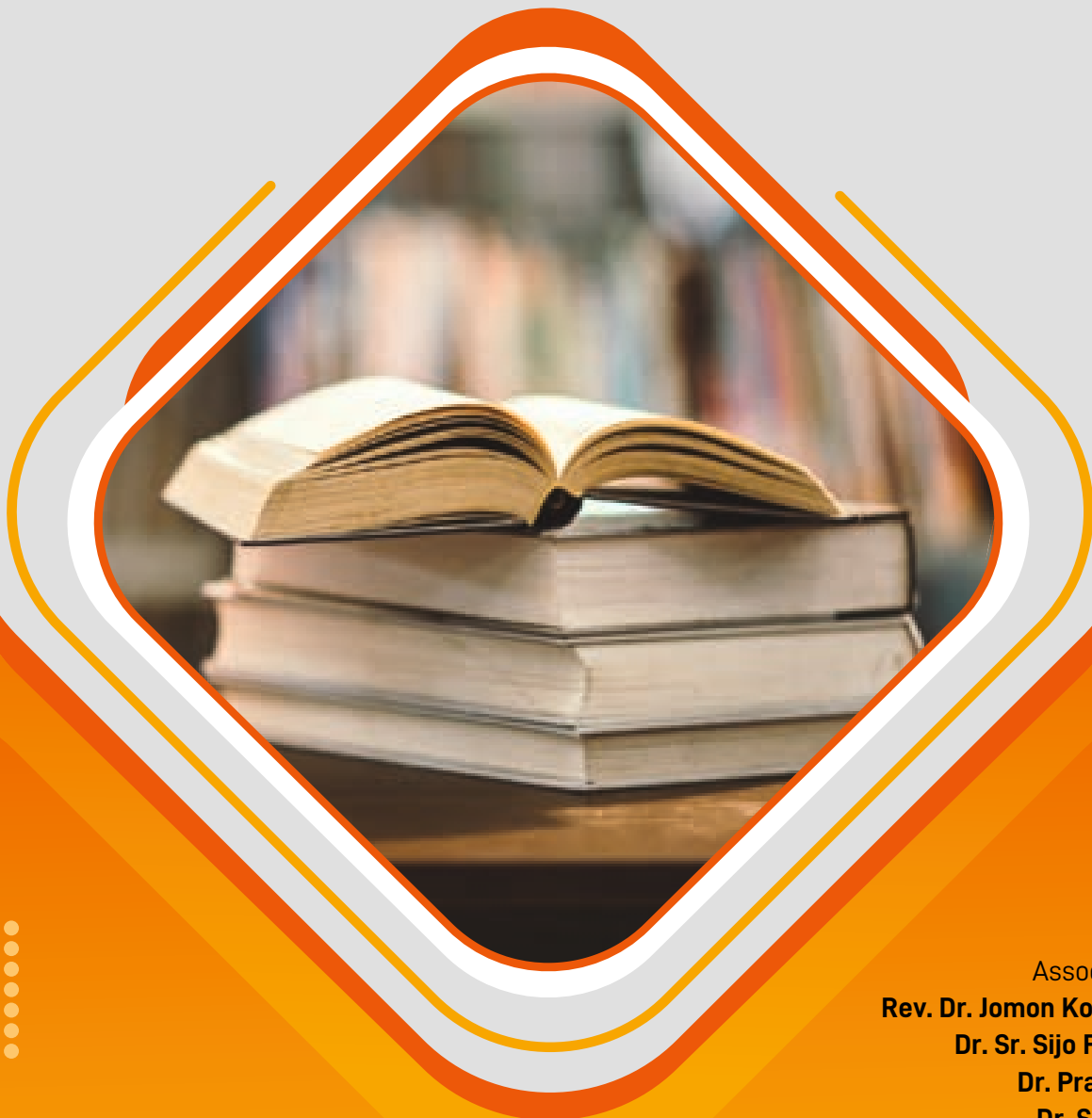
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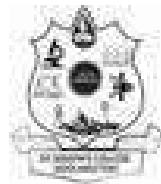
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B. SCIENCE & MATHEMATICS**GREEN APPROACHES
IN NANOPARTICLE SYNTHESIS****Dr. Sr. Sijo Francis¹, Prof. Ebey P. Koshy¹, and Prof. Beena Mathew²**¹Department of Chemistry, St. Joseph's College, Moolamattom, Arakulam PO, Kerala, India²School of Chemical Sciences, Mahatma Gandhi University, Kottayam, Kerala, India**Introduction**

Nanotechnology is a dynamic branch of science which encompasses rapid innovations and continuous changes. Although different physical, chemical and biological preparation strategies were invented to fabricate nanostructures with specific functions, novel methods of production of nanoparticles are called for. As a result, we have many protocols adopted in the synthesis of nanoparticles. This chapter is an attempt to review different methods of the preparation of the various noble metal nanoparticles. This chapter also looks into the general synthesis of noble metal nanoparticles.

Synthesis of nanoparticles

The beauty of miniature science is brought into reality by nanotechnology. Nano size attributes remarkable properties of the noble metals which can be tailored according to our provision [1]. Nanoscience and technology provide the research and developmental activities that have been grown explosively worldwide during the past few years. It has revolutionized the world by making the life of common man more comfortable.

The secondary process on the surface of nanomaterials makes them useful as low-cost catalysts, value-added products, pollution-controlling systems etc. Nanomaterials are also important in health-care, cosmetic, food, paint, and drug industries.

Nanoscale architecting generally follows, the 'bottom-up' and 'top-down' approaches. The stitching together of the individual building blocks (atoms/molecules) and the cutting down of large structures are the respective processes involved. By controlling the surface features and surface chemistry, novel functionalities can be incorporated into the nanostructures. The physical methods of nanofabrication follow the 'top-down' approach whereas the chemical and biological techniques follow the 'bottom-up' procedures. Each method has its own merits and demerits.

Physical methods

The physical methods for the preparation of nanoparticles include UV-irradiation, electric discharge, ball milling, spray pyrolysis, lithographic techniques, sputter deposition, diffusion, and decomposition techniques. The

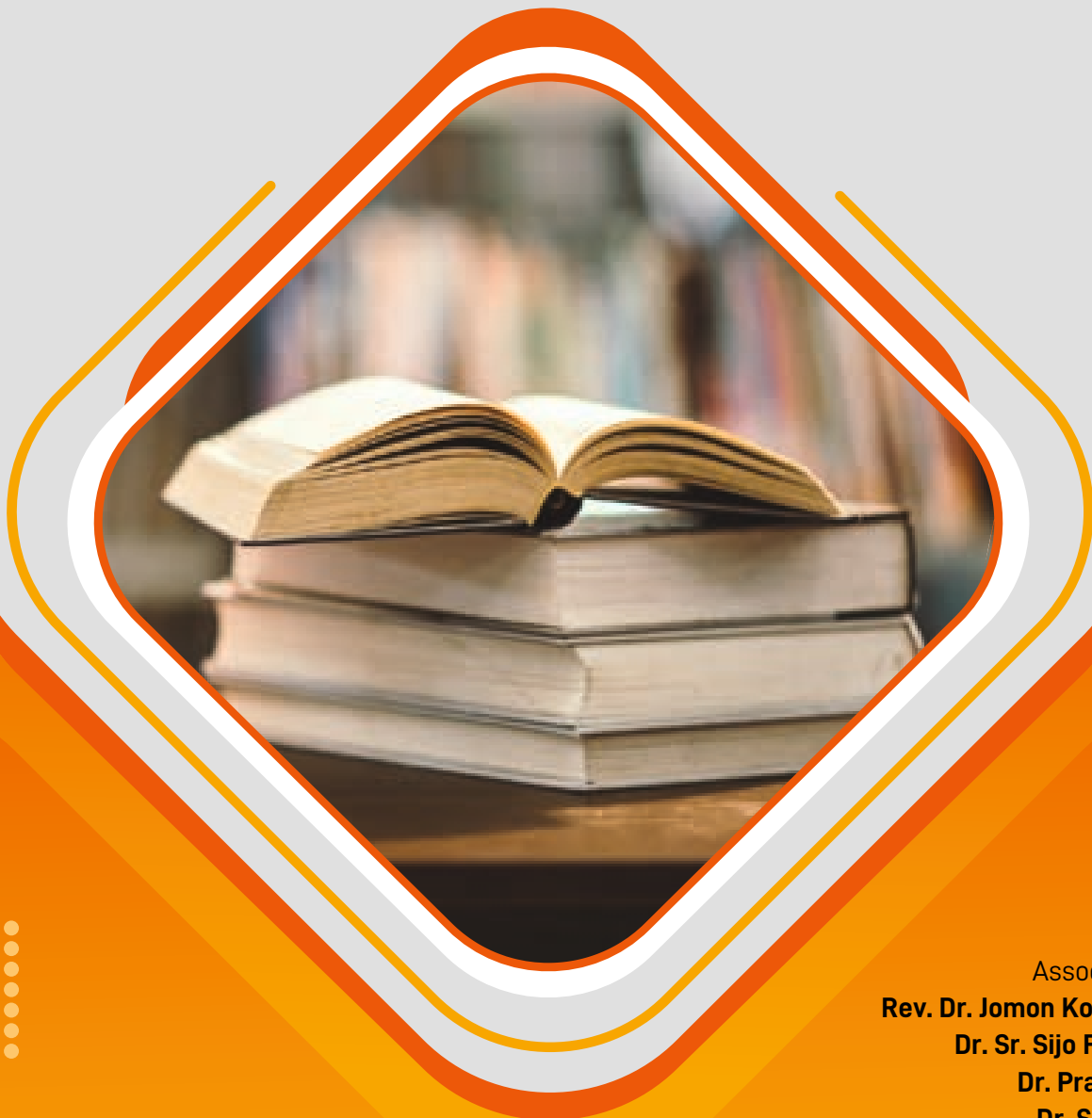
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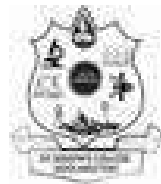
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TOUGHENED COMPOSITE OF SBR AND CARBON BLACK (N660)

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ABSTRACT

A classic set of polymeric micro-composites has been fabricated using an elastomer - styrene butadiene rubber [SBR] and with carbon black (CB)-N220 as a filler and reinforcing agent. This synthesized composite can be promisingly employed as a toughened material in a wide service range with excellent thermal stability, optimum storage modulus, and excellent morphological pattern. TEM, SEM, AFM, and Raman imaging are successfully employed for the morphological characterization. Mechanical and thermal features of composites have been carefully studied in detail. The fabrication and characterization adopted in this work can definitely act as a platform for the design of new toughened material with excellent performance and cost-effectiveness.

Key words: Rubber composites, Toughened composites, composite, carbon black

Introduction

Composites or composite materials are available in nature or engineered fusing two or more materials with considerably different chemical and physical properties which remain distinct at microscopic or macroscopic level within the finished structure. Polymer composite are the most abundantly used matrix material ^[1]. Generally, the mechanical properties of polymers are inadequate for many structural purposes, particularly their low strength and stiffness as com-

pared to metals and ceramics. These difficulties are overcome by reinforcing other materials with polymers. Secondly processing of this type of matrix composites does not demand high pressure and high temperature ^[2]. Simpler equipment's are required for manufacturing polymer matrix composites ^[3]. For this reason, polymer composites developed rapidly and soon became popular for structural applications ^[4]. Polymer composites ^[5-11] are used because overall properties of these composites are superior to those

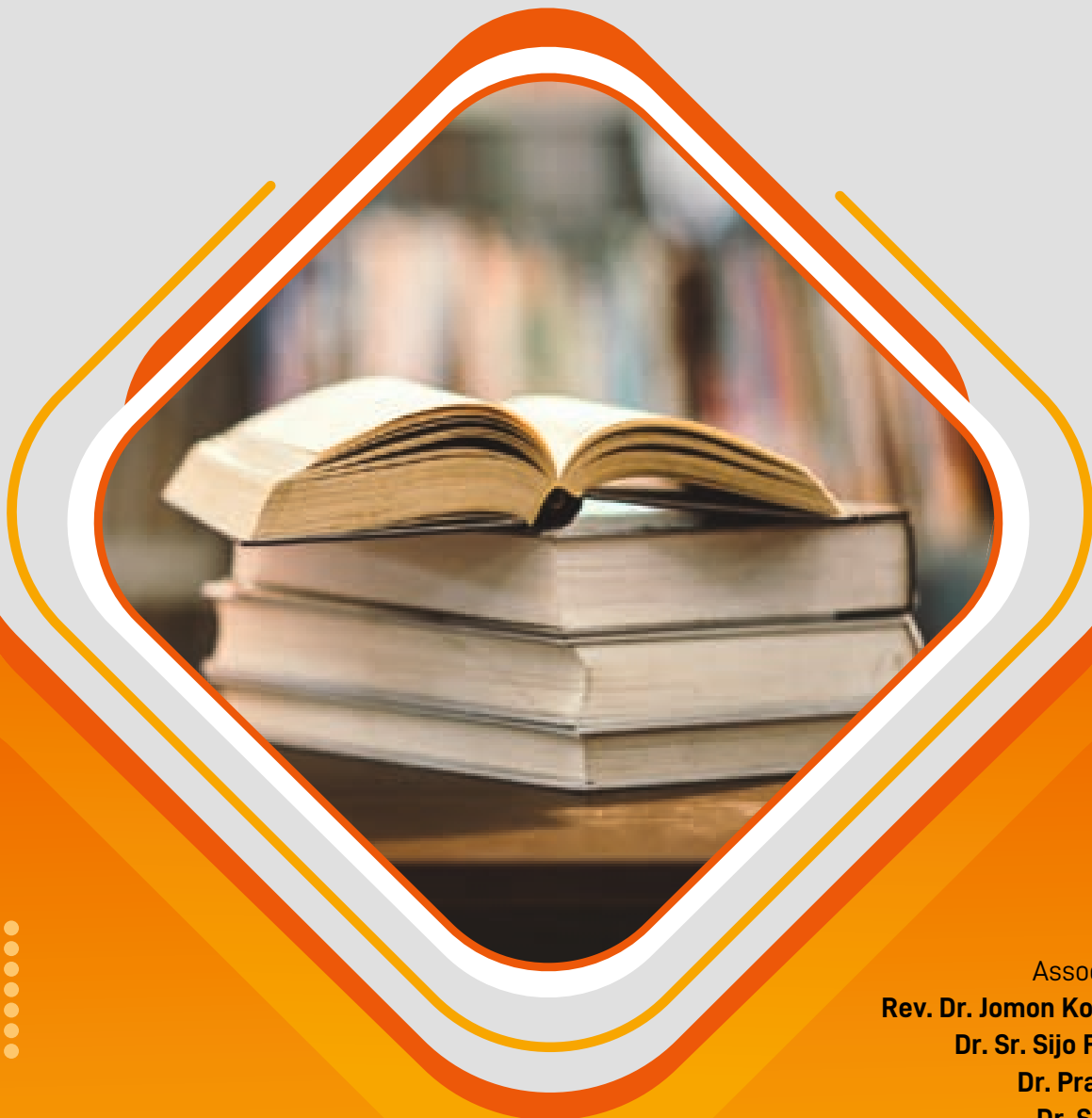
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A REVIEW ON THE ADVANCEMENT OF TENSEGRITY AND DEVELOPMENT OF A TENSEGRITY STRUCTURE

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ABSTRACT

Tensegrity is a kind of architecture and design principle that applies when a discontinuous set of compression elements is opposed and balanced by a continuous tensile force. Tensegrity structures consist of strings (in tension) and bars (in compression). Strings are strong, light, and foldable, so tensegrity structures have the potential to be light but strong and deployable. The article describes principles, construction, research and development in the field of tensegrity and applications of tensegrity.

Introduction

Tensegrity is a design principle that applies when a discontinuous set of compression elements is opposed and balanced by a continuous tensile force, thereby creating an internal prestress that stabilizes the entire structure. Tensegrity structures maintain their stability, or integrity, through a persistent tensional force, hence the term tensegrity. It is a kind of architecture, that looked like it was built by nature instead of by humans. (Donald E. Ingber and Misia Landau, 2012)

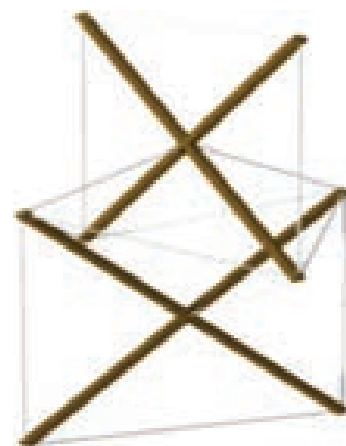


Fig.1: First tensegrity structure developed in 1949.

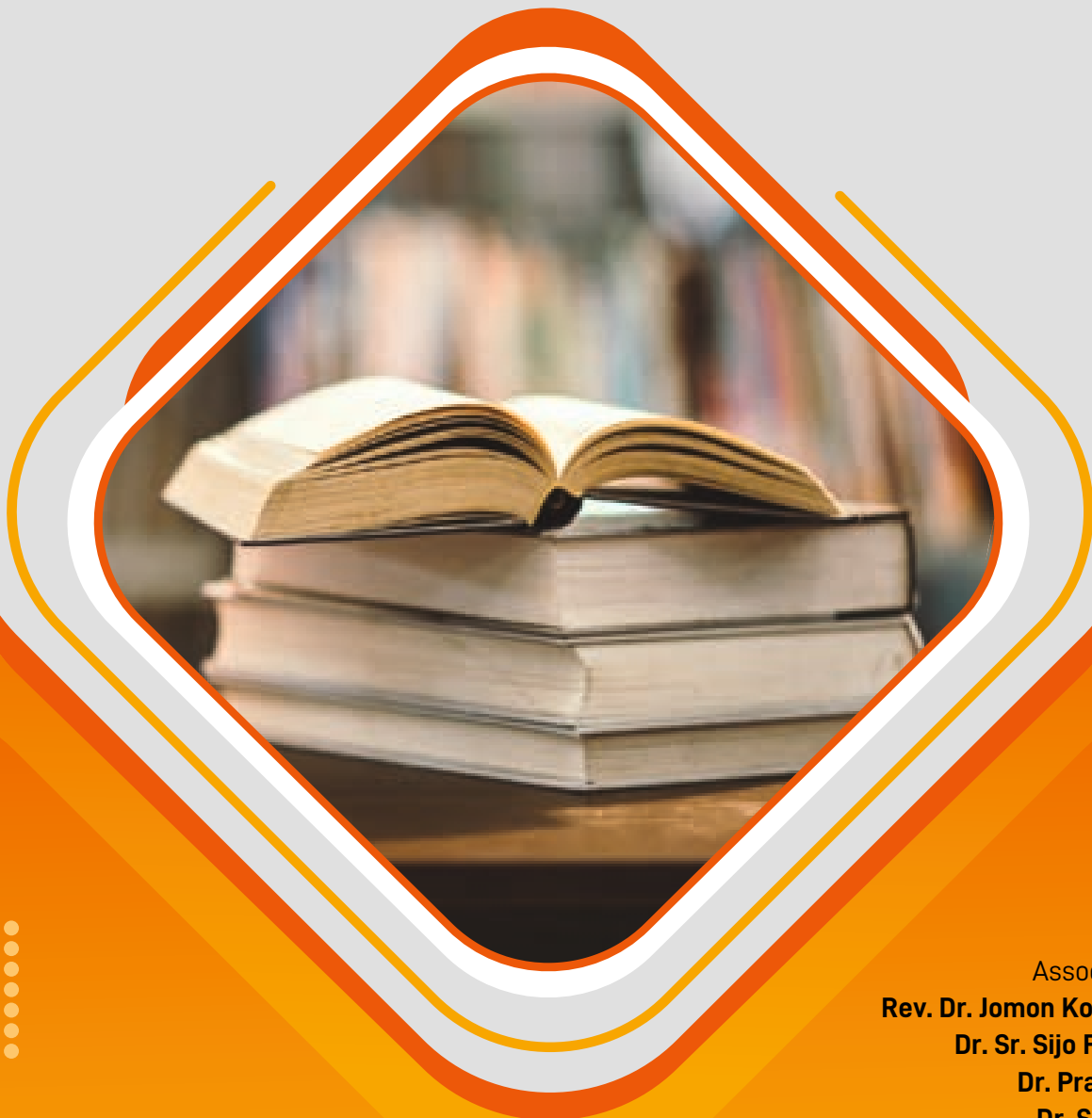
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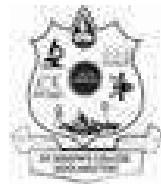
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A BRIEF STUDY ON KOROVKIAN'S FIRST THEOREM AND APPROXIMATION OF CONTINUOUS FUNCTIONS BY POSITIVE LINEAR OPERATORS

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ABSTRACT

This survey paper contains an introduction to Korovkin-type theorems, especially, the first theorem on Korovkin and to some of their applications concerning the approximation of continuous functions by positive linear operators.

1. Introduction

Korovkin-type theorems provide simple and useful tools for determining, if a given sequence of positive linear operators, on a function space is an approximation process or converges strongly to the identity operator.

These theorems present a varieties of subsets of functions which guarantee that the approximation holds on the whole space provided it holds on them. The custom of calling these kinds of results are known as Korovkin-type theorems, refers to P. P. Korovkin who in 1953 discovered such a property for the functions $1, x$ and x^2 in the space $C([0,1])$ of all continuous functions on the real interval $[0,1]$ as well as for the

functions $1, \cos$ and \sin in the space of all continuous 2π -periodic functions on the real line.

After this discovery, several mathematicians have undertaken the program of extending Korovkin's theorems in many ways to several settings, including function spaces, abstract Banach lattices, Banach algebras, Banach spaces and so on. Such developments described a theory which is nowadays referred to as Korovkin-type approximation theory. This theory has fruitful connections with real analysis, functional analysis, harmonic analysis, measure theory, probability theory and partial differential equations. The leading applications are concerned with approximation theory, where it appear as a significant tool.

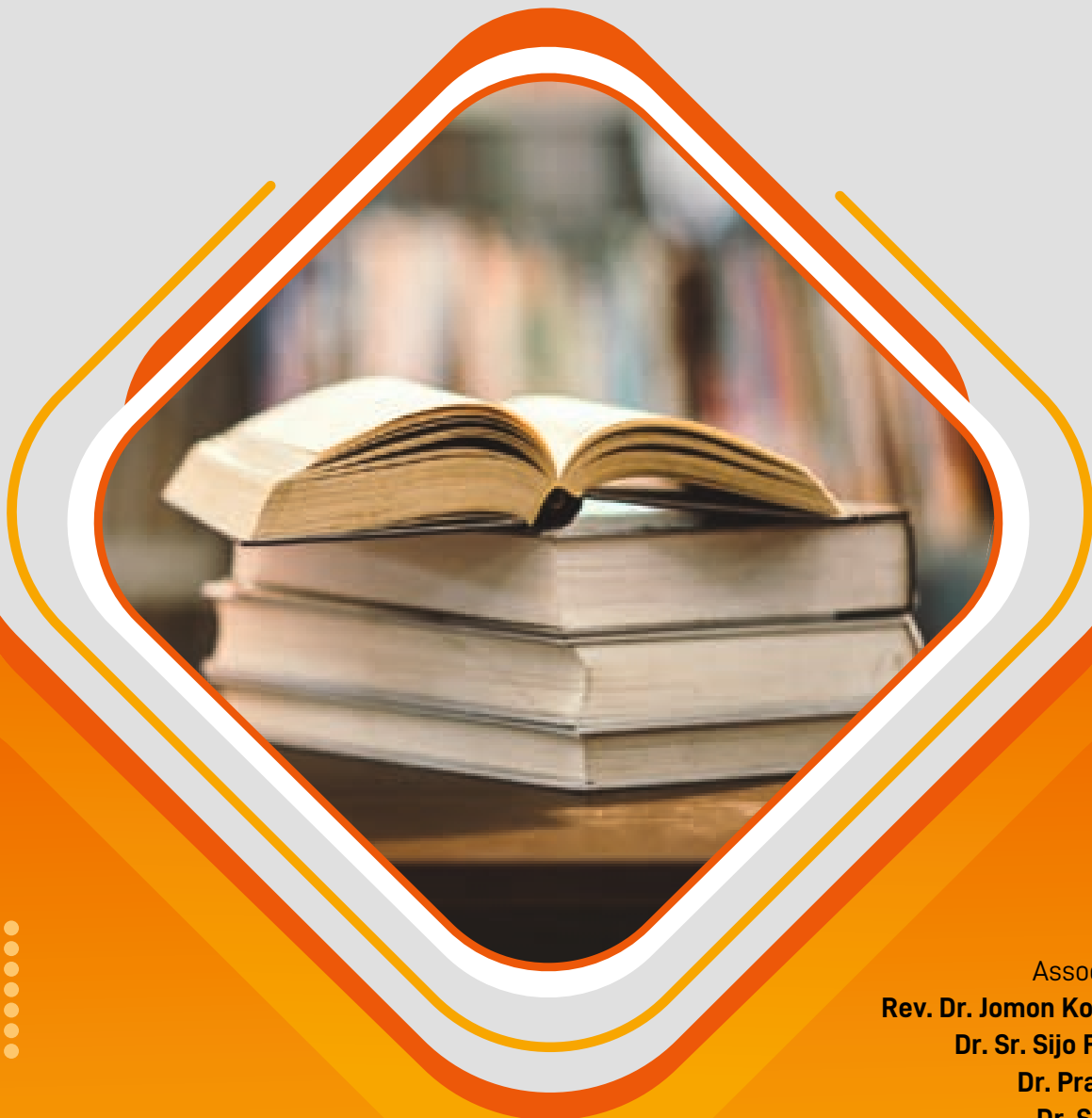
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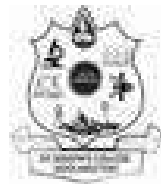
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CARBON DIOXIDE AS A CHEMICAL STORAGE MATERIAL AND ITS UTILIZATION

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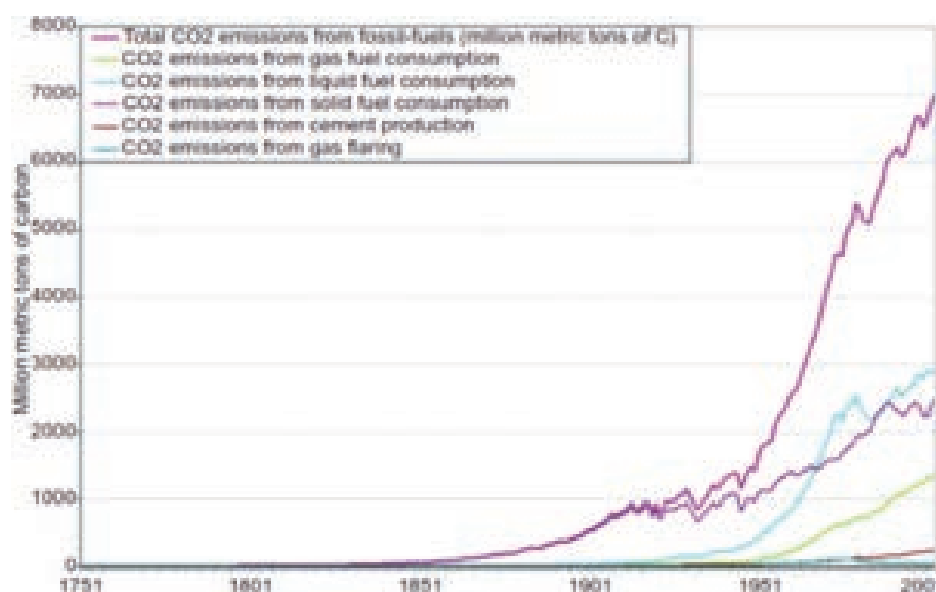
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1.1 Introduction

Energy and environment are two of the most important issues in this century. More than 80 % of our energy comes from the combustion of fossil fuels and it is agreed that carbon dioxide produced from the combustion process to be the most important anthropogenic gas leading to global warming. The linear warming trend over the 50 years from 1956 to 2005 (0.10 to 0.16° C per decade) is nearly twice that for the 100 years from 1906 to 2005¹. As a result, there is an urgent

need to reduce global carbon dioxide emissions in the short term through technical advancement and legislation, physical or chemical storage and conversion to other useful products. The key issue is how to achieve a reduction without compromising our economic growth, national security and living standards. Carbon capture and sequestration (CCS) at large emission sources such as power plants has been proposed as a strategy to decrease the accumulation of CO₂ in the atmosphere².

Fig. 1:
The origin of CO₂
emission



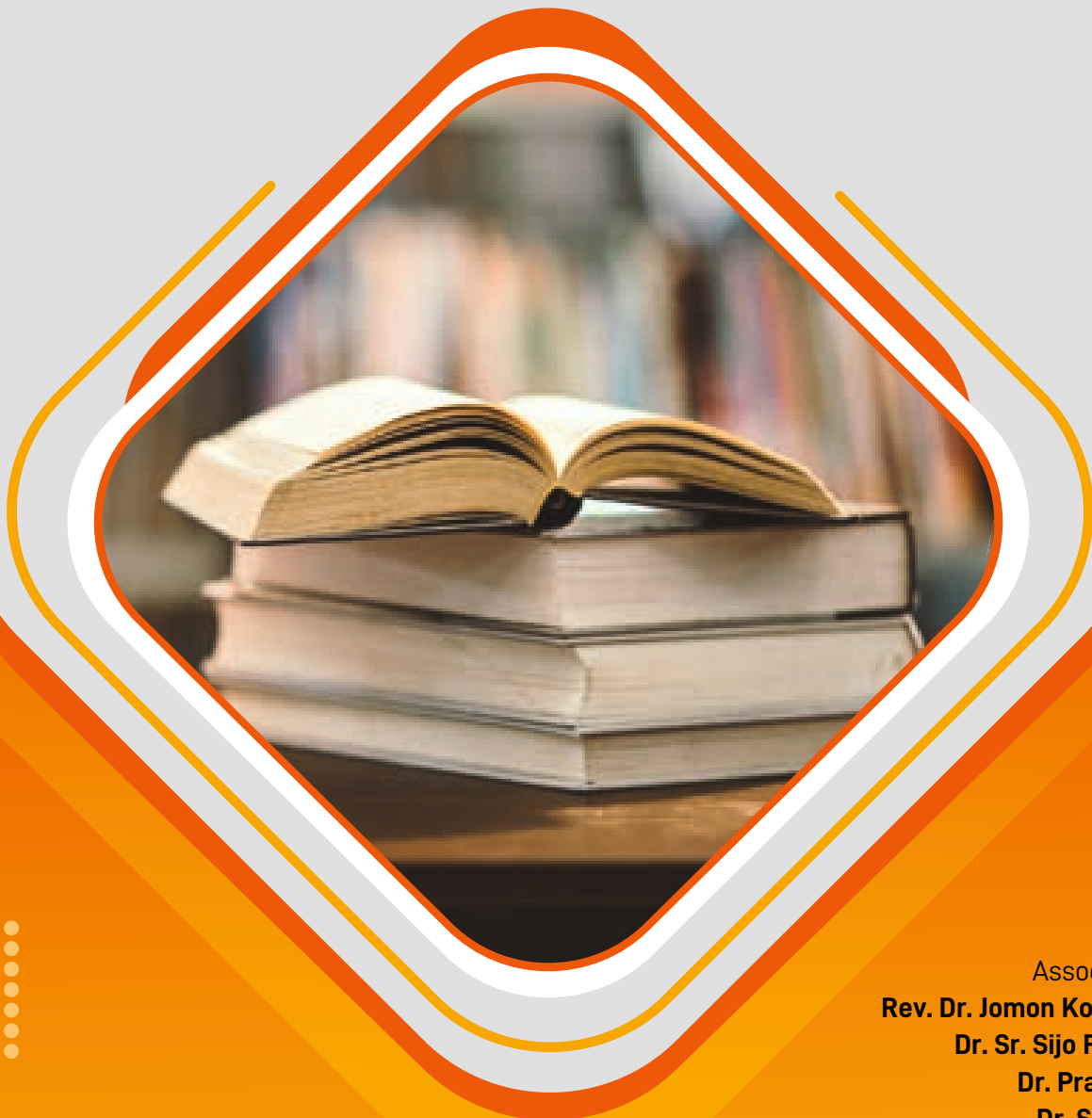
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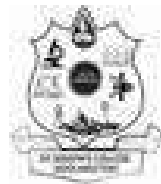
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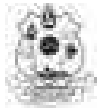
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CHROMATIC M-POLYNOMIAL OF ROOTED PRODUCT OF PATHS AND CYCLES

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Abstract

The concept of chromatic M -polynomial is studied in relation to topological indices in recent literature. In this paper, the notion of chromatic M -polynomial is determined for the rooted product of paths and cycles.

Keywords: chromatic M -polynomial, χ^- -chromatic M -polynomial, χ^+ -chromatic M -polynomial, rooted product, path, cycle.

MSC 2020: 05C15, 05C31.

1 Introduction

The *chromatic number* of a graph G , denoted by $\chi(G)$, is the cardinality of the minimum set of colors which allows a proper coloring of G . The set of all vertices of G which have the color c_i is called the *color class* of that color c_i in G . The cardinality of the color class of the color c_i , denoted by $\theta(c_i)$, is the *strength* of that color in G . We can define a function $\zeta : V(G) \rightarrow \{1, 2, 3, \dots, \ell\}$ such that $\zeta(v_i) = s$ if and only if $\varphi(v_i) = c_s; c_s \in \mathcal{C}$.

The scheme of coloring the vertices of G , where c_1 is assigned to maximum possible number of vertices, then c_2 is assigned to maximum possible number of remaining uncolored vertices and proceed in this manner until all vertices are colored, is called a χ^- -coloring of G . In a similar manner, if c_ℓ is assigned to maximum possible number of vertices, then $c_{\ell-1}$ is assigned to maximum possible number of remaining uncolored vertices and proceed in this manner until all vertices are colored, then such a coloring is called a χ^+ -coloring of G .

A *topological index* of a graph G is a real number which is preserved or invariant under isomorphism. The chromatic versions of certain topological indices have been introduced in [5]. In this paper, we discuss the chromatic analogue of certain polynomials related to the topological indices of a graph G . For graph coloring and for all terms and definitions, not defined specifically in this paper, we refer to [2]. Unless mentioned otherwise, all graphs considered here are undirected, simple, finite and connected.

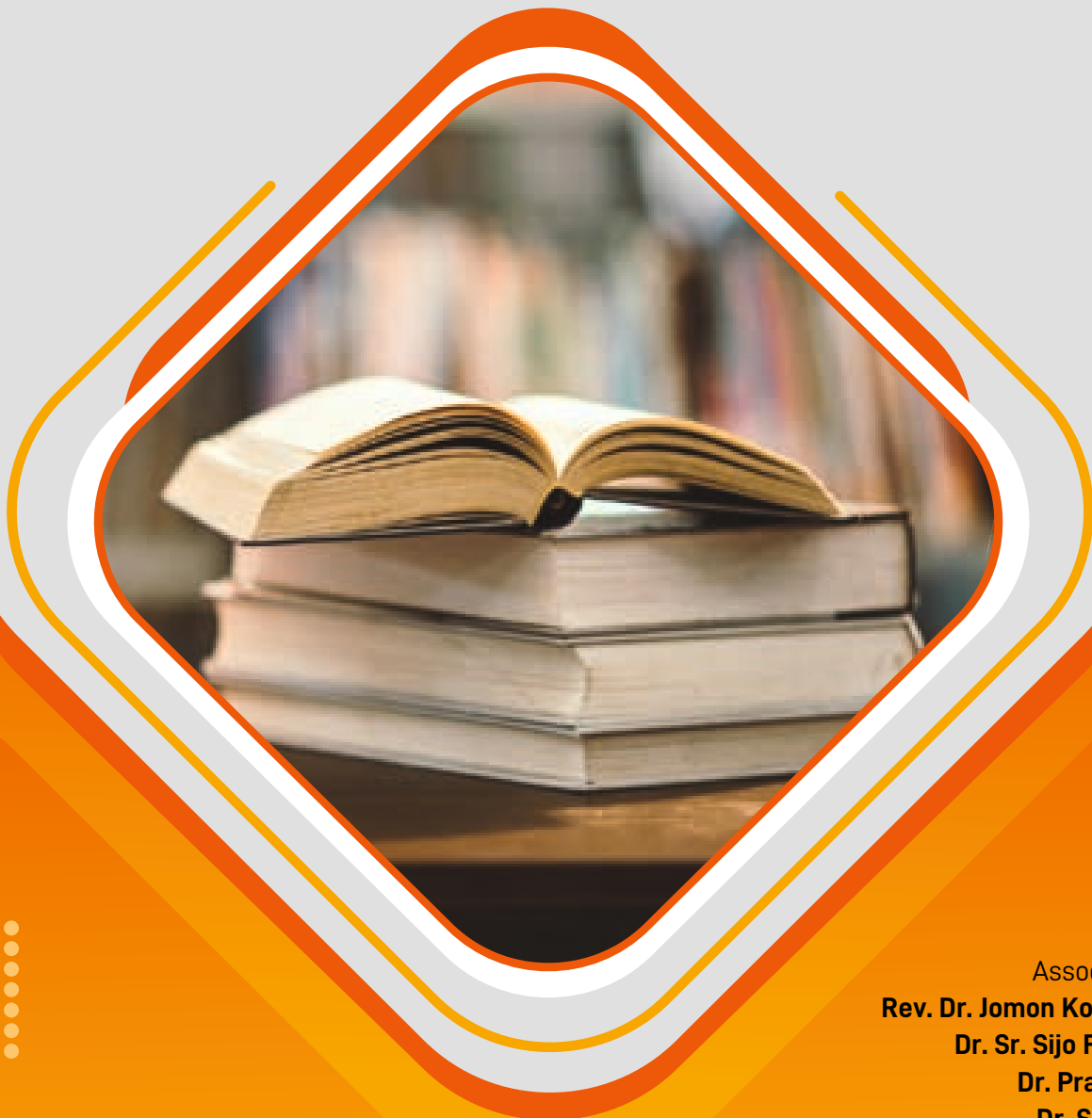
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AGGREGATION AND INTERFACIAL LAYER ASPECTS IN NANOFLUID MODELLING

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ABSTRACT

This chapter discusses two salient features of nanoparticles which often are neglected from nanofluid modelling. Experimental studies have reported that the aggregation of nanoparticles augments the thermo-physical properties of a nanofluid. In the same manner, interfacial layer of nanoparticles also plays a significant role in the thermal aspects of nanofluids. Therefore, this chapter aims at discussing the models pertaining the nanofluid modelling involving these aspects which is useful to researchers for accurate nanofluid modelling.

Keywords:

Nanofluid, nanoparticle aggregation, interfacial layer, thermophysical properties.

1 Introduction

A nanofluid is an engineered colloidal mixture of a base fluid like water (H_2O), ethylene glycol ($C_2H_6O_2$), engine oil, blood, glycerin etc. and nanoparticles like Copper (Cu), Alumina (Al_2O_3), aluminium, titania (TiO_2), magnesium oxide (MgO_2) whose dimension lies between 1-100 nm. The common nanoparticles used in nanofluids are typically made up of metals, oxides, carbides, or carbon nanotubes. Nanofluids are thermal transport fluids which possess better thermo-physical properties like density (ρ), thermal conductivity (k), electrical conductivity (σ_e), specific heat capacity (c_p) and dynamic viscosity (μ) in comparison with the base fluid. The concept of using 1-100 nm sized nanoparticles to enhance heat transport in working liquids was first

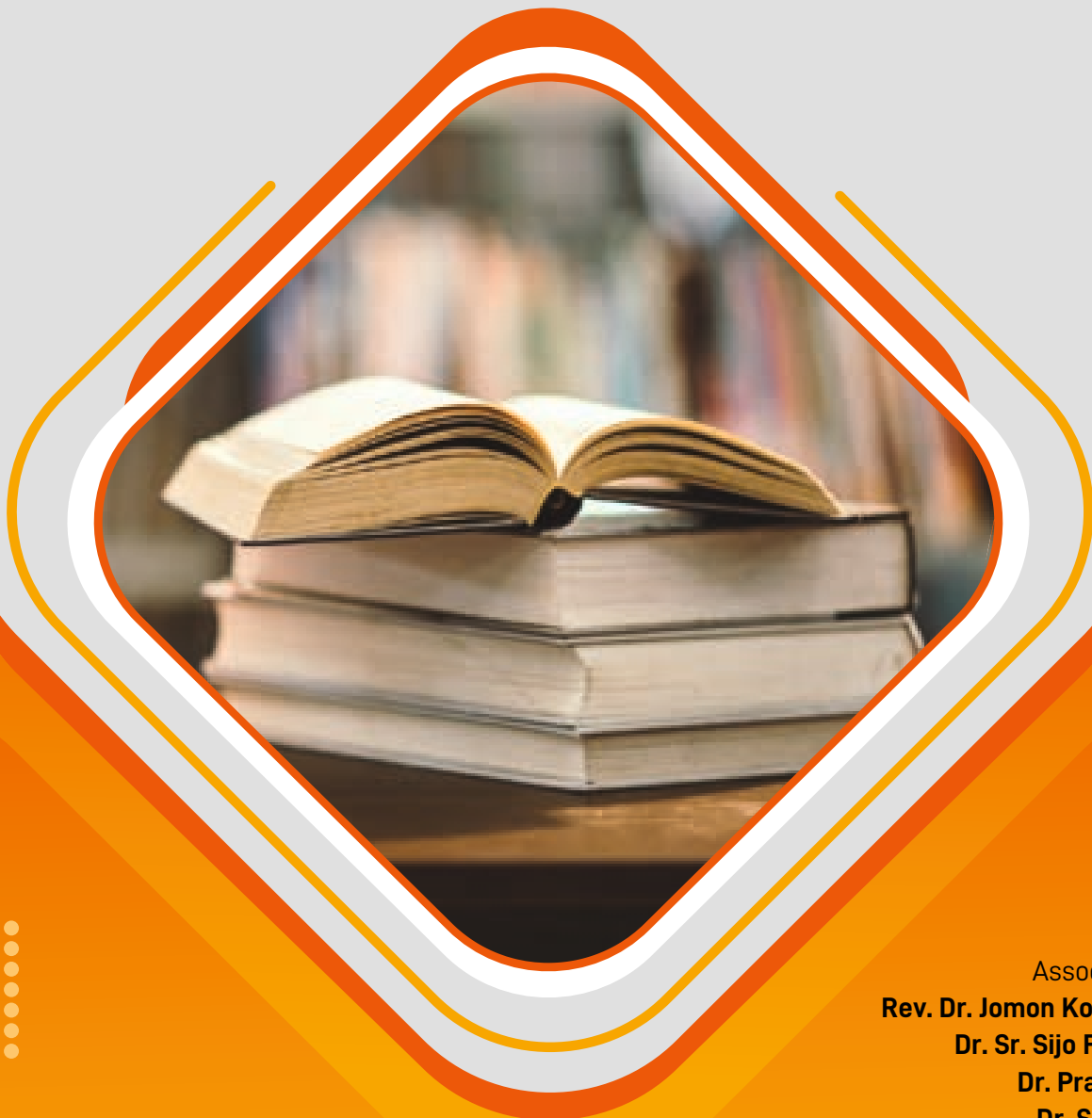
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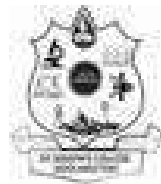
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A DFT STUDY ON THE EFFECT OF ELECTRON DONOR AND ACCEPTOR SUBSTITUTION ON QUINOLINE RING

Anu Varghese, Dr. Rajeev T. Ulahannan

Department of Physics, Pavanatma College, Murickassery, Kerala, India

ABSTRACT

Computational chemistry is a branch of chemistry that uses computer simulations to assist in solving chemical problems. It uses methods of theoretical chemistry, incorporated into efficient computer programs, to calculate the structures and properties of molecules and solids. These are also called molecular modeling, is a set of technique for investigating chemical problems using a computer or application of computational methods and algorithms in chemistry.

In this thesis The geometry optimization of the title compounds were carried out using DFT using B3LYP/SDD. The frontier molecular orbital (FMO) energies of the compounds were calculated by using the DFT/B3LYP/SDD level. The Molecular electrostatic potential of the compound were found. The donor and acceptor substitution effect on the vibrational spectra of the compounds were also studied.

Introduction

Computational studies are used to find a starting point for a laboratory synthesis or to assist in understanding experimental data, such as the position and source of spectroscopic peaks. Branch of chemistry that uses computer simulation to assist in solving chemical problems. Two broad areas within computational chemistry: molecular mechanics and electronic structure theory. Two different aspects of computational chemistry used to find a starting point for a laboratory

synthesis and used to predict possibility of so far entirely unknown molecules. Density functional theory is a quantum-mechanical method used in chemistry and physics to calculate electronic structure of atoms, molecules and solids. In DFT, one doesn't attempt to calculate molecular wave function. Instead one works with the electron probability density.

The ground state energy can be obtained by minimization of the energy functional $E[n]$.

$$E=E[n(r)]$$

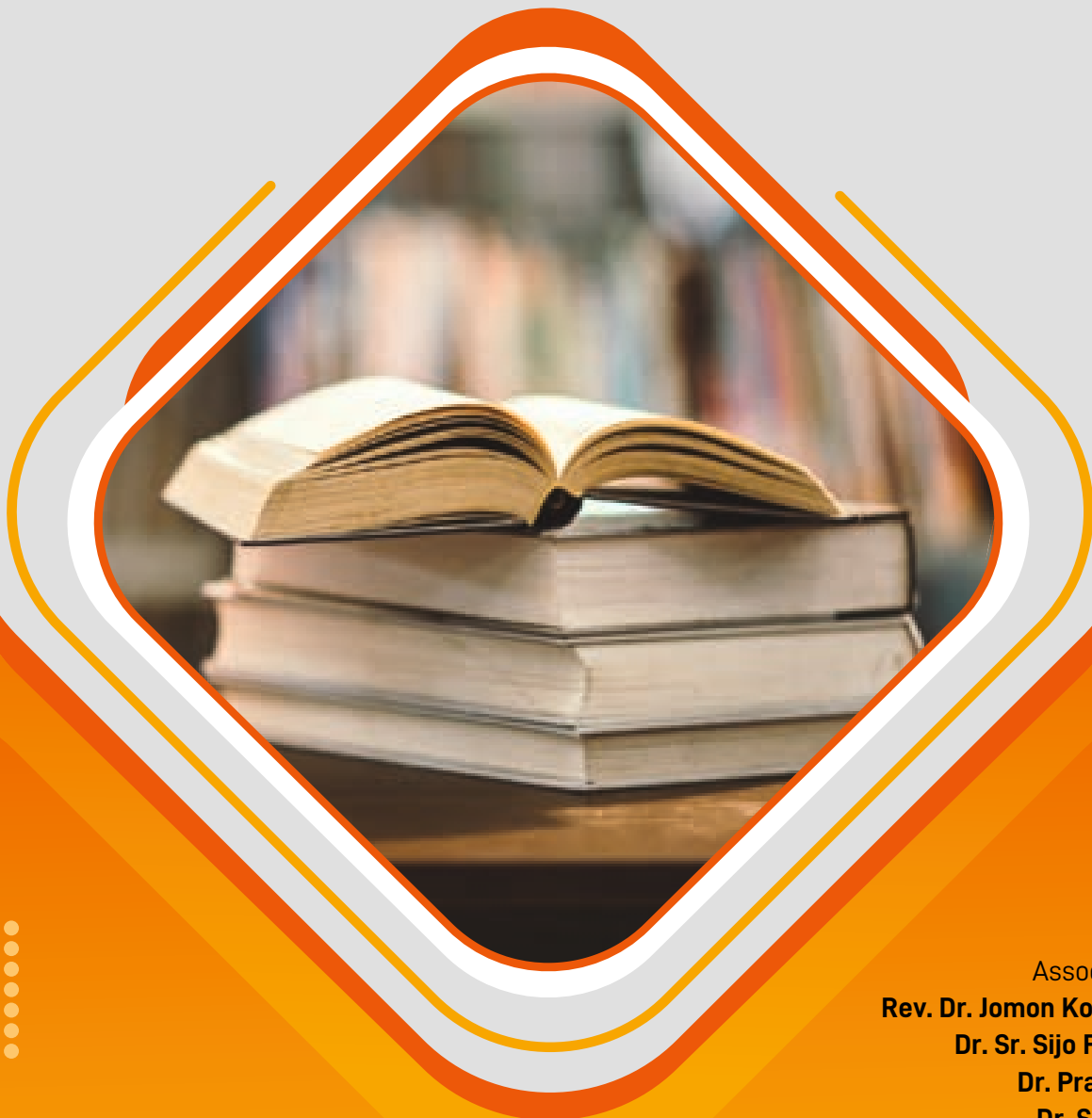
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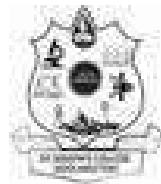
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COEXISTENCE AND COMPETENCE IN THE DEEP WATERS: A DEEP ECOLOGICAL READING OF HERMAN MELVILLE'S *MOBY DICK*

Roby Mathew

Assistant Professor in English

ABSTRACT

The sea is deemed to be a vast space hidden in mysteries with mighty and awe-inspiring aquatic beings and unpredictable inclement weather. The sea was also a historical battlefield where horrendous wars were fought between nations of enmity. Identical with the disastrous wars fought in this watery world, Herman Melville scripted a novel which etched out the saga of a monomaniac captain fighting an unsuccessful battle against a dump brute. This mythical war between Captain Ahab and Moby Dick takes a mythical and historical development of whale hunting by stressing the transition from a deep ecological to shallow ecological standpoint. This paper takes a look into this transition from deep ecological to shallow ecological perspective of marine environment in the popular American nautical fiction Moby Dick

Key words: Deep ecology, shallow ecology, anthropocentric, zoomorphic

About 172 Summers ago Herman Melville, one of the notable American nautical wordsmiths and a Transcendentalist writer who deemed that “A whale ship was my Yale College and my Harward”, sketched an allegory of a monomaniac captain in a whaling ship who takes revenge upon a white whale which in turn devastates the entire crew except the narrator to recount the story. The sea and the creatures in it are the marvelous entities in nautical fiction. While some people marvel the sea as an invincible part of the earth, some people deem it to be a

space to prove their mettle and exploit it for fun or freedom as Alfred Lord Tennyson’s Ulysses deems it to be.

Herman Melville, who predominantly set the locale of his fiction in the sea and in esoteric islands, through Ahab, the monomaniac protagonist in *Moby Dick* gazed at the sea with awe and the master of the deep sea, the white whale with enmity. Ishmael at the very outset reminds the readers of his sea lust as he generalizes, “almost all men in their degree, some time or other, cherish very nearly the same feelings towards the ocean with

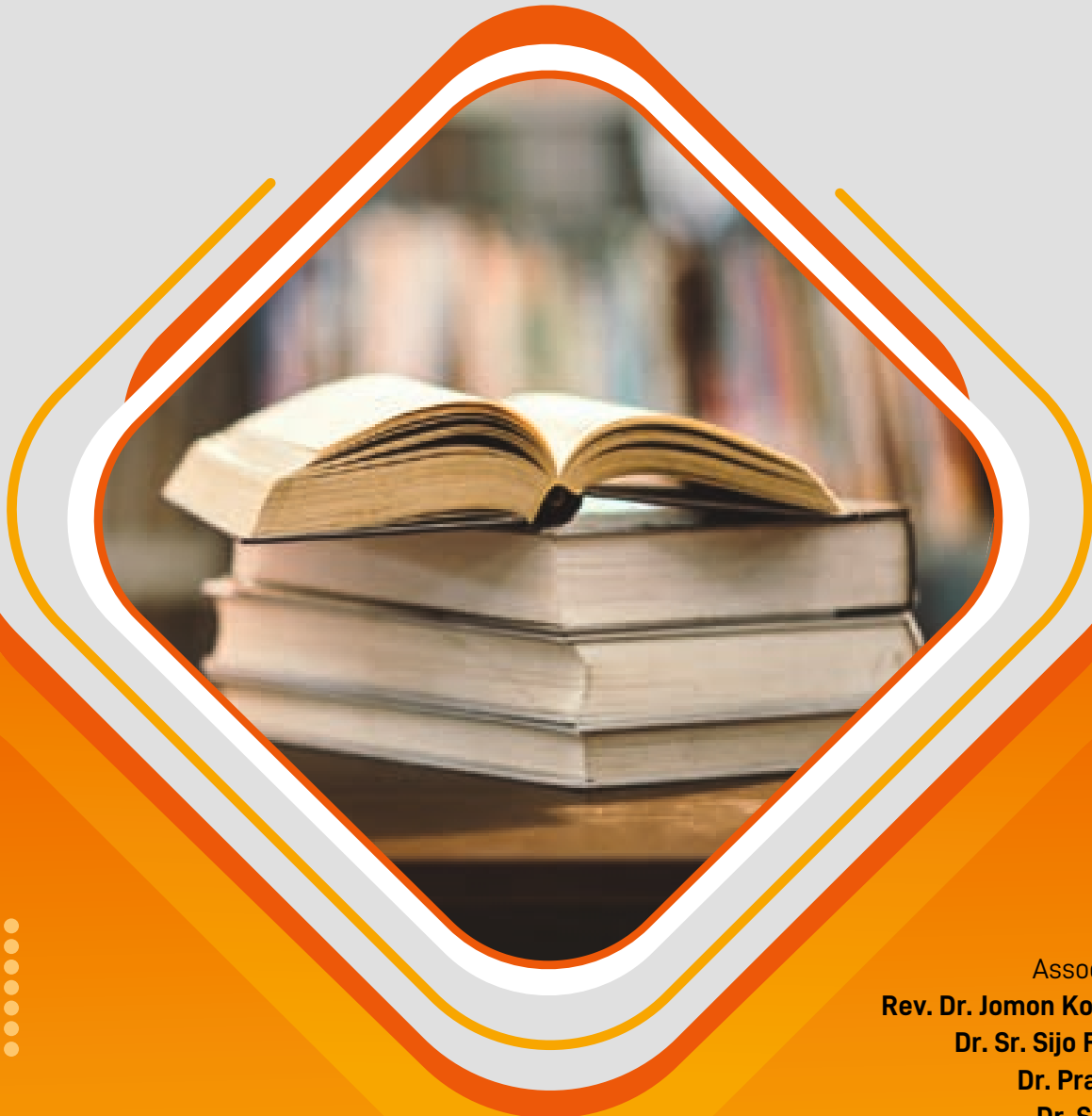
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POST HUMANISM AND SOME CONCERNS: AN INTROSPECTION INTO THE FILM AVATAR

Dr. Salini L.R.

Assistant Professor in English, St. Joseph's College, Moolamattom

ABSTRACT:

*Twenty first century is marked as the post human face. We all are caught up in a technological bubble. The losing **prominence** of man as an autonomous entity has become an everyday scenario. Man has turned out to be highly depended on technology. James Cameroons Avatar serves as one of the best examples of a critic of post humanism. The protagonist of the story Jake uses machine to give his intelligence to another man made creature. He heavily depends on the machine for survival. The machines and artificial intelligence use human beings as tools. They dominate the living forms. In the movie also the protagonist is kept in a machine and the other creature gets life only when Jake is in machine. The moment jake comes out of the machine, that creature remains dead. The movie also shows the unavoidable part machines play in the life of human beings. The intelligence of human beings is the only thing required to machines. Avatar took us to a post human turn of the millenia. The interesting part of the movie is that the post human creature created by the scientists, ultimately turned out to be the terminator. The movie explicitly can be a read as a critic of the post human turn. The sophisticated creation of the scientist eventually destroys the creators and machines associated with them. Human beings are reduced to small existence who always have a questionable existence in the absence of technology. The film demystifies the concept of a powerful, unbeatable human being to a vulnerable being in the absence of machine. The film also looks forward to a possible evolution that can happen to human beings in this era of advancing technology. The changing colors and long hairs of the avatars can be a possible image of a new evolved human form.*

Keywords: Evolution, Machines, Post Human, Artificial intelligence

Critical post humanism vehemently questions the idea of human beings as sovereign souls. They regard human beings as entities depend on other machines for survival. The non human elements play a significant role in com-

pleting the concept of being human. So post humanism is also supposed to bring an evolutionary face of human beings. It actually questions the idea of uniqueness as presented in humanism. Post humanism tries to bring a

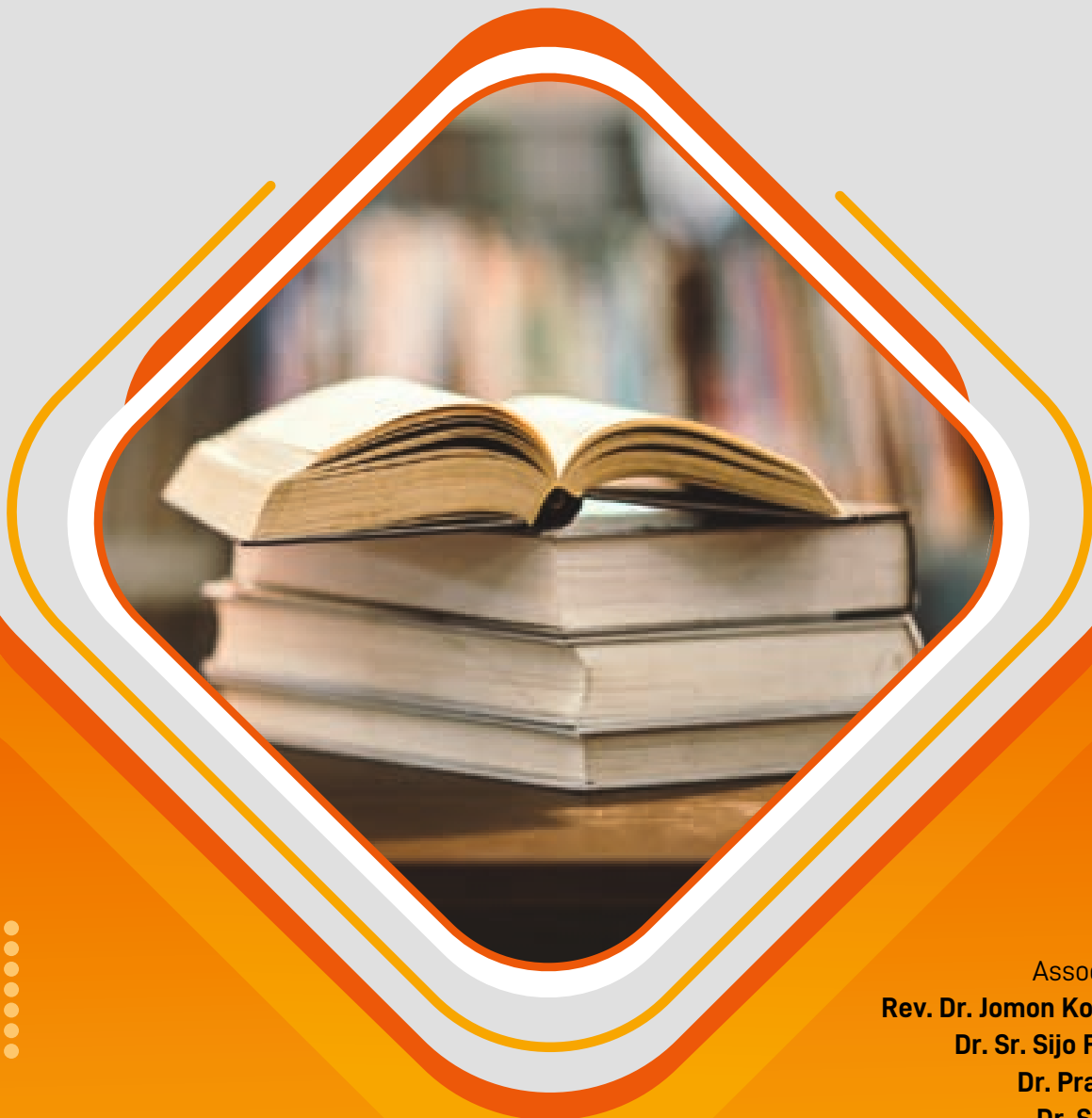
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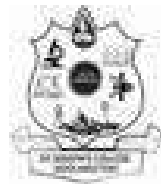
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CYBERDRAMA: THE FUTURE OF POPULAR LITERATURE

Dr. Aparna Prasad

Guest Lecturer Post Graduate Dept. of English
St. Joseph's College, Moolamattom

ABSTRACT:

In this digital age, the story world in digital video games has become the most glorified form of popular literature. The giants of the popular literature market, like Netflix and Amazon, have declared that they will increase their investment in narrative-based video games. Though video games are entirely digital, they create literary spaces shaped by the player's decisions. The study of video games as a major literary form brings more scope to the area of narratology. Today, the very structure of video games can be seen as conscious attempts to mark the change with downloadable content. The gaming industry have its own set of stars who act as marketing icons for video games, similar to those in movies. No other literary form can claim such a politically progressive possibility to experience the same story as the identity we want. In the future, the technology of video games will be modified to look as close as possible to real-world situations instead of animated graphic visuals.

Keywords: Video games, digital age, popular literature, identity, graphic visuals, visual interactive narrative

Video games occupy a similar place in society due to the often-constructed media narratives. The tendency to blame video games comes mostly from literary-intellect circles. This may be why video games are not studied academically for their literariness. But the time has come for video games to be recognized as a literary form. Video games are a form of literature not only because they are used to express stories, but also in light

of the emergence. It is true that narratives can be driven by the decisions of the person playing the video game. But the more sobering fact is that video games, like other forms of literature, are facilitated by communities that read them with interest and sincerity. The study of literary forms in virtual worlds assesses 'literary enjoyment communities' as playing a central role in the popularization of video games.

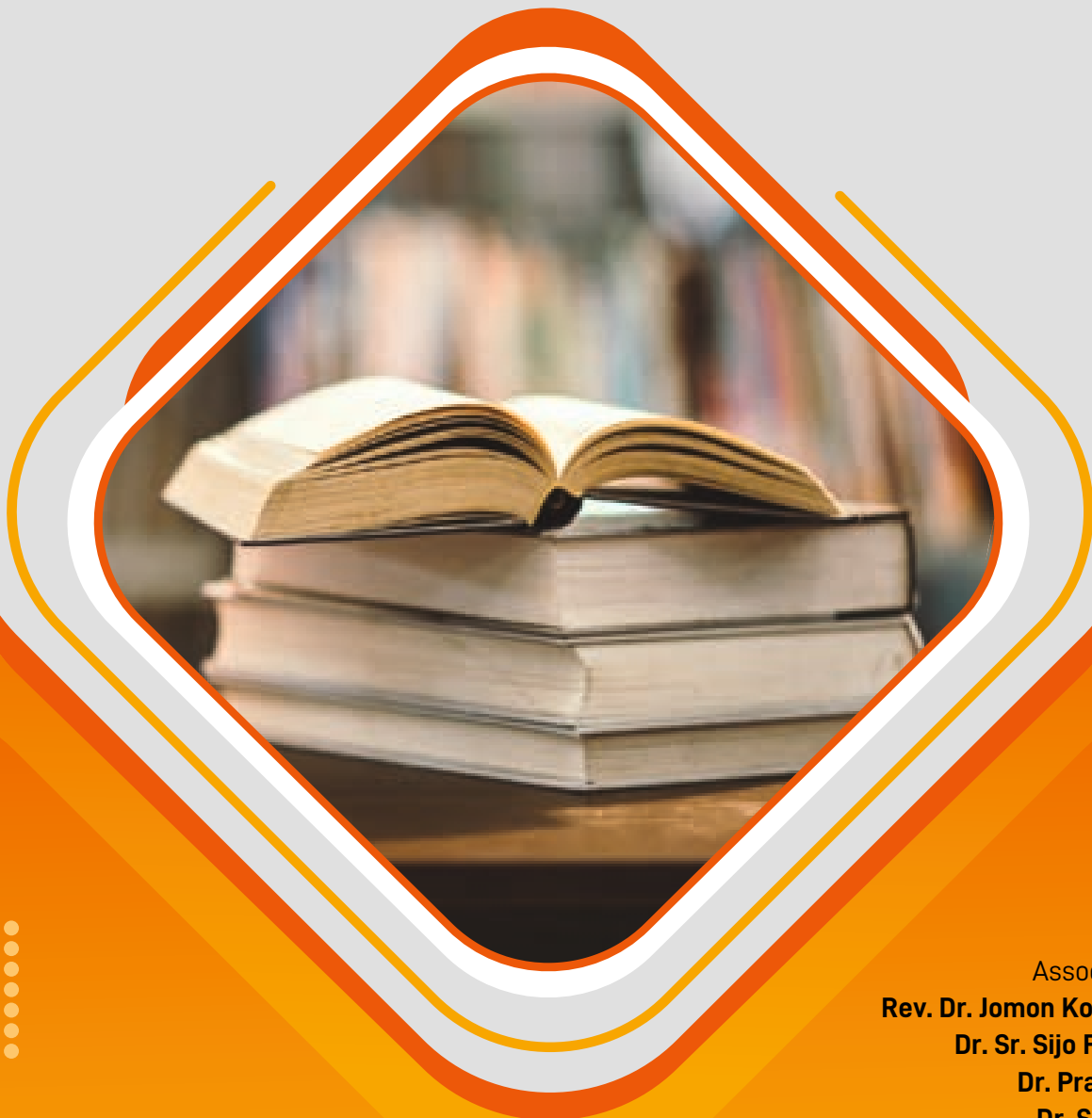
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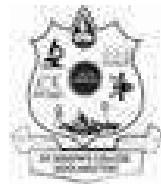
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MECHANISM AND ETIQUETTES IN HANDLING TURNITIN PLAGIARISM SOFTWARE

L. Santhoshkumar

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ABSTRACT:

Research in contemporary times is undergoing a paradigmatic shift, traversing the unexplored territories in the literary paradigms. In the current literary discourses, Research Research undergoes many ramifications, and the outcome is that literature has become interdisciplinary and multidisciplinary. Documentation of facts and also citation plays a vital role in the ResearchResearch. Usage of Plagiarism Software has become the order of the day in all educational institutions and research centres all over the country. Turnitin is a renowned plagiarism Software which has got databases of millions. The academic circle considers the Turnitin Software a threat because it has got more databases, and also, at the same time, this Software checks every document word by word. Every plagiarism software has an interesting mechanism to be followed, and the academic fraternity fails to master that; owing to this, they blame the Software. Turnitin Software has a unique mechanism, and people need help understanding it. This research article, on the whole, talks about the mechanism of Turnitin Software and also makes the academic fraternity understand that Turnitin Software is user-friendly Software and also makes the academic community excel in their research pursuits.

Keywords: Paradigmatic Shift, Literary Paradigms, Plagiarism Software, Mechanism, Databases.

Research in the Heyman world of Post Modernism has become a predominant factor in the academic discourse. Also, at the same time, it strengthens the faculty profile in terms of their professional endeavours. Research Aptitude has become an essential trait in the current academic ambience, and also it showcases the need for research integrity, which

encompasses the uniqueness of a researcher. Terms like Research Gap, Review of Literature, and Scope for Further Research play a predominant role in social science research, and the term 'paradigm' plays a vital role in the social sciences. The term 'paradigm' was coined by Thomas Kuhn. In the initial stage, it was associated with

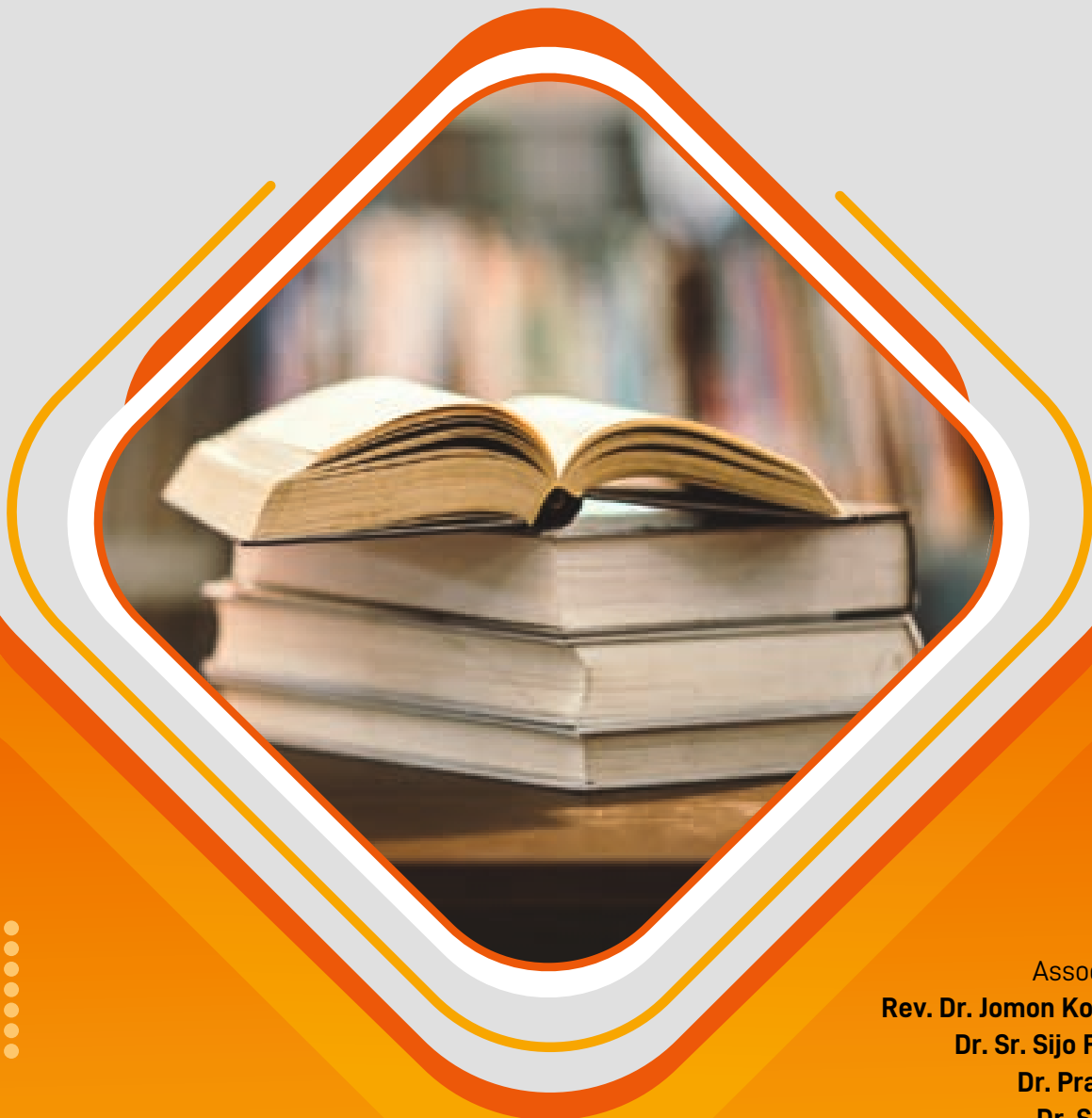
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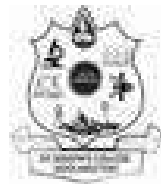
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ശരത് ചന്ദ്രൻ
sarathnjallothu@gmail.com

പ്രബന്ധസംഗ്രഹം

അതാതുകാലത്തെ ജീവിതത്തെ സാഹിത്യം എന്നും അടയാളപ്പെടുത്തിയിട്ടുണ്ട്. നമുക്ക് പരിചിതമല്ലാത്ത ജീവിതങ്ങൾ അല്ലെങ്കിൽ നാം അനുഭവിക്കുന്ന ജീവിതപരിസരത്തിനപ്പുറമുള്ള യാഥാർത്ഥ്യങ്ങളെ സാഹിത്യകൃതികളിലൂടെ കണ്ടെടുക്കാൻ കഴിയുന്നു. ഒരുതരത്തിൽ പറഞ്ഞാൽ വൈവിധ്യമാർന്ന സാമൂഹിക ജീവിതത്തിന്റെ ചരിത്രത്തെ അടയാളപ്പെടുത്തുകയാണ് സാഹിത്യം ചെയ്തുകൊണ്ടിരിക്കുന്നത്. അതിൽ ദേശവും കാലവും ജീവിതവും എന്നു തുടങ്ങി പാരിസ്ഥിതികവും രാഷ്ട്രീയവുമായ വിവിധ തലങ്ങൾ ഉള്ളടങ്ങുന്നു. സാഹിത്യം വായിക്കുക എന്നാൽ മനുഷ്യചരിത്രം വായിക്കുക അല്ലെങ്കിൽ മനുഷ്യരെ വായിക്കുകയാണ്. നോവലുകളിലാണ് വിശാലമായ അർത്ഥത്തിൽ ഇതു കാണാനാവുന്നത് എങ്കിലും, ചെറിയ സംഭവങ്ങളെയും ചുരുക്കം കഥാപാത്രങ്ങളെയും ആധാരമാക്കിയോ ഏതെങ്കിലും വൈകാരികാവസ്ഥയെ അടിസ്ഥാനമാക്കിയോ ചെറുകഥകളും അതാതു കാലഘട്ടങ്ങളിലെ മനുഷ്യജീവിതവും അതിന്റെ പ്രത്യേകതകളും ദേശവും കാലവുമെല്ലാം അടയാളപ്പെടുത്താൻ ശ്രമിക്കുന്നു. പുതുകഥകളിലെ സാമൂഹികജീവിതത്തെയും അതിന്റെ വിവിധ മാനങ്ങളെയും മജീദ് സെയ്ദ് എഴുതിയ 'നായക്കളി', രാഹുൽ മണപ്പാട്ട് എഴുതിയ 'കായൽക്കറ' എന്നീ കഥകളെ മുൻനിർത്തി വിശകലനം ചെയ്യാനാണ് പ്രബന്ധം ശ്രമിക്കുന്നത്.

കീലപദങ്ങൾ: മസ്തിഷ്കജ്ഞാനം, ലിംഗബോധം, സാമൂഹികത.

നായക്കളി: എഴുത്തും ജീവിതവും

വിവരസാങ്കേതികവിദ്യയുടെയും മുതലാളിത്തത്തിന്റെയും ലോകത്തു ജീവിക്കുന്ന 'ആധുനിക മനുഷ്യർ'ക്ക്, ഇന്ന് ഏതൊരറിവിലേക്കും എത്തിച്ചേരാൻ അനായാസം കഴിയുന്നു. ദേശരാഷ്ട്രങ്ങളെയും കാലദേശങ്ങളെയും മറികടന്നുകൊണ്ട് അറിവിന്റെ ലോകം വ്യക്തികൾക്കു ചുറ്റും പടർന്നു

കിടക്കുന്നു. ഇവിടെ അനുഭവങ്ങളും അറിവും തമ്മിലുള്ള ദൂരം വലുതാണ്; അല്ലെങ്കിൽ വലുതായിക്കൊണ്ടിരിക്കുന്നു. സ്വയം ആർജ്ജിച്ചെടുക്കുന്ന അറിവിനേക്കാൾ അറിവിന്റെ ശേഖരത്തെ പ്രയോജനപ്പെടുത്തുന്ന കൂട്ടമാണിന്നുള്ളത്. ഇത്തരത്തിൽ അറിവിന്റെ ശേഖരമുപയോഗിച്ചു ജീവിക്കുന്ന പുതിയ മനുഷ്യർക്ക് തങ്ങൾക്കു

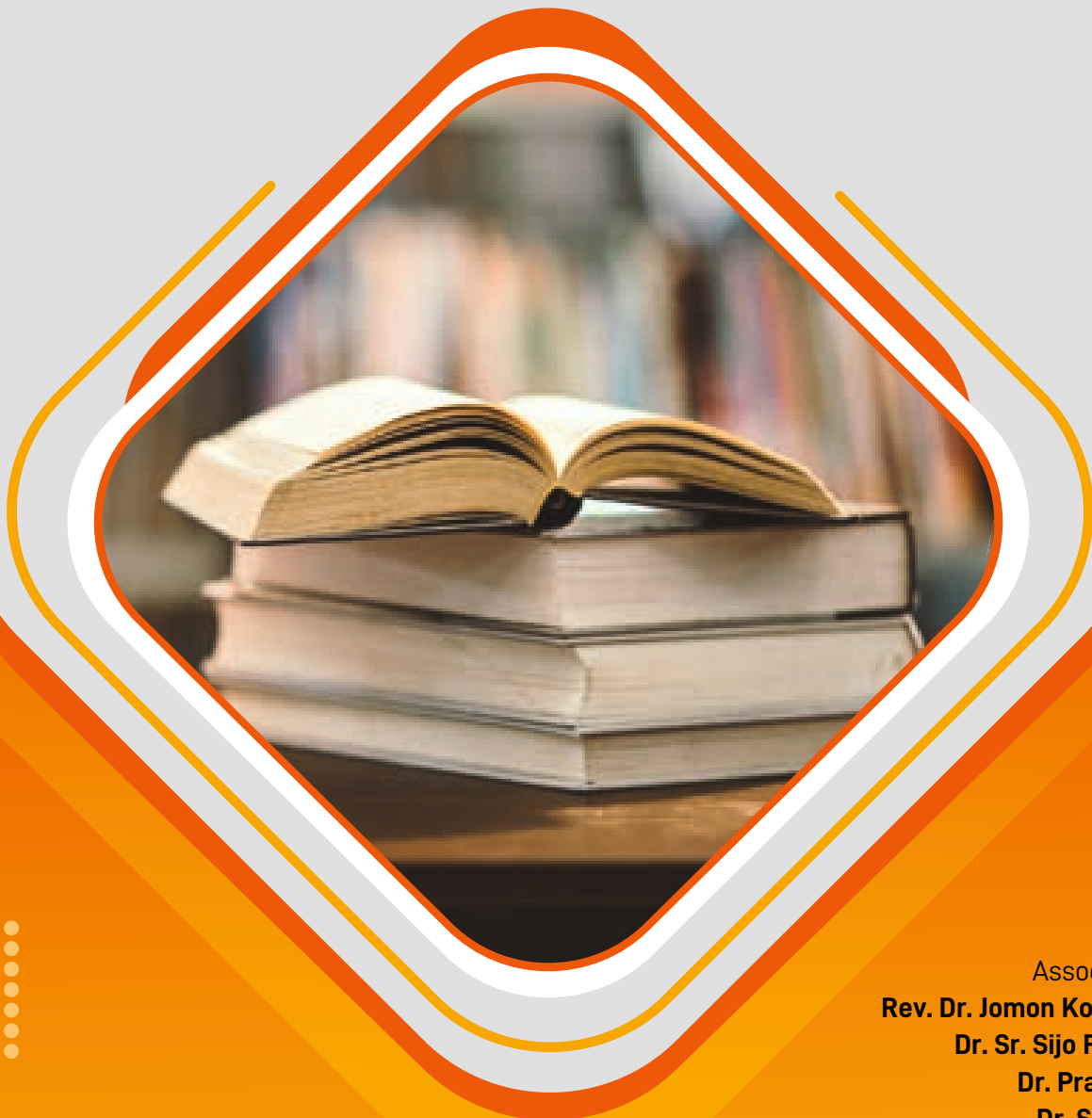
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मन्नू भंडारी की कहानियों में दाम्पत्य

Dr. Shemi John

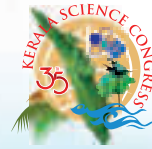
Assistant Professor, St. Thomas College (Autonomous) Thrissur

मन्नू भंडारी स्वातंत्र्योत्तर हिन्दी कथा साहित्य की ख्याति प्राप्त लेखिका हैं। स्वातंत्र्योत्तर कालीन नवीन परिस्थितियों की गहरी छाप उनकी रचनाओं में दृष्टिगोचर है। नये युग की नयी कहानीकारों में मन्नू भंडारी का अपना अलग ही स्थान है। मन्नू जी का अधिकतर लेखन स्त्री के संघर्षों, स्वप्नों, आकांक्षाओं और पुरुषवादी समाज व्यवस्था में स्त्री की स्वतंत्रता की मांग का लेखन है। मन्नू जी की कहानियाँ जीवन से जुड़ी हुई हैं।

आधुनिक भारतीय जीवन की विसंगतियों का चित्रण मन्नू भंडारी की रचनाओं की एक प्रमुख विशेषता है। तेजस्वी विचार, रुढ़िमुक्त साहस और घरेलू आत्मीयता की सहजता ही मन्नू जी की सबसे बड़ी शक्ति है। डॉ. जान आस्थाना के मतानुसार, "मन्नू भंडारी की कहानियों में भारतीय जीवन की स्वाभाविकता के बीच उत्पन्न नये संदर्भों की गहरी पकड़ है। अनुभव की प्रामाणिकता और आज के इन्जान को उसके परिवेश सहित चित्रित करना ही नई कहानी का आग्रह रहा है। इस दृष्टि से विराट जिन्दगी के जीते जगते टुकड़े को लेखनीय तटस्थता का स्पर्श देकर चित्रण करने में मन्नू भंडारी बड़ी ही कुशल हैं।" (1) उनकी कहानियों में पारिवारिक

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can be computed. By using the formalism of Herbatch et al., and Frankel et al., the kinetic energy of long-range alpha particle can be calculated.

Results: The driving potential is calculated for all possible fragment combinations in the alpha accompanied ternary fission of ^{238}U isotope. The relative yield is calculated for the fragment combinations found in the cold reaction valley plot and hence the kinetic energy is calculated using the formalism of Herbatch and Frankel et al.,

Conclusions: The kinetic energy of long-range alpha particle is computed for the fragment combinations with the highest relative yield. The obtained results are found to be in good agreement with the experimental data of ternary fission of various isotopes.

11.35

FABRICATION AND CHARACTERIZATION OF 3D PHOTONIC CRYSTAL OPAL FILMS OF DIFFERENT POLYMER SPHERES: A COMPARATIVE STUDY

Sree Sanker S S¹, Subin Thomas², Dhanya P Jacob³, Savitha Nalini⁴ and K N Madhusoodanan¹

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Background: Photonic crystals (PCs) have gained much attention because of their numerous applications in optical communication, sensing and optoelectronic devices. Due to their low cost, simple fabrication process, and adaptability for modification and functionalization, the colloidal photonic crystals (CPCs) have emerged as the most promising PCs. In the process of making CPCs, the most important task is the synthesis of size-controlled colloidal spheres. We present a comparative study of the fabrication and characterizations of PC opal films made using monodispersed poly(methyl methacrylate) (PMMA), Polystyrene (PS) and poly(styrene-methyl methacrylate-acrylic acid) (Poly(St-MMA-AA)) spheres.

Method: Monodispersed spheres of different polymer materials were synthesized via emulsifier-free emulsion polymerization and soap-seeded emulsion polymerization. The particle sizes have been controlled by varying the synthesis conditions. These polymer spheres were used in the self-assembly method to create 3D opal photonic crystal films. Various characterizations were performed on the fabricated PC opal films to investigate the morphology, mechanical stability and water affinity.

Results: The polymer sphere's size has been successfully controlled by varying the synthesis conditions. FESEM images showed that the synthesized spheres are of high monodispersity and spheres have self-assembled with proper packing to form opal film. The structural colour was evident for all the CPC opal films. Poly(St-MMA-AA) based opal film showed the best mechanical stability, whereas PMMA had the worst. Contact angle images reveal that the PS is hydrophobic, and the other two are hydrophilic.

Conclusions: This work presents a comparative study of the fabrication and characterization of different polymer spheres-based CPCs. Monodispersed polymer spheres of three various polymers have been fabricated, and their sizes have been successfully varied by changing the polymerization conditions. Several characterizations were carried out to investigate the behavior

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Machine Learning Algorithms for Prediction of Mobile Phone Prices



Jinsi Jose , Vinesh Raj, Sweana Vakkayil Seaban, and Deepa V. Jose 

Abstract The drastic growth of technology helps us to reduce the man work in our day-to-day life. Especially mobile technology has a vital role in all areas of our lives today. This work focused on a data-driven method to estimate the price of a new smartphone by utilizing historical data on smartphone pricing, and key feature sets to build a model. Our goal was to forecast the cost of the phone by using a dataset with 21 characteristics related to price prediction. Logistic regression (LR), decision tree (DT), support vector machine (SVM), Naive Bayes algorithm (NB), K-nearest neighbor (KNN) algorithm, XGBoost, and AdaBoost are only a few of the popular machine learning techniques used for the prediction. The support vector machine achieved the highest accuracy (97%) compared to the other four classifiers we tested. K-nearest neighbor's 94% accuracy was close to that of the support vector machine.

Keywords Mobile phone · Phone price prediction · Machine learning · Support vector machine · K-nearest neighbor · Price range

1 Introduction

An electronic gadget that is portable and linked to a cellular network is referred to as a "mobile phone." In 1973, Motorola created the first portable cell phone. According to Cisco Annual Internet Report (2018–2023), over 70% of the global population will have mobile connectivity by 2023. The total number of global mobile subscribers will grow from 5.1 billion (66% of the population) in 2018 to 5.7 billion (71% of the population) by 2023 [1]. Mobile phones are designed to allow people to communicate via phone and email. In addition to making phone calls and sending emails, people

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01. CHEMISTRY

Paper ID: 01.01

MICROWAVE ASSISTED GREEN SYNTHESIS OF LUMINESCENT GRAPHENE QUANTUM DOT-GOLD (GQD-Au) HYBRID NANOMATERIALS FOR ENVIRONMENTAL APPLICATIONSDr. Sr. Sijo Francis¹¹Department of Chemistry, St. Joseph's College, Moolamattom

Abstract: Carbon dots (C-dots) are a new class of carbon nanomaterials having size of less than 10 nm. C-dots have been emerged as a star in field of fundamental and technical importance due to its alluring properties. The building block of carbon dots is made primarily out of carbon, with some doped heteroatoms, creating a nanoparticle that is more biocompatible and less toxic compared with the quantum dots that commonly contain heavy metals. Among the electronic and physicochemical characteristics of CDs, their optical properties and their fluorescence emissions have attracted increasing interest in recent years. CDs are synthesised by two routes, namely the top-down route and the bottom-up route. They can be easily prepared via various economical and environmentally friendly approaches. The analytical performance of the nanoprobe can be improved significantly due to the large surface to volume ratio of the carbon dots. Graphene quantum dots (GQDs) possess excellent optical and electrical properties that can be used in a wide variety of application. GQD-metal hybrid particles represent functional nanomaterials for wide range of applications. Synthesis of hybrid nanoparticles with GQDs have been known to improve the properties further. Here we have described synthetic routes for fabrication of Graphene quantum dots via microwave method. The GQDs were obtained by microwave assisted hydrothermal treatment of aqueous glucose solution for 3 min at 800 W. The resultant sticky yellow paste of GQDs obtained was extracted with stabilizing agent solution prior to addition of aqueous $\text{HAuCl}_4 \cdot 3\text{H}_2\text{O}$ solution. GQD-Au hybrid particles were formed by addition of aqueous $\text{HAuCl}_4 \cdot 3\text{H}_2\text{O}$ solution to the pre-formed GQD solution at room temperature. Extraction of GQD using stabilizing agents leads to particle size reduction of Au and stability of the colloidal solution. This method provided an ultra-fast, more effective, economical, and easier synthesis. The formed carbon quantum dots were characterized by using UV-vis and optical techniques. The synthesized GQDs has excellent spectral, optical, and catalytic properties.

Paper ID: 01.02

BETA- CYCLODEXTRIN BASED SURFACE MODIFICATION OF BISMUTH OXIDE NANOPARTICLESJogy Alex^{1*}, Kanchana U S¹, Thomas V Mathew¹

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Abstract: Recently, the metal oxide nanoparticles have interesting and large variety of applications in various fields. Even though they have very good physical and chemical properties, the main problem in using such nanoparticles is their high agglomeration behavior. Therefore, it's a must to modify the surface of these nanoparticles, in order to make them apt for a specific use. Thus, the surface modification of nanoparticles is of great importance since this methodology offers excellent stability and compatibility to the whole system. In the present study, we describe a new route to the surface modification of bismuth oxide nanoparticles (Bi_2O_3 NPs) using beta-Cyclodextrin ($\beta\text{-CD}$), a biocompatible system. Bi_2O_3 nanoparticles were synthesized using bismuth nitrate pentahydrate and sodium hypophosphite in the presence of polyvinyl alcohol and conc. HNO_3 . The formation of the expected product was confirmed through different characterization techniques and finally, the Bi_2O_3

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Predicting Alzheimer Disease via Classification and Regression Methods

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Abstract

Alzheimer's is a syndrome characterized by deterioration in thought processing, affecting brain activities and social abilities. It affects memory, thinking, learning capacity, and judgment. A project aims to classify individuals as demented, nondemented, or converted using historical data. Data mining techniques using Python and the tool Orange are employed to determine classification. The project consists of visualization, pre-processing, model building, and evaluation and selection. The dataset is obtained and Orange tool for tasks.

Keywords—Alzheimer's disease, random forest, Classification, preprocessing, prediction, data mining techniques.

Introduction Alzheimer's disease, or dementia, is a severe syndrome affecting memory, thinking, and social abilities. It can result from brain injuries, diseases, and medications. It is a major cause of disability and dependency in older people, impacting their families and caregivers economically, socially, and physically. The project aims to design a model to identify if a person is demented, nondemented, or converted based on various attributes. The data used is from the Alzheimer's features dataset, which predicts a person's dementia, nondementia, or converted based on factors such as mental health examination, socio-economic status, age, years of education, and brain volume. The model uses preprocessing techniques to make predictions easier. Out of 10 variables, two are categorical and eight are numeric.

Data Preprocessing

Missing Value Replacement

Missing data imputation is a process that replaces missing values in a dataset. It is not ideal for large datasets or small ones, as it can reduce the size and affect prediction. Instead, it uses appropriate statistical measures like mean, median, or mode to retain available data. In this project, a 0.4% missing dataset was preprocessed to impute missing values, replacing numerical attributes with their mean and categorical variables with their most frequent value.

Relevant Feature Selection

Identifying important attributes and transforming or creating new attributes is crucial for real-world model development. Adding redundant features reduces model performance and complexity. Feature selection is a key step in machine learning model creation, aiming to find the best set of features for high performance.

Converting Categorical Variables to Numerical Values

Machine learning methods require numerical values for all inputs and outputs, so we need to convert the categorical variables to numerical values. So here assign certain numbers for each category.

Removing Categories

We are removing converted category from the target column because we want to predict whether a person is demented or nondemented. So we don't need the converted category.

Splitting Data

Here, we divide the data into train and test data in the ratio 80:20 for accurate analysis. Here, out of 373 data, we took 299 rows as training data making the remaining data ie.74 rows as test data.

Regression

This project employs four regressors namely Decision Tree Regression, Linear Regression, SVR and Random Forest Regressor

Decision Tree Regression

Decision tree is a supervised learning technique which builds regression or classification models in the form of a tree structure. It breaks down a dataset into smaller and smaller subsets. At the same time a decision tree is developed. The final result is a tree with decision nodes and leaf nodes. The selection of attribute used at each split is found by calculating the entropy or information gain. We chose the attribute which gives the maximum information gain.

```
MAE: 0.009009009009009009
MSE: 0.009009009009009009
RMSE: 0.0949157995752499
```

Figure1: Decision Tree Model Evaluation Parameter

Linear Regression

Inorder to predict the value of a variable based on the value of another variable we use linear regression method. The dependent variable is the variable you want to predict. The independent variable is the variable you are using to predict the other variable's value

```
MAE: 0.2012783603231393
MSE: 0.057298567680201425
RMSE: 0.23937119225212006
```

Figure2: Linear Regression Model Evaluation Parameter

Random Forest Regression

Random Forest is a machine learning algorithm that belongs to the supervised learning technique. It can be used for both Classification and Regression problems in Machine Learning. It is based on the concept of ensemble learning. It is a process of combining multiple classifiers to solve a complex problem and to improve the performance of the model.

```
MAE: 0.01160836002670368
MSE: 0.008537370018221352
RMSE: 0.09239788968489135
```

Figure 3: Random Forest Model Evaluation Parameter

Support Vector Regressor (SVR)

Support Vector Regression (SVR) uses the same principle as SVM, but it is used for regression problems. It is a supervised ML algorithm used for classify different classes as well as predict continuous values using regression.

MAE: 0.42351101942582114
 MSE: 0.3322216509690953
 RMSE: 0.5763867199798198

Figure4: SVR Model Evaluation Parameter

RESULT

In here the dataset contains 373 instances and 10 attributes. To this dataset missing value imputation was performed. Then using information gain we find relevant features and avoided unnecessary features. Classification and regression algorithms were applied. It involved building 4 different classification algorithms and 4 regression algorithms evaluating their performances. These algorithms include; KNN, Naïve Bayes, SVM, Random Forest, Linear Regression, Decision Tree and SVR.

Performance values of all the implemented models.

Model	AUC	CA	FL	Precision	Recall
Naïve Bayes	0.9574	0.8919	0.8919	0.8524	0.8519
Random Forest	0.9893	0.9595	0.9532	0.9612	0.9595
SVM	0.9691	0.9189	0.8801	0.8445	0.9189
Tree	0.8658	0.8784	0.8819	0.8884	0.8784

Figure5: Comparison of Classification Evaluation Matrix

Model	MAE	MSE	RMSE
Linear Regression	0.2013	0.0573	0.2394
Decision Tree Regressor	0.0091	0.0093	0.0949
Random Forest Regressor	0.0116	0.0085	0.0924
SVR	0.4235	0.3323	0.5764

Figure6: Comparison Regression Evaluation Matrix Visualization of the result

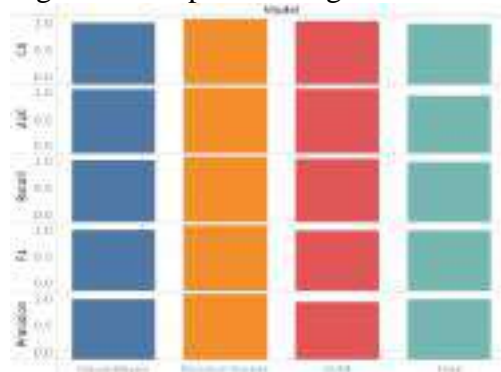


Figure7: Classification

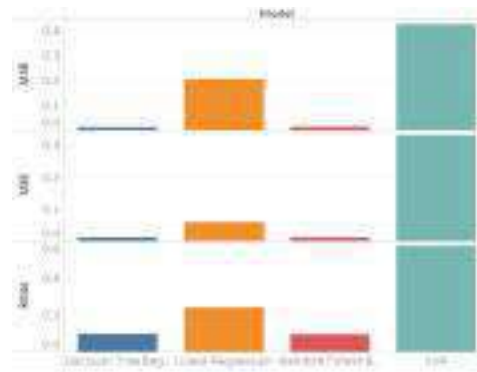


Figure8:Regression

As observed from the values it clearly shows that Random Forest gives the highest accuracy 95%, Recall and precision values and lowest mean absolute error, mean squared error and root mean squared error compared to the other models .So we chose Random Forest as our final model.

Conclusion

This paper build a model to predict if a person is affected by dementia or not. Here predictions have been made to check whether a person is demented, nondemented or converted. In this paper, a comparison has been made between four machine learning algorithms. Naïve Bayes results were found to be better compared to the other classification algorithms. The model showed better performance with selected relevent features compared to using all the available

features. This system can help in identifying dementia affected patients and thereby speeding up the treatment process.

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JOSEPHINE RESEARCHER VI

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Corporate Social Responsibility of Banks

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Abstract

Banks play a huge role in our everyday lives and, like other big businesses, influence many areas of society. Financial institutions do not just store your money for your convenience. They put it to work to make themselves money by investing it and lending it out. The investments and loans that banks give out can have big impacts on society, both positive and negative. That's where corporate social responsibility comes into play in the financial sector.

Keywords: Corporate Social Responsibility, Financial Sector, Banking Industry

Introduction

Corporate social responsibility, or CSR, is a term that can be applied to organizations in just about any industry. It is a type of self-regulation in which businesses hold themselves accountable for their corporate actions and try to make a positive impact on society as a whole. There is no single way that organizations can practice social responsibility. It is also important to recognize that some companies take CSR very seriously and it is incorporated throughout the practices of the business while others do the bare minimum for marketing or PR purposes. CSR can also mean not supporting industries and initiatives that have a negative impact on society, such as the big oil and tobacco industries.

Corporate Social Responsibility in the Banking Industry

Big banks have historically not had very good corporate governance in terms of social responsibility. Financial institutions like JPMorgan Chase, Citigroup, Wells Fargo, and Bank of America have time and time again funded fossil fuel expansion over green projects and have directly supported companies contributing to the increasing wealth gap and social inequities. In fact, the world's 60 largest banks invested more than \$3.8 trillion in fossil fuel projects in the 5 years since the Paris Climate Accords on climate change was signed by global governments in 2015 (with Chase investing the most of any bank).

What this means is that, when you deposit your funds into any of these traditional banks, they are using your money to invest in and lend to companies that do not have a positive environmental or social impact. That being said, not all financial institutions are irresponsible. There are increasing numbers of independent banks and credit unions that are taking their corporate social responsibility seriously and implementing business practices that have a positive impact on society, especially on local communities and the environment.

Corporate Social Responsibility VS Socially Responsible Banking

As we mentioned a little earlier, corporate social responsibility is a term that can refer to businesses with socially responsible business practices in a wide variety of industries. Financial companies practicing socially responsible banking activities are often referred to as socially responsible banks or socially conscious banks. So, the term socially responsible banking is just a specific way to talk about CSR as it pertains to financial institutions. A socially responsible bank or other financial institution attempts to manage its banking activities with integrity and holds itself accountable to stakeholders when it comes to issues like sustainability, environmental performance, and other ethical concerns.

Types of Corporate Responsibility that Banks Can Practice

There are lots of CSR practices that banks can implement, from going paperless and issuing eco-friendly debit cards, to investing in non-profit organizations that are fighting climate change and making a difference in local communities. The 4 main types of CSR activities banks can practice are:

- a) **Environmental CSR practices:** Socially responsible banks can demonstrate environmental CSR by being as environmentally friendly as possible in all aspects of their business. This is one of the biggest ways that non-traditional banks are implementing CSR practices today. Banks can start being more environmentally friendly by reducing waste in their everyday operations. This means doing things like reducing the amount of paper wasted (i.e., offering paperless statements and bills), not using single-use plastic or other wasteful goods in their offices, and operating energy-efficient facilities.
- b) **Ethical CSR:** Ethical CSR means the incorporation of ethical labor practices and the equal treatment of all stakeholders, from leadership and employees, to customers and investors. For example, a bank practicing this type of CSR might decide to offer wages significantly higher than the minimum wage to all its employees, especially if it operates in different regions with different labor and wage laws. By doing this, the financial institution ensures that all of its employees are making a liveable wage, rather than just scraping by with the minimum.
- c) **Philanthropic CSR activities:** A financial business can practice philanthropic CSR by donating to charitable causes or nonprofits and giving back to communities in other meaningful ways that make society better for everyone. For example, a bank might practice philanthropy by supporting community partners working to improve affordable housing. Or, they might offer free financial advice to educational institutions, individuals or nonprofit companies.
- d) **Economic CSR:** The final type of corporate social responsibility on this list is economic CSR. This basically means that all of a bank's financial decisions must support its commitment to positively impact society.

How does better Corporate Social Responsibility Benefit both Banks and Customers?

Besides the importance of generating positive social impacts, socially conscious corporate governance in banks also provides benefits for the business and its customers. In marketing for beginners, CSR can be very powerful. A banking business that commits to being socially responsible will have a much better brand image for certain types of people who themselves hold strong convictions when it comes to issues like the environment, sustainability, and fair business practices.

What this translates to, is loyal, lifelong customers. As long as a bank keeps up its good corporate governance and continues to improve its social responsibility, customers who share similar views of what's important for society to improve will continue to sign up and stay. This is a win-win situation because the bank gets access to funds that they can invest in socially responsible projects, and customers know that their funds are being used in ways that would make them proud. This creates a mutually beneficial partnership between banks and their customers. It's easy to claim corporate social responsibility with offering little back it up, so it's important to be careful when selecting a bank if CSR is what you're looking.

How Can Banks Prove Corporate Social Responsibility to their Customers?

Any business committed to CSR also has a responsibility to be transparent about their business practices and measure how successful their CSR efforts are. In order to do this, the business should look for key performance indicators (KPIs) to use for regular CSR reporting. For example, a bank committed to reducing its carbon footprint and having a positive environmental impact should measure things like how much the company is reducing energy waste and other types of waste in their facilities. Or, a bank committed to philanthropic CSR should measure things like how much money it donates to charitable causes like low-income housing, or how many hours of free financial advice it has donated to increase financial literacy in the local community. These types of KPIs can be compiled into annual, bi-annual, or quarterly CSR reports that get distributed to all the bank's customers and other stakeholders.

Conclusion

It might sound strange, but corporate social responsibility isn't just the responsibility of corporations. If you care about social issues, it is up to you to do business with companies that are committed to improving their corporate social responsibility. Without customers activity exerting their preferences towards social and environmental options, companies will not have incentives to shift away from environmentally and socially harmful business practices. By taking actions like switching to a green bank, you're taking away money from big banks like Chase that are supporting fossil fuel extraction and other practices that harm our planet.

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Awareness and Utilization of Internet-Based Banking Services

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Abstract

In this era of global competition, the Banking sector has emerged as a vital service industry. The level of adoption of e-banking services varies across different regions and populations, and there is a need to understand the factors that influence the adoption of e-banking services. This study has been conducted to analyze the awareness and utilization of internet-based banking services. For this, a structured questionnaire has been framed and has been surveyed. Data collected on the basis of convenient sampling The study indicates that there is a significant awareness and preference for internet-based banking services, particularly mobile banking.

Introduction

However, the level of adoption of e-banking services varies across different regions and populations, and there is a need to understand the factors that influence the adoption of e-banking services. This topic aims to explore the development of e-banking services and their impact on the financial sector. The study will be conducted using a mixed-methods research approach, combining quantitative and qualitative methods to collect and analyze data. The study's findings will provide insights into the development of e-banking services and their impact on the financial sector, which will be useful for banks and policymakers looking to promote financial inclusion and improve access to financial services.

Statement of the Problem

The PDS is a rationing mechanism that entitles households to specify selected commodity at subsidized price. Eligible households are given a ration card that entitles them to buy fixed rations or selected commodities. Supplies through PDS nationally are rice, wheat, sugar, edible oil, kerosene, and coal Additional commodities like pulses, salt, and tea are supplied selectively. The commodities are made available through a network of fair-priced shops. To certain extent, PDS helps to bridge the gap between have and have not. It is an attempt to study the effectiveness of functioning of PDS after the implementation of the E-POS machine. The introduction of E-POS machine in Ration Shop to avoid malpractices in getting the commodities at the prescribed price.

Objectives of the Study

- To assess the level of awareness among the population of Thodupuzha taluk regarding internet-based banking services
- To determine the level of utilization of internet-based banking services by the population of Thodupuzha taluk

Sources of Data

Primary data are those that are collected from a fresh source for the first time and thus happen to be original in character. The primary data for the study has been collected from 90 people residing in the Thodupuzha area through structured questionnaire.

Sampling Plan

The sample size used for the study is 90. A convenient sampling method has been adopted for the study.

Theoretical Framework

Information technology development has revolutionized the way of doing business by creating a virtual marketplace around the globe through the internet. Internet is not only used for sharing information but is increasingly used as a distribution channel, advertising channel, and a flexible, user-friendly mode for payments. Servicing through the technology-based channel is more cost-effective than traditional branch banking for banking industry. Hence, Indian banking industry is heavily investing in technology-based channels, and these channels are expected to be utilized by customers for their day-to-day activities like fund transfers, bill payment, ticket booking, shopping, and mobile recharge.

Data Analysis and Interpretation

Table showing the awareness of internet-based banking

Particulars	No. of respondents	Percentage
Mobile Banking	70	78
Internet Banking	15	17
Others	5	5
Total	90	100

Interpretation: Among 90 samples, 78% of respondents are aware of mobile banking, 17% are aware of internet banking, and 5% are aware of others.

Table showing how often people use internet-based banking in one month.

Particulars	No. of respondents	Percentage
5-10 times	18	20
10-15 times	20	22
15-20 times	15	17
More than 20 times	37	41
Total	90	100

Interpretation: The above table reveals how often people use internet-based banking in one month. Among the 90 samples, 41% of respondents have used it more than 20 times, 22% have used it 10–15 times, 20% of respondents have used it 10 times, and 17% of respondents have used it 15–20 times.

Findings

- Most of the respondents are aware of mobile banking services. Usually, they prefer mobile banking, and they are also regular users of internet banking. □
- The majority of respondents prefer UPI platform for internet-based banking. Because they lack awareness about other platforms. □
- The majority of respondents used e-banking for recharge, and only few people are using e-banking for fund transfers and bill payments. □

Suggestions

Based on the findings drawn from the study, the following suggestions will make the operation of ration shop more effective and successful:

- Provide comprehensive training programs, video tutorials, and step-by-step guides to help users navigate the platform efficiently. □

- Improve security and educate users about security features and precautions to build trust and confidence.□
- Provide awareness about other internet banking platforms available to provide them with more options.□

Conclusion

However, this preference seems to be driven by a lack of awareness about alternative platforms rather than an informed choice. While the majority of respondents use e-banking for recharges, there is a need to promote other services, such as fund transfers and bill payments, to provide users with a more comprehensive banking experience. Comprehensive training programs, tutorials, and guides should be provided to empower users and help them navigate the platforms effectively. Finally, accessibility is an essential consideration for a significant portion of respondents. Internet banking platforms should be designed to be inclusive, catering to the needs of all users, including those with disabilities.

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The Transformative Teaching of Swami Vivekananda

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Abstract:

Through his teachings, Swami Vivekananda, a well-known Indian philosopher and spiritual figure who was instrumental in introducing the Vedic and Yoga ideas to the West, left a lasting impression. Self-realization, universalism, and devotion to humanity were key components of his ideology. This article examines Swami Vivekananda's profound teachings, their applicability in the contemporary world, and their transformational influence on people and society.

Introduction

Swami Vivekananda, also known by his birth name Narendranath Datta, was Sri Ramakrishna Paramahansa's most important follower. Millions of people all throughout the world are still being inspired by his timeless teachings. The three pillars of Swami Vivekananda's philosophy are service to humanity, universalism, and self-realization. This article delves into the transformative teachings of Swami Vivekananda, their pertinence in the contemporary world, and their profound impact on individuals and society.

It is essential to comprehend the backdrop of Swami Vivekananda's life in order to appreciate the breadth of his teachings. He was raised in a pious Bengali family and had an early interest in spirituality and academic endeavors. His encounter with Sri Ramakrishna Paramahansa in 1881 was a turning point in his life that led him along the road of spirituality. Narendranath Datta changed into Swami Vivekananda when Sri Ramakrishna passed away, serving as a traveling monk and a representative of Indian spirituality abroad. The Vedanta school of thought is essential to Swami Vivekananda's teachings. Indian philosophy's Vedanta school clarifies the essential oneness of all things. It asserts that every individual soul (Atman) is a manifestation of the ultimate truth, Brahman, which is one and indivisible.

In Vivekananda's interpretation of Vedanta, the emphasis is placed on the process of realizing one's actual nature as divine and overcoming ego-based restrictions. His teachings are founded on this idea, which encourages personal development, self-awareness, and the quest for spiritual enlightenment. The teachings of Swami Vivekananda emphasize the inherent divinity present in every person. He encourages self-discovery and self-actualization by giving people the tools they need to reach their inner potential. Those looking for personal and spiritual development might relate to his message of self-assurance, inner strength, and unrelenting pursuit of one's goals. People can change their lives, develop resilience, and discover their true purpose by internalizing Vivekananda's teachings. For those aiming for excellence, his admonition to "Arise, awake, and stop not until the goal is reached" serves as a motto.

Universalism and Interfaith Harmony

His support of universalism and interfaith cooperation is among Swami Vivekananda's most important accomplishments. He held that all religions include a portion of heavenly knowledge and that all religious paths ultimately lead to the same reality. The teachings of Vivekananda encourage communication, comprehension, and respect between individuals of many faiths, establishing a sense of the universal community and common spiritual principles. Vivekananda's message of harmony and tolerance is still very important in a society riven by religious conflict and division. His teachings encourage followers to look past differences in religion and embrace the fundamental similarity that unites all people.

Service to Humanity and Social Responsibility

Swami Vivekananda highlighted that true spirituality ought to result in altruistic behavior and empathy for others. Numerous people and organizations have been motivated to participate in charitable and humanitarian activity by his call to "Serve man as God." He thought that helping the less poor was both a moral duty and a path to spiritual enlightenment. The Ramakrishna Mission and other institutions devoted to alleviating human suffering are examples of how Vivekananda's teachings on serving humanity are put into practice. His worldview exhorts people to actively engage in social advancement and advance the welfare of society.

Impact on Modern Education

Swami Vivekananda acknowledged the ability of education to transform. He held that education should include character development and the growth of ethical principles in addition to academic knowledge. His understanding of education as a whole is consistent with current debates over the value of a well-rounded education. Education institutions are still influenced by Vivekananda's teachings, which help to create a climate that encourages not just intellectual progress but also moral and spiritual growth. His advice to kids is to pursue knowledge with a purpose and a dedication to helping others.

Relevance of Swami Vivekananda's Teachings Today

In the contemporary world, Swami Vivekananda's lessons are still applicable. His worldview offers a timeless manual for living a meaningful and fulfilled life in a time of uncertainty, stress, and spiritual hunger. People searching for meaning, inner serenity, and a connection with something more than themselves might relate to his emphasis on self-realization, universalism, and service to humanity. We are aware of the teachings of Swami Vivekananda's ability to transform lives, promote harmony, and motivate social change as we consider their lasting influence. His vision of a society in which people recognize their divine essence, value variety, and serve humanity is a powerful source of motivation for creating a more peaceful and better world.

Conclusion

The teachings of Swami Vivekananda serve as a guiding light in a world that is sometimes shrouded by ambiguity and disagreement. His Vedanta-based philosophy places a strong emphasis on self-realization, universalism, and service to others. Swami Vivekananda continues to inspire people to go on a journey of self-discovery, accept the diversity of religious traditions, and dedicate themselves to the benefit of society through his ageless wisdom. As we examine Swami Vivekananda's revolutionary teachings, we discover that their influence has lasted well beyond his era. They continue to be a source of inspiration for people looking for meaning, purpose, and unity in a constantly evolving world, proving the timeless value of this spiritual giant's profound insight.

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Awareness and Utilization of Internet-Based Banking Services

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Abstract

In this era of global competition, the Banking sector has emerged as a vital service industry. The level of adoption of e-banking services varies across different regions and populations, and there is a need to understand the factors that influence the adoption of e-banking services. This study has been conducted to analyze the awareness and utilization of internet-based banking services. For this, a structured questionnaire has been framed and has been surveyed. Data collected on the basis of convenient sampling The study indicates that there is a significant awareness and preference for internet-based banking services, particularly mobile banking.

Introduction

However, the level of adoption of e-banking services varies across different regions and populations, and there is a need to understand the factors that influence the adoption of e-banking services. This topic aims to explore the development of e-banking services and their impact on the financial sector. The study will be conducted using a mixed-methods research approach, combining quantitative and qualitative methods to collect and analyze data. The study's findings will provide insights into the development of e-banking services and their impact on the financial sector, which will be useful for banks and policymakers looking to promote financial inclusion and improve access to financial services.

Statement of the Problem

The PDS is a rationing mechanism that entitles households to specify selected commodity at subsidized price. Eligible households are given a ration card that entitles them to buy fixed rations or selected commodities. Supplies through PDS nationally are rice, wheat, sugar, edible oil, kerosene, and coal Additional commodities like pulses, salt, and tea are supplied selectively. The commodities are made available through a network of fair-priced shops. To certain extent, PDS helps to bridge the gap between have and have not. It is an attempt to study the effectiveness of functioning of PDS after the implementation of the E-POS machine. The introduction of E-POS machine in Ration Shop to avoid malpractices in getting the commodities at the prescribed price.

Objectives of the Study

- To assess the level of awareness among the population of Thodupuzha taluk regarding internet-based banking services
- To determine the level of utilization of internet-based banking services by the population of Thodupuzha taluk

Sources of Data

Primary data are those that are collected from a fresh source for the first time and thus happen to be original in character. The primary data for the study has been collected from 90 people residing in the Thodupuzha area through structured questionnaire.

Sampling Plan

The sample size used for the study is 90. A convenient sampling method has been adopted for the study.

Theoretical Framework

Information technology development has revolutionized the way of doing business by creating a virtual marketplace around the globe through the internet. Internet is not only used for sharing information but is increasingly used as a distribution channel, advertising channel, and a flexible, user-friendly mode for payments. Servicing through the technology-based channel is more cost-effective than traditional branch banking for banking industry. Hence, Indian banking industry is heavily investing in technology-based channels, and these channels are expected to be utilized by customers for their day-to-day activities like fund transfers, bill payment, ticket booking, shopping, and mobile recharge.

Data Analysis and Interpretation

Table showing the awareness of internet-based banking

Particulars	No. of respondents	Percentage
Mobile Banking	70	78
Internet Banking	15	17
Others	5	5
Total	90	100

Interpretation: Among 90 samples, 78% of respondents are aware of mobile banking, 17% are aware of internet banking, and 5% are aware of others.

Table showing how often people use internet-based banking in one month.

Particulars	No. of respondents	Percentage
5-10 times	18	20
10-15 times	20	22
15-20 times	15	17
More than 20 times	37	41
Total	90	100

Interpretation: The above table reveals how often people use internet-based banking in one month. Among the 90 samples, 41% of respondents have used it more than 20 times, 22% have used it 10–15 times, 20% of respondents have used it 10 times, and 17% of respondents have used it 15–20 times.

Findings

- Most of the respondents are aware of mobile banking services. Usually, they prefer mobile banking, and they are also regular users of internet banking. □
- The majority of respondents prefer UPI platform for internet-based banking. Because they lack awareness about other platforms. □
- The majority of respondents used e-banking for recharge, and only few people are using e-banking for fund transfers and bill payments. □

Suggestions

Based on the findings drawn from the study, the following suggestions will make the operation of ration shop more effective and successful:

- Provide comprehensive training programs, video tutorials, and step-by-step guides to help users navigate the platform efficiently. □

- Improve security and educate users about security features and precautions to build trust and confidence.□
- Provide awareness about other internet banking platforms available to provide them with more options.□

Conclusion

However, this preference seems to be driven by a lack of awareness about alternative platforms rather than an informed choice. While the majority of respondents use e-banking for recharges, there is a need to promote other services, such as fund transfers and bill payments, to provide users with a more comprehensive banking experience. Comprehensive training programs, tutorials, and guides should be provided to empower users and help them navigate the platforms effectively. Finally, accessibility is an essential consideration for a significant portion of respondents. Internet banking platforms should be designed to be inclusive, catering to the needs of all users, including those with disabilities.

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JOSEPHINE RESEARCHER VI

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Customer Satisfaction and Services of SBI Bank

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Abstract

The study entitled "Customer Satisfaction and Services in SBI Bank" was undertaken to analyze the satisfaction of customers in SBI Bank. The study was based on primary data collected through a survey with a structured questionnaire from 50 customers. Percentages and indices were used for analyzing survey results, and the study are as follows.

Introduction

Customer satisfaction simply means a measurement that determines how happy customers are with a company's products, services, and capabilities. It includes surveys and ratings, and a company can determine how to improve or change its products and services. A study on customer satisfaction helps the bank know how satisfied customers are with their services and also helps in making corrective measures if needed.

Statement of the Problem

The level of expectation differs from person to person, but everyone wants the bank to provide services that can satisfy their needs up to their expected level or to a higher level so as to offer them higher satisfaction. The level of satisfaction of customers is affected by some other attributes also other than the quality of service, such as their experience with the bank employees, etc. The study is being conducted to analyse the satisfaction of customers in SBI bank

Objectives of the Study

- To identify the financial transaction with SBI Bank
- To identify the attitude of customers towards interest rates provided by SBI Bank for gold loans.

Source of data

Primary data will be collected through a structured questionnaire and secondary data will come from website and publications

Sampling Plan

A sample is drawn from an accessible population. The convenience sampling method is used for the selection of sample units based on the relative ease of access. The sample size is 50. The data was collected by administering a structured questionnaire among customers of SBI.

Theoretical Framework

The Indian Banking companies Act 1949 defines Banking as "the acceptance for the purpose of leading or investing a deposit of money from the public repayable on demand or otherwise and the withdrawal by cheque, draft, order or otherwise."

John Mathai was the first chairman of SBI. The State Bank of India is the country's largest public sector bank.

SBI Bank History

The roots of the State Bank of India lie in the 19th century, when the Bank of Calcutta (later renamed the Bank of Bengal) was established on June 2, 1806. The Bank of Bengal was one of three Presidency banks, the other two being the Bank of Bombay and the Bank of Madras. These three Presidency banks were incorporated as joint-stock companies. They had the exclusive right to issue paper currency until 1861, when the right was taken over by the

Government of India. The three Presidency banks amalgamated on January 27, 1921 and were named Imperial

Bank of India. The Imperial Bank of India remained a joint-stock company without government participation. All in all, the SBI was formed after the merger of approximately twenty banks.

Data Analysis and Interpretation

The satisfaction of customers at SBI is tested using questionnaires. It's analyzed on the basis of the following factors.

SATISFACTION OF INTEREST RATE PROVIDED FOR GOLD LOANS IN SBI BANK

SL.NO	OPINIONS	NO OF RESPONSES	PERCENTAGE
1	Highly Satisfied	6	12%
2	Moderately Satisfied	32	64%
3	Somewhat Satisfied	10	20%
4	Not Satisfied	2	4%
	Total	50	100%

Interpretation:

From the above graph, it is clear that 76 percent of people are satisfied with the gold loan interest rate.

SATISFACTION OF FINANCIAL TRANSACTION WITH SBI BANK

Sl. No	Opinions	No of responses	Percentage
1	Highly Satisfied	14	28%
2	Moderately Satisfied	30	60%
3	Somewhat Satisfied	6	12%
4	Dissatisfied	0	0%
	Total	50	100%

Interpretation:

From the above graph, it is clear that 28 percent of people are highly satisfied with financial transactions with SBI Bank 0 percent of the people are moderately satisfied, 12 percent are somewhat satisfied, and none of them are dissatisfied with financial transactions with SBI Bank.

Findings

- There are majority of customers who are satisfied with interest rate on gold loans at SBI.
- Out of 50 respondents, 88% are satisfied in financial transaction with SBI

- Out of 14 respondents, 28% of people highly depend on SBI for regular transactions.

Suggestions

- Conduct customer awareness and training program in order to make them aware of Yono app, internet, mobile banking, etc.
- Make necessary steps to attract customers to take long term loans.
- SBI should increase a small percentage of interest rate on savings deposits in order to satisfy more customers.

Conclusion

For the smooth running of any enterprise, customer satisfaction plays an important role. We also try to find customers at SBI Bank. The customer is satisfied with the overall service of SBI Bank. The performance of SBI loans, ATMs, and other financial transactions is satisfied by customers. Services of SBI like debit card, credit cards, internet banking, and mobile banking are available in India, says Dr. Venkatesh s. Katke

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Satisfaction with Online Food Delivery Applications among Customers

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Abstract

In our day-to-day busy lives, we won't be able to cook food daily, and the tiredness after a busy day couldn't make us reach a good restaurant. In these situations, food delivery applications will help us by serving our favorite food from our favorite restaurants as per our needs on our doorstep. This study has been conducted to analyze the satisfaction level of customers with online food ordering, with special reference to Thodupuzha Taluk. This structured questionnaire has been framed and has been surveyed. Data collected through convenient sampling. It is clear from the study that the majority of the respondents are satisfied with online food delivery.

Introduction

Online food delivery actually refers to the process whereby food that was ordered online is prepared and delivered to the consumer. As per this system, the customer visits the restaurant's app or website, browses through the various food items, combos, and cuisines available there and those ahead, and selects and purchases the items he or she needs. These items will then be delivered to the customer at his or her doorstep at the time they choose by a delivery person.

Statement of the Problem

Online food delivery applications will help us by serving our favorite food from our favorite restaurants as per our needs on our doorstep. This study, entitled "A STUDY ON THE CUSTOMER SATISFACTION OF FOOD DELIVERY APPLICATIONS WITH SPECIAL REFERENCE TO THODUPUZHA TALUK," is being conducted to evaluate the satisfaction of consumers towards online food delivery applications.

Objectives

- To know the satisfaction level of customers with online food delivery applications.
- To analyze the problems faced by customers while using the food delivery apps.

Sources of Data

Primary data is collected from customers leaving Thodupuzha Taluk through structural questionnaires, and secondary data is collected from various sources like books, journals, newspapers, and the internet.

Sampling Plan

The population of the study consists of customers of online food delivery applications. The sample size used for the study is 60. Convenient sampling has been used for the study.

Theoretical Framework

Online food ordering is a process that delivers food or takeout from home chefs, local restaurants, and other food cooperatives through a mobile application or a website. Customers prefer using the food ordering app over ordering food online. The customer can generate an order without having to explain it to another human being and have the food delivered to his doorstep.

Advantages of Food Delivery

1. It gives customers more freedom and choice to place an order virtually at anytime and

- anywhere.
2. Convenience.
 3. Saving the time and resources spent on traveling to pick up the meal.
 4. Avoid the annoying experience of waiting in a long line.
 5. Various payment options
 6. You do not have to cook
 7. Easy clean-up
 8. It attracts more customers.

Disadvantages

1. Disguised Increased Expense
2. Juggling With Your Health
3. Compromise With the Food Quality
4. Food may get cold

Online Food Delivery Sites

1. Zomato, 2.UberEats, 3.FoodPanda, 4.Swiggy, 5.Grubhub, 6.Deliveroo, 7. Domino's Pizza,
8. Just Eat Takeaway, 9.DoorDash, 10.Postmates

Data Analysis and Interpretation

Table showing customer satisfaction with online food delivery applications

Satisfaction level	Number of students	Percentage
Highly satisfied	22	37
Satisfied	24	40
Neutral	6	10
Dissatisfied	8	13
Highly dissatisfied	0	0

Interpretation

Out of total respondents, the majority (37%) were satisfied with online food delivery applications. 37% of respondents are highly satisfied, 10% have a neutral opinion, and 13% are dissatisfied with that.

Table showing the major problems faced by the customers

Satisfaction level	Number of students	Percentage
Delay delivery	14	23.33
Misbehavior of deliverymen	9	15
Receiving wrong orders	11	18
Network and payment issues	20	33.33
Receiving stale food	6	10

Interpretation

Out of total respondents, 33.33% agreed that network and payment issues are the major problems faced during online food ordering. 23.33% of them face delayed delivery, 18% face receiving wrong orders, 15% face the misbehavior of delivery men, and 10% of them mainly face receiving stale food.

Findings

- Even if there are many problems faced during online food ordering, majority of respondents

(40%) are satisfied with the online food delivery applications.

- Network and payment issues are the main problems faced during online food ordering.

Suggestions

- Network issues might be minimized for the proper functioning of delivery apps.
- Food delivery services may reach every small village, but they should cover a wider range of areas.
- The delivery person might make sure that the quality and quantity of the food ordered and the address to be delivered are correct.

Conclusion

As the customers' needs and wants for the services are increasing, coupled with changing mindsets that encourage customers to go shopping online, it is the responsibility of the online food delivery apps to cater to these customers satisfaction through service quality assurance. As per the study, most of the customers are satisfied with online food ordering. Delay delivery, misbehavior of deliverymen receiving wrong orders, network and payment issues, and receiving stale food are the main problems faced during online food delivery.

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Effect of Labor Welfare Measures on Employee Morale

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Abstract

The study “Effect of Labor Welfare Measures on Employee Morale” has shed light on the welfare measures provided to employees. The study covers the whole district, with the objective of analyzing the various welfare measures given and the level of satisfaction among the employees with the welfare schemes provided. In this study, an attempt has been made to study the opinion and level of satisfaction of employees regarding the various welfare measures. The survey helped in evaluating the various welfare schemes in the organization and suggesting improvements to the existing labor welfare measures.

Introduction

Labor welfare is an important dimension of industrial relations, which includes overall welfare facilities designed to care for the well-being of employees and increase their living standards. Welfare includes anything that is done for the comfort and improvement of employees and is provided over and above their wages. Welfare helps in keeping the morale and motivation of the employees high to retain them for a longer duration. Employee welfare includes monitoring working conditions and creating industrial harmony through infrastructure for health, industrial relations, and insurance against disease, accidents, and unemployment for the workers and their families.

Statement of the Problem

Labor welfare occupies a place of significance in industrial development and the economy. It is an important facet of industrial relations—the extra dimension—giving satisfaction to the worker in a way that even a good wage cannot. The thesis, entitled “The Effect of Welfare Measures on Employee Morale, analyses the various welfare measures existing in companies and the satisfaction level of employees towards them.

Objectives of the Study

1. To understand various welfare measures adopted by companies.
2. To find out the level of satisfaction of employees on various welfare measures given by firms

Sources of Data

The primary data were collected through a well-structured questionnaire.

The secondary data used in the study were collected from books, journals, magazines, articles, websites, and other publications.

Sampling Technique

Convenient sampling methods were used for the study. The sample size selected for the study was 60. There are various statistical tools that are used in analyzing data. Such tools are percentage, diagrams, charts, tables, etc.

Theoretical Framework

The present study is an attempt to identify the employee welfare schemes and employee morale adopted in various firms in Idukki district. Employees spend at least half of their time at work, getting to it, or leaving it. People are entitled to be treated as full human beings with personal needs, hopes, and anxieties. In the words of **Arthur James Todd** Labour, “welfare means

anything done for the comfort and improvement, intellectual or social, of the employees over and above the wages paid, which is not a necessity of the industry.”

Data Analysis and Interpretation

Welfare measures existing in company

Facility	Available	Unavailable	Total
First Aid Appliances	40	20	60
Lighting & Ventilation	50	10	60
Rest room	49	11	60
Accommodation	35	25	60
Transportation Facility	30	30	60
Medical Facility	37	23	60
Canteen Facility	38	22	60
Provident Fund	41	19	60
Bonus	45	15	60
Shift	25	35	60

Source: Primary Data

Interpretation: First aid appliances are available to 40 respondents, lighting facilities are available to 50 respondents, restrooms are available to 49 respondents, education facilities for their children are available to 24 respondents, accommodation facilities are available to 35 respondents, transportation facilities are available to 30 respondents, medical facilities are available to 37 respondents, canteen facilities are available to 38 respondents, provident funds are available to 41 respondents, bonuses are available to 45 respondents, and shift facilities are available to 25 respondents.

Level of Satisfaction

Facility	Satisfied	Dissatisfied	Total
First Aid Appliances	50	10	60
Lighting & Ventilation	40	20	60
Rest room	45	15	60
Education Facility for Children	25	35	60
Accommodation	47	13	60
Transportation Facility	32	28	60
Medical Facility	35	25	60
Canteen Facility	39	21	60
Provident Fund	43	17	60
Bonus	46	14	60

Source: Primary Data

Interpretation: out of the 60 respondents, 50 employees are satisfied with first aid appliances, 40 respondents are okay with lighting and ventilation, 45 respondents are satisfied with rest room facility, 25 employees are happy with the education facility available for their children, majority of people are satisfied with the accommodation, like 47 respondents, transportation facility is satisfactory to 32 employees, 35 people are satisfied with the medical facility, 39 respondents and 43 respondents are satisfied with the canteen facility and provident fund

accordingly and 46 employees are satisfied with the bonus system available to them

Findings

- There are various welfare measures available in every company
- A large majority of respondents agree that welfare measures create efficiency towards work
- The majority of the respondents are satisfied with the welfare measures available for them, except for the option of providing educational facilities to their children

Suggestions

- Management can encourage social group activities by the workers. This will help to develop greater group cohesiveness, which can be used by the management to improve quality of labor welfare measures.
- The management can give more awareness about various incentive measures to workers.
- The management can encourage the workers to give suitable suggestions for improving work efficiency, and they must be rewarded for the best suggestions.

Conclusion

Labor welfare includes various services, benefits, and facilities that are offered to employees. Through such generous fringe benefits, employers seek to make life worth living for employees. The welfare amenities are extended in addition to normal wages and other economic rewards available to employees as per the legal provisions. Thus, labor welfare covers all the efforts that employers make for the benefit of their employees over and above the minimum standards of working conditions fixed by the legislation.

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JOSEPHINE RESEARCHER VI

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Effectiveness of Public Distribution System after Implementation of E-POS Machine

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Abstract

E-POS machine is a revolutionary step by government in the field. This study has been conducted to analyze the effectiveness of public distribution system after implementation of E-POS machine. For this, a structured questionnaire has been framed and has been surveyed. Data were collected on the basis of convenient sampling. The study reveals that the implementation of E-POS machine has a great impact on the PDS.

Introduction

The Public Distribution System is a government-sponsored chain of shops entrusted with the work of distributing basic food and non-food commodities to the needy sections of society at affordable prices. PDS is an Indian food security system. Established by the government of India under the ministry of consumer affairs, food, and public distribution. PDS is operated under the joint responsibility of the Central and state governments. The Central Government, through Food Corporation of India (FCI), has assumed the responsibility for procurement, storage, transportation, and bulk allocation of food grains to the State Governments.

Statement of the Problem

The PDS is a rationing mechanism that entitles households to specify selected commodity at subsidized price. Eligible households are given a ration card that entitles them to buy fixed rations or selected commodities. To certain extent, PDS helps to bridge the gap between have and have not. It is an attempt to study the effectiveness of functioning of PDS after the implementation of the E-POS machine. The introduction of E-POS machine in Ration Shop to avoid malpractices in getting the commodities at prescribed price.

Objectives of the Study

- To examine whether the E-POS system helps to reduce malpractice in PDS.
- To analyze how public Distribution System helps reduce price hikes.

Sources of Data

The primary data used for the study were obtained from the public. It was collected by means of a questionnaire. The secondary data was collected from websites, brochures, and reference texts.

Sampling Plan

The sample size used for the study is 40. A convenient sampling method has been adopted for the study.

Theoretical Framework

PDS is primarily a social welfare and antipoverty program of the Government of India. Essential commodities like rice, wheat, sugar, kerosene, etc. are supplied to the people under the PDS at subsidized prices. It has been one of the most important elements in India's safety system for almost a year and the most far-reaching in terms of coverage as well as public expenditure on subsidies. The System serves three objectives: protecting the poor, enhancing nutritional status, and generating a moderating influence on market prices. Thus, the main objectives of the PDS can be summarized as follows:

Data Analysis and Interpretation

TABLE OUTLINING HOW AN E-POS MACHINE CAN AVOID MALPRACTICES

Basis	No. of respondents	Percentage
Yes	63	74
No	22	26
total	85	100

Interpretation:

Table 1 shows that majority of the respondents (74%) have the opinion that E-POS machines help to avoid malpractice, and remaining (26%) do not agree with this statement. The following graph reveals clear data.

E-POS MACHINE HELP TO REDUCE PRICE HIKES

basis	No. of respondents	Percentage
Yes	67	79
No	18	21
Total	85	100

Interpretation:

The table reveals that 79% of respondents have the opinion that E-POS machines help to reduce price hikes, and remaining 21% do not agree with this statement. The following graph gives a clear image of it.

Findings

- Respondents have the opinion that E-POS machines help reduce price hikes.
- The E-POS-POShine helps reduce poverty through the effective distribution of rations to the common people. It can reduce malpractices in the field of rationing.
- Only a few of the respondents are dissatisfied with PDS through the E-POS system.

Suggestions

Based on the findings drawn from the study, the following suggestions will make the operation of ration shop more effective and successful:

- The technical problems with the machine need to be solved.
- It is better to reduce malpractice in PDS by conducting proper auditing and supervision.
- Improve areas like proper supply and more quality and quantity of commodities.

Conclusion

In the study entitled "A study on the effectiveness of public distribution system after implementation of E-POS machine with special reference to Thodupuzha thaluk," it can be concluded that most of the respondents residing in Thodupuzha taluk are Satisfied with the Implementation of E-POS machine in Ration Shop. After the Implementation of E-POS system, it ensures proper supply of items as prescribed by the government, reduces malpractice

like adulteration and reselling, and also helps to reduce price hikes. So, government should take necessary actions to increase the quantity of food items given through ration shops and also ensure the quality of food grain supplied to customers. The strong intervention from the government to ensure adequate supply for every poor person in society helps to eradicate poverty by attaining food security. Also, E-POS machine in ration shops helps in transparent working of ration shops.

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Farmers Perceptions towards Agricultural Loans

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Abstract

Agricultural credit has increased consistently over the years. This study has been conducted to analyze the perceptions of farmers towards agricultural loans, with special reference to Thodupuzha Taluk. This structured questionnaire has been framed and has been surveyed. Data collected through convenient sampling. And it is understood from the study that the majority of the respondents consider agricultural loans helpful to them.

Introduction

Agriculture is a vibrant part of India's economy. 54.6% of the population is involved in agriculture and allied activities. The government has taken many policy initiatives to strengthen the farm credit delivery system by providing credit at lower rates of interest to support the resource requirements of the agricultural sector. The emphasis of these policies has been on providing timely and adequate credit support to farmers, with particular focus on small and marginal farmers and weaker sections of society, to enable them to adopt modern technology and improved agricultural practices for increasing agricultural production and productivity. Farmers in general are not well educated and aware of the opportunities given to them by the banks to improve their farming. Many times they do not reach the banks at the proper time, and sometimes they are ignorant about the schemes of the banks.

Statement of the Problem

The agriculture sector is important for food security, employment generation, and economic growth. Farmers are to depend on moneylenders, and their indebtedness leads them to sell their products below the production cost. So, they are not in a position to repay the loan on time. This study, titled "A STUDY ON FARMERS PERCEPTION TOWARDS AGRICULTURAL LOAN WITH SPECIAL REFERENCE TO THODUPUZHA TALUK," is conducted to understand the farmers' perceptions towards agricultural loans.

Objectives

- To identify farmers' perceptions towards agricultural loans.
- To find out the various sources of finance for the agriculture activities of the farmers.

Sources of Data

Primary Data: The primary data used for the study were collected from the farmers using a questionnaire. Secondary Data: Secondary data were obtained from published sources such as websites and reference texts.

Sampling Plan

The population of the study consists of farmers. The sample size used for the study is 60. Convenient sampling has been used for the study.

Theoretical Framework

A farmer is a person engaged in agriculture, raising living organisms for food or raw materials. Agricultural loans are availed of by a farmer to fund seasonal agricultural operations or related activities like animal farming or the purchase of land or agricultural tools. This type of loan also buy inputs such as fertilizer seeds, insecticides, etc. There are many financial institutions

and banks in India that provide farm loans so that farmers can run their agriculture more efficiently. It helps to cover costs associated with running a farm, such as the purchase of seeds, pesticides, and irrigation.

Purposes of Agricultural Loan

- You can avail of agricultural loans for farming equipment and tools.
- Individuals can avail of the loan for the purchase of land.
- Horticulture projects can also be one of the purposes of the agricultural loan.
- Running day-to-day operations
- Buying farm machinery such as tractors, harvesters, etc.;
- Storage purposes

Data Analysis and Interpretation

Table showing sources of agricultural loans

SOURCE OF LOAN	NO.OF RESPONDENTS	PERCENTAGE
Public sector banks	20	33
Private sector banks	12	20
Co-operative Societies	10	18
Private Money lenders	18	29
Total	60	100

INTERPRETATION

Out of total respondents, 33% of respondents take loans from public sector banks, 20% of respondents take loans from private sector banks, 18% of respondents take loans from cooperative societies, and 29% of respondents take loans from private money lenders.

Table showing perception towards agricultural loan

PERCEPTIONS TOWARDS AGRICULTURAL LOAN	NO.OF RESPONDENTS	PERCENTAGE
Agricultural loan help farmers	9	33
Agricultural loan are easily accessible	5	20
An agricultural loan is a burden	17	18
The rate of interest is high in agricultural loan system	30	29
Total	60	100

INTERPRETATION

Out of total respondents, 49% of respondents are of the opinion that the rate of interest of agricultural finance are high, 28% of respondents are of the opinion that Agricultural loan are a burden, 8% of respondents are of the opinion that agricultural loan are easily accessible, and 15% of respondents are of the opinion that agricultural loan help farmers

Findings

- The majority of respondents (33%) take loans from public sector banks.
- The majority of respondents are of the opinion that agricultural loans are very helpful to them for farming activities, while 18% of them consider agricultural loans a burden.
- Labor costs are the main cost involved in farming, according to the opinions of respondents.

Suggestions

- Improve access to credit, technology, and markets.
- Increase agricultural productivity and household income for smallholder farmers.
- Add value to agricultural produce.
- Expand the outreach of the formal credit system to reach the really poor and needy.
- Reduce rate of interest on crop loans.

Conclusion

A study was undertaken to identify farmers' perceptions towards agricultural loans. Most of the respondents are of the opinion that the rate of interest is high in the agricultural loan system. This study helps identify the various sources of finance for the agricultural activities of farmers. The main source of finance is public sector banks. Agricultural loans helped the majority of respondents in many ways. Insufficient revenue is the major problem they face in repaying the loan. A high interest rate is the major problem faced by farmers in receiving agricultural finance.

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JOSEPHINE RESEARCHER VI

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Investors Perception towards Mutual Funds as an Investment Option

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Abstract

In the present financial market, a mutual fund is an innovative financial investment. In this situation, we study investors' perceptions of mutual funds with a special reference to Thodupuzha Taluk. The objectives of this study are to check awareness level of people about mutual funds and analyze investors' perceptions regarding investing in mutual funds. In this study, both primary and secondary data were used for data collection. On the basis of primary data, most of the respondents would like to invest in private

Introduction

A mutual fund is an innovative financial instrument and investment vehicle for investors who pool their savings to invest in diversified portfolio of securities with the aim of attractive yields and appreciation in their value. A mutual fund is a mechanism for pooling money by issuing bonds to investors and investing funds in securities in accordance with objectives as disclosed in offer document. A mutual fund is a trust that pools the savings of a number of investors who share common financial goal. The investors buy units of mutual fund schemes that meet their investment objectives.

Statement of the Problem

In India, the Mutual Fund industry has been in existence since the establishment of UTI and has evolved to be a product since 1964. The term product is used because Mutual funds (MF) are not merely to park investor's savings; they are tailor made to cater to investor's needs, whatever their age, financial position, risk tolerance, and expectations. This issue of combining service and product is an important aspect of mutual fund industry. MFs are looked upon by individual investors as financial intermediaries/ portfolio managers who process information, identify investment opportunities, formulate investment strategies, invest funds, and monitor progress at a very low cost. Individual investors' decision-making often relies on observable socio-demographic variables to proxy for inherent psychological processes that drive investment choices.

Objectives of the Study

To check awareness level of people about mutual funds.

To analyze the risk perception of mutual fund investors

Sources of Data

Primary data are those that are collected from a fresh source for the first time and thus happen to be original in character. The primary data for the study has been collected from 90 people residing in the Thodupuzha area through structured questionnaire.

Sampling Plan

The sample size used for the study is 100. Sampling method has been adopted for the study.

Theoretical Framework

A mutual fund is a common pool of money into which investors place their contributions that are to be invested in accordance with a stated objective. The ownership of the fund is thus joint or "mutual"; the fund belongs to all investors. A single investor's ownership of the fund is in the same proportion as the amount of the contribution made by him or her to the total amount

of the fund. A mutual fund is a special type of investment institution which pools the savings of the community and invests them in the capital market, i.e., in shares, debentures and other securities. The income earned from these investments and the capital appreciations are shared by the unit holders in proportion to the number of shares owned. It is a new tool in the kit of capital market mechanisms; all investors could now participate in corporate activities by subscribing to the units of the mutual funds. "Mutual funds are collective savings and investment vehicles where savings of small (or sometimes big) investors are pooled together to invest for their mutual benefit and returns distributed proportionately". "A mutual fund is an investment that pools your money with the money of an unlimited number of other investors. In return, you and the other investors each own shares of the fund.

Data Analysis and Interpretation

Classification on the basis of awareness of mutual fund

Market risk	No. of respondents	Percentage
Fully aware	27	45
Partially aware	15	25
Neutral	9	15
Not aware	6	10
Not at all aware	3	5
Total	60	100

(Source: Primary data)

Interpretation: 45% of the respondents are fully aware of Asset management company, 25% of respondents are partially aware of Asset management companies, 15% are neutral about Asset management companies, and 1% are not aware of Asset management companies, 5% are not at all aware of set management companies.

Classification on the basis of Risk

RISK	No. of respondents	Percentage
Strongly Agree	36	60
Agree	9	15
Neutral	6	10
Disagree	6	10
Strongly Disagree	3	5
Total	60	100

(Source: Primary data)

Interpretation: 60% of the respondents strongly agree risk is the factor guiding their mutual fund investment decision; 15% of the respondents agree risk is the factor guiding their mutual fund investment decision; and 10% of the respondents are neutral. Risk is the factor guiding their mutual fund investment decision.

Findings

- The majority of the respondents are invested in mutual funds (80%), and least number of respondents are not invested in mutual funds (20%).
- The majority of the respondents (60%) are fully aware about market risk related with mutual funds, and least number of respondents (5%) are not at all aware about market

risk

- The majority of the respondents (45%) are partially aware about types of funds and schemes related with mutual funds, and least number of respondents (5%) are not at all aware about types of funds and schemes
- The majority of the respondents (30%) are fully aware of the systematic investment plan (SIP) related with mutual funds, and least number of respondents (10%) are not at all aware of the systematic investment plan

Suggestions

- Investors should have proper knowledge about several aspects of the mutual fund, especially the systematic investment plan, Net asset value, and maturity period.
- AMCs can design mutual fund products by combining the motives of mutual fund investors, such as long-term growth and excellent returns.
- The study reveals that investors are considering key factors such as liquidity, risk, tax benefits, and safety when investing in mutual fund products. A prudent product design, by adding the features expected by investors, will make the new mutual fund products attract new investors.
- The study observed that strong customer orientation is necessary in a market where the market is becoming competitive due to large number of players with varied financial muscle powers and expertise in investment.

Conclusion

In the past few years, Mutual Funds have emerged as a tool for ensuring one's financial well-being. Mutual Funds have not only contributed to India's growth story but have also helped families tap into success of Indian industry. As information and awareness rise, more and more people are enjoying the benefits of investing in Mutual Funds. Demographic features such as educational status, occupational status, and economic status of the investor influence the preferences of investors towards mutual fund products. Highly educated investors, businesses, and middle-income groups have been showing mutual funds for the sake of tax benefits. Demographic features such as educational status, occupational status, and economic status of the investor influence the preferences of investors towards mutual fund products.

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Perceptions towards Online Shopping among College Students

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Abstract

The advent of the internet has transformed the retail landscape, giving rise to a digital shopping revolution that has significantly altered the way consumers browse, purchase, and interact with products and brands. This project, titled "Perception towards Online Shopping among College Students," delves into the multifaceted world of online shopping, aiming to provide a comprehensive understanding of the trends, dynamics, and consumer behaviors that shape this rapidly evolving industry.

Introduction

The Internet is changing the way consumers shop and buy goods and services and has rapidly evolved into a global phenomenon. Since the emergence of the World Wide Web (WWW), merchants have sought to sell their products to people who surf the internet. Buyers can visit the web stores from the comfort of their homes and shop as they sit in front of the computer. Essentially, the idea of online shopping is to lead customers to a convenient way of shopping. So, purchasing can be done from anywhere and anytime according to the customer's preferences.

Statement of The Problem

Nowadays, the widespread application of the internet results in increased use of online shopping. Compared to consumption groups, 'students' basic conditions enable them to choose online shopping. In addition to this, their leisure, curiosity, hyperactivity, and unlimited internet access are probably their driving forces towards it. This study is intended to analyze awareness regarding online shopping. So, the present study is titled as "perception towards online shopping among college students".

Objectives

1. To know the influential factors behind online shopping among students.
2. To identify the most preferred online shopping site among students.

Sampling Plan

A convenient sampling method is being adopted for the study. The respondents, accessible at ease at the right time and place, were selected. The total sample size is taken as 50.

Source of Data

Primary data and secondary data are used. A questionnaire is used to collect primary data only after pretesting and making corrections; the questionnaire was printed and distributed for data collection. Secondary data is collected from journals and websites.

Theoretical Framework

Online shopping, or e-shopping, is a form of electronic commerce that allows consumers to directly buy goods or services from a seller over the Internet using a web browser. Webstore, online store, online storefront, and virtual store are alternative names for online shopping. Mobile commerce (or m-m-cm-commerce) is a mobile-optimized site or app.

An online shop evokes the physical analogy of buying products or services at a bricks-and-mortar retailer or shopping center (traditional, physical companies); the process is called business-to-consumer (B2C) online shopping. In the case where a business buys from another business, the process is called business-to-business (B2B) online shopping. The largest of these online retailing corporations are Alibaba, Amazon.com, and eBay.

Data Analysis and Interpretation

Table showing Preferred online shopping site

Online site	No. of respondents	Percentage
Flipkart	35	70%
Amazon	13	26%
Ebay	2	4%
Myntra	0	0%
Snapdeal	0	0%
Total	50	100%

Source: Primary Data

Interpretation

From the above table, a majority (70%) of respondents prefer to buy products from Flipkart. 26% and 4% of the respondents prefer Amazon and eBay, respectively. None of them prefers Myntra or Snapdeal.

Table showing Influential Factors

Factors	No. of respondent	Percentage
Convenience	8	16%
Transaction security	3	6%
Price benefits	25	50%
Save time	7	14%
Home delivery	7	14%
Total	50	100%

Source: Primary Data

Interpretation

The above table shows that 50% of the respondents are influenced by the price benefit, 16% by convenience, 14% by time savings, 14% by home delivery, and 6% by transaction security.

Findings

- The most preferred online shopping site is Flipkart and the least preferred are Myntra and Snapdeal

- The respondents are highly influenced by the price benefits available in online shopping sites and they are concerned about their insecurities relating to transactions

Suggestions

- Ensure to have a user-friendly and mobile-friendly website interface which will be easily navigated
- To attract more customers, provide detailed and accurate product descriptions, including specifications, size, materials and usage instructions

Conclusion

Consumers use the internet not only to buy the product but also to compare the price, product features, and after-sale facilities they receive if they purchase from a particular seller or online shopping site. Many experts are optimistic about the prospects of online business. In addition to the tremendous potential of the e-commerce market, the internet provides a unique opportunity for companies to reach their existing and potential customers more efficiently. Essentially, the idea of online shopping is to lead customers to a convenient way of shopping. Customers will be able to save time and money, and it also helps to retrieve all the product information with just a few clicks in a few seconds. So, purchasing can be done from anywhere and anytime according to the customer's preference.

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JOSEPHINE RESEARCHER VI

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Quality of Work Life and Occupational Stress of Self-Financing College Teachers

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Introduction

The quality of work life (QWL) has been described in various ways since its inception in the 1960s. It has been defined as the level to which the employees and workers of any given firm can improve their own lives and their level of satisfaction through their work experiences and environment. QWL is a subcomponent of life, "the broader and wider concept of "quality of life, which impacts on work performance and its quality, in addition to QWL. The concept of QWL involves four major aspects: (i) a safe work environment; (ii) occupational healthcare; (iii) suitable working time; and (iv) an appropriate salary.

Statement of Problem

The quality of work life represents the overall satisfaction derived by people from their work. It depends upon various factors like nature of job, working conditions, occupational stress, etc. A term commonly used in the professional business industry, occupational stress refers to the ongoing or progressing stress an employee experiences due to the responsibilities, conditions, environment, or other pressure of the workplace. All of the aforementioned factors prompted the researcher to conduct a study titled "QUALITY OF WORK LIFE AND OCCUPATIONAL STRESS OF SELF-FINANCING TEACHERS."

Objective of the Study

1. To measure the quality of work life of teachers in self-financing college

Source of data: For the study, primary data is mainly used. The secondary data are collected from published journals, various websites connected to this topic, books, and articles.

Sampling Plan: Sampling was employed to select 70 respondents from selected self-financing colleges. The convenience sampling method was used for the study. Simple average tools like percentages, graphs, ranking methods, etc. are used for the purpose of analyzing data.

Theoretical Framework: Quality of Work Life (QWL) is concept which means overall quality ones working life. Quality of life constitutes income, health, social relationships, and other factors such as happiness and fulfillment. QWL is determined by the individual's favorable and unfavorable situation at work places. An individual's commitment towards work, efficiency in performance, motive to work more is depended upon the QWL. It is the degree of satisfaction the members of a work organization are able to provide to meet the needs through their experiences in the organization.

Data Analysis and Interpretation

The Quality of work life was tested by using a questionnaire. It is analyzed on the basis of following factors.

Ranking and Classification of Respondents

On The Basis Acceptance on the Following Response Weightage

STRONGLY AGREE	5
AGREE	4
NEUTRAL	3
DISAGREE	2
STRONGLY DISAGREE	1

NO	STATEMENT	SA (5)	A (4)	N (3)	DA (2)	SDA (1)	TOTAL FREQUENCY	AVG	RANK
1	I am satisfied with the growth opportunities available for me in present job	200	80	15	10	0	305	4.36	3
2	When I have done a good job it is acknowledged by my higher authorities and colleagues.	175	120	15	0	0	310	4.43	2
3	Everyone have an equal chance to get ahead in the organization based on performance regardless of sex, age, racial or ethnic background.	185	80	30	6	0	301	4.3	4
4	I am satisfied with the extension activities available in our organization	175	80	30	10	0	295	4.21	6
5	There are numerous opportunities for individual creativity and self-improvement in our institution.	200	80	30	0	0	310	4.43	2
6	My higher authorities understand my family or personal life needs.	175	60	60	0	0	295	4.21	6
7	I feel satisfied within fulfilling my family role regardless of work pressures.	185	60	45	6	0	296	4.22	5
8	The grievance redress system in my college is satisfactorily performed.	150	40	45	20	5	265	3.78	8
9	If I wish, I can easily take leave to attend to any family emergency.	250	60	15	0	0	325	4.64	1
10	The management has attempted to understand stress	175	40	30	20	5	270	3.85	7
11	My working environment is stressful for my physical and health and mental health.	100	40	60	30	5	235	3.35	9

Interpretation: The above table shows the teacher's attitude towards the nature of job. The grievance mechanism is not satisfactory in institutions. They are not satisfied in the extension activities available in their institution. Only 4.3% of respondents are agreed with the statement there is equal chance in the institution.

Findings

- ☐ The study reveals that mainly eight factors affects QWL of teachers working in the institutions, they are nature of job ,compensation of teachers, working conditions ,opportunity for growth and development, work and total life space, occupational stress and participation in management .
- ☐ It is found from the study that teachers respond rate about their compensation is very low.
- ☐ This study found that the wages are paying fair and adequate.
- ☐ It shows that teachers are dissatisfied with the efficiency of the management.

Suggestions

- ☐ If the institution concentrates, gives more importance to the working environment, andmeetst personal requirements, the level of stress will be reduced compared with the present level.
- ☐ The establishment should improve interpersonal relationships among teachers and management.
- ☐ Institutions can concentrate on providing more opportunities to teachers to enrich their skills.

Conclusion

The teachers studied under this project are not satisfied with the overall QWL in their institutions. The reasons for such dissatisfaction are due to the limitations of various factors that affect the QWL. Some awareness, capacity-building, and meditation programs must be carried out by the institution to reduce the occupational stress of the teachers.

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Scope of Artificial Intelligence in Business

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Abstract

For the last few years, one can see the emergence of a large number of intelligent products and services, their commercial availability and the socioeconomic impact, this raises the question if the present emergence of AI is just hype or does it really have the capability of transforming the world. The paper investigates the wide range of implications of artificial intelligence (AI), and delves deeper into both positive and negative impacts on governments, communities, companies, and individuals. This paper investigates the overall impact of AI - from research and innovation to deployment. The paper addresses the influential academic achievements and innovations in the field of AI; their impact on the entrepreneurial activities and thus on the global market.

Keywords: Artificial Intelligence; Fourth Industrial Revolution; Business Analytics; Machine Learning; Deep Learning; Business Intelligence

1. Introduction

Innovation has always been the main engine of an improved standard of living throughout history. However, the process of innovation can be highly disruptive as it makes conventional technologies obsolete. Cloud computing, Internet of things (IoT), big data, data science, artificial intelligence (AI), and blockchain are the rising technologies that may create winners as well as losers across the world. Some of these technologies are at least two and a half decades old but were neither in the mainstream nor were viable for commercial applications. However, in the last few years, the situation has changed dramatically, today, almost every field employs one or more of these technologies. There are many factors responsible for this, including advancements in computer technology and a large number of open source software. At present, the enormous uses of these technologies in every field including healthcare, automobiles, finance, gaming, environmental monitoring, agriculture, sports, energy management, security, etc are changing the way, human beings, live, work and amuse themselves.

Statement of the problem

The advancement in AI is the heart of the enhanced performance of all other technologies and the evolution of Industry .There are sufficient pieces of evidence available in the literature that proves that the AI technology offers new opportunities that can lead to notable transformation in businesses and the overall economic system. At the business level, some of the benefits of AI are: the quick unveiling of patterns in big data, speedy visualization and analytics, improved product design, delivering meticulous insights, and many more. . The novel points of the paper are summarized below:

- Recognition of the factors which are resulting in today's AI exponential growth
- Identification of academic achievements in AI which are advancing the commercially available intelligent products.
- Determination of the top AI industries and investment trends in AI.
- Exploration of geographically strong AI locations.
- The data analysis done proves that AI is not hype.

2. Research Objectives and Data Collection

The major objectives of the study are:

1. To find out the various sectors and industries initiated AI startup's
2. To study total funding to AI start-up's across the world

Through this paper, the intention is to answer the above questions. The research was initiated by scanning a number of business newsletters, AI magazines, journal papers, conference articles, machine learning posts, annual reports of the companies, press releases, stock market websites, online forums, and many other platforms to gather the data required to help us in the investigation. The answers to these questions will help the human society to get prepared for the future challenges. This will also aid in accepting the transformations occurring as a result of the infusion of AI in human life and business.

Sectors and Industries

AI start-ups initiated all over the world are categorized in 22 different fields including autonomous vehicles, business intelligence, healthcare, etc. Fig. 1. depicts the percentage of 200 AI start-ups in different lines of business which majorly covers all the fields where AI is showing its impact. It can be seen clearly that the spread of AI is all pervasive, from education to healthcare, from home to industry; there is no place where AI is not being used or explored.

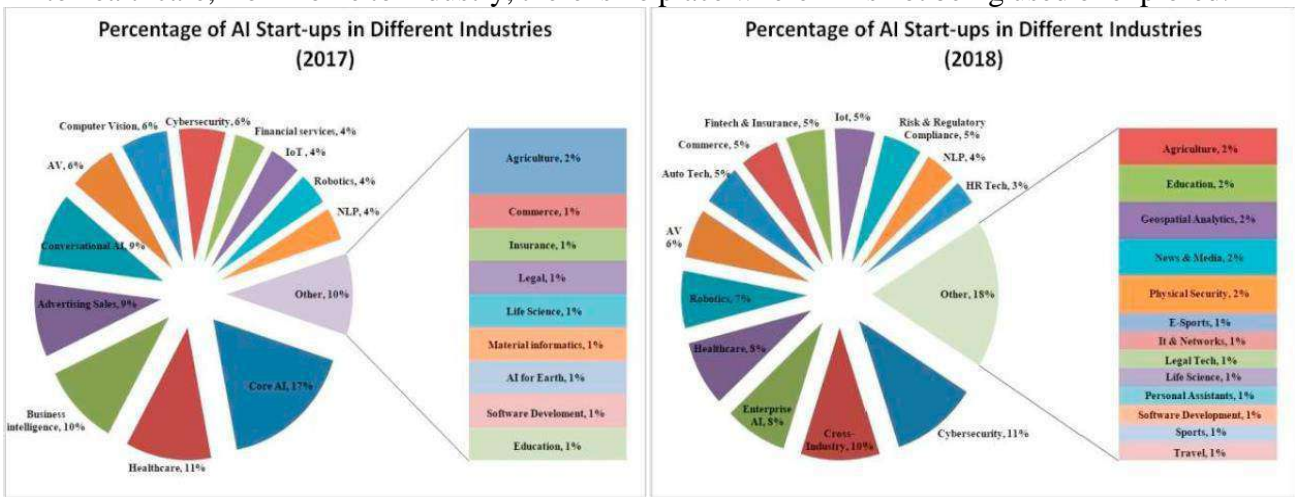


Fig. 1 Percentage of AI start-ups in different industries for (a) 2017 (b) 2018

Funding

In 2011 the total investment in these AI start-ups across the world was \$25.88 million (in 7 start-ups) which increased exponentially to \$1866.6 million (in 64 start-ups) in 6 years (2011 to 2016). Fig. 2. depicts a 71.13% increase in investment in these AI start-ups . Across the world, the U.S. is leading this revolution with maximum investment.

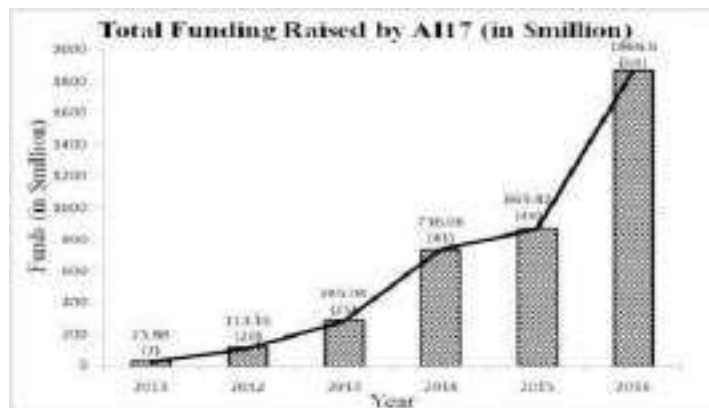


Fig. 2 Year-wise investment (in \$ Million) in 100 AI start-ups

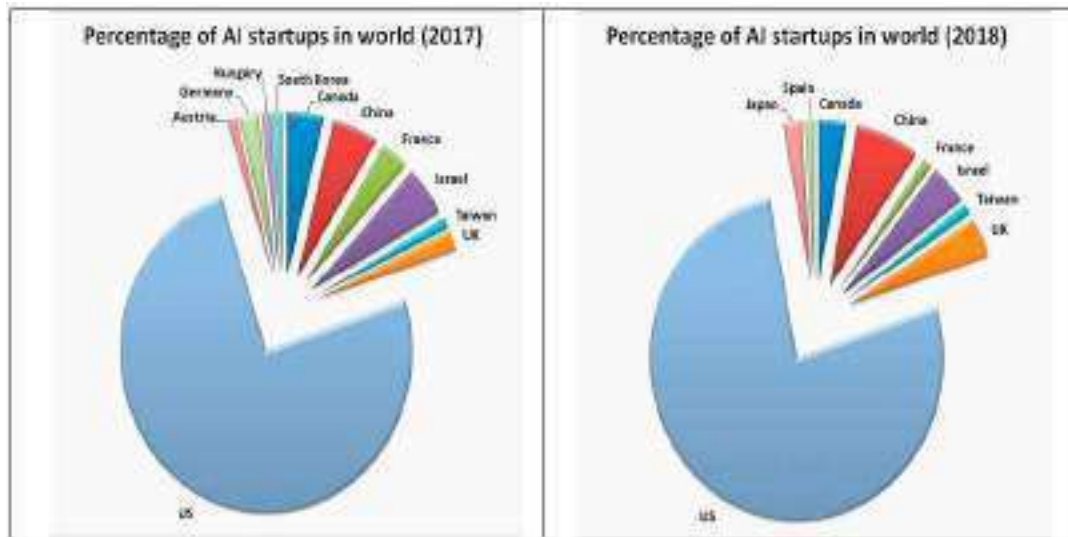


Fig. 3 Percentage of AI in different parts of the world

Conclusion

The study shows that the AI technology is confined only in a few regions in the world. This is creating an “AI divide”. This divide, like the digital divide, would strengthen the inequality in social, economic and cultural sectors; would create a chasm. Moreover, AI is software dominant and software is prone to vulnerabilities. Some of the deep learning algorithms/methods are the backbone of AI; these require passing through multiple factors to be used for real-time applications. Identifiable systemic failure modes, repeatability, transparency, explainable, path tracing, penetrability, etc. are some of the major factors established at the time of assessment of software; even after passing through these factors, there exist cases where DL algorithms have produced unreliable results. Apart from these, challenges like trust, ethics, bias, and shortage of AI talent also needs attention for commercial usage of AI applications.

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The Study on the Awareness of Banking Services among College Students

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Abstract

A bank is a financial intermediary for the safeguarding, transferring, exchanging, or lending of money. Banks distribute “money” - the medium of exchange. A bank is a business and banks sell their services to earn money, and they need to market and manage those services in a competitive field. “The study on the awareness of banking services among college students”, insights the awareness of customers regarding banking services and the satisfaction of them towards the same

Introduction

A bank is a financial institution which accepts deposits from the general public and creates a demand deposit while concurrently making loans. Banks also provide related services like an individual's retirement accounts, certificates of deposits, currency exchange, and safe deposit boxes. Banks perform lending activities directly whereas capital markets perform lending activities indirectly. People earn money to meet their day-to-day expenses on food, clothing, education of children, etc. People also need money to meet certain expenses on the marriage and higher education of children. These types of expenses can be met only if some part of money is saved from the present income.

Statement of the Problem

This study is undertaken to understand the different services provided by the banks and also to check the awareness of college students. Hence the study is entitled “The study on the awareness of banking services among college students”

Objectives of the Study

- To study the awareness of banking services among the college students.
- To measure the satisfaction level of students.

Source of Data

The primary data are collected by using questionnaire method among the college students of Thodupuzha Municipality. The secondary data are collected from published journals, various websites, books, articles, etc. It saves the time and is the cheapest source of data collection. It is also known as external source of data.

Sampling Method

Convenient sampling method is used for the study. The sample size selected for the research is 50

Theoretical Framework

Banks are such places where people can deposit their savings with the assurance that they will be able to withdraw money from the deposits whenever required. A financial institution that is licensed to accept checking and savings deposits and make loans. A bank is a person or corporation which holds itself out to receive from the public deposits payable on demand by cheque. An institution which creates cash with the aid of cash only. A commercial bank collects money from those who have it to spare or who are saving it out of their income and lends the money to those who require it. A bank is a financial intermediary, a dealer in loans and debts.

An establishment for custody of money, which it pays out on customer's order.

Data Analysis and Interpretation

Table showing the classification of respondents the basis of awareness of different banking services.

Particulars	No of Respondents	Percentage
Yes	63	90
No	7	10
Total	70	100

(Sources: Survey Data)

Shows the classification of respondents on the basis of satisfaction level of the respondents from different banking services.

Particulars	No of Respondents	Percentage
Highly Satisfied	10	14.3
Satisfied	39	57.1
Neutral	18	27.1
Dissatisfied	3	1.5
Highly Dissatisfied	0	0
Total	70	100

(Sources: Survey Data)

Findings

From the data collection it is clear that 90% of respondents are aware of different types of banking services and only 10% respondents are not aware of it.

Majority of respondents get to know about the different banking services from their friends.

In this study most of the respondents are highly satisfied with the different banking services and no respondent is highly dissatisfied with the banking services of different banks.

Suggestions

Make it easier for new customers to open a bank account as opening a bank account is a complex and lengthy process.

Banks should become a trusted advisor to small business customers to attract customers and make profit from customers.

Embrace innovative technologies such as artificial intelligence, machine learning and block chain to streamline banking processes.

Conclusion

A study on the awareness of banking services among the college students with special reference to Thodupuzha Municipality was done with the primary objective of assessing the level of awareness of banking services. Based on the findings of the study and the suggested improvements, we can draw the possible following conclusions. To protect money from electronic theft, identity theft and other forms of fraud. It is important to implement basic precautions such as shredding account statements, having complex passwords and only doing

online banking through secure internet connections.

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JOSEPHINE RESEARCHER VI

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Dyadic Adjustment and Resilience among Spouses of Individuals Having Chronic Diseases

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Abstract

This book chapter delves into a study focused on examining dyadic adjustment and resilience among spouses of individuals living with chronic diseases. A convenient sample of 200 participants was selected for this research, utilizing self-prepared socio-demographic data sheets and established measurement tools such as the Revised Dyadic Adjustment Scale and a resilience scale. Statistical analysis using SPSS, including t'-tests, ANOVA, and correlation, revealed significant differences in dyadic adjustment and resilience based on various demographic factors, including gender, family type, occupation, and economic status.

Introduction

In our modern world, with the advances in science and technology and the hustle and bustle of daily life, there has also been an increase in lifestyle and stress-related illnesses. Chronic diseases are categorized based on biomedical disease classification, whereas chronic illnesses are subjective experiences of living with those diseases. According to the World Health Organization, the main chronic illnesses include diabetes, coronary heart disease, and cancerⁱ. Health behavior refers to any activity undertaken to prevent or detect diseases and/or improve well-beingⁱⁱ. Smoking, an improper diet, lack of exercise, and other similar factors can adversely affect the overall health of individualsⁱⁱⁱ.

Dyadic Adjustment

The overall mental and physical well-being of individuals is significantly influenced by their close relationships. Dyadic adjustment refers to the level of satisfaction and happiness within a romantic relationship between two partners. It measures how well a couple is adapting to each other's needs and functioning together in their relationship.

Dyadic adjustment and resilience

Resilience is a complex concept that involves an individual's ability to adapt to new situations, manage stress, and avoid significant problems. Understanding how resilience works is vital, especially when studying couples where one partner has a chronic disease^{iv}. Chronic illnesses can strain relationships, and it's crucial to know how spouses cope^v. By studying resilience in these couples, we can identify what helps them deal with challenges better. This knowledge can lead to strategies that improve the well-being of both spouses in such situations. The study on dyadic adjustment and resilience among spouses of individuals with chronic diseases is significant because it can help better understand the challenges faced by these couples and identify strategies to support them. By examining the role of resilience in the dyadic adjustment process, it can identify factors that promote adaptive coping strategies and improve the overall well-being of both spouses. This study can also help healthcare professionals develop interventions to support spouses and improve their quality of life. It can help us identify the factors that contribute to a successful relationship despite the challenges of chronic illness. By better understanding of the dyadic adjustment process and the role of resilience, can promote positive outcomes for both spouses and support them in maintaining a strong and healthy relationship.

Method

A descriptive research design was used in this study. The sample consists of 200 spouses with chronic diseases in Kerala through a convenient sampling method. The researcher administrated a questionnaire method for collecting data. Demographic Data Collection and

Revised Dyadic Adjustment Scale (RDAS) were used. The Bharathiar University Resilience Scale (BURS), developed by Annalakshmi (2009) was used to measure resilience. Mean, standard deviation, t-test and ANOVA were used as a part of statistical procedures.

Objectives

- 1.To find out whether there is any significant difference in dyadic adjustment and resilience among spouse of individuals having chronic disease based on their age group
- 2.To find out whether there is any significant difference in dyadic adjustment and resilience among spouse of individuals having chronic disease based on their family types.
- 3.To find out whether there is any significant difference in dyadic adjustment and resilience among spouse of individuals having chronic disease based on their education qualification
- 4.To find out whether there is any significant difference in dyadic adjustment and resilience among spouse of individuals having chronic disease based on their occupation

Hypotheses

- 1.There will be a significant difference in dyadic adjustment and resilience among spouse of individuals having Chronic disease based on age.
- 2.There will be a significant difference in dyadic adjustment and resilience among spouse of individuals having Chronic disease based on family type.
- 3.There will be a significant difference in dyadic adjustment and resilience among spouse of individuals having Chronic disease on the basis of education qualification.
- 4.There will be a significant difference in dyadic adjustment and resilience among spouse of individuals having Chronic disease on the basis of occupation.

Result and Discussions

Table No.1 Distribution of sample based on age

Age	Frequencies	Percentages
40-50 years	58	29.00
50 years above	142	71.00
Total	200	100.00

Table No.2 Distribution of sample based on qualification

Qualification	Frequencies	Percentages
Upto 10th	112	56.0
12th	45	22.5
UG	33	16.5
PG	10	5.6
Total	200	100.0

Table No.3 Distribution of sample based on occupation

Occupation	Frequencies	Percentages
Public sector	23	11.5
Private Sector	29	14.5
Self-employed	28	14.0
Daily wages	16	8.0
Agriculture	23	11.5
Housewives	75	37.5
Business	6	3.0
Total	200	100.0

Table No.4 Distribution of sample based on Family types

Family types	Frequencies	Percentages
Nuclear	169	84.5
Joint	31	15.5
Total	200	100.0

Major findings

1. Dyadic Adjustment is higher among females but resilience was similar among male and female spouses of individuals having Chronic disease.
2. Dyadic Adjustment and resilience were similar among the 40-50 years and above 50 years of age group having Chronic illness in their spouse.
3. Dyadic Adjustment is higher among nuclear families but resilience was similar among nuclear families and joint families of spouse of individuals having Chronic disease.
4. Dyadic Adjustment and resilience were more or less similar among education qualifications of spouse having Chronic disease.
5. Daily wage occupation has higher resilience than other types of occupation.

Conclusion

Based on the research it was found that female spouses in nuclear families exhibited higher levels of dyadic adjustment, while individuals with lower economic status and income, particularly those in daily wage occupations, displayed greater resilience. Surprisingly, age did not emerge as a significant factor affecting dyadic adjustment or resilience among spouses of individuals with chronic diseases. These findings provide valuable insights into the dynamics of marital relationships and coping mechanisms within the context of chronic illnesses, offering potential avenues for further research and support interventions.

In conclusion, while dealing with chronic illness can be challenging for couples, interventions that target dyadic adjustment and resilience may be effective in promoting better relationship outcomes and reducing psychological distress. Further research is led to determine the most effective interventions for promoting dyadic adjustment and resilience in couples dealing with chronic illness.

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Exploring the Synergistic Influence of Rice Husk Reinforcement on the Curing Process and Mechanical Characteristics of Natural Rubber Vulcanizates

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Abstract

Fillers are commonly added to commercial elastomers for economic reasons and to beneficially modify properties such as stiffness, tensile strength, heat distortion, moldability, and other crucial attributes like impact resistance and elongation at break. Conventional fillers such as carbon black and mineral fillers present inherent challenges, including an increased carbon footprint, poor compatibility with rubber matrices, and high density. Consequently, there is a growing demand for sustainable and environmentally friendly fillers with a low or zero carbon footprint.

Rice husk, an abundant agricultural waste, holds the potential to serve as a sustainable and cost-effective filler in rubber composites. This study aims to investigate the synergistic impact of finely powdered rice husk reinforcement on the curing process and mechanical properties of natural rubber vulcanizates. In this study, rice husk fine powder is incorporated into natural rubber formulations at various concentrations, and these formulations are subjected to rigorous scientific analysis using sophisticated equipment.

Introduction

Natural rubber is a polymer derived from the latex of rubber trees, primarily *Hevea Brasiliensis*. It is known for its exceptional properties, including elasticity, high tensile strength, and abrasion resistance, tear resistance, excellent adhesion, and electrical insulation. The RSS (Ribbed Smoked Sheet) and TSR (Technically Specified Rubber) grading systems are used to categorize natural rubber based on quality, cleanliness, and specific properties.

Experimental Methods

In this experiment, natural rubber is combined with a filler, specifically rice husk ash, through mastication in two roll lab mixing mills. Mastication involves the kneading and thorough blending of these materials to create a homogenous mixture. Subsequently, compounding ingredients, including stearic acid, zinc oxide, accelerators, and sulfur, are added in a precise sequence to the masticated rubber. Each of these ingredients plays a crucial role in formulating the rubber compound to meet specific requirements.

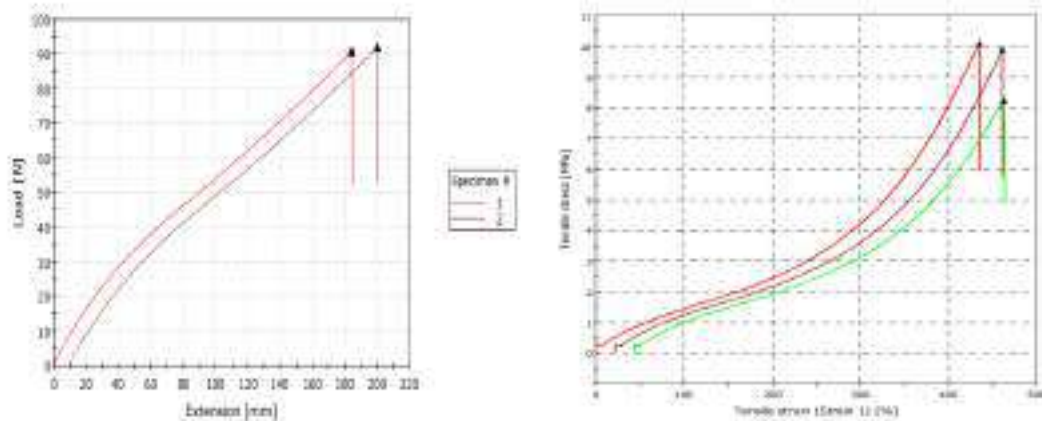
Following the compounding phase, the resulting rubber compound is sheeted out from the mixing mill, flattening it into sheets or rolls. These sheets are then further processed using a lab hydraulic press, with molds designed according to industry standards. This step allows for the precise shaping of the rubber compound into five distinct test samples.

These test samples serve as the basis for character studies, where various properties and characteristics of the rubber compound can be evaluated. Whether it's mechanical properties, durability, or other relevant attributes, this systematic process ensures that the rubber compound is thoroughly tested and analyzed to meet the desired standards and specifications.

Result

The curing time properties of the samples were measured, and the results indicate that an increase in the amount of filler leads to a decrease in the curing time of the sample. Additionally, the tear strength also decreases with a higher amount of filler. Moreover, an increase in filler content causes a decrease in Young's modulus. The tensile strength properties

exhibit variations when the amount of filler is altered, while the hardness increases with an increase in filler content.



Conclusion

Blending multiple types of polymers presents a valuable approach to crafting materials that surpass the properties of their individual components. This method offers the opportunity to achieve desired characteristics and advantages that would be challenging to attain otherwise. Natural rubber (NR), for instance, is inherently soft, tacky, and can be difficult to work with, which limits its practical utility. Additionally, products crafted solely from NR tend to degrade over time, rendering them unsuitable for various applications.

However, by incorporating appropriate fillers in varying proportions, it becomes possible to significantly enhance the properties of NR. These fillers can include materials such as silica, carbon black, or even rice husk ash, as mentioned in the previous context. When blended with NR, these fillers can modify its mechanical, thermal, and chemical properties. As a result, the incorporation of fillers into rubber mixtures yields high-quality products with improved characteristics, making them more durable, resilient, and suitable for a broader range of applications. This approach enables the transformation of a relatively challenging material like NR into a versatile and valuable resource in industries where its unique properties can shine.

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A Study of Raney Nickel Catalyst and its use in the Hydrogenation Reactions

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Abstract

This book chapter provides an in-depth exploration of the versatile and widely used Raney Nickel catalyst in the field of catalysis. The chapter begins with an overview of the historical development of Raney Nickel and its unique properties that make it a valuable tool in chemical synthesis. It then delves into the various applications of Raney Nickel in hydrogenation, dehydrogenation, and reductive processes, highlighting its role in green and sustainable chemistry. Finally, the chapter discusses recent advancements, challenges, and prospects in the utilization of Raney Nickel catalysts, offering valuable insights for researchers and practitioners in the field of catalysis.

Raney Nickel

Raney catalysts, such as Raney nickel, Raney cobalt, and Raney copper, are crucial catalysts widely employed in the chemical industry¹. They offer a distinct advantage over conventionally supported metal catalysts due to their high specific surface area, which results in enhanced catalytic activity at low temperatures. Raney nickel is indeed a binary alloy of aluminum and nickel, typically composed within the range of 30 to 50 weight percent nickel. Under ambient conditions, most grades of Raney nickel appear as grey solids. The term "Raney Nickel" derives its name from the American mechanical engineer Murray Raney. Its physical appearance is that of fine powder, and each pore within Raney Nickel takes on a distinct 3-D shape. It is also commonly referred to as 'Skeletal Catalyst' or 'Spongy Nickel'.

Raney nickel's remarkable catalytic activity, combined with its ability to absorb hydrogen within its pores during activation, renders it highly valuable for a wide range of hydrogenation reactions. Furthermore, its structural and thermal stability permits its use across diverse reaction conditions. It is worth noting that Raney nickel exhibits negligible solubility in most common laboratory solvents, except for mineral acids such as HCl. Additionally, its relatively high density facilitates easy separation from a liquid phase after the completion of a reaction.

It is crucial to emphasize that Raney nickel possesses an exceedingly low ignition temperature; it can spontaneously ignite, even at room temperature, when exposed to air. Therefore, proper storage and handling of Raney nickel require an inert atmosphere to ensure safety and prevent unintended ignition.

CATALYTIC APPLICATION/USES OF RANEY NICKEL

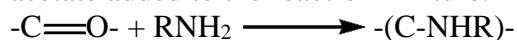
A. Hydrogenation reactions

1. Hydrogenation of alkenes to alkanes,
 $-C=C- \longrightarrow -C-C-$
2. Hydrogenation of nitriles to amines,
 $-C-N- \longrightarrow -C-NH_2$
3. Hydrogenation of aldehydes to alcohols,
 $-C=O \longrightarrow -C-OH$
4. Reduction of nitro group to amines,
 $NO_2 \longrightarrow -NH_2$

B. Reductive amination reactions

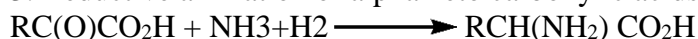
1. A carbonyl group can be converted to a primary (R-CH-NH-CH, R) or tertiary amine (R-(CH)_sN) by the reductive addition of ammonia, primary amine, or a secondary amine respectively.

These reactions are a useful method to synthesize amines. A condensing agent such as sodium acetate added to the reaction mixture.



2. Instead of using ammonia or amines, nitro and azo compounds can be used. Reduction in the presence of an aldehyde will produce a secondary or tertiary amine.

3. Reductive amination of alpha keto carboxylic acids to amino acids.

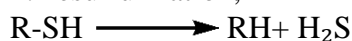


C. Displacement reactions

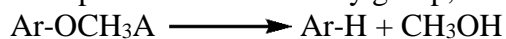
1. Dehalogenation



2. Desulfurization,



3. Displacement of methoxy group,



Ar stands for an aryl group. The halide, sulfide, and sulfite can poison the catalyst if not removed from the reaction mixture¹.

D. Oxidation/reduction reaction

1. Disproportionation of an aldehyde to a carboxylic acid and alcohol,



This reaction is called Cannizzaro reaction.

2. Raney nickel can catalyze the transfer of hydrogen from a donor molecule to an acceptor molecule. The donor molecule becomes oxidized while the acceptor molecule becomes reduced

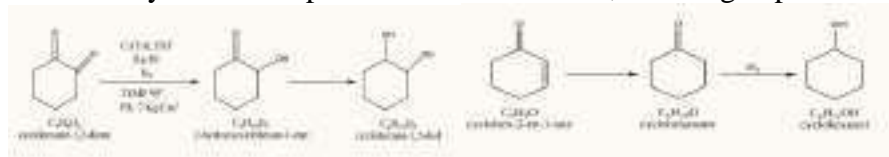


Hydrogenation of Impurities in Caprolactam

Caprolactam (C₆H₁₁NO) serves as a critical monomer in the production of nylon-6, a fundamental material used in various industrial applications such as tires, cords, textiles, fibers, and engineering plastics¹.

In the hydrogenation unit, the lactam solution is subjected to hydrogenation treatment to enhance the efficiency of the process. A small quantity of catalyst, typically Raney nickel, is introduced into the solution. Through this treatment, undesired compounds are altered in a way that modifies their boiling points, causing them to differ from the lactam solution. As a result, these undesired compounds are carried away either with the lactam residue or in the ejector condensate during the distillation process. This step significantly improves the overall quality of the lactam product.

The hydrogenation process occurs at an elevated temperature of approximately 90 degrees Celsius, and it takes place under high pressure conditions. Simultaneously, a small amount of catalyst is added, which is subsequently removed from the reaction mixture through a filtration process after the reaction has concluded. This filtration step ensures the separation of the catalyst from the purified lactam solution, allowing to produce high-quality caprolactam.



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Determination of Iron Content in Vegetables

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Abstract

This study provides a comprehensive review of the iron content in various leafy vegetables, focusing on the iron levels within their leafy parts. To assess the iron content, a method involving the extraction of iron from both vegetables and iron tablets is employed, resulting in a solution containing Fe³⁺ ions (ferric ions). The quantification of iron is achieved through a colorimetric analysis, where a thiocyanate solution is added to the solution. This addition leads to a reaction with the Fe³⁺ ions, resulting in the formation of a distinctive blood-red colored complex, facilitating the precise determination of iron levels in the samples.

Introduction

Iron has been recognized as an essential mineral for our bodies for well over a century¹. This vital mineral plays a crucial role primarily as an oxygen carrier within the body, functioning both as a component of hemoglobin in the bloodstream and myoglobin in muscle tissues¹. Beyond its oxygen-carrying capacity, iron serves various other important roles in our health, including support for immune function, cognitive development, temperature regulation, energy metabolism, and overall work performance.

One of the most natural and healthful ways to boost iron intake is through dietary sources, particularly vegetables. Iron deficiency is a global concern, affecting around 400 million women worldwide and impacting over a billion women who experience low iron levels¹. Low iron levels can lead to symptoms such as fatigue, muscle weakness, poor concentration, and restless legs, often without individuals being aware of their iron status. Therefore, it is imperative for women to incorporate iron-rich foods into their diets to ensure they meet their nutritional needs and maintain optimal health¹.

Materials and Methods

1. Preparation of 0.001M Ferric Ammonium Sulphate, FeNH₄ (SO₄)₂.12H₂O standard solution:

It is prepared by dissolving about 0.482g of ferric alum in one liter of water. From this 2,4,6,8,10,12,16,18,20,22,24,26, & 28×10⁻⁵ mol L⁻¹ solution are prepared by pipetting 10, 20, 30,40, 50,60,70,80,90,100.110,120,130, & 140 ml of Fe³⁺ solution in a 500ml standard flask & made up to the mark with distilled water.

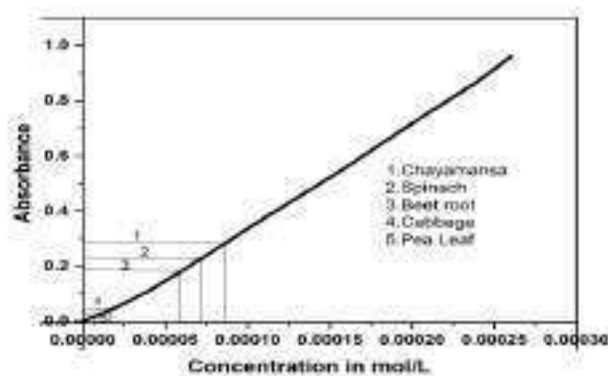
2. Sample of iron containing leafy vegetables: (a) Spinach-red leaf (b) Cabbage (c) Pea leaf (d) Chaya mansa leaf (e) Beet root

3. Preparation of 1 mol L⁻¹ ammonium thiocyanate solution: Prepared by dissolving 38g of solid ammonium thiocyanate in to 500 ml volumetric flask and made up to the mark with distilled water.

4. Colorimeter: It comprises the following parts: Light source, Filter (the device that selects the desired wavelength), Cuvette chamber (the transmitted light passes through a compartment wherein the solution containing the colored solution is kept in the cuvette, made of glass or disposable plastic), Detector (this is a photosensitive element that converts light into electrical signals).

Results and Discussions

The graph between concentrations of Fe³⁺ ions in mol L⁻¹ with absorbance and the amount of Iron in 1 gram of each food sample & iron tablet is listed below



Food sample	Amount of Iron in mg
Chayamansa	0.9333
Spinach –Red	1.8347
Beetroot	0.6582
Cabbage	0.1449
Pea leaf	0.0877

Based on the study conducted on the determination of iron content in some leafy vegetables, we can understand that among the selected leafy vegetables spinach red has the highest amount of iron. Intake of a sufficient quantity of leafy vegetables can avoid the consumption of iron tablets.

Conclusion

Easily available and cheap leafy vegetables around our premises are of high value with regard to iron content. The amount of iron is greater in red spinach leaves. The order is spinach red > Chayamansa > Beet root > Cabbage > Pea leaf. The Consumption of a sufficient quantity of these leafy vegetables is economically feasible and good for health.

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Need of the Hour for Knowledge Human Resource Accounting for Success of an Organisation

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Abstract

Human assets are very important and vital among all other assets and resources. Right from the beginning of the globalization of business and services, human resources have become more important and decisive input for the success of any organisation. HR accounting refers to accounting for people as an organisational resource. It includes measuring the costs incurred by business firms and other organisations towards their HR investment and its very return in the form of output for the organisation.

Keywords: Human assets, success, accounting, measuring, score

Introduction

Human resources is a special resource featured with both natural and technical elements. Since the last four decades organisations have started believing that human assets are very important and vital among all other assets and resources. All the resources and processes of the organisation are operated by human resources, hence it has become obvious that the changes in the HR cost and benefits must be considered on prime line. HR accounting according to Flamholtz is “accounting for people as an organisational resource. It includes measuring the costs incurred by business firms and other organisations to recruit, select, hire, train, and develop human assets. It also involves measuring the economic value of people to the organisation”.

Different Approaches for Human Resource Accounting

Different authors have determined different approaches and concepts for Human Resources Accounting, the gist of a few important ones is given hereunder.

- 1) **Historical Cost Approach:** This approach was founded on the concept that there are certain costs incurred by the organisation regarding human resources. Cost is a sacrifice aspect incurred to obtain some anticipated benefits or services. In this approach the actual cost incurred on recruiting, selecting, hiring, training and developing human resources, of the organisation is maintained and a proportion of it is written off to the income of the next and expected useful life of human resources.
- 2) **Replacement Cost Approach:** This approach was developed on the concept Human resources of an organisation are to be valued on the assumption that a new similar organisation has to be created from cut down and what would be the cost to the firm if the existing resources were required to be replaced with other persons of equivalent talents and experience. There are two costs, individual replacement cost and positional replacement cost. The cost of recruiting, selecting, training and development, and familiarisation costs are accounted for in individual replacement costs. When an employee changes the present position to another or leaves the organisation then the cost of moving, vacancy, carrying,

and other relevant costs are reflected in individual replacement costs. Positional replacement cost refers to the cost of filling different position in an organisation.

- 3) **Opportunity Cost Approach:** This approach analyses the alternative earning sources from the productive capacity of human resources by putting some alternative use. Opportunity cost is the value of an asset (HR) when there is an alternative use of it. The perspective chances of opportunity cost are declined for those employees that are not scarce. Here, only the scarce people may be comprised of the value of human resources.
- 4) **Standard Cost Approach:** This approach is based on the line and staff as well as the functional relationship of employees in an organisation. The employees of an organisation are categorized and divided into different groups with hierarchical levels or positions. Standard cost is fixed for each category of employees and their worthwhile role may be calculated.

HRA Objectives

- 1) **Better decisions:** It helps the management in making better decisions keeping in view the monetary intervention about procurement, allocation, development, compensating and maintaining human resources. It enables the control of human resource costs.
- 2) **Organised focus on performance appraisal, training, development, and performance management:** The chief effort towards yielding better results depends on better performance of individuals, owing to performance management techniques. Better performance will be the outcome of better training and development activities.
- 3) **Effective utilisation of human resources:** Owing to the cost perspective it always makes us cautious in utilizing human resources through apt monitoring and supervision, which in turn the extracting and channelizing of the resources will be taken more care of, considering the monetary aspects.
- 4) **Valuation of outcome and results from individuals:** Human resources accounting enables the organisation to check whether the human resources are producing a return on the investment, and whether the individuals are interested in the organisation or not. Hence it is useful to make comparisons between cost and returns.
- 5) **Information for Manpower Planning - Basis for HR planning:** Human Resource Planning anticipates not only the required kind and number of employees but also determines the action plan. It provides scope for the advancement and development of employees through effective training and development.
- 6) **Basis for making HRM Policies:** HRA provides useful information for making suitable personnel policies about promotion, favorable working environment, job satisfaction of employees, etc. It checks the corporate plan of the organisation.
- 7) **Right Placements:** It aims to see that human involvement in the organisation is not wasted and brings high returns to the organisation. It offsets uncertainty and changes that enable the organisation to have the right person for the right job at the right time and place.

Human Resource Accounting – Limitations

- 1) **Uncertain Assumptions:** The valuation of human assets is based on the assumption that the employees are going to remain with the organisation for a specific period. However, the assumption is wrong because employee mobility cannot be predicted.
- 2) **May lead to Dehumanization:** Human resource accounting may lead to dehumanization in the organisation. If the valuation is not done perfectly or the results of the valuation are not used properly.
- 3) **Lack of Uniform Standards:** In the case of financial accounting, there are certain specified accounting standards that every organisation must follow. However, there are no uniform standards for HRA as each organisation has its standards. Therefore the HRA of no two organisations can be compared.
- 4) **No clear-cut guidelines for Cost and Value:** There are no specific and clear-cut guidelines for the computation of the 'cost' and 'value' of human resources of an organisation. The present valuation systems have many limitations in this aspect.
- 5) **Complexity in calculation of Human variables:** Calculation of the value of human resources is not so easy because it is most difficult to calculate the value of the quality of any person.
- 6)

Conclusion

Men, materials, machines, money, and markets are the important elements focussed by any organisation. Manpower resources are considered to be the chief and most vital among the other four resources. The very strength and growth potency of any organisation are indicated by human behavioral variables such as knowledge, individual integrity, team play, group norms, loyalty, ability, motivation, capacity for effective communication, interaction, critical thinking skills, decision skills, performance competencies etc. But still, critical evaluation of HR contribution is not being adapted and undertaken by the majority of organisations. As a matter, such organisations may be far from properly achieving objectives and deriving benefits as well.

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Words of Survival: Delving into Trauma, Resilience and Identity in *Sold*

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Abstract:

Patricia McCormick's analysis of the novel *Sold* reveals the visceral reality of human trafficking that combines trauma and resilience. Through the empathy, survival, social determinants and literary subtlety of the story, the novel illuminates the power of storytelling to raise awareness and inspire change, encouraging us to break the chains of exploitation and win a world of compassion and justice.

Keywords: Exploitation, Discrimination, Human trafficking

Trauma in literature often explores the aftermath of events such as violence, abuse, war, loss of a loved one, or other significant life-altering experiences. Writers use trauma as a thematic element to delve into the complexities of human emotions, resilience, coping mechanisms, and the process of healing. Characters who have experienced trauma may exhibit symptoms like anxiety, depression, flashbacks, avoidance, or even dissociation.

Authors may portray how trauma shapes characters relationships, worldviews, and decisions, adding layers of depth to the narrative. Trauma in literature can serve as a vehicle for exploring the human condition, empathy, and societal issues. Through storytelling, literature provides a platform to examine the intricacies of trauma, contributing to a broader understanding of the human experience. The enduring applicability of trauma proposition in literature lies in its capacity to illuminate the multifaceted confines of mortal suffering, adaptability, and memory. As societal mindfulness of trauma's far-reaching consequences continues to grow, literature serves as a reflective space where compendiums engage with narratives that navigate the complications of trauma.

In an increasingly globalized world marked by ongoing conflicts, relegation, and social bouleversement, trauma proposition provides a lens through which scholars and artists can critically examine and address the lasting impacts of collaborative traumas. It offers a frame for fostering empathy, understanding, and dialogue, promoting a more nuanced appreciation of the mortal experience in all its complexity. The elaboration of trauma proposition in literature has been marked by its transformative power to reshape how we approach and engage with narratives of trauma. From its origins in the fate of World War I to its contemporary operations across disciplines, trauma proposition remains a critical tool for unraveling the intricate relationship between trauma, memory, and narrative. As literature continues to evolve and respond to the changing landscapes of human experience, trauma theory stands as a testament to the enduring significance of exploring the depths of human suffering and resilience through the written word.

In *Sold* characters like Lakshmi and other characters are exploited. The reality of young girls like Lakshmi who having lived and are still living through exploitation discrimination, oppression and dehumanizing conditions is heart rending. Though the novel is a fictionalized account of what may be the life of some of such children forced to sex-trade, it truly represents the fate of hundreds of thousands of girls and women in Nepal as well as around the world. Lakshmi is sold and she is forced to involve in the sexual-activities for the payment of her familial debt. Mumtaz, the owner of the brothel, forcefully uses her

as the sexual slave. In return Lakshmi gets a meagre sum as her monthly remuneration. Mumtaz treats Lakshmi as a subhuman being no less than robots that are designed and programmed to work restlessly. In the context, the book mainly concentrates on exploration of the complications faced by the working-class people like Lakshmi and other characters who are subjugated and exploited in the world governed by monetary rational.

Sold is a powerful and emotionally impactful novel that follows the story of Lakshmi, a young Nepali girl who is trafficked into prostitution in India. The book sheds light on the horrifying realities faced by girls and women who are victimized by human trafficking and sexual exploitation. The novel portrays the trauma, hardships, and injustices that these young girls endure, highlighting the physical, emotional, and psychological toll of their experiences. Patricia McCormick's *Sold* addresses important themes such as human trafficking, gender inequality, and the exploitation of young girls, while also exploring the resilience and strength of its characters. The relevance of the trauma experienced by young girls and women in the context of human trafficking is central to the narrative, and the book raises awareness about this critical issue through its storytelling.

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Myth in Nadia Hashmi's *One Half from the East: On a Cultural Perspective*

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Abstract:

Cultural studies aid in comprehending the complexity of everyday life and the way that habits and beliefs are socially patterned and laden with values and meaning. A range of tools will be provided to analyse the production, circulation, and exchange of cultural practices and meanings. In Afghanistan's traditional and conservative society, superstitious beliefs are common, particularly in remote rural areas. The validity of their culture is maintained by the novelist through the use of magical and supernatural elements. The significance of her Afghan culture is being highlighted by the author. This research paper tries to analyse the feasibility of myth and superstitious beliefs in building culture.

Keywords: Myth, Ghursai game, Superstitious and Feminine

Cultural studies introduce you to critical approaches used in the study of a wide variety of cultural forms and practices. It aids in our comprehension of the complexity of daily life as well as the socialisation and value-laden socialisation of habits and beliefs. It will offer a variety of techniques to examine the production, transmission, and exchange of cultural practises and meanings. "Culture is a system by which meanings and ideas are expressed, not only in "art and learning," but also in "everyday behaviour," according to Raymond Williams. Cultural practises differ in every society. No one has the authority to determine the precise culture that must be adhered to by everyone. Cultures vary from one another.

Nadia Hashmi also tried to incorporate myths in Afghanistan. Superstitious beliefs are common in Afghanistan's traditional and conservative society, particularly in more remote rural areas. Here the novelist uses magical and supernatural elements to sustain the validity of their culture. She is stressing the importance of her Afghan culture. Through this, novel these cultural elements are passed on to the entire world. If it is not recorded by a literary person, it will be lost forever from the cultural history of Afghanistan.

Nadia incorporated mythology into this novel *One Half from the East*. It is a fascinating exploration of Afghan culture that is quite different from the rest. Every culture has its fables and myths. It has a lot of importance because research based on any subject always ends in these types of fables and myths.

Rostam or Rustom is a legendary hero in Persian mythology, the son of Zal and Rubada. His life and work were immortalized by the 10th-century Persian poet Ferdowsi in a book that contains pre-Islamic Iranian folklore and history. Rostam is best known for his tragic fight and killing of his son, without knowing who his opponent was. "I remember my mother telling us about a legend once—about Rostam's bow. The legend says that passing under a rainbow changes boys to girls and girls to boys. Even if a pregnant woman walks under the rainbow, the baby in her belly changes" (93).

I know I've been told that the myth about passing under a rainbow changing girls to boys is nothing but superstition. Still, a small part of me thinks that ever since I clung to those rocks for dear life and let the waterfall cascade over me, something has changed. (193)

The author presents superstitions and myths and cultural beliefs in the form of fables. She is not claiming that it is true but she is stressing the importance of her Afghan culture. It is left to the consciousness of the readers. In the middle of the novel, it is found that Obayda's father narrates their traditional fable about the magical rainbow that transforms one's gender while crossing it. Being an agricultural society, these fables are transferred from one generation

to another orally. Obayda was not ready to accept that the legend her father told her was not true. Her doubt can be understood by her dialogue with her mother. Obayda asks: “How do you know, Mother Have you ever passed under a rainbow why would everyone keep telling the legend if it weren’t at least a little true? And besides, I know it worked. I can already feel it” (156).

Obayd discusses his failed attempt to believe in the legend. It is clear from their conversation that they believe in the legend. Her sister even points out the possible mistake Obayd had made. “Maybe it did work. You were Obayd when you went there. The legend says it changes boys to girls and girls to boys. So maybe it changed you from a boy to a girl” (163).

The statement given by her sister even convinces the readers to believe in these superstitions. The condition of Obayd’s father also improved after getting his walking stick. But the family members want to believe that it happened because of the bacha posh tradition they followed. It is found that Obayd’s mother gave birth to a boy child. Therefore, the intention of turning Obayda into a bacha posh is fulfilled. They believe that it is the bacha posh that brought boy energy into the family with no sons. Here culture is providing solutions to their problems. Towards the end of the novel, it is identified, that Obayda realizes that it is only a superstition. Still, half of her doesn’t want to believe it. History, culture, and reality are entangled in this. Some amount of superstition is also associated with the Wizard hat in the novel. After the first failed attempt to reach the rainbow, Obayd told Rahim about the hat. He says “You’re not wearing your Wizard hat” (104). Rahim also admits that and believes in the superpower of the hat by saying “Yeah, wrong day to forget my hat. You know I got it right after I changed. I wear it almost every day” (104).

Obayd strongly believes that it is the Wizard hat that saved her from the scorpio stung on the journey to the camel's head. She also believes that it is the magical hat that saves her from the security of the tribal warlord. “And then it hits me. My hand touches Rahim’s hat, fitting so snugly on my head that it doesn’t fly off even as I race down the dirt road. It was magic” (137). Obayd considers that wizard hat as something special. “I knew there was something special about this hat. It made Rahim the way he was, tall and strong. What I didn’t know was that the Wizards hat could share some of that with me, too” (138).

The novel is set in modern-day Afghanistan. The setting of Afghanistan is particularly important to the arc of the novel. The playing of ghursai is also mentioned in the novel. It is one of the traditional games in Afghanistan. It is played in the countryside. In a ghursai game, children hold one foot in one hand and then try to knock their opponent. It is familiar to Afghans but not to people outside.

From analysing the cultural practices of Afghanistan, the researcher understood that the cultural practices in every society are unique. Nobody can judge that by attributing an inferior status to any of the cultures. Every cultural practise has its historical, socio-political and economic background. In this aspect, to criticise any cultural practise, one must know about all these factors.

Hashmi wins in proving that the bacha posh tradition is not dampening but it is a tradition that empowers young girls to understand their potential fully. Getting the right to speak, the right to get an education, and the right to work to earn money must be for everyone in society, no matter what. Women should also have the power to demand autonomy in decision-making. For all these, one must build self-consciousness. It is the self-consciousness of Obayda that made her climb the tall tree and build a walking stick for her maimed father, it is how she managed to go to the mountains all by herself. She did something that her sisters can’t. They can’t do all of these because they are confined to their biological gender and act feminine.

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Ethnic Violence in Nayomi Munaweera's *Island of a Thousand Mirrors*: A Statement on the Sri Lankan Civil War

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Abstract:

This chapter explores "Island of a Thousand Mirrors," a novel by Nayomi Munaweera, as a profound statement on the Sri Lankan Civil War. The author's personal background as a Sri Lankan-American, her creative writing expertise, and her intimate connection to the novel's themes add authenticity and depth to the narrative. The chapter delves into the novel's themes, including identity, belonging, resilience, and reconciliation, while also examining its narrative techniques and the impact of its symbolism and metaphors. A brief historical overview of the Sri Lankan Civil War provides context, highlighting its complex causes and key players. The chapter underscores the novel's role in humanizing the conflict, raising awareness, and fostering discussions about conflict literature and the enduring impact of war on individuals and societies. Ultimately, "Island of a Thousand Mirrors" stands as a testament to the enduring human spirit's capacity to heal, reconcile, and find hope amidst the darkest of times, making it a significant contribution to contemporary literature and a powerful witness to history and humanity.

Keywords: Civil war, identity, belonging, women, ethnic violence

Nayomi Munaweera's novel, "Island of a Thousand Mirrors," is a poignant and evocative exploration of one of the world's most protracted and devastating civil conflicts—the Sri Lankan Civil War. Munaweera, herself a Sri Lankan-American author, brings a deeply personal connection to the narrative, offering readers a hauntingly beautiful portrayal of the conflict's impact on the lives of its people. This chapter delves into the novel's themes, characters, and narrative techniques to gain a deeper understanding of the profound statement it makes about human resilience, healing, and the enduring quest for reconciliation in the face of profound tragedy.

Nayomi Munaweera's personal background-- born in Colombo, Sri Lanka, and later immigrating to the United States -- infuses her writing with a profound sense of cultural and emotional depth. Her journey as a Sri Lankan expatriate uniquely positions her to convey the complexities of identity, displacement, and trauma. Munaweera's academic background in creative writing and her master's degree from the University of Michigan further enhance her storytelling prowess. These aspects contribute to the authenticity and emotional resonance of "Island of a Thousand Mirrors."

The novel is set against the tumultuous backdrop of Sri Lanka's history, primarily the civil conflict. It weaves together the lives of two young women, Saraswathi and Yasodhara, representing opposing sides of the ethnic divide. These characters serve as lenses through which readers gain insight into universal themes such as love, loss, family, and resilience. We explore how Munaweera's lyrical prose captures the tapestry of Sri Lankan life, its landscapes, traditions, and the profound impact of the civil war on its people.

One of the central themes of "Island of a Thousand Mirrors" is the intricate interplay between identity and belonging. Through the characters' experiences, we analyze how they grapple with questions of who they are and where they fit in, particularly in a context of ethnic conflict. This theme underscores the human desire for a sense of home and belonging even in the midst of upheaval.

Munaweera employs a narrative technique that shifts between the perspectives of Saraswathi and Yasodhara. This narrative strategy provides readers with multifaceted views of the civil war, enabling a deeper understanding of the personal and emotional dimensions of the conflict. We examine how the characters' viewpoints offer unique insights into their experiences.

"Island of a Thousand Mirrors" portrays the remarkable resilience and strength of its characters as they confront adversity. We explore how both Saraswathi and Yasodhara navigate the profound losses and challenges brought on by the conflict. Their stories become a testament to the indomitable human spirit, highlighting the capacity to endure and heal in the face of tragedy.

In the latter part of the novel, themes of reconciliation and hope emerge. Munaweera invites readers to contemplate the possibilities of healing and understanding even in the aftermath of immense suffering. We discuss how the characters' stories intersect, demonstrating the potential for reconciliation and the enduring human yearning for a better future.

To contextualize the novel's themes, a brief historical overview of the Sri Lankan Civil War is essential. The Sri Lankan Civil War, which lasted from 1983 to 2009, was a brutal conflict between the government and the Liberation Tigers of Tamil Eelam (LTTE), a separatist Tamil militant group. The war was primarily rooted in ethnic tensions between the Sinhalese majority and the Tamil minority. It involved a series of violent clashes, including bombings, assassinations, and large-scale military operations. The conflict ended in 2009 with the defeat of the LTTE by the Sri Lankan government. However, it left a legacy of profound social and political divisions, human rights abuses, and significant loss of life, making it one of the most protracted and devastating civil wars in modern history.

"Island of a Thousand Mirrors" incorporates rich symbolism and metaphors to convey the impact of the civil war. Readers delve into the significance of symbols such as mirrors, glass bangles, birds, the sea, mangoes, and rain. These symbols add layers of meaning to the narrative, offering insights into the emotional and psychological toll of the conflict on both individuals and the nation.

The chapter concludes by emphasizing the role of "Island of a Thousand Mirrors" in raising awareness of the Sri Lankan Civil War and its consequences. The novel humanizes the conflict by presenting the personal stories of individuals and families affected by war. It encourages readers to explore the complexities of the conflict and its ongoing relevance. Furthermore, the novel's critical acclaim and recognition on the international stage have contributed to discussions about conflict literature and the impact of war on societies.

"Island of a Thousand Mirrors" is a compelling work of literature that transcends the confines of a civil conflict to explore profound human themes. Through Nayomi Munaweera's insightful storytelling, readers gain a deeper understanding of the enduring capacity of individuals and societies to heal, reconcile, and find hope in the face of adversity. The novel serves as both a literary masterpiece and a testament to the power of literature to bear witness to the truths of history and humanity.

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Abstract

V.S. Naipaul's "A House for Mr. Biswas" explores postcolonial cultural complexities as the protagonist seeks identity and stability in Trinidad. Displaced and homeless, characters adopt colonizer norms, eroding their language and customs. This cultural assimilation blurs their religious beliefs, resulting in an ambivalent, conflicted sense of self. This article tries to explore the intricate challenges and nuances of postcolonial cultural dynamics that surround the protagonist in V.S. Naipaul's *A House for Mr. Biswas*. This enduring tension serves as a pivotal lens through which a complex web of cultural elements, identities, and conflicts are viewed.

Keywords: Postcolonial Cultural Conflict, fragmentation, integration

Introduction

In V.S. Naipaul's novel *A House for Mr. Biswas*, published in 1961, cultural conflict plays a central role in the life of the protagonist, Mohun Biswas. Set in Trinidad in 1950s, the novel explores the clash between the Indian cultural heritage of Mr. Biswas and the Westernized, colonial society in which he lives. Mr. Biswas is born into an Indian family in Trinidad, and from a young age, he is exposed to the traditions and customs of his Indian heritage. However, as he grows up and interacts with the colonial society, he finds himself torn between his roots and the allure of modernity. This cultural conflict is evident in his struggle to find his identity and his place in the world.

Postcolonial Cultural Conflict, Fragmentation and Integration

One of the most prominent symbols of this conflict is Mr. Biswas's quest to own a house of his own. In Indian culture, owning property is seen as a symbol of success and stability. However, in the colonial Trinidadian society, this is a challenging endeavor for someone like Mr. Biswas, who lacks the financial means and social status to easily acquire property. His efforts to build a house become a metaphor for his broader struggle to reconcile his Indian heritage with the demands and expectations of the Westernized world around him. Throughout the novel, Mr. Biswas faces discrimination and cultural misunderstandings as he navigates the complex terrain of Trinidadian society. He is often seen as an outsider due to his Indian background, and this sense of otherness exacerbates his cultural conflict. The tension and conflicts arise when an individual is caught between two different cultural worlds. Mr. Biswas's journey is a poignant exploration of the challenges of cultural identity and the desire for self-determination in a changing and sometimes unforgiving world.

Fragmentation serves as a lens through which the author explores the challenges of identity, cultural change, and the search for stability in a rapidly evolving world. Through the life of its protagonist, the novel paints a vivid picture of the complexities and disintegrations inherent in the human experience. At the heart of the novel is Mr. Biswas's relentless pursuit of a house to call his own. This desire for a home represents his longing for stability and a sense of belonging in a fragmented world. However, throughout his life, Mr. Biswas faces numerous obstacles and setbacks in achieving this goal. His quest for a house is marked by financial struggles, family conflicts, and cultural clashes, all of which contribute to a sense of fragmentation in his life. The fragmentation of Mr. Biswas's identity is another central theme. Born into a Trinidadian Indian family, he grapples with the clash of his Indian cultural heritage and the Westernized society in which he lives. This cultural disintegration leaves him feeling like an outsider, torn between two worlds. His attempts to reconcile these conflicting identities add depth to the theme of fragmentation.

The broader societal context in the novel also highlights fragmentation. Trinidad is depicted as a society undergoing rapid modernization and urbanization. Traditional customs and values are giving way to Western influences, resulting in a fractured cultural landscape. This transformation is seen in the decline of traditional Indian customs within Mr. Biswas's family and the rise of a more materialistic and consumer-driven culture. Family relationships in the novel are marked by fragmentation as well. Mr. Biswas's interactions with his extended family are often characterized by conflict and disunity, further emphasizing the theme of fragmentation within the family unit.

While the story primarily revolves around the struggles of the protagonist, Mohun Biswas, it also presents a nuanced exploration of integration, highlighting the complexities of reconciling one's cultural heritage with the dominant society's expectations. Through Mr. Biswas's journey, the novel underscores the challenges and aspirations of individuals seeking to find their place in a rapidly changing world. One significant aspect of integration in the novel is Mr. Biswas's desire to integrate into the societal norms and expectations of Trinidad, where he was born and raised. Despite his Indian heritage, he yearns to assimilate into the Westernized culture that dominates Trinidadian society during the colonial era. This desire is exemplified by his ambition to own a house—a symbol of success and integration into the Western middle-class lifestyle. At the same time, Mr. Biswas faces challenges to his integration from both the Indian community and the colonial authorities. He is often seen as an outsider within the Indian community due to his Westernized education and aspirations. Additionally, the colonial bureaucracy, represented by characters like Mr. Green and Owad, is a constant impediment to his integration into the broader society. Another layer of integration is Mr. Biswas's attempt to integrate into his own family. His relationship with his wife, Shama, and his children is marked by struggles, but it also reflects his desire for a sense of belonging within his own home. Despite the difficulties, he seeks to be a responsible father and husband and, in doing so, strives for integration into the domestic sphere. Biswas was indifferent to the customs. When Mr. Biswas's sister has escaped with Tara's worker, Tara swears not to mention her name forever since she has caused disgrace for the family, escaping with a yard boy and when Mr. Biswas is expected to get angry, "he felt no anger or shame." His sister, Dehuti that runs with a yard boy, disgraces Tara since "the yard boy is the lowest of the low" (p. 25). Throughout the novel, the house itself becomes a symbol of Mr. Biswas's quest for integration. He views it as the key to his integration into both society and his family, as owning a house represents financial stability and social status. His relentless pursuit of a house underscores his determination to achieve integration on his own terms.

Conclusion

In the novel, the central character Biswas embarks on a lifelong quest to acquire a home, symbolizing the broader plight of displaced individuals in Trinidad who lack a sense of belonging due to their displacement from their native land. This new environment leaves them feeling uncertain and unsettled. Consequently, they must forge a new sense of identity.

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Disability and Performing Arts: A Study on Padma Venkatraman's *A Time to Dance*

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Abstract

This study on Padma Venkatraman's novel *A Time to Dance* (2014) analyses how resilience leads the protagonist to transcend the stereotypical limits attributed to disability, through the lens of disability studies. The novel clearly exhibits the protagonist Veda's struggles to regain her passion through her mental strength and hope. It portrays the themes of loss of identity, the resilience of people to overcome tragedy and the power of art to transform lives. It is a stunning novel about spiritual awakening where the power of art and above all the courage and resilience of human spirit succeeds in breaking all barriers created for disabled people.

Keywords: A Time to Dance, Padma Venkatraman, Disability, Performing Arts

According to Harvard Political Review website: "Disability should be considered an important perspective in the artwork, but also recognize that the disabled individuals have more to give than their disability." However, with the emergence of medical interventions, technology and disability activism, the status of disability and handicapped people in society have altered and transformed over time.

A Time to Dance (2014) is a captivating novel written by Padma Venkatraman. Veda is a classical dancer who gets injured in a bus accident, and her right leg had to be amputated below the knee, thus turning into a disabled person. Her dance teacher does not believe that she will ever dance again. However, Veda is passionate and is unwilling to abandon her dream and finds a new teacher who shares her hope. Though she must relearn even the most basic steps, his faith in her allows her to reclaim the art form that has brought her so much joy and ultimately breaking the stereotypes of the ableist world. Told through lyrical, evocative language, this is a powerful novel of loss, recovery, and resilience of the human spirit.

Disability Study: A Bibliography compiled by Anju Sosan George, Archana Sukumaran and Sruthylacshmi B Bhat gives a detailed definition of disability theory.

Disability Theory, also known as Critical Disability Theory examines, interprets and redefines 'disability' from multidisciplinary- medical, ontological, philosophical and cultural vantage points. This methodology interrogates ideologies connected to it, such as impairments, normativity, disability politics, stigma, and stereotypes. Disability theory attempts at a paradigm shift by de-pathologizing disability, interrogating assumptions and advocating inclusion. This includes challenging the traditional notions attributed to persons with disability and by deconstructing ableism, sexism, and racism. (13)

Once a person is disabled, the ableist society tends to define the human being based on his/her disability. After the accident, Veda's dance teacher believes that she will never dance again. "Veda, so many of us blessed with able bodies can't meet the demands of a professional dancer's life. May be for you it's time for a new dream" (Venkatraman 118).

The discrimination against disability is clearly visible in Uday Anna's attitude because while 'Disability' should actually make people realize the concept of social inclusion. Disability inclusion means understanding the relationship between the way people function and how they participate in the society and making sure everybody has the same opportunities to participate in every aspect of life to the best of their abilities and desires.

Author Padma Venkatraman makes use of philosophical and non-secular narratives in *A Time to Dance* to tell the story of Veda's conflict to repossess her passion for dancing. "Interestingly, an underlying theme of disability perspectives is that the lived experience of disability is always

already performative; indeed, many of us with disabilities understand our disabilities as per theoretical sense, but as an actual mode of living in the world.” (Sandahl) Performing Arts attain a new dimension when they are performed by disabled artist. This inspiring novel evolves through verses that sees the aesthetic beauty of India spirituality. The novel is also about a spiritual awakening and the bravery of unyielding human spirit.

Veda is an optimist person. She believes that she can rebuild her dance career. Also, she tried very hard to make it happen. The down sides to disability are not overloaded in the novel. Veda faces ableism from people around her, from strangers rudely asking her what took place to her leg to taunts from friends that are laced with slurs and horrible jokes to her dance teacher believing that she will no longer being a position to dance over again. Moreover, Veda must overcome ableist views that she has internalized: that she is useless, or lesser, or incomplete because of her disability.

At the same time, there are plenty of counterexamples to balance the ableist bits: Veda’s grandmother loves her unconditionally, the bus driver who drives the route to her school welcomes her back without drawing attention to her disability, her new teachers focus on what she can do and don’t act condescending toward her, she is shown professional dancers with prosthetic limbs who serve as role models to her, she meets other people who are disabled and living their lives, and she is reminded that the god Shiva dances in everyone and everything, so there is no one right way to exist or to dance.

Veda's first dance teacher will not teach the newly 'disabled' girl. But dancer Dhanam akka sees her as 'differently abled'. ‘Allow yourself to feel lost’, akka encourages Veda, because she has a lot of courage. Veda gets assigned as a student to Govinda, a young dance teacher who believes that meditation isn't about pushing yours body, it's about honouring the way you respect any other area within which god exists. Veda learns to dance spiritually as she falls in love with Govinda.

Veda refuses to let her disability rob her of her dreams, and she starts all over again, taking beginner classes with the youngest dancers. Then Veda meets Govinda, a young man who approaches dance as a spiritual pursuit. As their relationship deepens, Veda reconnects with the world around her, and begins to discover who she is and what dance truly means to her.

Veda finds a balance between her disability, her identity and dance, the art form through which she rediscovers herself. Society needs to acknowledge the elusive boundary between having impairment and being able-bodied. It should acknowledge that very few of us qualify as fully able-bodied along all dimensions of functioning throughout all of our lives. This is a stunning novel about the power of art and above all courage and resilience of human spirit. This novel proves that disability is not inability which stand in the way to success.

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Liberal Feminism in Louisa May Alcott's *Little Women*: A Feminist Reading

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Abstract

This paper is an attempt to read Louisa May Alcott's novel *Little Women* (1868) from a liberal feminist perspective. The narrative plot follows the lives of the four March sisters and the details their lives from childhood to womanhood. The four sisters bloom into their youth with their own unique and dynamic talents. The stereotypical gender roles attributed to the girls along with a life of poverty puts them within the chains of social circumstances. The plot follows the sisters as they mature, fall in love, and find their place in the world. The four March sisters, Meg, Jo, Beth, and Amy, who all feel so real, allow readers to recognize themselves in them. The novel is a compelling narrative that proves that women can be heroes in their own stories, and that they can be bold, tenacious, and self-assured in who they are and what they want for their present and future.

Little Women, published in 1868, is a coming of age novel written by American novelist Louisa May Alcott. The novel is partially based on Alcott's own upbringing and is set in 1860s Massachusetts during the Civil War. Writing and sharing their stories is a way in which the female writers discovered their own voices, feminism advocates for equal rights and opportunities for men and women. It is about honoring the different experiences, identities, expertise, and strengths of women, and seeking to enable all women to realize their full potential.

Jo March is a central character in the novel. She is an aspiring author who strives to publish and have authorship of her writing in newspapers. She also wants to publish her novel. Jo is a fiery and outspoken lady who is determined to defy the expectations and gender roles imposed on her as a woman in the 1860s.

"Feminism is the place where in the most natural, organic way subjectivity and politics have to come together." says Adrienne Rich (Nagarajan, 206) Feminism with a liberal bent -Liberal Feminism - is simply the treatment of women and men on an equal footing. Women's legal rights, job opportunities, and education should be equal to men's. Liberalism is a set of ideologies that emphasize the importance of liberty and believe that a just state ensures individual liberty. Liberal feminists support this ideal and they function for the state, as well as women's freedom.

The children of the March family worked hard to meet their necessities and assist their mother; they plan to donate their hard-earned money to buy something for their mother as a Christmas present.

'Mother didn't say anything about our money,
and she won't wish us to give up everything.
Let's each buy what we want, and have a little fun;
I'm sure we grub hard enough to earn it,'
cried Jo, examining the heels of her boots in
a gentlemanly manner. (Alcott 6-7)

As indicated in the quotation above, this is a narrative of representation liberal feminism. It is defined as gender equality that liberates women from repressive gender norms. Liberal feminism resulted in advancements in the fields of Economics, civil rights, and self-fulfillment. The above context depicts how a woman who can meet her own wants by working hard and using the ability to her independence.

Geraldine Brooks reveals in Nancy Porter's video titled "Louisa May Alcott: The Woman Behind Little Women", "Louisa really was an early feminist. It is underappreciated how she was able to use her success to make her really a megaphone for feminist issues" (Porter). Gender is significant, and it does play a role in defining a person. Alcott does not ask the audience to overlook gender, but rather to see beyond the preconceptions that have kept the genders separated. Gender expectations and preconceptions in society, not biological sex, are what constrain a person. The novel's themes of female evolution and freedom are still valued, and the narrative has been rediscovered numerous times through its countless adaptations. Reading this novel allows one to engage with modern concepts about female authority, critical institutions, and the American literary canon, as well as nineteenth-century conceptions about patriarchal culture and women's culture, as Elaine Showalter puts it.

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A Review on the Politics in *Jawan*, and its Invisible Vigilante

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Abstract:

Jawan is a quintessential mass entertainer with no cliches spared but manages to convey sincerity to the audience. A high-octane action thriller which outlines the emotional journey of a man who is set to rectify the wrongs in society. Social messaging has become a defining characteristic of Tamil cinema and we see the same kind of messaging in Jawan. The film narrative is nothing new with its father-son revenge plot, vigilante trope and mother sentiments but in the current Hindi cinema landscape, it does come off as deeply political.

Keywords: Film, Entertainer, Narrative, Vigilante, Mother Sentiments

Jawan, directed by Tamil film director Atlee, where Shah Rukh Khan plays a double role as Azad and his army veteran father, Vikram Rathore. Vikram Rathore is falsely accused of being 'anti-national,' when he challenges arms dealer, Kali Gaikwad who supplies malfunctioning guns to the Indian army. He is unfairly killed by Kali and is believed to be dead. Meanwhile, Aishwarya, the wife of Vikram Rathore, is on the line for capital punishment after killing corrupt police officers who aided in ambushing her husband at her house. However, she's saved and given five years to live when it's discovered that she's pregnant with Azad. Azad grows up in the prison with his mother and other female inmates until the age of five. He witnesses his mother heading to the gallows after she extracts a promise from him to help the inmates who were put behind bars unlawfully. Later, Azad returns as a jailer to the same all-female prison and he gathers a team of six women (including Sanya Malhotra, and Priya Mani) to orchestrate elaborate hijackings and heists to tackle issues like farmer suicide, poor public healthcare, etc. Vikram Rathore too, who has been living an obscure life so far, joins his son to exact revenge and helps bring justice to everyone wronged by Kali Gaikwad.

Jawan and the female characters tried to highlight women, but it still misses the mark. However, the best efforts cannot be dismissed so easily because it did give significant space to a powerful female cop and an all-female heist team, at least on the surface. The representation of women prisoners was faulty in many ways (for instance, the fashionable clothes of the inmates), but it's still noteworthy that a mainstream film portrayed female inmates in a positive light. The setting of an all-female jail is very significant in the film because women who are imprisoned typically come from socially and economically underprivileged backgrounds. Thus, forming a heist team with these women is an attempt to give back their autonomy to right the wrongs done to them by themselves.

Shah Rukh Khan emphasised in several tweets in the run-up to the release that the empowerment of women was an important focus in Jawan. He also referred to it as "a film about women made for men," implying that he was knowingly participating in a ruse to use his star power to highlight women's professions and stories in a society and industry that is still struggling to accommodate women substantially. However, the sentimental flashbacks and tragedies of the women in the heist team eventually become another motive for Azad's larger revenge plan. Hence, in the end, all we get is another male saviour that we didn't need. While Shah Rukh Khan does manage to bring a sensitive touch to the male saviour, it's patronising all the same.

Another instance where the female representation lost its mark is Nayanthara's character, Narmada. Initially, her character is shown as a strong and diplomatic woman who is capable of handling a dangerous hostage situation calmly. It's also noteworthy that her character is a single mother by choice and her motherly side is never shown as something that could hold her

back from being a powerful cop. One of the action sequences where she holds her own against male opponents is one of the most memorable in the film. However, her character arc is derailed when she decides to marry Azad despite him being a stranger and like the rest of the heist team, her role is overshadowed by Shah Rukh in the second half of the film. This derailment is through no fault of the actor or the character, but the writer.

After watching the movie we can conclude that though *Jawan* is not doing anything particularly new or meaningful for female representation, “It’s a testament to the fact that any film can stage complex action sequences or massively energetic musical numbers entirely with women — but only if the filmmakers care to try.” The film provides a commentary on farmer suicides, collapsing public health infrastructure, corruption in the law-and-order machinery and the corruption that takes place in the defence industry. Commentary on such topics in a democracy shouldn’t be such a novelty but given our current political scenario, it is bold indeed. It points to the mutually beneficial relationship between private players and the government, which though exaggerated, reminds us of our reality. *Jawan*, in that sense, is also the perfect escapist film because it gives us the invincible vigilante who fights back against all the above-mentioned corrupt institutions and we gain some satisfaction in watching justice being served.

However, one of the things that sets *Jawan* apart from other righteous vigilantism films is the fact that Shah Rukh Khan is playing the vigilante. Shah Rukh Khan, as an individual, has come to mean something larger than life to everyone in India. Furthermore, as a well-known Muslim actor who makes no attempts at hiding his religion, his path has been difficult. In 2015, he alluded to growing intolerance in the country and how “not being secular is the worst kind of crime you can do as a patriot,” and these comments had him likened to an anti-national terrorist by politicians. From then on, Shah Rukh Khan has been fairly silent on all matters in India, probably due to self-preservation and rightly so. However, he finally seems to have broken his silence through the medium of cinema, which is what he knows best. The fact that he took on the role of a vigilante who is labelled as a terrorist within the film is a bold move considering how our audience projects an actor’s role onto the actor himself. On the other hand, it might also be a clever use of that tendency because both, Azad, the character and Shah Rukh Khan, the actor give us the same message: dissent is patriotic, and accountability isn’t anti-national.

In the final rousing monologue by Azad, he urges all citizens to be aware of their voting rights and how to use them to hold the people in power accountable. This is a distinct moment in the film where the sincerity of both Shah Rukh Khan and the makers of *Jawan* shines through. While they did portray an all-powerful hero fighting a corrupt government, at the end of the day, they passed the baton to the normal citizens of India to fight back. In that moment, they ground the audience in reality and ask them to be change-makers themselves. Therefore, in the grand scheme of things, *Jawan* might not be anything new but it’s a necessary wake-up call from the King of Bollywood himself and one could only hope that some of us heed it.

References

Jawan, Red Chilli Entertainments, Dir. Atlee, 2023

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The Representation of Dalit Self: Valmiki's *Joothan* in a Dissident Space

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Abstract:

Dalit theory suggests that unaccepted individuals often outcastes, use politics to resist long-term hegemony, leading to the creation of Dalit literature. Om Prakash Valmiki's *Joothan* is the first Dalit autobiography in Hindi, highlighting the importance of Dalit consciousness in raising socially subjugated individuals' awareness of their oppression and representation in politics and education. The concept of a 'Dissident' is central to Dalit literature, as seen in Valmiki's account of the caste system's miseries and his struggle to survive. The novel emphasizes the importance of rewriting history and a new identity, highlighting the author's struggle to advance Dalits in society through literature and education. This dissertation aims to prove that Dalits are not inferior but deserving of better life and status, encouraging dissidence and resistance towards the caste system.

Keywords: Dalit theory, Dalit literature, Dalit consciousness, Dissidence, Caste system.

Introduction:

Joothan: A Dalit's Life is a significant work in Dalit literature, focusing on the journey of a boy from deplorable socio-economic conditions to prominence as an author and social critic. The dissertation is based on the theory of Dalit literature, which is the product of outcastes who face pressure and discover missile politics to combat long-term hegemony in India. It serves as a discursive addition to the socio-political movement of Dalits for social justice, with expressions like dissidence, Dalit consciousness, and identity serving as relating points for their rights and respect. Omprakash Valmiki is a prominent Hindi-speaking Dalit, known for his autobiography *Joothan: A Dalit's Life*, which chronicles his experiences as a Dalit, his struggles to overcome the social caste system, and his eventual triumph. His work challenges readers to participate in the global mission of human liberation.

The text presents a picture of Indian society, highlighting the economic and moral effects on a significant portion of contemporary India. It proposes to fight discrimination and free previously oppressed castes and classes, making strong arguments against the caste system, which is still in place in most of India. The article aims to prove that Dalits are not inferior but deserving of better life and status. Dalit students suffer humiliation and discrimination by upper caste people in educational and social spheres, and higher-caste people feel superior to themselves and lower-class people feel inferior in marriage affairs.

Dalit consciousness and dissent against social injustice are important, as there are many laws, rights, and organizations for their upliftment. Dalit consciousness is an attempt to raise the consciousness of socially subjugated people in the lowest rung of the varna system, focusing on their oppression and representation in politics and education. It is a notion that comes up regularly when Dalit politics and identity are discussed. The novel *Joothan* details how Valmiki awakened Dalit consciousness through his life, demonstrating how dissent is an opinion, ideology, or sentiment that opposes a community-held belief or directive enacted by a government or political organization. 'Dalit consciousness' is discussed by detailing their marginalized issues, his horrific experiences, and valiant struggles to overcome the social caste system.

The text *Joothan* is absolutely a dissent and Omprakash Valmiki is a dissident to caste-based society. Valmiki shared assertive protest to survive in the caste system and struggle to achieve the new directions for life and new identity. In order to forge a unique, distinct, and dignified identity for himself, Valmiki resolves to do with some of his community's traditions as well as rites of the Hindu faith. He eases to worship pigs after getting married, despite his

father's condemnation of his actions. Joothan is a manifesto for the radical transformation of society and of human awareness.

Joothan, is a multifaceted text that offers solace and criticism to his people, while also contributing to the archive of Dalit history. It highlights the partial fulfillment of the promises made in the constitution of Independent India and the ways Indian democracy has provided escape from the realities it reflects. The author invites Dalit voices to join the chorus of voices clamouring for their status under the sun, highlighting the complex relationship between fanaticism and religious caste structure in India.

Literature plays a crucial role in promoting equal opportunities and eradicating inhumanity based on caste, creed, religion, race, and ethnicity. It is essential to consider the voices of marginalized communities and their reflections in literature, as it offers equal opportunities and eradicates inhumanity. The slave community in America, despite losing their language, history, and culture, created a new culture like jazz, establishing identity. Therefore, it is essential to evaluate Dalit literature using different approaches and standards for a better humanity.

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Ultrafast Magnetisation Dynamics for Studying fast processes in Magnetism

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Abstract

The processes which happen in a shorter timescale i.e. less than nanoseconds are called ultrafast processes. There are many processes in nature which happens much faster than human perceptions. We, humans, can imagine things happening at time scales that are of ms or even μ s. The unfolding of a protein happens with a time scale of μ s to ns (10^{-9} s). Some molecules change their conformation at a time scale of ns to ps (10^{-12} s). Molecular vibrations (phonon modes) relax at a time scale (Schall & Jepsen, 2000) shorter than ps to fs (10^{-15} s). Most of the electronic processes happen in the fs time scale (K. T. Kim, 2016). It is in this scenario that scientists have thought about studying magnetic phenomena in the femtosecond time scales.

Since electronic relaxations happen in the fs time scales (J. Kim et al., 2014) scientific world was curious about what can happen to the magnetism and magnetic relaxations in the ultrashort timescales. It is in this wake that Beurepaire and a group in France study the dynamics of magnetisation when excited with a femtosecond laser pulse (Beurepaire et al., 1996). This started a new field of physics called ultrafast magnetism. This study followed several studies from the Radboud University, in the Netherlands giving rise to newer phenomena (Kimel & Zvezdin, 2015)(Kimel et al., 2005).

The French group studied NiO thin films using the femtosecond pump-probe technique. In this method, the material under study is being pumped by a beam of the fs laser and the response of the system was studied using another low-intensity probe beam which was spilt from the earlier mentioned pump beam with a time delay. The typical power ratio of the pump to probe is 19:1. The time delay is induced by a delay stage which introduces a change (increase) in the path length of the probe beam from which the delay at which the probe is measuring the system response can be calculated. The method is a stroboscopic one which resembles the earlier method of movie recording using film. The system response after the excitation with the pump is measured as a function of the time delay between the pump and probe. The magnetic specificity of the measurement can be brought about using the time-resolved magneto-optic Kerr effect (TR-MOKE) setup which measures the polarisation sensitivity of the sample as a function of the time delay.

Magneto-optical Kerr effect ensures that the response of the system is basically due to the change in the magnetic response of the thin film shortly after the femtosecond pulsed laser excitation. The system can be modelled using three reservoir systems in which the short pulse excitation leads to the generation of hot electrons. This system of hot electrons then transfers its energy to the vibrational modes, i.e. phonons of the thin film. Both hot electrons and the phonon reservoir system transfer their energy to the spin system which goes from an ordered state into a disordered state with a reduction in the magnetisation. All these changes happening to the system can be mapped as a function of the time delay between the pump and probe due to the high resolution of the system with an accuracy of up to 30 femtoseconds (characterised by the width of the laser pulse typically <30 fs that can be ensured by taking the autocorrelation of the pulse).

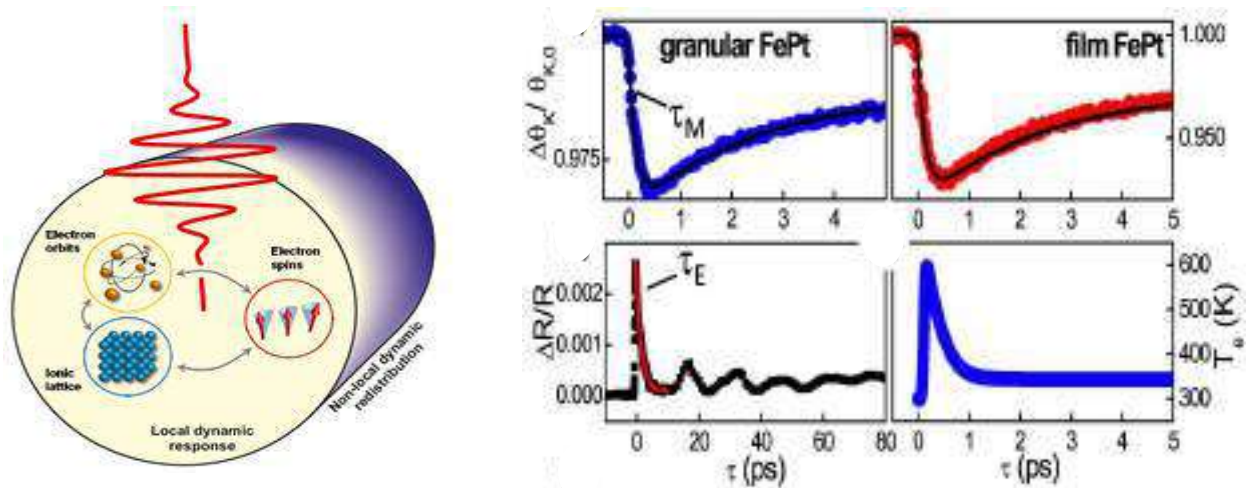


Figure 1 The three systems which take up the energy from the laser pulse and give rise to the magnetisation dynamics (image adapted from reference no.10). The right-hand side of the image shows graphs of the time-resolved magneto-optical Kerr effect (top) from two samples (i) granular FePt and (ii) thin film FePt and time-resolved reflectivity measurements (bottom) of the two samples. (adapted from reference 11)

As one can see from the time-resolved reflectivity measurements the relaxation of the hot electrons into thermalised electrons happens within a few pico-seconds (bottom graphs in figure 1) for both granular FePt sample and FePt thin films. The time-resolved response of the thermalisation of the FePt granular film shows some oscillating behaviour probably due to the creation of some kind of thermal relaxation channels from time to time due to the discontinuities in the sample structure. These sorts of samples are granules with some carbon coating in between them with a perpendicular magnetic anisotropy (typically employed for heat-assisted magnetic recording.).

The time-resolved MOKE measurements (top graphs in figure 1) show that immediately after the laser excitation within 250 fs the system loses its magnetisation (demagnetises) and after 1 ps the system starts regaining its magnetism by remagnetisation. This can be done due to the exchange interactions coming into play rather than the dipole-dipole interactions in the system which could supposedly happen at a much longer time scale. Thus, from the TR-MOKE measurements of the magnetic films of interest one can get an idea of the time scale of exchange interactions in the system. The details of the measurements can give much more insight into the sample which we are not discussing in this chapter. It was observed that the system regains its magnetism almost completely (>90%) by 150 ps.

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Colourful Carbon Nanotubes

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Abstract

Carbon is in general thought to be black apart from some exceptions such as the case of hard white diamonds (Klein & Cardinale, 1993). Even the ensembles of carbon nanotubes, one of the earliest nanoforms of carbon are black. But interestingly some of the nanotubes with specific rolling (chirality) show different colours when they are in suspension. This interesting optical property originates from their electronic structures as discussed in detail in the chapter.

Carbon is one of the most exciting elements due to its tetra (4 valence electrons) valency. The four valence electrons in carbon can form different types of bonding such as sp , sp^2 and sp^3 depending on how many s and p orbital electrons are involved. One of the most common and cheap forms of carbon, graphite forms sp^2 hybrid bonding whereas diamond is formed by sp^3 hybrid carbon. Graphite is formed by a 2-dimensional sheet of honeycomb structured carbon arranged in a plane namely graphene (John et al., 2011). Nanotubes are made of this graphene layer rolled up into certain tubes which are called carbon nanotubes.

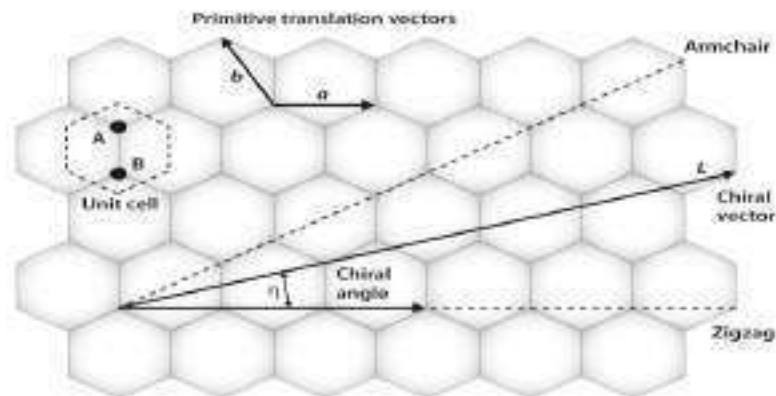


Figure 1 The vector labelled L shows the chiral vector (C_h) whose length gives the circumference of the nanotube (L is perpendicular to the axis of the SWNT) in the graphene lattice. The dashed lines show two of the many possible directions that L can have and the resulting chirality of the nanotube is labelled to each of the dashed lines namely armchair (chiral angle is 30°) and zigzag (chiral angle is 0°). (Image has been taken from the reference (Castro Neto et al., 2009))

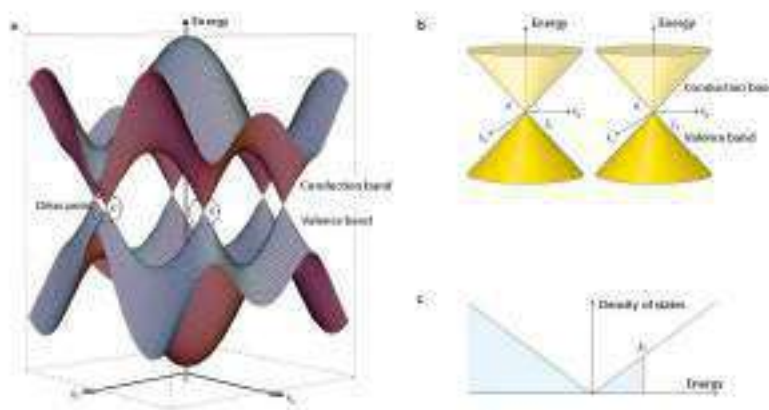


Figure 3. The electronic structure of graphene (Novoselov et al., 2005)

To understand this variation in the electronic structure one must look at the electronic structure of graphene itself as given in figure 2a. The energy vs wavevector diagram of graphene shows interesting properties near one of its symmetry points called K point which shows a linear relation between E and K. Usually in semiconductors the E vs k diagram is parabolic. This linear relation is what makes graphene interesting in terms of its electronic property giving rise to a non-negligible population of charge carriers near the Fermi level and their highest electron mobility around these symmetry points. When the graphene gets rolled up into certain angles, not all energy values are permissible due to confinement in one more direction, ie it has turned from a 2D object to a 1D object which has an electronic structure similar to that of a one-dimensional potential well.

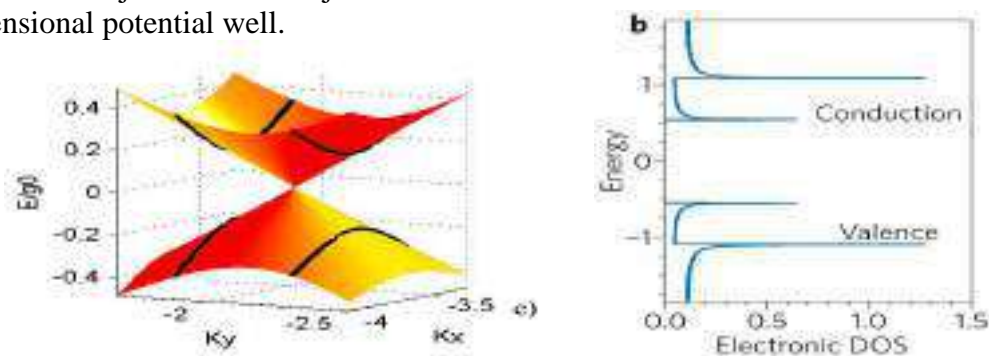


Fig. 3 Electronic structure of semiconducting SWNT. The image on the left-hand side shows the energy eigenvalues plotted against the momentum values centered around the K-point. The solid lines show the energy values corresponding to the allowed momentum values of the semiconducting nanotube. The right-hand side of the image shows the representative electron density of states of such a nanotube. (Image is adapted from the source: http://en.wikipedia.org/wiki/Ballistic_conduction_in_single-walled_carbon_nanotubes)

This gives rise to certain specific energy levels which characterise the nanotubes namely van Hove singularities in electronic energies, which are typical for carbon nanotubes. When a nanotube changes its rolling due to the change in the constraints the positions in the energy axis of these singularities (Liao et al., 2018) change and hence the optical property associated with the transition between these energy levels. Some of the van Hove singularities even pass through the Fermi level, and hence those nanotubes fall in the category of metallic nanotubes. So, they can be metallic, semiconducting and with very many colours depending on the wavelength in which they absorb to have an electronic transition between these energy levels. So, in a nutshell, they can have very many colours depending on the rolling once they are isolated which is why they are colourful in suspensions.

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Attitude towards Drugs and Alcohol among Middle People

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Abstract

Attitudes towards drugs and alcohol among middle-aged individuals can vary widely and are influenced by a range of factors, including personal experiences, cultural norms, social influences, and education. Here are some common attitudes and considerations related to drugs and alcohol in the middle-aged population: According to WHO “Stress can be defined as a state of worry or mental tension caused by a difficult situation. Stress is a natural human response that prompts us to address challenges and threats in our lives. Everyone experiences stress to some degree. The way we respond to stress, however, makes a big difference to our overall well-being”.

Keywords: Drugs, Alcohol, Middle aged people

Introduction

Stress is our body's natural physical and mental response to challenges or changes. It may help you overcome obstacles and push yourself to new levels of personal growth. When your body's stress response system starts malfunctioning, though, the same feelings can become barriers and limit your ability to perform at your best. Research has even shown that stress can trigger or aggravate several conditions and impair the functioning of different body systems there are so many things that can trigger the fight-or-flight response, which is your body's natural reaction to stress. When something or someone triggers the stress response, your body goes into immediate action to either confront the threat or flee. Physically, when you feel stressed, what you're feeling is your nervous system signaling a flood of hormones to be released from your adrenal glands, such as cortisol (the stress hormone) and epinephrine (adrenaline). Adrenaline is responsible for the physical symptoms you experience, such as a rapid heartbeat. (Pugle, 2021)

Drug addiction, also called substance use disorder, is a disease that affects a person's brain and behavior and leads to an inability to control the use of a legal or illegal drug or medicine. Substances such as alcohol, marijuana, and nicotine also are considered drugs. When you're addicted, you may continue using the drug despite the harm it causes. Drug addiction can start with experimental use of a recreational drug in social situations, and, for some people, drug use becomes more frequent. For others, particularly with opioids, drug addiction begins when they take prescribed medicines or receive them from others who have prescriptions. The risk of addiction and how fast you become addicted varies by drug. Some drugs, such as opioid painkillers, have a higher risk and cause addiction more quickly than others. As time passes, you may need larger doses of the drug to get high. Soon you may need the drug just to feel good. As your drug use increases, you may find that it's increasingly difficult to go without the drug. Attempts to stop drug use may cause intense cravings and make you feel physically ill. These are called withdrawal symptoms.

1. **Diverse Attitudes:** Middle-aged individuals have diverse attitudes toward drugs and alcohol. Some may have adopted more conservative or abstinent views, while others may maintain more permissive attitudes based on their personal experiences and values.
2. **Cultural and Generational Influences:** The attitudes of middle-aged people can be influenced by the cultural and generational context in which they grew up. For example, individuals who came of age during the counterculture movements of the 1960s and 1970s may have different attitudes toward recreational drug use than those who grew up in different cultural climates.

3. **Health and Well-Being:** Many middle-aged individuals prioritize their health and well-being. As a result, they may be more cautious about substance use and its potential health risks, particularly because they may be more aware of the long-term health consequences.
4. **Parenting Concerns:** Middle-aged individuals who are parents often have concerns about their children's exposure to drugs and alcohol. This concern may influence their attitudes and behaviors, leading them to adopt stricter views on substance use.
5. **Personal Experiences:** Personal experiences with drugs and alcohol, whether positive or negative, can significantly shape middle-aged individuals' attitudes. Those who have experienced addiction or witnessed its effects in their families or communities may have more negative views on substance use.
6. **Changing Social Norms:** Middle-aged individuals may experience changing social norms and attitudes regarding drugs and alcohol. Society's views on these substances have evolved, impacting how they are perceived and used.
7. **Education and Awareness:** Those who are well-informed about the risks and consequences of substance use may be more likely to adopt more cautious attitudes. Education and awareness campaigns can influence these perspectives.
8. **Stress and Coping:** Some middle-aged individuals may turn to substances like alcohol as a means of coping with midlife stressors, such as work-related pressures, family responsibilities, or the challenges of aging. Attitudes may differ based on the role substances play in their coping strategies.
9. **Peer and Social Influences:** Social networks and peer groups can have a substantial impact on middle-aged individuals' attitudes toward drugs and alcohol. Those surrounded by friends or acquaintances who engage in substance use may be more accepting of such behavior.
10. **Legal and Regulatory Factors:** Laws and regulations governing substance use can also influence attitudes. In places with strict regulations, attitudes may be more conservative, while in regions with more permissive laws, attitudes may be more relaxed.
11. **Balancing Recreational Use and Responsibility:** Middle-aged individuals may attempt to balance the desire for recreational enjoyment with their responsibilities as adults, such as work and family obligations. This can lead to more moderate and controlled attitudes toward substance use.
12. **Counseling and Support:** Middle-aged individuals with substance use issues may seek counseling or support groups to address their attitudes and behaviors. Professional guidance and peer support can be pivotal in changing attitudes and promoting recovery.

Conclusion

Attitudes toward drugs and alcohol among middle-aged individuals are influenced by a complex interplay of factors, including personal experiences, cultural and generational norms, health concerns, parenting roles, and social influences. These attitudes can be dynamic and may evolve as individuals encounter new experiences and challenges.

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JOSEPHINE RESEARCHER VI

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Library & Information Centers in the Society

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Abstract

The role of libraries and information centers has undergone considerable change in modern society. The library is no longer just a centre for books; it has become a social, cultural, educational, and recreational hub. Libraries play a crucial role in society by serving as hubs of knowledge, information, and culture. They are essential institutions that provide a wide range of services and resources to individuals and communities. Here are some key aspects of the relationship between libraries and society.

Keywords: Library, Information Centre, Society

Introduction

Libraries are a crucial infrastructural pillar for the development of a country and society. It houses treasures of information from the past and present which can be utilized by the readers and members to not only receive the information they seek but also discover newer sources of information. It would not be wrong to call libraries the informational data banks of human culture. Libraries are stocked with both literature of the past and of the present.

'Library' originated from the word "libraria" which denotes a place for books in Latin. The word has evolved from 'liber' which is a Latin word for book. As per the definition of the Oxford Companion to the English Language – "Library is a collection of books, periodicals and/or other materials, primarily written and printed." Harrod's Librarian's Glossary and Reference Book, a directory of more than ten thousand words has provided multiple definitions for the term.

- (a) An assemblage of books and various literary materials that can be used for reference, reading, studying or discussing.
- (b) An assigned space, building or set of rooms allotted for housing books for usage.
- (c) Placement of books provided by a single publisher on varied subjects.
- (d) A space with a collection of movie flicks, pictures and other items like CDs and tapes for games and programming.

A library may be defined as a place that houses material which can be literary or non-literary for borrowing, reference or studying.

Importance of Library

Every society needs to have a library so that the experiences and thoughts of our ancestors can be easily available. The library has many important functions to play:

1. The task of collecting and providing material both books and non-books to the public.
2. The library plays an important role in spreading awareness in society as the material stored in the library is used by people. I
3. It is a source for nurturing and promoting information, education, and values.
4. Helps in self-educating people in society as they have access to varied types of material.
5. The library not only acts as a preserver of cultural and literary legacy for future generations but also becomes a provider of information to research the past.
6. Make available trustworthy material for its users. The information is available to all without any disparity based on age, status or caste.
7. The collected resources help in progressive social conscience and enrich the life of the people of the society.

The library plays an important role in the cultural development of society as it connects the past and present ethos and thus Library became a Social & Cultural Organization.

Library as a Social and Cultural Organization

In the present era, the Role of the Library and Information Centre changed to a Social & Cultural Organization and thus it provides

Access to Information - Libraries are often the primary source of free, accessible information for people. They provide books, periodicals, digital resources, and more, making knowledge available to all, regardless of their socioeconomic status.

Education: Libraries support education by offering a wide range of materials that help people learn and grow. They are essential for students of all ages, from young children learning to read to adults pursuing lifelong learning.

Cultural Preservation: Libraries serve as repositories of cultural heritage. They house rare and historical documents, manuscripts, and records, preserving a society's history and culture for future generations.

Community Centers: Libraries are more than just book depositories. They often function as community centers, hosting events, workshops, and activities that bring people together. They provide a safe and welcoming space for various community groups.

Digital Access: In the digital age, libraries have adapted to provide access to digital resources, including e-books, online databases, and public internet access. This ensures that even those without personal computers or internet connections can access digital information.

Promoting Literacy: Libraries play a vital role in promoting literacy, helping individuals improve their reading and writing skills. They often offer literacy programs for children and adults.

Equal Opportunity: Libraries promote social equity by offering resources and services to everyone. They bridge the digital divide, provide job search assistance, and support those who may not have access to educational resources at home.

Research and Innovation: Libraries support research and innovation by providing resources for academics, students, and professionals. They often offer interlibrary loan services, giving researchers access to materials from around the world.

Freedom of Information: Libraries defend intellectual freedom by providing a platform for free expression and access to a wide range of ideas and perspectives. They often resist censorship and support the freedom to read.

Digital Literacy: In the age of information overload, libraries also teach digital literacy. They help individuals navigate the internet, evaluate information sources, and use technology effectively.

Adapting to Change: Libraries evolve with society. Many have embraced technology and new media to remain relevant and continue to serve the changing needs of their communities.

Environmental Sustainability: Libraries promote sustainability by offering resources on environmental topics, hosting eco-friendly events, and often serving as recycling and information centers for green initiatives.

Conclusion

Libraries are vital components of society that serve as information hubs, educational centers, community spaces, and champions of cultural preservation, literacy, and intellectual freedom. They adapt to changing times, continuing to play a crucial role in modern society.

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JOSEPHINE RESEARCHER VI

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Self-confidence among Single Adolescents

Mr. Shiyon Sebastian^{1*}, Dr. Justin Joseph^{1*}, Ms. Droupathy Devi C G^{1*}, Ms. Joice Mary Vincent^{1*}

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Abstract

Self-confidence among adolescents is a critical aspect of their development. It plays a fundamental role in shaping their self-esteem, decision-making, social interactions, and overall well-being. Here are some key points to consider when discussing self-confidence in adolescents:

Keywords: Self Confidence, Single, Adolescents

Introduction

Self-confidence is a crucial aspect of an individual's emotional and psychological development, particularly during adolescence a transitional phase between childhood and adulthood. Adolescence is marked by significant physical, cognitive, and social changes, leading to a heightened need for self-assurance and identity formation. During this time, young people may encounter various challenges that can either boost or hinder their self-confidence. Understanding the factors influencing self-confidence in adolescents is essential for fostering a positive self-image and empowering them to navigate life's complexities with resilience and assertiveness. Sohi (1994) Self Confidence is not necessarily a general characteristic that pervades all aspects of a person's life. Typically, individuals will have some areas of their lives where they feel quite confident, e.g. academics, and athletics, while at the same time they do not feel at all confident in other areas, e.g. personal appearance, social relationships. Many factors affect the development of Self-confidence. Parent's attitudes are crucial to children's feelings about themselves, particularly In children's early years. When parents provide acceptance, children receive a solid foundation for good feelings about themselves. If one or both parents are excessively critical or demanding, or if they are overprotective and discourage moves toward independence, children may come to believe they are incapable, inadequate or inferior. However, if parents encourage children to move toward self-reliance and accept and love their children when they make mistakes, children will learn to accept themselves and will be on their way to developing self-confidence.

Factors Influencing Adolescents Self-confidence

Social Support: Positive relationships with family, friends, and mentors can boost confidence and provide emotional support. **Peer Influence:** Adolescents may be influenced by their peers' opinions, which can either enhance or diminish self-confidence. **Academic Achievement:** Success in school and extracurricular activities can positively impact self-confidence. **Physical Appearance:** Body image and physical appearance play a role in how adolescents perceive themselves. **Parenting Style:** Parental encouragement, praise, and guidance can significantly influence self-confidence. **Past Experiences:** Positive experiences and accomplishments can contribute to higher self-confidence, while negative experiences may have the opposite effect. **Personality Traits:** Some personality traits, like optimism and resilience, can contribute to greater self-confidence. **Cultural and Ethnic Background:** Cultural values and experiences may shape how adolescents view themselves. **Mental and Emotional Health:** Mental well-being and emotional stability can impact self-confidence levels. Sohi (1994)

Barriers to Self-Confidence:

1. **Fearness:** It is the obstacle to self-confidence. It can be either fear of failure or fear of Ridicule. Failure should be taken as an initial step toward winning. Success is never ending and failure is never final. It is better to do something imperfectly than do nothing flawlessly.

Fear and ridicule arise because of comparison. Compared with others is to Be avoided. Forgetting and forgiving are more essential.

2. Inferiority complex: It is another obstacle that arises due to unfair comparison. The only way by which one can come out from this barrier is by thinking of one's strengths rather than weaknesses.

3. Worrying: It is a predominant factor that attests to one's self-confidence severely. It is to be understood that worrying will never solve the problem. Worrying would make the problem more complex. Personality would be affected adversely by worrying and if one's Personality is lost everything will be lost.

4. Negative thoughts: These are another kind of barrier to self-confidence. One should try to replace negative thoughts with positive thinking. Negative thoughts generally arise due to the lack of information, lack of familiarity, and lack of recognition.

5. Procrastination: Procrastination robs one's confidence by keeping him/her from being at one's best. Every time one leaves something to be done at the last minute, it will never be as good as it could have been. If one is going to be at one best needs to determine priorities and plan their task accordingly.

6. Indecision: The ability to make decisions is a must for building confidence. Indecision In many situations can paralyze one and render him/her ineffective. One can change this by giving oneself deadlines to make a decision and sticking to it. One can always change one's decision if new information warrants a change, but waiting to decide until everything is perfect will immobilize him/her. The perfect time will never come.

7. Doubt: It is probably the underline problem with certain barriers i.e. fear, worry, Indecisiveness etc. comes from one's doubt in own ability Talniya (1997).

Conclusion

Self-confidence is a critical aspect of adolescent development. It is influenced by various internal and external factors and can have a profound impact on an adolescent's overall well-being and success. Supporting adolescents in building and maintaining healthy self-confidence is essential for their personal and social development.

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Farm Stress of Small-Scale Farmers in Idukki District

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Abstract

The major objective of the study was to evaluate the farm stress of small-scale farmers in the Idukki district. The study was conducted in the Idukki district. A convenient sampling method was used in the study. Around 200 small-scale farmers of the Idukki district were included in the study as the sample. The researcher used the descriptive research design. Major tools for data collection were a demographic data sheet and, a farm stress inventory (FSI) scale. Statistical procedures such as mean, standard deviation, cross tab, t-test, ANOVA, and correlation were used in the study.

Keyword: Farm Stress

Introduction

During the last 25 years, the agricultural sector has gone through a lot of changes and it has also been found to be one of the potential areas for stress. Greater use of automation technology, more use of organic production, decreased prices for agricultural products and new complicated legislations have made the lives of farmers more stressful. This study is an attempt to find out the potential factors that cause stress and make the life of the farming community more miserable. Internationally agricultural sector is facing a lot of changes due to climate change affecting the future of the farming community leading to significant and unexpected fluctuations in the price of food production in farming.

Small-holder farmers are vital for India's agriculture and rural economy. Small-holder farmers - defined as those marginal and sub-marginal farm households that own or/and cultivate less than 2.0 hectares of land - constitute about 78 percent of the country's farmers (Agricultural Census 1990-91). These small-holders owned only 33 percent of the total cultivated land; their contribution to national grain production was nonetheless 41 percent. Their contribution to household food security and poverty alleviation is thus disproportionately high - and is increasing. Moreover, as the national population increases, so does the number of small holdings. Small-scale/smallholder agriculture is defined in different ways that vary from country to country. The most widely used definition of smallholder refers to those farms of less than 2.0 hectares (HLPE 2013, IFAD 2013). However, in common parlance, the term is often used to refer to any farmer who is not large-scale and not very financially well off. As we will discuss, when it comes to understanding who is producing how much of the global food supply distinguishing between different scales and segments of "small-scale" becomes exceptionally important (Christen and Anderson 2013).

Small-scale farming systems are often more environmentally sustainable. Small-scale farmers often have greater levels of attachment to local landscapes and ecosystems. Sustainable, nature-based practices such as organic agriculture, crop rotation, and integrated pest management permaculture rely on the wealth of localized environmental knowledge that small-scale farmers possess. Small-scale farming also contributes to culture and community. Communities that revolve around small-scale farming represent a rich and diverse cultural heritage, encompassing art, music, history, and architecture. This kind of farming is also a rich

source of traditional knowledge, offering solutions for balancing food production, livelihoods, and the natural world.

Over the past decade, the farming community has been experiencing a high level of uncertainty, frustration, and challenge. Some of the challenges facing farmers include high fluctuation in price, automation, financial problems, etc., today farm families are working in a social and economic environment that is more challenging than ever before, and these pressures can cause a high degree of stress within many farm families. By the very nature of farm work, a lot of our daily lives are not under our control. For instance, humans have no control over the weather, market prices, or interest rates. The equipment can break down at any time. This constant stress that they experience will lead to physical, emotional, and behavioral problems. Some ways have to be identified to reduce or remove the stress of the farm community. Reducing farm stress among farm families is the need of the day. This research explores how stress affects farming communities and analyzes the impact of demographic factors on farm people's perception of stress.

Results & Discussions

The result revealed that there is a significant difference in the farm stress of small-scale farmers based on bank loans. It suggests that farm stress is not uniform among small-scale farmers; it varies depending on their financial situations, specifically whether they have taken a bank loan. Farmers who have taken bank loans may experience more stress due to concerns about loan repayment, interest rates, and financial stability. In contrast, those without bank loans might have less financial pressure, resulting in lower farm-related stress. The research result highlights the potential financial risks and decisions faced by small-scale farmers. Taking a bank loan is often a strategic decision to invest in the farm, but it can also introduce additional financial pressure.

The research suggests that small-scale farmers do not experience uniform levels of farm stress. Instead, the presence of other income sources has a discernible impact on the degree of farm-related stress. The data implies that small-scale farmers who have additional sources of income, such as off-farm employment, investments, or other businesses, experience a different level of farm stress compared to those who rely solely on income generated from farming activities. The research result underscores the potential financial stability and decision-making capacity of farmers with diverse income sources. Those with multiple income streams may be in a better position to make informed decisions, manage risks, and withstand financial setbacks.

There was no influence of farm stress on small-scale farmers based on gender. In the context of the study, gender does not play a significant role in determining the degree of farm-related stress experienced by small-scale farmers. Both male and female farmers reported similar stress levels. The data implies that small-scale farmers, regardless of their gender, face similar stressors and challenges related to farming. This suggests that factors other than gender, such as access to resources, agricultural practices, and external influences, may be more prominent in influencing farm stress.

The research implies that farm stress is not directly tied to the size of the land. Small-scale farmers experience similar levels of stress regardless of whether they have more or fewer acres under cultivation. The data suggests that factors other than land size, such as market conditions, crop choices, weather, access to resources, or personal financial circumstances, may have a more significant impact on farm stress among small-scale farmers. The research

result indicates that the size of the land, whether it increases or decreases, does not significantly influence the farm stress experienced by small-scale farmers. This finding highlights the complexity of farm stress and the importance of considering various factors that contribute to the well-being of small-scale farmers in agricultural policy and support programs.

Conclusions

The research sheds light on the challenges and stressors faced by small-scale farmers in the Idukki District, highlighting the need for comprehensive support mechanisms that address the specific factors affecting their well-being. These findings can serve as a basis for the development of targeted interventions and policies to alleviate farm stress and enhance the resilience of small-scale farming communities in the region.

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JOSEPHINE RESEARCHER VI

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Peer Pressure and Emotional Expressivity among Adolescents

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Abstract

The primary objective of the study was to evaluate peer pressure and emotional expressivity among adolescents. The study was conducted on a group of 300 adolescents, including both boys (N=152) and girls (N=148). A convenient sampling method was used to select the sample. The present study tried to find any significant difference in adolescents' peer pressure and emotional expressivity concerning their demographic details. The researcher used self-prepared questionnaire, the Peer Pressure Scale (2016) developed by Singh and Saini and the Berkley Expressivity questionnaire (1995) developed by Gross and John. The data was collected using the survey method. The statistical procedures used to analyse the acquired data were the 't' test, ANOVA, and correlations.

Keywords: Peer Pressure and Emotional expressivity

Introduction

Adolescence is a critical period of development characterized by numerous social, emotional, and psychological changes. According to the World Health Organization (WHO), adolescence is defined as a phase of life between 10-19 years of age characterized by physical growth, and emotional, psychosocial, and behavioral changes, thus bringing about transformation from childhood to adulthood. The word adolescence is derived from Latin word 'adolescere' meaning "to grow up" or "to mature." During this phase, adolescents strive to establish their identity, navigate complex social interactions, and conform to societal norms. Among the myriad of social influences, peer pressure holds a significant place in shaping adolescent behavior and emotional expressivity. This research focuses specifically on the interplay between peer pressure and emotional expressivity, exploring how adolescents' emotions and expressions are influenced by their peers. Adolescents' emotional expressivity can have profound effects on their well-being, self-esteem, and social interactions. Understanding how peer pressure impacts emotional expressivity is crucial for comprehending the dynamics of adolescent development and designing interventions to support their emotional well-being.

According to Castrogiovanni (2002) a peer group is defined as "a small group of similarly aged, fairly close friends, sharing the same activities". In general peer groups have two to twelve members, with an average of five or six members. Peer group provides a sense of security and they help the adolescent to build a sense of identity. Relationships are resources that buffer one from stress and are instruments for both cooperative and competitive problem-solving. Well-functioning relationships have a bearing on mental and physical health and well-being (Reis & Collins, 2004). One type of such relationship is the relationship with peers. Peer relationship refers to a relationship that involves mutual knowledge, esteem, and affection (Piaget, 1965).

Peer pressure is the feeling that someone of your age is pushing you towards making a certain choice, good or bad. It is a term used to describe how an adolescent behaviour is influenced by

other adolescents. It is the influence that a peer group exerts that encourages others to change their attitudes, values or behavior to conform to the group norms. It is commonly associated with episodes of adolescent risk-taking such as drug abuse, sexual behavior and reckless driving because these activities commonly occur in the company of peers. Adolescence is the time of experimentation during which teenagers start interacting with their age mates and seek sensation in new experiences. Peer pressure has been called a hallmark of adolescents' experience. Goldsmith (2013) says, "Peer pressure is stress or strains you feel from friends and schoolmates to act, behave, think and look a certain way.

The word "emotion" dates back to 1579, when it was adapted from the French word *émouvoir*, which means "to stir up". The term emotion was introduced into academic discussion as a catch-all term for passions, sentiments and affections. The word "emotion" was coined in the early 1800s by Thomas Brown and it was around the 1830s that the modern concept of emotion first emerged in the English language. "No one felt emotions before about 1830. While they felt other things – 'passions', 'accidents of the soul', 'moral sentiments' – and explained them very differently from how we understand emotions today. Emotions are reactions that human beings experience in response to events or situations.

Emotional expressivity is generally defined as various behavioral changes (e.g., facial expression and posture), such as laughter, pouting, crying or slamming doors (Gross & John, 1995). This definition emphasizes observable behavioral responses, and the level of emotional expression is determined by the degree of behavioral impulses of individuals (Gross & John, 1995). Emotional suppression prevents the expression of real emotions. This situation may lead to a feeling of incompatibility between emotions and behaviors and may cause the person to evaluate their emotions in negative terms. Suppression can be a risk factor for social problems, as it prevents the natural expression of emotions from building relationships (Tickle-Degnan & Rosenthal, 1990).

Results & Discussions

Adolescent boys experienced more peer pressure. The research found that "adolescent boys experienced more peer pressure than girls" suggesting that in the context of the study, boys were more likely to be influenced or feel pressure from their peers to conform to certain behaviors or expectations compared to girls. The research indicates a gender-based disparity in the experience of peer pressure during adolescence. It suggests that boys are more susceptible to the influence of their peers, while girls might be less affected or influenced in the same way. Girls might have developed different coping strategies for dealing with peer pressure compared to boys. They may be more resilient or have better mechanisms for resisting negative influences.

Emotional expressivity was more common among girls. This finding highlights a gender-based disparity in the way individuals express their emotions. It indicates that girls, on average, are more open and expressive about their feelings compared to boys. The result may be a reflection of societal and cultural expectations regarding how boys and girls should express their emotions. In many cultures, girls are often encouraged to be more emotionally expressive, while boys may be taught to suppress their emotions or express them differently. The finding also highlights the prevalence of gender stereotypes related to emotional expression. These stereotypes may limit the emotional range of boys and encourage girls to be more open about their emotions.

Peer pressure was higher among the age group of 17 and above compared to the age group 13 and 14 and the age group 15 and 16. The research indicates that there is a variation in the intensity of peer pressure as adolescents grow older. Older adolescents, in this study, were more likely to experience or succumb to peer influence compared to their younger counterparts. This finding may be related to the developmental stages that adolescents go through. Adolescents in the 17 and above age group may be at a stage where they are more concerned about social acceptance and identity formation, making them more susceptible to peer pressure. The findings could be influenced by cultural and contextual factors specific to the study's location.

Adolescents studying in government schools experienced more peer pressure. The difference in peer pressure may be linked to socioeconomic disparities. Adolescents in government schools may come from lower-income backgrounds, and the socioeconomic environment could contribute to increased peer pressure due to a desire to fit in, keep up with peers, or overcome challenges associated with socioeconomic status. The school culture, norms, and environment in government schools may be different from that in private schools. Government schools may have larger class sizes, fewer resources, and different social dynamics that could influence the level of peer pressure experienced by students. The composition of social networks and friendship circles can vary between government and private schools. Differences in these networks can influence the types and levels of peer pressure experienced by students.

Conclusion

This study shows that adolescent boys experienced higher peer pressure when compared to girls. At the same time, emotional expressivity was higher among girls than boys. From the analysis, it is clear that peer pressure is significantly varied among adolescents based on the standard of study, age group, and type of school. The findings of the study show light to the understanding of peer pressure and emotional expressivity among adolescents, especially for professionals working on mental health, educational settings also parents.

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The Lifelong Benefits of Positive Social Interactions and Close Friendships for College Students' Happiness

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Abstract:

A college student's life must include fulfilling social contacts and personal friendships. They have a significant impact on a person's general well-being throughout their entire life, not only during their college years when they are contributing to happiness. In the context of college life, this article examines the value of positive social connections, sharing of experiences, and a sense of community and considers how these aspects can favorably affect long-term happiness. This article offers insights into the processes by which friendships and social relationships can result in long-lasting enjoyment by drawing from studies in psychology, sociology, and personal development. We illuminate the long-lasting value of these relationships by looking at the advantages of friendships in college and beyond.

Introduction

A college student's life must include fulfilling social contacts and personal friendships. They have a significant impact on a person's general well-being throughout their entire life, not only during their college years when they are contributing to happiness. In the context of college life, this article examines the value of positive social connections, sharing of experiences, and a sense of community and considers how these aspects can favorably affect long-term happiness. This article offers insights into the processes by which friendships and social relationships can result in long-lasting enjoyment by drawing from studies in psychology, sociology, and personal development. We illuminate the long-lasting value of these relationships by looking at the advantages of friendships in college and beyond.

Positive Social Interactions in College Life

College is a special time in a person's life when they can pursue a variety of academic and extracurricular interests and gain a greater sense of independence. Additionally, it is a time when young adults develop deep relationships with their peers, which molds their social identities and interpersonal abilities. Attending social gatherings, taking part in group activities, and having open talks all foster positive social connections that foster personal development and satisfaction. Through these interactions, children can connect with others, create networks of support, and hone important social skills. Students have the optimal atmosphere at college to grow in their social, empathic, and emotional intelligence. Their viewpoints are expanded, and their capacity to successfully negotiate social situations is improved, by interaction with a wide group of people from various backgrounds. Many friendships made in college have the potential to last a lifetime. The relationships made at this time frequently have an impact on both a person's personal and professional life. Students may spend more time and effort on fostering these connections if they are aware of their importance.

The Power of Close Friendships

Real friendships are more meaningful than passing acquaintances. They are marked by trust, understanding, and a readiness to help one another through happy and difficult times. These connections are frequently highly emotional. A commitment of time and effort is needed for close connections. By listening intently, supporting their peers, and sharing emotional

experiences, students can form close relationships. The emotional support that close friendships offer is among the most important advantages. During trying times, friends can offer support, counsel, and encouragement, fostering emotional strength and happiness. Shared experiences strengthen friendships and produce enduring memories, whether they center on academic difficulties, individual victories, or recreational pursuits.

The Connection between Friendships and Happiness

Strong social ties are consistently associated with better levels of psychological well-being and life satisfaction, according to research. A strong feeling of purpose, better contentment, and a positive self-image are all benefits of close friendships. The support of close friends protects against stress and anxiety. These partnerships' emotional support can lessen the negative consequences of pressures, enhancing both mental and emotional health. Close friendships and constructive social interactions have been associated with better physical health results. People who are socially connected tend to have healthier lives, and the emotional support they receive has a good effect on their immune systems and general well-being. Healthy friendships increase one's sense of value and self-esteem. Friends' affirmation and validation can increase someone's self-confidence and happiness, which can lead to more happiness.

The Long-Term Impact of College Friendships

The friendships made at this time can last long after the college years have ended. The obstacles of life after college are highlighted along with methods for coping with them. In maturity, close friendships still have a big impact. They increase overall life satisfaction and pleasure by offering friendship, support, and a sense of belonging. Positive social contacts benefit people's lives both personally and professionally. Collaboration and networking with friends can improve one's professional life and offer doors to career chances. Technology is incredibly important in the modern day for keeping and growing friendships. People can stay in touch with pals regardless of distance thanks to social media, texting apps, and video calls.

Nurturing and Sustaining College Friendships

College friendships may be strained by difficulties like distance, shifting priorities, and changing interests. We investigate methods for overcoming these difficulties and preserving solid relationships. The foundation of keeping friendships strong is effective communication. There is a discussion of methods for resolving disputes and maintaining open lines of communication. A vital element of strong friendships is empathy. People who have developed empathy are better able to understand and support their friends, which makes friendships stronger. People may develop new connections as their lives go on while preserving their current ones. We look at ways to maintain these relationships in balance and make sure that all ties are strengthened.

Lifelong Happiness and Fulfillment

It can be difficult to make the transition from college to adulthood, but having a network of close friends can offer stability and emotional support. In adulthood, friendship networks continue to expand and change. These networks provide chances for career advancement, social relationships, and a feeling of community that all help people live happier lives. The first line of defense against mental health issues is frequently a close friend. When necessary, friends can offer emotional support and encouragement to seek professional assistance. Having enduring friendships helps one find meaning and purpose in life. Friendships can help people

find fulfillment in their journeys through the emotional relationships and shared experiences they create.

Conclusion:

The various effects of wholesome social interactions and intimate friendships on college students' happiness have been covered in this article. It has emphasized the long-term, psychological, and emotional advantages of these connections. While friendships made in college greatly enhance students' pleasure throughout their academic years, their effects go well beyond that. These relationships have the power to influence a person's entire life, promoting fulfillment, happiness, and personal development. Students must actively participate in pleasant social interactions, cultivate strong friendships, and accept the long-lasting advantages that friendships made in college bring to fully appreciate their value.

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Unveiling the Enigma: The Power of the Subconscious Mind

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Abstract:

The human mind is a vast and intricate landscape, comprising conscious and subconscious realms. While the conscious mind governs our everyday thoughts and decisions, it is the subconscious mind that holds the key to our deepest potential. This article delves into the enigmatic power of the subconscious mind, exploring its influence on our thoughts, behaviors, and overall well-being. Through a comprehensive review of relevant literature, we aim to shed light on the untapped potential hidden within the subconscious and its impact on personal growth and transformation.

Introduction:

One of nature's wonders, the human mind is a nuanced interplay of ideas, feelings, and encounters. The enormous area of the subconscious mind exists below the surface, silently influencing our lives in significant ways as our conscious mind plans our everyday activities and rational thoughts. This article sets out on a quest to discover the mysteries of the subconscious and its amazing power, pulling support for its assertions from a wide variety of studies and sources. The human mind is a sophisticated and intricate organ that is capable of incredible accomplishments and unrestricted creativity. The subconscious mind, a hidden powerhouse that frequently goes unrecognized in our daily lives, is contained within this extraordinary region. We try to delve deep into the mysteries of the subconscious mind, exploring its functions, influence on our thoughts and behaviors, and how we can harness its power to improve our lives.

I. The Subconscious Mind Defined:

The subconscious mind, often known as the "hidden" or "unconscious" mind, functions under the level of conscious awareness. It includes a huge store of knowledge, convictions, sentiments, and emotions that influence our perceptions, responses, and decisions. The subconscious acts simultaneously, as opposed to the conscious mind, which processes information sequentially, making it a potent influence in our daily lives.

II. Behavior and Subconscious Thoughts:

Numerous research have emphasized how the subconscious mind affects how people behave. For instance, psychological studies have demonstrated that unconscious biases can influence our judgment and result in unintentional prejudices and preferences. These biases can be changed with awareness and deliberate effort, demonstrating the adaptability of the subconscious mind.

III. The Subconscious and Memory:

When it comes to storing and recovering memories, the subconscious mind is crucial. Neuroscientific research has shown that memories, particularly those that are emotionally intense, are frequently deeply embedded in the subconscious. These suppressed memories can be accessed through methods like hypnosis and meditation, providing a route to recovery and self-discovery.

IV. The Subconscious and Creativity:

The subconscious mind is a fertile ground for creativity. Many well-known artists, writers, and inventors have said that their breakthrough ideas came from subconscious thoughts. The occurrence of "sleeping on a problem" and waking up with a solution exemplifies the subconscious mind's capacity for creative information processing.

V. The Subconscious and Personal Growth:

An essential part of developing oneself and improving oneself is using the power of the subconscious mind. The subconscious can be reprogrammed through techniques like visualization, affirmations, and meditation, which improves resilience, motivation, and self-assurance.

VI. Healing and The Subconscious:

Studies in the area of psychosomatic medicine have shown how closely the subconscious mind and physical health are related. Unresolved emotional difficulties held in the subconscious mind have been related to ailments like stress, anxiety, and chronic pain. People can encourage healing and well-being by addressing these underlying issues.

Conclusion:

The mysterious subconscious mind has a significant impact on our thoughts, actions, and general well-being. The power of the subconscious mind has been highlighted in this article through a thorough analysis of pertinent material. It influences how we act, preserves our memories, sparks our creativity, and holds the secret to our personal development and recovery. An increased quality of life and a sense of fulfillment can be attained by comprehending and using the power of the subconscious.

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Social Intelligence: Understanding and Navigating Human Relations

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Abstract:

Social intelligence is a multifaceted and crucial aspect of human interaction. It encompasses the ability to understand and navigate the complex web of human relationships, emotions, and social dynamics. This article explores the concept of social intelligence, its components, and its significance in various aspects of life, including adolescence and education. Drawing from psychological theories and recent findings in social neuroscience, we delve into the neural mechanisms that underpin social intelligence. We also discuss the importance of social intelligence in leadership, conflict resolution, and personal development. Ultimately, social intelligence plays a pivotal role in fostering positive relationships, effective communication, and a harmonious society.

Introduction:

Social intelligence is the innate ability to comprehend and engage with the intricacies of human society. It involves the capacity to decipher others' feelings, thoughts, and behaviors in interpersonal situations and to respond appropriately. This article aims to provide a comprehensive understanding of social intelligence, from its theoretical foundations to its practical applications. Social intelligence comprises various components, including empathy, attunement, empathic accuracy, social cognition, social facility, synchrony, self-presentation, and influence. These components collectively enable individuals to navigate social interactions effectively and build meaningful connections. Researchers have also identified neural mechanisms, such as mirror neurons and spindle cells, that play a vital role in social intelligence.

Significance of Social Intelligence:

Social intelligence has far-reaching implications for personal and professional success. It is instrumental in leadership, conflict resolution, and teamwork. Leaders who possess high social intelligence can inspire and motivate their teams, fostering a cooperative and positive work environment. Additionally, social intelligence is linked to physical health, as strong social relationships can influence factors such as blood flow, mood, and immune system functioning.

Components of Social Intelligence:

Social intelligence is the ability to understand society and its dynamics, encompassing effective involvement in human relations. It is an aggregate global capacity of an individual to act purposefully, think rationally, and deal effectively in a given situation. Social intelligence is geared towards solving problems of social life, particularly managing life tasks, current concerns, or personal projects. Greenspan (1979) proposed a hierarchical model of social intelligence, consisting of three components: Social Sensitivity, Social Insight, and Social Communication. Highly socially intelligent individuals possess tolerance, cooperation, sympathy, social acceptance, a helping mind, and a spirit of we-feeling in society. Social scientist Ross Honeywill believes that social intelligence is an aggregated measure of self and social awareness, evolved social beliefs and attitudes, and a capacity and appetite to manage complex social change. Recent research in social neuroscience has revealed subtle new truths about what makes a good person, such as the identification of mirror neurons in widely

dispersed areas of the brain, spindle cells with an extra-long branch, and oscillators coordinating people physically. Socially intelligent individuals can carry on conversations with a wide variety of people, have knowledge of social roles, rules, and scripts, and play various social roles. They have effective listening skills, understand what makes others tick, and are great people watchers. They are endowed with empathy, listen well, and easily grasp other's perspectives. They are socially self-confident and effective, allowing others to see their true self. Social intelligent individuals influence others by appealing to others, developing mutual trust, giving constructive feedback, and helping others focus on growth opportunities. They strive to recognize different perspectives and manage conflicting situations, focusing on helping everyone find common ground and directing efforts toward finding common ground. Social intelligence is a crucial skill that helps individuals build a sense of cooperation, helpfulness, and respect, leading to a positive team environment. It involves understanding subtle etiquette, listening to others, and managing interactions effectively. Adolescence is a period of transition marked by physiological changes, identity construction, and abstract thought. It is an emotionally intense and often stressful period, with each individual having unique traits. Adolescents undergo significant psychological imbalances, as they try to understand society, social relations, and social approval. They develop morale, develop morale, and understand taboos and standards. Behavioral disorders and social deviations among school children can lead to aggression, destructive tendencies, alcoholism, drug abuse, violence, emotional instability, and the inability to make decisions and solve problems effectively. Research shows that life skill education has a positive effect on self-confidence, social intelligence, psychological health, assertiveness, self-esteem, and decision-making among students. Learning and practicing life skills about self-confidence and social intelligence promotes psychological health and various dimensions of growth. Educating life skills about self-confidence and social intelligence is essential for preventing behavioral disorders and social deviations among school children. Factors like self-confidence and social intelligence play a role in determining goals, decision-making, problem-solving, and preventing behavioral disorders and social deviations.

Social Intelligence in Adolescence Education

Adolescence is a period marked by significant physical, emotional, and cognitive changes. Social intelligence becomes particularly important during this stage as adolescents seek to understand societal norms, relationships, and their place in the world. Education programs that focus on life skills, including self-confidence and social intelligence, can aid adolescents in making informed decisions and navigating the challenges of this transitional period. Schools worldwide have recognized the importance of incorporating life skills, including social intelligence, into their curricula. These skills empower students to develop self-confidence, effective communication, and problem-solving abilities. By enhancing social intelligence, schools contribute to students' psychological well-being and prepare them for a successful and constructive life in society.

Conclusion

Social intelligence is a critical facet of human existence, influencing our interactions, relationships, and overall well-being. It encompasses a range of components and is rooted in the intricate workings of the brain. Understanding and nurturing social intelligence is essential for effective leadership, conflict resolution, and personal development. Moreover, it plays a

pivotal role in the growth and development of adolescents, helping them navigate the complexities of the world. As colleges worldwide embrace the importance of life skills, including social intelligence, they contribute to a society that is more empathetic, understanding, and harmonious.

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Navigating Uncertain Futures: Transformative Competencies for Education 2030

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Abstract

The OECD's Future of Education and Skills 2030 project aims to address long-term education challenges by identifying students' competencies, teacher profiles, and learning environments. It emphasizes the development of transformative competencies, critical thinking, creativity, responsibility, resilience, and teamwork, to equip the next generation for an unpredictable future, promoting evidence-based curriculum design and systematic exploration of education system design issues.

Introduction:

With globalization and the rapid growth of technology posing new challenges, the demand for transformative education is greater than ever. The world of 2023 is very different from the world of a few years ago, and change is happening at an accelerating rate. Looking ahead to an uncertain future, we have to acknowledge that the children starting school now will be young adults in 2035, navigating an environment full of undiscovered employment, undeveloped technologies, and unanticipated difficulties. This article presents the OECD's Learning Framework 2030, which places a strong emphasis on developing transformative competencies and examines the role that education plays in preparing people for such a future.

Navigating Uncertainty

The Organization for Economic Co-operation and Development (OECD) is a unique forum where the governments of 37 democracies with market-based economies collaborate to develop policy standards to promote sustainable economic growth. The OECD Future of Education and Skills 2030 project aims to address long-term education challenges by identifying students' competencies, teacher profiles, learning environments, and institutional arrangements. It aims to make curriculum design and development evidence-based and systematic, establishing a common language for individual and collective exploration of education system design issues.

Individuals need to have a distinct set of competencies that go beyond conventional knowledge and abilities to prosper in an uncertain future. Among these transforming skills are: Thinking creatively means having the capacity to come up with original concepts and solutions. People must be creative and flexible in an ever-changing world to take advantage of new chances. Analytical Process: Making educated decisions, analyzing and evaluating data, and resolving challenging issues are all components of critical thinking. It is necessary to comprehend and deal with complex issues. Accepting responsibility entails accepting accountability for one's choices and actions. It entails moral thoughts, responsibility, and the capacity to consider the effects of one's acts. Resilience is the capacity to bounce back from adversity and setbacks. It is an essential skill for coping with change, uncertainty, and challenges in the modern world. Collaboration is the ability to work effectively with others, respecting diverse perspectives and ideas. It is crucial in a globally interconnected society. These competencies are not isolated; they are interconnected and mutually reinforcing. Creativity and critical thinking inform responsible decision-making, while resilience and

collaboration support adaptive problem-solving. People are now spending more time on non-routine tasks that call for higher-order, analytical thinking as well as interpersonal skills, which has transformed the nature of employment.

To assist nations in preparing their educational systems for the future, the OECD started the Future of Education and Skills 2030 project in 2015. Starting with secondary school, the project focuses on the competencies that today's students need to build their future and prosper in it. The framework acts as a common language that makes it easier to compare and learn across different educational systems, enabling students to grow as whole people, reach their full potential, and contribute to creating a future that enhances the welfare of people, communities, and the environment.

Although the future is uncertain, we can educate students about careers, societal concerns, and the usage of new technology by keeping an eye on present trends. To successfully navigate an increasingly complex, turbulent, and uncertain environment, students require support in the development of their knowledge, skills, attitudes, values, and creative genius. Access to education has improved with the introduction of universal, mandatory public education, and nations like Germany are revising their economic policies to promote more sustainable and equitable growth. We need to understand the capabilities and limitations of computers to stay up to date with advancements in technology, society, and the economy. Computers excel at routine cognitive, non-routine manual, and routine manual activities; they struggle with abstract tasks or intricate contextual knowledge.

The Role of Education in Fostering Transformative Competencies

The goal of education must shift from merely preparing students for the workforce to equipping them with the knowledge and abilities necessary to contribute to society actively and responsibly. The OECD created the Learning Framework 2030 in response, which lays a lot of focus on acquiring transformative competencies. It emphasizes the importance of individuality while also taking into consideration the bigger interactions that have an impact on learning, such as those with classmates, families, instructors, and communities. It is clearer than ever that transformative education is necessary for today's environment of globalization and rapid technological innovation. The world of 2033 is very different from the one that existed only a few years ago, and change is happening more quickly now, leaving the future more unpredictable. As we peer into the horizon of 2030 and beyond, it becomes abundantly clear that the younger generation, those embarking on their educational journeys today, will face a landscape filled with uncharted opportunities, unprecedented challenges, and unforeseen complexities.

The urgent need for transformative talents to navigate these unpredictable futures has been brought to light in this article. It has highlighted five critical qualities that people need to prosper in a world characterized by unpredictable and continuous change. Not just theoretical ideas, creativity, critical thinking, responsibility, resilience, and teamwork are vital life skills that enable people to seize new opportunities, resolve challenging issues, make wise decisions, endure hardship, and collaborate with a variety of people. It is also impossible to overestimate the importance of education in developing these transforming abilities. Education needs to go from just getting kids ready for the workforce to giving them the tools they need to be active, responsible, and involved citizens. The OECD's Learning Framework 2030 emerges as a pivotal tool in this transformation, recognizing the intricate web of interactions that shape

learning, encompassing teachers, peers, families, and communities while championing the value of individuality.

Conclusion

The 21st century demands transformative competencies in education, including creativity, critical thinking, responsibility, resilience, and collaboration. The OECD's Learning Framework 2030 provides a holistic approach to education, recognizing the interconnected nature of learning and embracing individual uniqueness. As children enter school today, it is our responsibility to equip them with these skills to adapt to challenges and actively shape a world that promotes individual, community, and environmental well-being. Transformative education empowers the next generation to thrive and innovate.

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Understanding Empathy and Stress Management: Keys to Emotional Well-Being

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Abstract:

This article explores the concept of empathy and its role in understanding and sharing the experiences of others. It discusses the various facets of empathy, its biological underpinnings, and its relationship with emotional contagion and imitation. The article highlights the distinction between empathy and sympathy and how it is different from related social-emotional processes. Additionally, it touches on the importance of empathy in pro-social behaviour and its impact on human interactions.

Introduction:

Empathy is a fundamental aspect of human social interaction, allowing us to understand and share in the experiences of others. This article delves into the complex nature of empathy, its biological basis, and how it relates to other social-emotional processes like emotional contagion and imitation. Understanding empathy is crucial for promoting compassion and fostering better human connections.

Empathy and Stress Management

Empathy and stress management are essential for emotional well-being. Stress management involves recognizing the source of stress and controlling its effects, such as changing physical environments, life skills, and relaxation techniques. Coping involves spending mental energy on dealing with problems, aiming to overcome or diminish the stress experienced. Good coping skills prevent stress from getting down and help individuals thrive in challenging times. Adolescence can experience stress, but it can also help develop skills for dealing with threatening situations. Providing support and stability can help reduce stressful feelings and symptoms. Children and adolescents often struggle with coping with stress related to traumatic events, such as natural disasters or family loss. Strong emotions like fear, sadness, or depression are normal as long as they don't interfere with daily activities. Stress can be beneficial in managing potentially threatening situations, but it can also be harmful when it is prolonged or severe enough to make you feel overwhelmed and out of control. Physical or emotional tension can be signs of stress, and it can be related to positive or negative events. Stress management articles aim to help individuals find healthy and beneficial ways to deal with stress. Empathy is an essential life skill that helps us understand and accept others' behaviour, even in unfamiliar situations. Empathy is a broad concept that refers to the cognitive and emotional reactions of an individual to the observed experiences of another. It is a building block of morality and a key ingredient of successful relationships. What is empathy and how does it differ from sympathy? There is a clear distinction between empathy and sympathy, as empathy involves understanding another person's experience by imagining oneself in that person's situation, while sympathy involves being moved by or responding in tune with another person.

Stress can be beneficial in managing potentially threatening situations, but it can also be harmful when it is prolonged or severe enough to make you feel overwhelmed and out of control. Physical or emotional tension can be signs of stress, and it can be related to positive or

negative events. Stress management articles aim to help individuals find healthy and beneficial ways to deal with stress. Empathy is an essential life skill that helps us understand and accept others' behaviour, even in unfamiliar situations. The WHO Department of Mental Health identified five basic areas of life skills relevant across cultures: decision-making and problem-solving, creative thinking and critical thinking, communication and interpersonal skills, self-awareness and empathy, and coping with emotions and stress.

Emotional and Cognitive Empathy

Empathy can be categorized as an emotional or cognitive response, particularly in social psychology. Emotional empathy consists of three components: feeling the same emotion as another person, experiencing personal distress in response to perceiving another's plight, and feeling compassion for another person. This type of empathy is particularly relevant in discussions of compassionate human behaviour, as it is associated with feelings of empathy and willingness to help others. Cognitive empathy, also known as empathic accuracy, involves having more complete knowledge about another person's mind and emotions. Empathy is the experience of understanding another person's thoughts, feelings, and conditions from their perspective, facilitating pro-social or helping behaviours. Research suggests that individuals can boost their capacity for empathic understanding through the concept of "mirror neurons," which enhance the ability to display, read, and mimic emotional signals through facial expressions and body language. Definitions of empathy encompass a broad range of emotional states, including caring for others, experiencing emotions that match another person's, discerning thoughts or feelings, and blurring the differences between self and another.

Empathy is a complex concept that involves understanding the emotional states of others, characterized by compassion and sympathy. It is distinct from pity and emotional contagion, which are feelings of pity towards others without recognizing their problems. Empathy is characterized by the ability to recognize emotions, which can be innate or trained. It involves recognizing the significance of another person's actions, emotions, and personal characteristics in a way that the recognized person can tolerate. In positive psychology, empathy has been compared to altruism and egotism, with altruism being behaviour aimed at benefiting another person and egotism being behaviour acted out for personal gain. Empathy can lead to polarization, violence, and dysfunctional behaviour in relationships. It does not entail motivation to be of assistance, but it may turn into sympathy or personal distress, which may result in action. Empathy has deep roots in our brains and bodies, with early forms observed in primate relatives, dogs, and even rats. It has been associated with two different pathways in the brain, with some aspects being traced to mirror neurons. Research has also found evidence of a genetic basis for empathy, though studies suggest that people can enhance or restrict their natural empathic abilities. Having empathy doesn't necessarily mean we will want to help someone in need, but it's often a vital first step toward compassionate action.

Empathy is a social-emotional process that involves understanding and sharing in the experiences of others. It involves observing and imagination of another person's emotional state, experiencing an emotional state that matches that person's, and knowing that the other person's emotional state caused your emotional state. Empathy differs from sympathy, which involves feeling compassion or pity towards someone because of their negative experience.

Researchers often examine the biological bases of empathic processing to understand how we empathize with others. They found that neural regions activated by vicarious and first-hand pain are similar, but more posterior-mid insular activation is found for firsthand experience and more anterior insular regions for vicarious experience. This suggests that when we empathize with others, our emotional state does not exactly match theirs, but we use our mind as a model to simulate their feelings using our own past experiences. When we empathize with others, we use cognitive processes to try to understand their emotional state and imagine ourselves in that state by drawing on our emotional memories. Two potential precursors of empathy are emotional contagion and imitation. Emotional contagion refers to the tendency to "catch" other people's emotions, while imitation involves establishing a correspondence between one's behaviour and that of another person. Both processes support the processing of emotional content in ways that facilitate empathy. The biological and behavioural mechanisms underlying emotional contagion and imitation demonstrate some overlap with empathy, and all three constructs contribute to pro-social behaviour. While emotional contagion and empathy involve a change in emotional state, imitation need not result in such a change. Imitation and emotional contagion are present in non-human animals and infants as potential precursors of empathy, but empathy requires a higher degree of cognitive and emotional processing and seems to emerge only in human development.

Conclusion:

Empathy is a multifaceted concept that plays a crucial role in human interaction. It involves not only emotional responses but also cognitive processes that help us understand and share the experiences of others. While empathy is distinct from related processes like emotional contagion and imitation, these precursors contribute to our ability to empathize. Understanding empathy is vital for fostering compassion, pro-social behaviour, and healthier relationships among individuals.

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College Life: A Journey to Well-Being and Happiness through Exercise, Sports, and Balanced Diet

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Abstract

The time spent in college is frequently seen as a turning point in a person's life because of the emphasis placed on academics, personal development, and freedom. While preserving physical health and well-being throughout this time is equally critical, maintaining academic success is unquestionably of utmost importance. This article explores the value of exercise, sports, and a healthy diet in college life and how they affect general happiness and well-being. It looks at the difficulties students experience and provides helpful advice on how to integrate a healthy lifestyle with academic responsibilities.

Introduction

Students have possibilities for academic development, self-discovery, and personal growth during their time in college, which is a singular and transforming experience. However, it is also a time when young adults deal with a variety of difficulties, such as demanding academic requirements and social demands. Maintaining physical health through exercise, sports, and a balanced diet frequently takes a backseat in the midst of this. This essay tries to underline the significance of giving these well-being factors top priority while in college and offers suggestions on how to do so successfully.

The Importance of Physical Health

Mental and physical health are closely related to one another. It has been demonstrated that regular physical activity and a healthy diet help college students deal with typical problems including stress, anxiety, and depression. While a healthy diet supplies the vital minerals needed for proper brain function, exercise produces endorphins, the body's natural mood enhancers. Academic achievement is directly impacted by physical health. Studies have repeatedly demonstrated that students who maintain a healthy diet and routine exercise tend to have superior cognitive function, greater memory, and improved concentration. These elements are essential for achieving success in college.

Physical Health Issues in College

College life is renowned for having hectic schedules. Lack of time for exercise and meal preparation can result from juggling schoolwork, extracurricular activities, and social obligations. Due to their limited financial resources, many college students find it difficult to pay for things like gym memberships, sporting goods, or a wide selection of healthful foods. Students may make unhealthy decisions like overindulging in junk food or skipping physical activity due to the constraints of college life and the desire to fit in socially. Achieving a balance between academics and physical health requires effective time management. Making a calendar that includes time for meal planning and exercise might assist in making sure that these tasks are not forgotten. College students can investigate affordable fitness options like on-campus gyms, cost-free outdoor activities, and routines that only use their bodies as equipment. Learning to prepare quick, wholesome meals can also help you save money and encourage a balanced diet. Students can manage the demands of college life without turning to bad habits by implementing stress management strategies like yoga and mindfulness meditation. Creating

or joining student organizations that emphasize physical exercise or a healthy diet can inspire and support. It can be simpler to maintain a healthy lifestyle with peer support.

The Role of Sports, Recreation and Balanced Diet

Team sports participation not only offers a fantastic workout but also promotes a sense of community and friendship. Students have the chance to participate in competitive and leisure sports through intramural competitions and college sports teams. Running, swimming, or martial arts are examples of individual sports that can be quite relaxing. They allow students to briefly disconnect from the stresses of academic life and offer solitude. Maintaining energy levels, improving focus, and supporting general health all depend on a balanced diet full of fruits, vegetables, lean proteins, and whole grains. It's equally crucial to limit your intake of processed meals, sugary drinks, and caffeine. Making healthier food choices might aid students in planning meals and snacks. Cooking at home not only gives one more control over the ingredients, but it also promotes the acquisition of vital life skills.

Conclusion

Prioritizing physical health through exercise, sports, and a healthy diet is crucial for general well-being and enjoyment in college life since it brings its own set of difficulties and opportunities. It is impossible to overestimate how much these behaviors improve stress management, academic performance, and mental wellness. Although the rigors of college may seem overwhelming, students can achieve a harmonious balance between their academic and health-related goals with good time management, cost-conscious decisions, and peer support. When physical health receives the attention it needs, college may truly be a period of comprehensive growth and fulfillment.

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Turbulent Waters of Adolescence: A Comprehensive Exploration

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Abstract:

The turbulent waters of adolescence present a critical period of psychological development marked by intense emotions and the quest for identity and intimacy. This article explores the multifaceted dimensions of adolescence, emphasizing the role of family and learning in shaping an individual's personality and adaptability. Adolescence, a time of rapid physical and psychological changes, is characterized by the pursuit of autonomy and the establishment of interpersonal relationships. This phase signifies the transition from childhood to adulthood, where adolescents grapple with shifting values and behaviors. Understanding the complexities of adolescence is essential for parents and society to support these young individuals on their journey toward responsible adulthood.

Introduction

Adolescence emerges as a period of the risk of psychological maladjustment where the physical, psychological, and social formations lead to adolescents experiencing more frequent and intense emotions than younger and older individuals (Larson & Petraitis, 1989). Adolescents are more interpersonally attracted to people with similar attitudes, backgrounds, values, and beliefs. Romantic experiences are not only central in the daily lives of adolescents, but they are also thoughts that shape both intimacy and identity development (Erikson, 1986; Furman & Shaffer, 2003). They may also help adolescents successfully establish autonomy as they explore extra family relationships and come to rely less on one parent (Furman & Shaffer, 2003). They may also help adolescents successfully establish autonomy as they explore extra-familial relationships and rely less on their parents (Furman & Shaffer, 2003).

Family and Learning

The family is important for the origin and development of human personality. Learning plays a vital role in helping a person adjust to the atmosphere. Normally, learning means a change in social interaction. However, the change in all sorts of social interactions is not called learning. In psychology, learning starts with change, which occurs through study or realization. Generally, the objective of the change is to make it possible for a person to adjust and manage their environment. The child observes people working in different situations and follows them; he learns about various objects like a mango, an orange, a cow, a book, a boy or a girl, etc. Gradually, as the child grows in age, he observes many incidents and things and learns about their specific characteristics, dividing the things into various categories like fruits, animals, furniture, liquids, etc. Every person manages one's life and solves various kinds of problems in it because they have acquired the capacity and ability to learn and adjust to new things.

Adolescence

Adolescence is a time when individuals begin to assert themselves as distinct human beings since no two persons have the same experiences or occupy identical positions in the social structure. Each can assert his distinctness, provided he receives at least modest encouragement from his society. During adolescence, as at no other time in life, the individual and his society must come to terms. Every adolescent is expected to learn to participate effectively in society and to acquire the necessary competence to do so, mainly through interpersonal relationships. The important people in his life partially direct and prescribe his behaviour and their censure or approval helps to determine his emotional commitment to

responsible behaviour (Brim, 1965). Adolescence usually starts when an individual attains sexual maturity and ends when he/she becomes legally independent of his or her parents. The onset of puberty is characterized by physiological changes in a child's body, but its end is determined by cultural factors.

Adolescence Development

Adolescence is a period of rapid physical, emotional, social, moral, and intellectual development. It begins with puberty, which starts around the age of eleven for girls and thirteen for boys. Girls start changing before boys, and by age 17, they may be larger and capable of having children. Growth and development use a lot of energy, and teenagers may need more sleep. Later adolescence is more dependent on favorable environments, and disturbances can cause arrest and prevent maturity. The range of variation in growth is increased, and there is a greater liability to reversion.

Psychological development and changes

Adolescence is a period of growth, change, and personal growth. It is a time when children develop their views and opinions, often not shared by their parents. Adolescents spend a lot of time in each other's company, which can be irritating to parents but is essential for independence. They often find excitement in activities like music and sports, but experiment with drugs or smoking with friends. Physical changes during adolescence are due to increased hormone output from the pituitary gland.

Social developments and changes

Adolescence is a transitional period where individuals transition from childhood to adulthood, requiring them to abandon childish behaviors and adopt new values. The psychic structure of adolescents has roots in childhood, and physical changes during this period affect their behavioral level and lead to reevaluations and shifting adjustments of values. The ambiguous status of adolescents allows them to try out different lifestyles and decide what patterns of behaviors, values, and attitudes best meet their needs. Problem-solving tips for adolescents include identifying problems, thinking about why they're problems, problem definition, decision-making on solutions, and evaluating the outcome. Parents of adolescents should be open to their adolescents' ideas, find activities they enjoy, and make regular time for them to discuss issues. They should also be aware of their adolescents' experiences with sex and drugs and try to listen without reacting. In conclusion, adolescence is a time of transition and growth where individuals must navigate their conscience and individual rights to choose their values and behaviors.

Conclusion

In conclusion, adolescence is undeniably a transformative phase that shapes an individual's future. It is a period of exploration, self-discovery, and adaptation, characterized by heightened emotional intensity and the pursuit of independence. The influence of family and the power of learning play pivotal roles in molding adolescents into responsible and well-adjusted adults. During this tumultuous journey, adolescents need the guidance and understanding of their parents and society. Parents need to foster open communication, provide opportunities for personal growth, and be vigilant regarding their adolescents' experiences with issues such as sex and substance use. Ultimately, adolescence is a complex yet pivotal stage in human development, and our collective support and understanding can help young individuals navigate these turbulent waters successfully and emerge as confident, responsible adults.

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Life Satisfaction and Loneliness in Elderly: Exploration of the Connection

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Abstract

The study emphasizes the significance of social relationships for mental and physical health and recommends clinicians address and prevent social relationship deficits. Life satisfaction and loneliness are identified as key indicators of these deficits, and loneliness should be treated separately from depression treatment. The review covers social relationships, loneliness, its affective, cognitive, and behavioral correlates, and theories related to antecedent and maintenance factors. It concludes with methodological and theoretical considerations and proposes future research directions.

Keywords: Physical health, loneliness, social isolation, life satisfaction.

Introduction

The definition of 'health' in old age is a subject of debate. There is consensus that health in old age cannot meaningfully be defined as the absence of disease because the prevalence of diagnosable disorders in elderly populations is high. Instead, health is considered to be multifaceted: The diagnosis of disease should be complemented by an assessment of discomfort associated with symptoms (e.g., pain), life threat, treatment consequences (e.g., side effects of medication), functional capacity, and subjective health evaluations (Borchelt et al., 1999). Furthermore, Rowe & Khan (1987) suggested that the health of subgroups of older adults be defined in terms of their status relative to age and cohort norms

There is a growing body of evidence that suggests that psychological and sociological factors have a significant influence on how well individuals age. Aging research has demonstrated a positive correlation between someone's religious beliefs, social relationships, perceived health, self-efficacy, socioeconomic status, and coping skills, among others, with their ability to age more successfully.

Depression or the occurrence of depressive symptomatology is a prominent condition amongst older people, with a significant impact on their well-being and quality of life. Many studies have demonstrated that the prevalence of depressive symptoms increases with age (Kennedy, 1996). Depressive symptoms not only have an important place as indicators of psychological well-being but are also recognized as significant predictors of functional health and longevity. Longitudinal studies demonstrate that increased depressive symptoms are significantly associated with increased difficulties with activities of daily living (Penninx et al., 1998). Community-based data indicate that older persons with major depressive disorders are at increased risk of mortality (Bruce, 1994). Some studies suggest that depressive disorders may be associated with a reduction in cognitive functions (Speck et al., 1995).

Result and Discussion

The study shows that old people are having loneliness because of their declining physical health and increasing mental stress. There is a statistically significant relationship between Loneliness which leads to low life satisfaction in the elderly.

The study also found there will be no significant difference in old age loneliness based on their district and it won't influence life satisfaction in the elderly and no significant difference in old age loneliness based on their gender.

The type of living also won't influence loneliness, people who live in their own homes and people who live in institutions are having the same kind of loneliness and life satisfaction. There is no significant difference in old age loneliness and life satisfaction based on religion.

Conclusion

In this study, we focused on what is currently known regarding the health effects of loneliness in later adulthood, emphasizing theoretical predictions, underlying mechanisms, and methodological gaps that currently exist in the literature. Although there is growing interest in studying the prevalence and detrimental effects of loneliness in later life, a full understanding of the phenomenon is far from complete. Questions remain about whether the associations between loneliness and health reflect the effects of loneliness, the effects of objective social isolation, life satisfaction, or the effects of unmeasured variables. Thus, longitudinal and experimental studies addressing the direct, indirect, and moderated effects of social isolation and loneliness on health are urgently needed. More research is also needed to clarify the brain mechanisms underlying the association between loneliness and cognitive decline in old age and the extent to which such decline is reversible through interventions like life satisfaction. To the extent that progress can be made on these issues, efforts to combat loneliness, particularly among older persons, may play an important role in improving well-being, minimizing chronic illness, and prolonging life.

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Business Intelligence in the Aviation Sector

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Abstract

The airline industry deals with vast, complex, and unstructured data, often referred to as big data. Business intelligence tools are utilized to analyze this data, providing valuable insights to enhance decision-making and optimize airline operations for increased profits and customer satisfaction. This paper explores the aviation industry's use of business intelligence.

Keywords: Business intelligence, airline industry, big data.

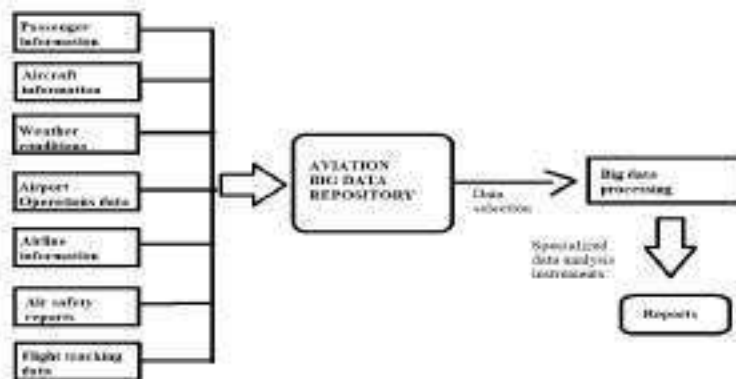
Introduction

Business Intelligence (BI) transforms raw data into valuable insights for strategic and operational decision-making. It employs statistical techniques, predictive analysis, and data exploration in a continuous cycle. BI functions include data mining, reporting, visualization, and more. It boosts profitability by optimizing planning, analyzing market trends, and benchmarking against competitors.

Methodology

The airline industry handles both passenger and cargo transport, generating extensive data known as "Big Data" at every operational stage. This data includes customer interactions, passenger info, flight details, weather data, safety reports, and airport operations. Embracing Business Intelligence (BI) is essential to enhance service and efficiency. The main challenge is optimizing BI for improved operations and service delivery.

Data Sources in the Airline Industry



- Passenger info: Personal details, nationality, travel preferences.
- Aircraft data: Types, service history, related info.
- Meteorological data: Wind, precipitation, temperature over time.
- Airport ops data: Location, layout, gates, capacity.
- Airline info: Company, employee data.
- Air safety reports: Incident details, causes.
- Flight tracking data: Real-time tracking, statuses, delays.

Big Data in the Aviation Industry

Big data emerged with the rapid growth of information and communication technologies in recent years. It's characterized by the 3Vs:

Volume: Big data is vast and requires specialized software and high computational power for analysis. Storage capacity is a limiting factor.

Variety: Big data comes in diverse formats, posing challenges for algorithm development and exploration compared to structured data.

Velocity: It's generated continuously from various processes, such as air traffic data and airplane sensors.

Additionally, there's a fourth aspect called **veracity**, which concerns the poor quality and uncertainty of big data due to unverified sources, like webpages or news. This can lead to contradictory results during analysis, affecting the reliability of big data insights.

Role of Business Intelligence in the Aviation Industry

In the aviation industry, vast amounts of data are generated daily, but it's often disorganized. One major challenge is integrating customer data from various sources, including online transactions, search data, customer service records, reactions to discounts, and past travel history. This integration can create a centralized view of each customer, enabling valuable insights through Big Data Analytics.

1. Centralized Customer View: Combining diverse data sources provides a centralized view of every customer, offering insights detailed in the article.

2. Real-time Flight Route Optimization: Airlines can analyze travel patterns to optimize flight routes, maximize capacity utilization, and increase revenue by flying more planes on profitable routes.

3. Demand Forecasting and Fleet Management: Predictive analytics based on customer travel patterns allows airlines to anticipate demand, adjust the number of aircraft accordingly, optimize fleet management, improve punctuality, and enhance client satisfaction.

4. Differential Pricing and Customer Segmentation: Airlines can cater to diverse customer preferences and sensitivity to prices by offering various deals and setting ticket prices accordingly, maximizing revenue.

5. Fuel Efficiency: Given the significant impact of fuel costs on airline expenses, data analytics can optimize fuel efficiency by considering factors like wind speed, humidity, temperature, aircraft weight, altitude, and air density, potentially saving billions of dollars.

6. Smart maintenance: Absolutely, smart maintenance through Big Data analytics helps prevent flight disruptions and financial losses by monitoring aircraft conditions and predicting maintenance needs. It optimizes asset utilization, enhancing airline profitability.

7. Performance measurement: Performance measurement with Big Data analytics enables airlines to analyze key metrics like profit per passenger, average revenue per flight, passenger load per flight/sector, average flight occupancy, and overbooking. These insights are instrumental in improving operational efficiency and delivering better customer service.

Tableau:

Advantages: Ad-hoc analysis, OLAP, predictive analysis, and trend indicators. Designed for cloud data but handles local data too. User-friendly and fast with mobile compatibility.

Disadvantages: Costly for small to medium-sized enterprises. Some users find OLAP features slow. High sophistication can be challenging for new users.

Microsoft SharePoint:

Advantages: Offers multiple analysis tools, integrates with Microsoft Office, web-based for accessibility, supports ad-hoc and forecasting analysis.

Disadvantages: Not compatible with all mobile devices, requires user tech knowledge, and may need additional internal technical support.

Birst Software:

Advantages: Compatible with various data sources, consolidates heterogeneous data into a unified business data layer, ensures data accuracy and consistency, offers an interactive dashboard, works with local and cloud data, and integrates easily with other products.

Disadvantages: Administration tasks can be challenging, require robust system resources for speedy performance, and some users may find the user interface confusing.

IBM Cognos Business Intelligence Software:

Advantages: Offers diverse analytical techniques, including What-if and trend analysis, supports self-service on mobile and offline, provides interactive dashboards with user-friendly interfaces, and allows multiple users with API integration.

Disadvantages: Has a relatively high entry cost, is not beginner-friendly, lacks informative error messages, and has a larger installation size compared to similar software products.

Conclusion

The airline industry, like other related sectors, generates massive amounts of data, offering both opportunities and challenges. This data can be harnessed through specialized technologies to enhance airline operations. However, before analysis, data from various sources in aviation must be consolidated into a common big-data repository. Business intelligence systems, designed for airline companies, efficiently process this data to optimize operations for maximizing profits while meeting customer needs.

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JOSEPHINE RESEARCHER VI

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Case Study on Online Food Delivery in Business Intelligence

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Abstract

Business intelligence transforms the food industry, empowering major players to enhance inventory, boost sales, cut costs, ensure quality, adapt to evolving consumer expectations, improve the customer experience, reduce waste, and conserve resources.

Keywords: Food industry, business intelligence, competitions, online shopping.

Introduction

Business Intelligence (BI) is a crucial tool for businesses to gather data on operations, environment, competitors, and prospects. It helps turn raw data into valuable insights, transforming it into actionable knowledge. Food, a vital part of modern society, is essential for life and involves farms, producers, chefs, and businesses.

Methodology

The food industry in India has experienced significant changes due to the rise of technology, particularly the Internet and smartphones. This shift has impacted e-commerce, shopping, groceries, and finance, leading to a shift in consumer behavior. Online food shopping has become common due to convenience, payment options, busy lifestyles, and discounts offered through delivery apps. Factors such as internet payments, diverse payment options, busy schedules, and unpredictability drive this trend. Customers expect the same easy and clear buying experience online as in physical stores, and apps enhance this by offering various features. Meeting customer expectations is crucial for attracting more customers, regardless of location. The COVID-19 pandemic has significantly impacted businesses, causing financial challenges and prompting major changes in traditional and other business models. Online shopping is popular for its customization, allowing unique orders and offering package tracking. Mobile apps also offer package tracking and various payment methods, such as e-money or cash-on-delivery. The pandemic has led to increased food delivery options, emphasizing the importance of service, food quality, and cost in customer satisfaction. Ensuring customer happiness is vital and positively influencing the restaurant industry.

Result

The food industry is experiencing a digital transformation, leading to the widespread use of smartphone apps for ordering meals online. This sector is rapidly growing, driven by factors such as longer workdays, commutes, and urban Indian lifestyles. Online meal delivery services offer convenience, quick delivery, diverse food choices, multiple payment options, and attractive pricing, catering to the working class and college-bound individuals. The app-based food delivery market holds promising prospects due to competitive pricing, improved literacy rates, and affordable internet access. SWIGGY and ZOMATO dominate India's online food ordering and delivery sector, with only those capable of satisfying customers likely to thrive. Customer retention is crucial, achieved through quality, competitive pricing, efficient technology, and exceptional delivery services. Business intelligence technology and analytics are utilized to understand customer preferences and maintain competitiveness in the food delivery app market. Restaurants and meal delivery apps are innovatively transforming the food sector to ensure consistent taste and on-time delivery. Investments in the food delivery industry

have grown alongside the expansion of online meal delivery. Data generation is prevalent in the food sector, including client orders, delivery locations, GPS data, tweets, photos, reviews, blogs, and more. Growing health consciousness drives demand for fresh, unprocessed foods on restaurant menus. Meal delivery startups leverage business intelligence to gain a competitive edge in the food delivery app market. An online presence is vital for the food industry, offering powerful channels to connect with customers. In today's competitive landscape, restaurants without an internet presence are at a disadvantage, while those with social media profiles have already reaped the benefits.

Advantages

Starting an online marketing business is accessible and cost-effective. It involves affiliating with a marketing company, promoting it online without physical visits and requires minimal time and resources to initiate.

- An online food company offers limitless profit and income potential.
- Free access worldwide: Anyone with a computer and internet connection can run an online business from anywhere on the planet.

Disadvantages

- Loss of control over the company occurs from relying on a third party.
- No direct contact with the customers.
- Compromise in food quality.

Role of Business Intelligence in Online Food Delivery

The food industry faces intense competition, leading to the adoption of technology to improve services and understand customer preferences. Customers expect quality and fair pricing, and food delivery apps have adapted to meet these expectations. A survey shows that 60% of customers base their meal judgments on dish quality. Business intelligence plays a crucial role in meeting user expectations, with accurate food sector analytics enabling businesses to expand, identify trends, and cut costs. This information allows for a clear understanding of customer desires and trends, enabling effective data collection and analysis. Entrepreneurs in the food delivery sector are increasingly relying on technology to gain deeper insights into consumer demand and preferences.

Following are the reasons food delivery start-ups use Business intelligence:

Enhance Delivery Time and Cost- Effective

Food delivery fuels the growth of the food sector by enhancing the customer experience. While it improves efficiency, balancing a positive customer experience with efficient order delivery is crucial. Businesses leverage business information to optimize time and costs, ensuring readiness for various situations and prompt deliveries. This win-win approach benefits both customers and the meal delivery service.

Evaluate Customer Behavior

Business intelligence is valuable for predicting consumer behavior. Meal delivery firms actively use social media to share content and discounts, but they must also pay attention to customer feedback on these platforms. Business information allows them to assess brand perception, food delivery performance, and customer feedback.

Big data analytics software collects and analyzes comments from various social media sites

like Twitter, Instagram, and Facebook. This data serves as the basis for making informed business decisions.

Location-based Promotion

Meal deliveries have geographical limits due to the practicality of ensuring timely deliveries. However, business intelligence leverages real-time location data to target clients effectively and provide benefits through location-based marketing, enhancing industry-leading monitoring.

Following Smart Algorithms for Demand

Meal delivery apps can predict future consumer orders through clever business intelligence. By analyzing a user's browsing history and past orders, these apps can forecast if the client will place another order. Predictive analytics in meal delivery apps accurately estimate the number of customers, their preferences, and locations for orders, providing valuable insights into food delivery trends.

Conclusion

As the demand for food delivery rises, start-ups and food delivery businesses must utilize business intelligence. Business intelligence can address delivery efficiency, meal preparation time, and optimal delivery routes. Entrepreneurs in the online food business use creativity to boost sales, offering easy online ordering and price incentives for various payment methods like cash or card payments.

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An Analysis and Prediction of Lung Cancer

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Abstract

Lung cancer is a leading cause of death worldwide, with poor prognosis and high mortality rates. This research examines the accuracy ratio of four classifiers - Logistic Regression, Random forest, Naive Bayes Model, and Gradient boosting - in classifying lung cancer at an early stage. The Python implementation of classification algorithm accuracy is the primary objective. Logistic Regression and Random forest achieve the highest accuracy at 92.85%, followed by the Naive Bayes Model at 91.07% and Gradient boosting at 89.29%.

Keywords: Lung cancer, logistic regression

1. Introduction

Lung cancer, originating in the lungs, is the leading cause of cancer-related deaths worldwide. It is prevalent in both men and women and manifests through early symptoms. Treatment depends on the histological type, patient's performance level, and cancer stage. Survival depends on developmental stage, general health, and other variables. Symptoms may indicate lung cancer, such as: - Increased heart rate and blood pressure - Increased sensitivity to light and sound - Increased sensitivity to pain and tingling - Increased sensitivity to light and sound. Among the symptoms that may indicate lung cancer are:

- Yellow fingers
- Anxiety
- Peer pressure
- Chronic disease
- Fatigue
- Allergy
- Wheezing
- Coughing
- Shortness of breath
- Chest pain

Lung cancer, primarily affecting individuals aged 55-65, is caused by long-term tobacco use and can affect any part of the respiratory system. It has the highest mortality rate among cancers, and detection accuracy is often lacking. Machine learning and image processing methods are used for identifying and classifying pulmonary cancer, but patient indicators like smoking rates could help in early disease identification. This paper summarizes various reviews and technical studies on lung cancer diagnosis and provides an overview of current research using data mining approaches to improve lung cancer diagnosis and prediction.

3. Materials and Methods

3.1 Dataset

The target is to detect lung cancer by analyzing the following attributes. They are Gender, Age, Smoking, Yellow fingers, Anxiety, Peer pressure, Chronic disease, Fatigue, Allergy, Wheezing, Alcohol Consumption, Coughing, Shortness of breath, Swallowing difficulty, and Chest pain.

3.2 Pre-processing

Data pre-processing is a crucial step in data preparation, converting unprocessed data into a format for efficient processing in data mining, machine learning, and other data science

tasks. It converts the data into binary format for optimal efficiency. For example, replacing Genders and Lung Cancer column values with 1 and 0 is a common practice.

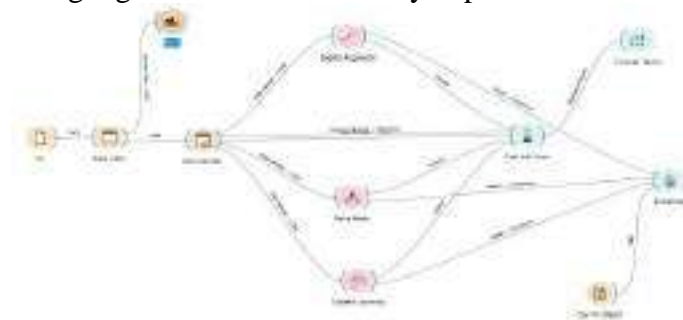
```

Informations About The Dataset :

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 389 entries, 0 to 388
Data columns (total 16 columns):
 #   Column                Non-Null Count  Dtype
---  ---                ---
 0   GENDER                389 non-null   object
 1   AGE                   389 non-null   int64
 2   SMOKING               389 non-null   int64
 3   YELLOW_FINGERS       389 non-null   int64
 4   ANXIETY               389 non-null   int64
 5   PEER_PRESSURE        389 non-null   int64
 6   CHRONIC_DISEASE      389 non-null   int64
 7   FATIGUE               389 non-null   int64
 8   ALLERGY               389 non-null   int64
 9   WHEEZING              389 non-null   int64
10  ALCOHOL_CONSUMING    389 non-null   int64
11  COUGHING              389 non-null   int64
12  SHORTNESS_OF_BREATH  389 non-null   int64
13  SWALLOWING_DIFFICULTY 389 non-null   int64
14  CHEST_PAIN           389 non-null   int64
15  LUNG_CANCER          389 non-null   object
dtypes: int64(14), object(2)
memory usage: 38.8+ KB
None
    
```

3.3 Model Building

In this, we have used four classifiers namely Linear Regression, Random Forest, Naïve Bayes, and Gradient Boosting algorithm which is briefly explained as follows



3.3.1 Logistic Regression

Supervised Learning employs logistic regression, a common machine learning algorithm, to predict categorical dependent variables using a set of independent factors. This method provides probabilistic values between 0 and 1, rather than exact values like 0 or 1. Instead of fitting a regression line, an "S"-shaped logistic function predicts two maximum values (0 or 1), reflecting the probability of something like whether cells are malignant. The accuracy of logistic regression is 92.85%, with linear regression showing the highest accuracy in lung cancer datasets.

```

Accuracy score: 0.9832258064516129
Precision score: 0.9285714285714286
Recall score: 0.9629629629629629
    
```

Figure 3.3.1.a Logistic regression

The figure shown below is the confusion matrix obtained after implementing Logistic regression.

		Predicted		Σ
		NO	YES	
Actual	NO	57.1 %	3.7 %	6
	YES	42.9 %	96.3 %	55
Σ		7	54	61

Figure 3.3.1.b Confusion Matix of Logistic Regression

3.3.2 Random Forest

Random Forest is a machine learning algorithm that uses ensemble learning to solve complex problems and improve model performance. It consists of decision trees on different datasets and takes the average to enhance predictive accuracy. The algorithm predicts the final output based on the majority vote, increasing the number of trees to eliminate overfitting issues. It has a calculated accuracy of 92.85%, matching linear regression in the lung cancer dataset.

```
Accuracy score: 0.9832258064516129
Precision score: 0.9285714285714286
Recall score: 0.9629629629629629
```

Figure. 3.3.2. a Random forest

The figure shown below is the confusion matrix obtained after implementing Random forest

		Predicted		Σ
		NO	YES	
Actual	NO	57.1 %	3.7 %	6
	YES	42.9 %	96.3 %	55
Σ		7	54	61

3.3.2.b confusion matrix of random forest

3.3.3 Naïve Bayes

A naïve Bayes classifier is an algorithm that uses Bayes' theorem to categorize data points, assuming strong or naive independence. Common applications include spam filters, text analysis, and medical diagnosis. These classifiers are often used in machine learning due to their ease of use and statistical independence. As a family of algorithms, they run faster and are simpler to write compared to more complex Bayes algorithms.

Evaluation Results					
Model	AUC	CA	F1	Precision	Recall
Naive Bayes	0.824	0.852	0.865	0.882	0.852

Figure 3.3.3.a Naïve Bayes

The figure shown below shows the evaluation result and confusion matrix obtained after implementing Naïve Bayes

		Predicted		Σ
		NO	YES	
Actual	NO	33.3 %	5.0 %	6
	YES	66.7 %	94.2 %	55
Σ		9	52	61

3.3.3.b Confusion Matrix of Random Forest

3.3.4 Gradient Boosting

Gradient Boosting is a type of classification method that effectively classifies complex datasets by combining weak learning models into a strong predictive model. Decision trees are commonly used in this process, with each predictor correcting its predecessor's error. The technique, known as Gradient Boosted Trees, uses CART (Classification and Regression Trees) as its base learner. This method is known for its prediction speed and accuracy, with an accuracy of 86.9%. The figure below shows the classification report and confusion matrix of Gradient boosting respectively.

Evaluation Results					
Model	AUC	CA	F1	Precision	Recall
Gradient Boosting	0.927	0.869	0.869	0.869	0.869

3.3.4a classification report of gradient boosting

		Predicted		Σ
		NO	YES	
Actual	NO	33.3 %	7.3 %	6
	YES	66.7 %	92.7 %	55
Σ		6	55	61

3.3.4b Confusion matrix of gradient boosting

3.4 Performance Evaluation Criteria

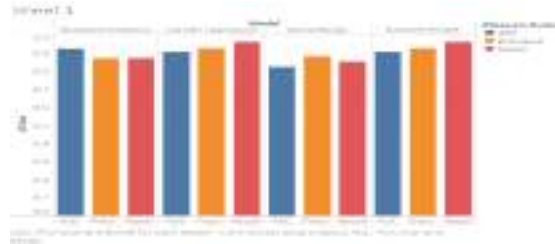
The Confusion Matrix is a deep learning visual assessment technique that displays the actual and predicted class results of a classification model on a specific data set. It represents the actual class and intended class of instances. When working with a binary, the confusion matrix, a 2x2 matrix, shows the number of true positives (TP), true negatives (T N), false positives (FP), and false negatives (F N). The four categories of classified items are true positive (TP), false positive (FP), false negative (FN), and true negative (TN). The matrix helps evaluate a model's accuracy by displaying the actual and predicted class results.. Given the proportion of true positives and false negatives, the recall is calculated using the formula shown below:

$$\text{Recall} = \frac{\text{TP}}{\text{TP}+\text{FN}}$$

The "absolute positive rate" is another term for the recall. The quantity of true positive and false positive graded objects is used to calculate precision as follows:

$$\text{Precision} = \frac{\text{TP}}{\text{TP} + \text{FP}}$$

3.5 Experimental Results and Discussions



This analysis shows that among all techniques used to predict lung cancer, logistic regression, and random forest provide the most accurate results.

The accuracy rating for both random forest and logistic regression is 92.85%..

4. Conclusion

The paper presents a lung cancer prediction system using data mining classification techniques to extract hidden knowledge from a historical lung cancer disease database. The most effective model is logistic regression and random forest, outperforming models like Naïve Bayes and Gradient Boosting. The study reveals that smoking is a major cause of lung cancer, leading to coughing and weakening of the lungs, resulting in carcinogenic growth. Other factors include previous chronic diseases and alcohol consumption. The study reveals that the risk of lung cancer is highest in the 55-65 age group, with males having a 52.5% chance of developing the disease, and females at 47.2%. The study emphasizes the importance of proper health management, and avoiding smoking and alcohol, in sustaining and improving the fight against lung cancer spread.

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Marital Attitude among PG Students based on their Religion

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Abstract

The study investigates the marital attitude of PG students based on their religion using a descriptive method. Convenience sampling was used to gather data from 202 individuals. The research aimed to explore the association between religion and marital attitudes among PG students. The findings showed a significant relationship between religion and marital attitude among the sampled patients, indicating that religion plays a significant role in determining marital attitudes among PG students.

Keywords: Marital attitude, convenient sampling, PG Students, religion.

Introduction

Marital attitudes and expectations form a cognitive schema about relationships brought about by experience (Fletcher & Thomas, 1996). Attitudes and expectations about relationships are important cognitions regarding perceptions of and behaviours in personal relationships (Riggio & Weiser, 2008). One may form attitudes and expectations regarding marital life through personal experiences with a partner, by observing one's parents, or by watching others negotiate the process of courtship and marriage, highly embedded positive marriage attitudes may influence behaviour and highly embedded negative marriage attitudes may also affect beliefs about relationships. Individuals with highly embedded positive attitudes about marriage view their own current and future marriages as happy and successful but those with highly embedded negative attitudes have fewer positive expectations (Riggio & Weiser, 2003 "It is the tendency to respond positively or negatively towards marriage." Marriage is one of the universal social institutions. It involves the union of two individuals who decide to live in an intimate relationship throughout their lives. Marriage is the approved social pattern whereby two or more persons begin a family. The real sense of marriage is the acceptance of a new status, with a new set of privileges and obligations, and the recognition of this new status by others. The universality of marriage within different societies and cultures is accepted to the many basic social and personal roles for which it provides structure such as sexual gratification and regulation, division of labor between the sexes, financial production and consumption and fulfillment of personal needs for affection, status and companionship. Perhaps its strongest purpose concerns procreation, the care of children and their education and socialization and regulation of lines of descent. Through the ages, marriages have taken a countless number of systems. It is said to be one of the earnest and most difficult forms of human relationships. The process of marriage is a social construct or agreement where two people willingly enter into either a religious or civil styled and yet legal contract to become husband and wife Marriage are key structure in most societies. While the two institutions have historically been closely linked in U.S. culture, their connection is becoming more complex. The relationship between marriage and family is an interesting topic of study for sociologists. Different people define it in different ways. Not even sociologists can agree on a single meaning. For our purposes, we'll define marriage as a legally recognized social contract between two people. traditionally based on a sexual relationship and implying the permanence of the union. In practicing cultural relativism., we should also consider variations, such as whether a legal union is required (think of "common law" marriage and its equivalents), or whether more than two people can be involved (consider polygamy). Other variations on the definition of marriage might include whether spouses are of opposite sexes or the same sex and how one of the traditional

expectations of marriage (to produce children) is understood today. Sociologists are interested in the relationship between the institution of marriage and the institution of family because, historically, marriages are what create a family, and families are the most basic social unit upon which society is built. Both marriage and family create status roles that are sanctioned by society.

Results & Discussions

The attitude towards marriage among postgraduate students can vary greatly depending on their religious beliefs. Religion often plays a significant role in shaping an individual's values, ideals, and expectations when it comes to relationships and marriage. For Christian postgraduate students, marriage is considered a sacred institution, with the belief that it is a lifelong commitment between a man and a woman. They often prioritize finding a partner who shares similar religious beliefs and values to establish a strong foundation for their marital union.

On the other hand, Muslim postgraduate students also view marriage as a sacred bond, but with some differences. Islam allows for polygamy, although it is not practiced widely. Muslim students often strive to find a partner who aligns with their religious practices, such as observing daily prayers and fasting during Ramadan. They value the importance of a strong family unit and seek to establish a lasting marriage built on mutual respect, trust, and understanding.

Meanwhile, Hindu postgraduate students hold varying views on marriage, informed by their diverse cultural practices and beliefs. While arranged marriages are still prevalent, there is a growing trend towards love marriages. Hindu students often look for partners who share similar family structures and cultural values, with an emphasis on maintaining traditions and customs within their marital life.

In conclusion, the attitude towards marriage among postgraduate students can be significantly influenced by their religious beliefs. Christian, Muslim, and Hindu postgraduate students approach marriage with differing expectations and priorities. Understanding these differences can foster mutual respect and appreciation for the diverse perspectives on marriage among PG students based on their religion.

Conclusion

This study examined the Marital attitude among PG students. The study is mainly based in their based on religion. The major findings of this study reveal a statistically significant relationship between religion and marital attitude among the sampled patients.

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Business Analytics in the Agrarian Field

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Abstract In the digital age of the 4th Industrial Revolution, data processing has become pivotal in driving advancements across various sectors, including agriculture. This case study explores the integration of business intelligence (BI) into agriculture, highlighting its multifaceted benefits. BI empowers agricultural stakeholders with valuable information, enabling them to make informed decisions and adapt to sector-specific needs. This study underscores the role of BI in sensitizing farmers to adopt tailored methods, ultimately enhancing productivity, sustainability, and cost-efficiency. In essence, it showcases how data-driven insights are shaping the future of agriculture in our technologically driven era.

Keywords: Business intelligence, agrarian sector, farmers, production, technology.

Introduction

The agricultural sector is no exception to the transformative power of big data analytics. Modern operations generate vast volumes of data from sources like satellite monitoring, soil analysis, and yield reports. Business intelligence (BI) systems have revolutionized agriculture by gathering and analyzing critical information, enabling farmers to monitor operations and make data-driven improvements for better yields and productivity. This transformation, aided by the green revolution, has significantly improved Indian agriculture, optimizing production, creating high-quality products, and enhancing supply chains. BI is not limited to traditional businesses but has a profound impact on agriculture, offering valuable insights and data-driven decision-making capabilities to farmers and the industry.

Business Intelligence and Agriculture

Business intelligence (BI) is a set of methodologies and technologies that transform raw data into valuable insights for informed strategic, tactical, and operational decisions within organizations. It enables companies to effectively utilize their data for product development, marketing strategies, and business planning. BI tools enable CIOs to manage and analyze data from various sources, including internal and external databases and financial reports. This process gathers intelligence through market research and provides accessible analytics and data visualization for improved decision-making.

Business intelligence consists of several process:

- Data mining
- Analytical processing
- Querying(obtaining information from databases)
- Reporting

Business intelligence can cover a broad array of technologies, when applied to agriculture:

- Field sensors
- Agricultural apps
- Precision agriculture
- Cloud-based software and computing for real time updates
- Internet of Things-enabled equipment and gadgets (automated field vehicle)

When business intelligence systems are developed carefully and thoughtfully, we can monitor each aspect of the agricultural sector and collect and analyze the data that farmers can use to make improvements.

Benefits of Bi in Agriculture

Business intelligence (BI) systems are crucial in modern farming organizations, enabling them to analyze vast amounts of data effectively. They enable farmers to make data-driven decisions, providing real-time insights across all operations. This intelligence not only optimizes decisions but also opens up opportunities for competitive advantage in a sector with similar products and natural conditions. BI aids in forecasting, market demand, labor availability, and weather conditions, and serves as a unifying point for various smart technologies in agriculture, connecting diverse data sources for deeper insights and driving growth.

Methodology

The project collects data from various sectors, including law firms, private businesses, government entities, non-profit organizations, and universities, to analyze farmers' cultivation practices, market trends, seed quality, plant health, and technological developments. Key assumptions include farmers' awareness of market trends, seed quality, plant health, and technological advancements. Indicators assess support mechanisms for domestic farmers, including seed supply, fertilizer registration, plant health protection, and food trade. Access to finance, particularly through warehouse receipt systems, is also considered. The comprehensive approach aims to improve the agricultural sector and enhance farmers' productivity and sustainability.

Analysis

The following table and graph shows the production in different years in India. This picture represents the agricultural sector result without the application of any technologies or business intelligence. The production is purely based on the domestic farmers and others related to the field.

This table shows the details of crops, fishing and livestock rate during the time when technology was not implemented in this sector. The graph which depicts the above information is given below.

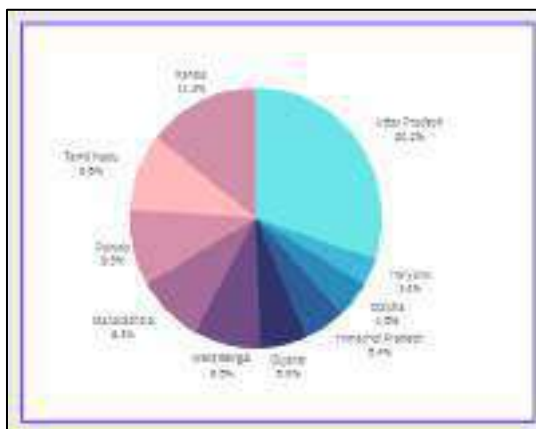
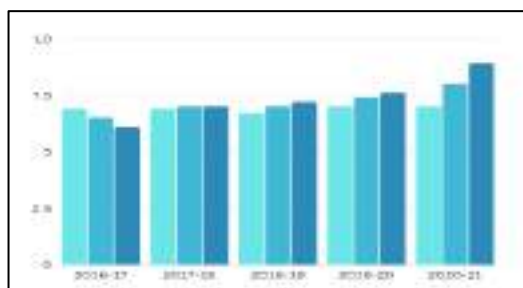
	crops	livestock	fishing
2011-12	0.1	5	4
2012-13	0.2	5.2	4.9
2013-14	5.4	5.6	6.2
2014-15	3.7	7.4	6.4
2015-16	3.2	7.9	8



The following table and graph depicts the production in the years after 2016. The rate of production of crops, fishing and livestock are mentioned here, same as in the above case. Here, it is after the application of business intelligence and analysis. The application of technology in the agricultural field has shown a great improvement in the production rate as well as in many such areas.

Also, a graph is given below the graph. It shows the overall production of crops, livestock and fishing in various states in India after technology was implemented in the agricultural sector.

	crops	livestock	fishing
2016-17	6.9	6.5	6.1
2017-18	6.8	7	7
2018-19	6.7	7	7.2
2019-20	7	7.4	7.6
2020-21	7	8	8.9



The integration of business technologies into agriculture is a key focus, with business intelligence (BI) and analytics playing a significant role. These technologies, including mobile

farming apps, field sensors, cloud-based software, precision agricultural systems, and automated vehicles, improve production planning, financial management, crisis management, and goal alignment. They also streamline recall management, maintain trust in the supply chain, and address waste reduction, leading to increased production efficiency in the agricultural sector.

Conclusion

Agriculture is a global sector with significant implications for nutrition and health. Business intelligence and analytics are crucial in enhancing efficiency, supporting farmers, and strengthening the supply chain. Access to accurate, real-time data is essential for informed decision-making, and technology enables data collection, analysis, and dissemination. Modern tools and technologies enable agricultural managers to gain deeper insights, visualize critical information, and make more effective decisions. Understanding the decision-making processes, biases, and preferences of all industry participants is essential. This information can be used to develop decision support tools, initiate beneficial changes, and secure government or structural support for the betterment of agriculture.

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Attitude towards Drugs among Adolescents

Sachin Jose*, Manu Kurian^{1*}, Dr. Jomon Kottarathil^{1*}, Dr. Mathew Kanamala^{1*} & Mr. Paul. C. Abraham^{1*}

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Abstract

The primary objective of the study was to evaluate attitudes towards drugs and alcohol among adolescents. The study was conducted on 300 samples of adolescents (12-18). A random sampling method was used to select samples. The researcher used a questionnaire method for data collection. The main tools for data collection are a socio-demographic sheet and an attitude towards drug and alcohol scale. The researcher used the descriptive research design. The statistical procedure used by the researcher was a mean and standard deviation, t-test and ANOVA. The study revealed that there is a significant difference in attitude towards drugs and alcohol among adolescents about age, residential area and presence of alcohol addicts in families.

Keywords: drug, age group, positive attitude, adolescents, ANOVA.

Introduction

In early childhood, children develop physically and learn things they need to use in daily life. However, in adolescence, teens learn and shape their mindset as they see in family, school, society, and peer groups. Attitude is a settled way of thinking or feeling, characteristically imitated in a person's behaviour. Psychologists say that attitude is a way of evaluating things in a certain way after learning from others and society. Evaluating things may encompass the evaluation of people, objects, issues, and events and it can be either positive or negative contingent upon nurturing by parents. It is also believed that attitude is the outcome of the personal experience of an individual or by observing others such as parents, friends, or celebrities. As stated, before celebrities influence teenagers the most. Teenagers follow their ways as shown on screen and start abusing drugs, driving fast, and drinking alcohol.

Moreover, if parents ignore their children's adolescence years might induce them to ruin their lives unknowingly. The sudden and rapid physical changes that adolescents go through make them very self-conscious, sensitive, and worried about their body changes. They may make painful comparisons about themselves with their peers (Jenkins, 2007). Pursuing this further, observing others or when teenagers compare themselves with someone higher than them in society, makes them feel inferior. To conquer their fear of losing their position in a peer group, sometimes they are compelled to make wrong decisions in life.

The most commonly diagnosed disorders among alcohol abusers were antisocial personality (Harford et al., 1994), Personality disorders), depression and risk-taking behaviour (Lutz & Snow, 1985; Weissman et al., 1977). Despite the reported close association between these psychopathologies and alcohol addiction, it cannot be inferred that all individuals having above reported syndromes become alcohol addicts. However, the co-occurrence of the presence of these mental disorders in alcohol patients is a very important consideration when it comes to the treatment part. (Franken and Hendriks 1999) found that very troubled people showed virtually no improvement in any de-addiction treatment.

Result & Discussion

Age groups of students belonging to the age group 15-16 have a positive attitude towards drugs and alcohol. Females with a positive attitude were 30.66% percent. This means the majority of the students have a positive attitude towards drugs and alcohol. Males are 45.66% of the total and 27.33% have a positive attitude towards drugs and alcohol. Positive attitudes of the rural residents were 35.33%, which means the majority of the students belonging to rural residencies have a positive attitude towards drugs and alcohol. Members from urban residences had a low attitude towards drugs and alcohol.

During adolescence, everyone's attitude will be almost similar towards drugs and alcohol. Age is a factor in determining the attitude towards drugs and alcohol among adolescents. It may be due to peer pressure, influence, family background, and educational level which are the factors that decide their attitude, so the age group 15-16 kept a difference in the other two age groups and it is higher.

Conclusion

The study entitled "Attitude towards drug and alcohol among adolescents" is an attempt to examine the level of attitude based on different demographic details such as age, parental status, presence of addict, number of siblings, religion, economic status...etc. The researcher could find that there is a significant relationship in Attitude towards drugs and alcohol on different socio-demographic details especially with age and presence of the addict. The study also enlightened that Attitudes towards drugs and alcohol and Age correlate.

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Covid-19's Effect on Students

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Abstract

This paper examines the effects of COVID-19 on students who were compelled to stay home due to the pandemic. This situation, unfamiliar to them, has had both positive and negative impacts on their behavior. The study utilizes a dataset sourced from Kaggle, featuring 1,182 students across 17 different dimensions. The objective is to visualize the data to understand how students have responded to this new situation and to assess whether COVID-19 has had any influence on their health.

Keywords: COVID-19, health education, pandemic, well-being, students.

Introduction

The paper examines the impact of the COVID-19 pandemic on students in India, focusing on their academic, physical, mental, and social aspects. The research, centered in Delhi, uses a dataset to gather responses from students, but the findings may apply to other regions due to their comprehensive nature. The paper visually presents the findings, revealing students' time spent during the pandemic, assessing the effectiveness of online academic measures, and examining the pandemic's impact on their health and connections with family and friends. Statistical analyses are also conducted to determine the pandemic's significant impact. Various visualization methods are used to enhance understanding, with detailed explanations provided for the figures presented.

Visualization

This paper uses a dataset from the Kaggle website, consisting of 17 attributes and 1181 instances, to study the impact of the pandemic on 1182 students' academic, personal, physical, and mental health. Figure 1 shows that the Delhi NCR students are the main focus. However, the dataset can be used to infer behavior patterns of students from other regions. Analyzing different dimensions of the attributes can provide valuable insights.

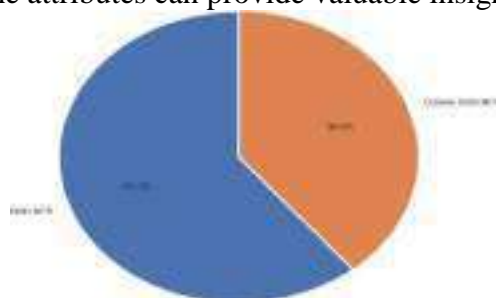


Figure 1. Region of the Students

Figure 2 shows the age of the students. It clearly says that the students belong to different age groups. The majority of the students belong to the age group 12 – 26. The age group varies from 7 to 59. One thing that can be inferred here is that the study was done not only on the school-going students but on the higher education also. The students were forced to enclose themselves in their homes in quarantine. They should have missed many things that also affected them in their integral growth at this time. Figure 3 shows what they might have missed the most. The majority of the students answered that they had missed their college or school; also there were other responses.

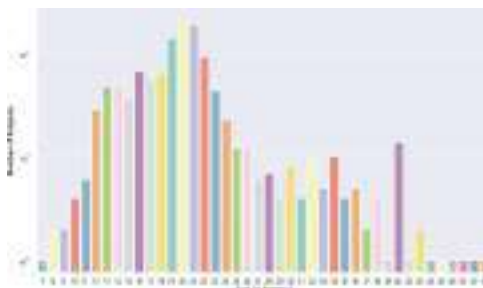


Figure 2 Age of the students

The study also observed that there are many positive impacts too. In quarantine, the majority of the students were able to connect with their parents, family, and friends (figure 4). To connect with their family members and their friends they have made use of social media platforms as physical reunions and get-togethers were not possible. Figure 5 shows which platform was most used by the students.

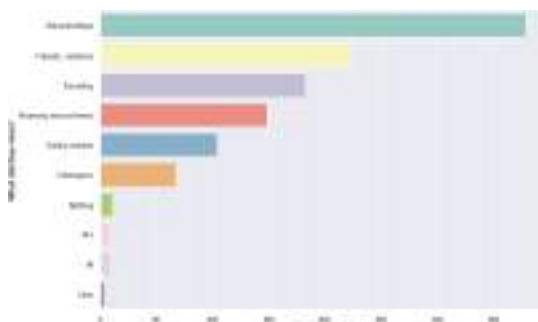


Figure 3 What the Students missed more



Figure 4 Bonding with family and relatives

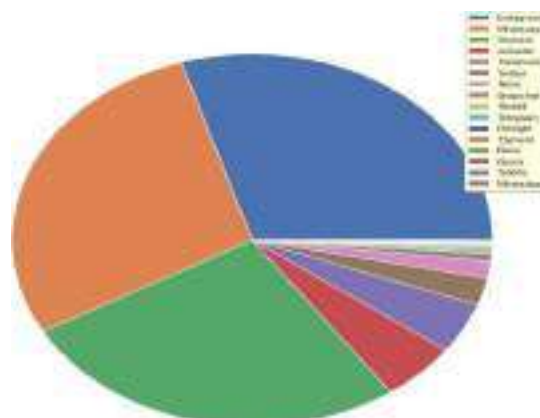


Figure 5. Social Media Platforms

Materials and Implementation

Development Tools

For visualization, Python language and Tableau are used. Orange is used to analyse the data and model creation. Later the Tableau visualization tool is used for the representation of the models.

Data Collection and Description

The dataset for the visualization and analysis is taken from Kaggle. The dataset has 1182 rows and 17 attributes. The following are the attributes of the dataset

- Region of residence
- Time spent on Online Class
- Rating of Online Class experience
- Medium for online class
- Time spent on self-study
- Time spent on fitness
- Time spent on sleep
- Preferred social media platform
- Time spent on TV
- Number of meals per day
- Change in your weight
- Health issues during the lockdown
- Stress busters
- Time utilized
- Do you find yourself more connected with your family, close friends, relatives?
- What did you miss the most?

Machine Learning Algorithms

Classification of the COVID-19 dataset is performed using three different classification models Random forest, Decision Tree, and Naive Bayes. The dataset is divided into 2. 1) Train data: Train dataset is the general term for the samples used to create the model. 2) Test data: A test dataset is used to qualify the performance.

Random Forest

The Random Forest Classifier is a classification technique consisting of multiple decision trees, promoting uncorrelated forests. The algorithm uses randomization to form individual trees, utilizing the forest's predictive powers for accurate decisions. The higher the number of trees, the higher the accuracy and the prevention of overfitting, resulting in a more accurate final output.

Decision Tree

A decision tree is a non – non-parametric supervised learning algorithm that is used for both classification and regression tasks. The goal of using a Decision Tree is to form a training model that will be used to predict the category or value of the target variable by learning simple decision rules inferred from prior data (training data). In Decision Trees, for predicting a category label for a record we start from the basis of the tree, we compare the values of the foundation attribute with the record's attribute.

Naïve Bayes

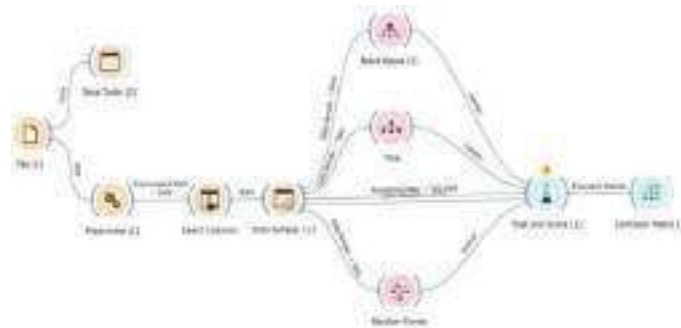
The Naïve Bayes algorithm is a supervised learning algorithm, which is based on the Bayes theorem and used for solving classification problems.

Model Performance and Evaluation Method

Here different methods are used to measure the performance; they are accuracy, precision, recall and AUC $Accuracy = \frac{TP+TN}{TP+FN+FP+TN} \times 100$
 $Precision = \frac{TP}{TP+FP} \times 100\%$ $Recall = \frac{TP}{TP+FN} \times 100\%$ Where,
TP (True Positive) is an outcome where the model correctly predicts the positive class.
TN (True Negative) is an outcome where the model correctly predicts the negative class.
FP (True Positive) is an outcome where the model incorrectly predicts the positive class.
FN (True Positive) is an outcome where the model incorrectly predicts the negative class.

Figure 6 depicts the orange diagram for the model creation. In this study, the model is being built and analysed using the data analytical tool, Orange, which is an open-source data visualization, machine learning, and data mining toolkit.

Figure 6 Orange Connection Diagram



The evaluation results (fig 7) say that the Random forest has more accuracy than the other models. So Random Forest is the apt model for saying whether COVID-19 affected the health of the students or not.

Model	AUC	CA	F1	Precision	Recall
Naive Bayes (1)	0.693	0.706	0.659	0.663	0.706
Tree	0.995	0.959	0.960	0.961	0.959
Random Forest	0.998	0.971	0.971	0.972	0.971

Figure 7 Evaluation Matrix

Further, the result is presented with the help of Tableau where one can easily understand that Random forest is more accurate and gives more precision than the other two models used.

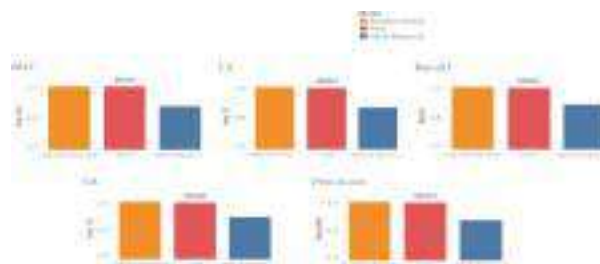


Figure 8

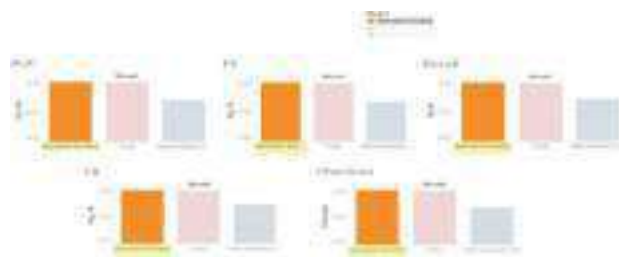


Figure 9

Conclusion

COVID-19 without any argument brought many stressful moments for the students. This paper tried to point out some of the areas to know or evaluate how they could tackle the situation that was imposed on them. When some areas got affected negatively there were some positive outcomes from it like they got more time to connect with others even though it was through social media. Many steps are to be taken to take care of the integral health of the students.

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JOSEPHINE RESEARCHER VI

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അത്ഭുതങ്ങൾ ഉണ്ടാകുന്നത്

ജോമോൻ കൊട്ടാരത്തിൽ^{1*}, ഡോ. തോമസ് ജോർജ് വെങ്ങാലുവക്കേൽ
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കളപ്പുരയ്ക്കൽ^{1*}

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പ്രബന്ധസംഗ്രഹം

സാഹിത്യത്തിനുള്ള നോബൽ സമ്മാനജേതാവായ ഷേമസ് ഹീനീ യുടെ പ്രസിദ്ധ കവിതാ സമാഹാരമായ മനുഷ്യചങ്ങലയുടെ വെളിച്ചത്തിൽ ബൈബിളിലെ വി. മാർക്കോസിന്റെ സുവിശേഷം നോക്കിക്കാണുകയും മനുഷ്യസാഹോദര്യത്തിന്റെ ശക്തി വിളിച്ചോതുകയും ചെയ്യുന്നു. അപരനിലേക്കു ഞാൻ തുറന്നിരിക്കേണ്ടത് നിയമജ്ഞരെപ്പോലെ കുറ്റങ്ങളും കുറവുകളും എണ്ണാനല്ല, മറിച്ച് അവന്റെ ജീവിതത്തിൽ സംഭവിക്കാനിരിക്കുന്ന ഒരു അത്ഭുതത്തിന്റെ മുന്നോടിയായാകാനാണ് എന്ന ചിന്തയെ ഇത് അടിവരയിടുന്നു..

കീലപദങ്ങൾ: തളർവാത രോഗി, അത്ഭുതം, കൂട്ടായ്മയുടെ അനിവാര്യത

വി. മാർക്കോസിന്റെ സുവിശേഷം 2:1-12 ആണ് നമ്മുടെ ഇന്നത്തെ വിചിന്തന വിഷയം. ഒരു തളർവാത രോഗിയെ നാലുപേർ ചേർന്ന് കട്ടിലിൽ ചുമന്ന്, യേശു ഇരുന്നു പഠിപ്പിച്ചിരുന്ന വീടിന്റെ മേൽക്കൂര പൊളിച്ച്, അവനെ യേശുവിന്റെ സമീപത്തെത്തിച്ചു. തളർവാത രോഗിയെ ഈശോയുടെ അടുത്തേക്ക് കൊണ്ടുവന്ന ആ നാൽവർസംഘത്തിന്റെ മനോഭാവങ്ങളിലേക്കു നമുക്ക് കണ്ണോടിക്കാം. അവരുടെ സ്ഥിരോത്സാഹം അവരെ പ്രശംസക്ക് പാത്രീഭൂതരാക്കി: അവരുടെ വിശ്വാസ തീക്ഷ്ണത അവന്റെ സമ്പൂർണ്ണ സൗഖ്യത്തിനു നിദാനമായി: അവരുടെ സാഹോദര്യ മനോഭാവം അവന്റെ ജീവിതത്തിൽ അത്ഭുതം നടക്കാൻ ഇടയാക്കി: അവരുടെ സാമീപ്യം അവന്റെ കാഴ്ചപ്പാടുകളെ മാറ്റിമറിച്ചു.

സാഹിത്യത്തിനുള്ള നോബൽ സമ്മാനജേതാവും ഐറിഷ് കവിയും നാടകകൃത്തുമായ ഷേമസ് ഹീനീ യുടെ പ്രസിദ്ധമായ ഒരു കവിതാ സമാഹാരമാണ് മനുഷ്യചങ്ങല. അതിലെ ചില കവിതകൾ അദ്ദേഹത്തിന്റെ തന്നെ ജീവിതത്തിലെ ചില ഏടുകളാണ്. അവയിൽ വളരെ പ്രാധാന്യമർഹിക്കുന്ന ഒന്നാണ് "അത്ഭുതം" എന്ന കവിത. 2006 ൽ സുഹൃത്തും നാടകകൃത്തുമായ ബ്രയൻ ഫ്രിയലിന്റെ ഭവനത്തിൽ ഒരാഘോഷത്തിൽ പങ്കെടുക്കവെ പെട്ടെന്ന് പക്ഷാഘാതം അനുഭവപ്പെടുകയും ഇടുങ്ങിയ ഗോവണിപ്പടിയിലൂടെ സുഹൃത്തുക്കൾ അദ്ദേഹത്തെ ആംബുലൻസിൽ എത്തിക്കുകയും ചെയ്തതുവഴിയായി തന്റെ ജീവൻ രക്ഷിച്ചതു കൃതജ്ഞതയോടെ അദ്ദേഹം "അത്ഭുതം" എന്ന കവിതയിൽ ഓർക്കുന്നു. അതിനെ വി.ഗ്രന്ഥത്തിലെ തളർവാത രോഗിയെ സുഖപ്പെടുത്തുന്നതിനോട് താദാത്മ്യപ്പെടുത്തിക്കൊണ്ട് തന്നെ

സഹായിച്ചവരെ നന്ദിപൂർവ്വം ഓർക്കുകയാണിവിടെ. ആ കവിതയുടെ ഒരു സ്വതന്ത്ര വിവർത്തനം ഇപ്രകാരമാണ്:

തൻ്റെ കിടക്കയുമെടുത്തു നടന്നവനെയല്ല
 അവനെ കാലങ്ങളായി അറിയുന്നവരെയും
 അവനെ മാറോടുചേർത്ത് വഹിച്ചവരെയും -
 അവരുടെ തോളുകൾ മറച്ചു, കൂനിനടപ്പിൻനോവ്
 നടുവിനാമപ്പൂട്ടിട്ടു . സ്ത്രൈച്ചറിൻ കൈകൾ
 വിയർപ്പാൽ വഴുതുന്നു: എങ്കിലും അവിരാമം,
 അവനെ തോൽവാറിനാൽമുറുക്കി, ചെരിച്ചു
 മേൽക്കൂരമേലുയർത്തി, സൗഖ്യത്തിനായ് താഴ്ത്തുന്നവരെ.
 പ്രതീക്ഷാ നിർഭരമായി കാത്തിരിക്കുന്ന അവരെ ഓർക്കുക:
 കയറുരഞ്ഞ നീറ്റൽ തണുക്കുവാനും
 തങ്ങളുടെ മന്ദതയും ആശങ്കാകുലതകളും
 നൈമിഷികമാകുവാനും, കാലങ്ങളായി അവനെ അറിയുന്നവരെയും.
 തളർവാതം പിടിപെട്ട് ദുരിതക്കയത്തിൽത്താണവനെ മാത്രമല്ല നാം
 സ്മരിക്കേണ്ടത്, പിന്നെയോ അവനെ അറിയുകയും ശുശ്രൂഷിക്കുകയും
 ചെയ്തവരെക്കൂടിയാണ്: അതീവത്യാഗം സഹിച്ചും അവനെ
 സുഖപ്പെടുത്തുന്നവൻ്റെ മുൻപിൽ എത്തിച്ചവരെക്കൂടിയാണ്: തങ്ങൾ
 എത്ര കഷ്ടപ്പെട്ടിട്ടായാലും സുഹൃത്തിൻ്റെ ദുരിതങ്ങൾക്ക്
 അറുതിവരണമെന്നു മനം നിറഞ്ഞു ആഗ്രഹിക്കുന്നവരെക്കൂടിയാണ്.
 അവരാഗ്രഹിച്ചതുപോലെ അവിടെ സംഭവിക്കുകയാണ്: അവനെ
 എടുത്തുകൊണ്ടുവരാൻ അവർ ഉപയോഗിച്ച അതേ കട്ടിൽ അവൻ
 എടുത്തുകൊണ്ടുപോകുന്നു!

ഈ ചിത്രം നമുക്ക് തരുന്ന വലിയ ഉൾക്കാഴ്ചയും അത് തന്നെയാണ്. നമ്മുടെ ജീവിതമൊരു അത്ഭുതമായി മാറണമെങ്കിൽ അപരൻ്റെ ജീവിതത്തിനു ഞാൻ താങ്ങായി മാറണം! ഒരുവശത്തു 'അന്യ ജീവനുതകി സ്വജീവിതം ധന്യമാക്കുമമലേ വിവേകികൾ' എന്ന കവിവചനം സാർത്ഥകമാക്കുന്നവർ. ശയ്യാവലംബിയായ തൻ്റെ ഭാര്യയെ പതിറ്റാണ്ടുകളായി ശുശ്രൂഷിക്കുന്ന ഭർത്താവും തൻ്റെ ആയുസിൻ്റെ സിംഹഭാഗവും ഭർത്താവിൽനിന്നു തിക്താനുഭവങ്ങൾ മാത്രം നേരിട്ടിട്ടും ജീവച്ഛവമായി കഴിയുന്ന ആ മനുഷ്യനുവേണ്ടി പരിഭവങ്ങളും പരാതികളുമില്ലാതെ തൻ്റെ ജീവിതം വ്യയം ചെയ്യുന്ന ഭാര്യയും മാതാപിതാക്കൾ തങ്ങളെ സ്നേഹിച്ചതിൻ്റെ നൂറുമേനിയും ഇരുന്നൂറുമേനിയും അവരുടെ വാർധക്യത്തിൽ തിരികെക്കൊടുക്കുന്ന മക്കളും സെനിബ്രൽ പാഴ്സി ബാധിച്ച ആറ്റുനോറ്റുണ്ടായ ഏകസന്താനത്തിനുവേണ്ടി ജീവിതത്തിൻ്റെ സന്തോഷങ്ങളെല്ലാം മാറ്റിവയ്ക്കേണ്ടിവരുന്ന മാതാപിതാക്കളും നമുക്കുചുറ്റും അത്ഭുതങ്ങൾക്ക് വഴിയൊരുക്കുന്നവരാണ്. മറുവശത്തു ജീവിതത്തിൽ ഒന്നും ചെയ്യാതെ എല്ലാത്തിനെയും വിമർശിക്കാൻ മാത്രമായി

ജീവിക്കുന്നവരെയും നാം ഈ സുവിശേഷഭാഗത്തു കാണുന്നുണ്ട്. അവരെയാണ് സുവിശേഷം നിയമജ്ഞരെന്ന് വിളിക്കുന്നത്. നമ്മുടെ സമൂഹങ്ങളിലും ഇത്തരത്തിലുള്ള ഒത്തിരിപ്പേരെ കണ്ടുമുട്ടാൻ സാധിക്കും.

അത്ഭുതങ്ങൾ ഉണ്ടാകുന്നത് എങ്ങനെയാണ്? എവിടെനിന്നാണ്? എന്തുകൊണ്ടാണ്? എന്നിങ്ങനെയുള്ള ചോദ്യങ്ങൾക്കുള്ള ഉത്തരങ്ങൾ നമുക്കുചുറ്റുമുണ്ട്; നാം തന്നെയാണ് ഉത്തരം! സ്നേഹത്തിന്റെയും സഹവർത്തിത്വത്തിന്റെയും പാതയിൽ ചരിക്കുന്ന ഓരോ മാനവനും! ഫ്രാൻസിസ് പാപ്പായുടെ 'നാം സോദരർ' (Fratelli Tutti) എന്ന ചാക്രികലേഖനം ഇത്തരൂണത്തിൽ സ്മരണീയമാണ്. കൂട്ടായ്മയുടെ അനിവാര്യത മാനവകുലത്തിന്റെ അതിജീവനത്തിന്റെ പുതുമുദ്രയായി പാപ്പാ ഇവിടെ അവതരിപ്പിക്കുന്നു. ഈ ചാക്രികലേഖനത്തിൽനിന്നു പ്രചോദിതമായിട്ടാണ് ഐക്യരാഷ്ട്രസഭ കഴിഞ്ഞവർഷം (2021) മുതൽ ഫെബ്രുവരി 4 ലോക മാനവസഹോദര്യദിനമായി ആചരിക്കുന്നത്. ഈ വർഷത്തെ ലോക മാനവസഹോദര്യദിനാചരണത്തിന്റെ തൊട്ടടുത്ത ദിവസങ്ങളെന്ന നിലയിൽ നാം ശ്രവിച്ച സുവിശേഷഭാഗം നമ്മെ കൂടുതൽ ഉത്തരവാദിത്വങ്ങൾ ഭരമേല്പിക്കുന്നു. രണ്ടോ മൂന്നോ പേർ എന്റെ നാമത്തിൽ ഒന്നിച്ചുകൂടുമ്പോൾ അവരുടെ മദ്ധ്യേ ഞാനുണ്ടായിരിക്കുമെന്ന ക്രിസ്തുവചനത്തിന്റെ അന്തസത്ത അവിടുന്ന് ഈ അത്ഭുതത്തിലൂടെ വെളിവാക്കുന്നു. സുഹൃത്തുക്കൾ ക്രിസ്തുവിൽനിന്നുള്ള നന്മ പ്രതീക്ഷിച്ചു തളർവാതരോഗിയുമായി ക്രിസ്തുവിനെ സമീപിക്കുമ്പോൾ അവിടുന്ന് അവർക്കിടയിൽ അത്ഭുതവുമായി കടന്നുവരുന്നു. 'ദൈവിക സൗന്ദര്യത്തിനുവേണ്ടിയുള്ള അന്വേഷണം, തങ്ങളുടെ സഹോദരീസഹോദരന്മാരുടെ മുഖങ്ങളിൽ ദൈവത്തിന്റെ വികലമാക്കപ്പെട്ട ഛായയെ പരിചരിക്കുവാൻ സമർപ്പിതരായ വ്യക്തികളെ നിർബന്ധിക്കുന്നു' എന്നാണ് വി. ജോൺ പോൾ രണ്ടാമൻ പാപ്പാ 'സമർപ്പിതജീവിതം' എന്ന ശ്ലൈഹീകാഹ്വാനത്തിൽ ലോകത്തെ ഉദ്ബോധിപ്പിക്കുന്നത്. അപരനിലേക്കു ഞാൻ തുറന്നിരിക്കേണ്ടത് നിയമജ്ഞരെപ്പോലെ കുറ്റങ്ങളും കുറവുകളും എണ്ണാനല്ല, മറിച്ച് അവന്റെ ജീവിതത്തിൽ സംഭവിക്കാനിരിക്കുന്ന ഒരു അത്ഭുതത്തിന്റെ മുന്നോടിയായാകാനാണ് എന്ന ചിന്ത നമ്മെ നയിക്കട്ടെ.

സഹായകഗ്രന്ഥസൂചി

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JOSEPHINE RESEARCHER VI

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നമുക്കും സെഹിയോൻ ഊട്ടുശാലയിലേക്കു പോകാം...
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പ്രബന്ധസംഗ്രഹം

പരിശുദ്ധാത്മാവിനെക്കുറിച്ചു ജോൺ പോൾ രണ്ടാമൻ മാർപാപ്പ പുറപ്പെടുവിച്ച ജീവൻ്റെ കർത്താവും ദാതാവും എന്ന ചാക്രികലേഖനത്തിൽ സെഹിയോൻ ഊട്ടുശാലയിലെ നാലു രംഗങ്ങളുടെ ചട്ടക്കൂട്ടിൽനിന്നാണ് ഈ ചാക്രികലേഖനം അവതരിപ്പിക്കപ്പെടുന്നത്. ഈ രംഗങ്ങളെക്കുറിച്ചുള്ള ഒരു വിചിന്തനമാണ് ഈ ലേഖനം.

കീലപദങ്ങൾ: ഈസ്റ്റർ, പരിശുദ്ധാത്മാവ്, പന്തക്കുസ്ത, സെഹിയോൻ ഊട്ടുശാല

പരിശുദ്ധാത്മാവിനെക്കുറിച്ചു 1986 മെയ് 18-ആം തീയതി പന്തക്കുസ്താനാളിൽ വി. ജോൺ പോൾ രണ്ടാമൻ മാർപാപ്പ പുറപ്പെടുവിച്ച ചാക്രികലേഖനമാണ് Dominum et vivificantem (ജീവൻ്റെ കർത്താവും ദാതാവും). സെഹിയോൻ ഊട്ടുശാലയിലെ (Upper Room) നാലു രംഗങ്ങളുടെ ചട്ടക്കൂട്ടിൽനിന്നാണ് ഈ ചാക്രികലേഖനം അവതരിപ്പിക്കപ്പെടുന്നത്. ഈ രംഗങ്ങളെ നമുക്കിന്ന് ധ്യാനവിഷയമാക്കാം.

അന്ത്യ അത്താഴവേളയിൽ ശിഷ്യരോട് നടത്തുന്ന വിടവാങ്ങൽ പ്രഭാഷണമാണ് ഇവയിൽ ആദ്യത്തേത് (യോഹ.14-17). പരിശുദ്ധത്രിത്വത്തെക്കുറിച്ചുള്ള വെളിപ്പെടുത്തലുകളുടെ ഉച്ചസ്ഥായിയായിട്ടാണ് പാപ്പാ ഇതിനെ വിശേഷിപ്പിക്കുന്നത് (D V 9). ഏലിയാ പ്രവാചകൻ ഹോറെബ് മലയിൽ കർത്താവിൻ്റെ ആഗമനം പ്രതീക്ഷിച്ചിരിക്കുമ്പോൾ കടന്നുവന്ന കൊടുങ്കാറ്റിലും ഭൂകമ്പത്തിലും അഗ്നിയിലും കർത്താവില്ലായിരുന്നു, അതിനുശേഷം കേട്ട മൃദുസ്വരമായിരുന്നു അവിടുത്തേത് (1 രാജാ.19: 11-13). അവിടെവെച്ചു ദൈവം ഏലിയയോട് ചോദിക്കുന്ന ആദ്യചോദ്യം ഇതാണ് : "ഏലിയാ, നീ ഇവിടെ എന്ത് ചെയ്യുന്നു?" ഒരു സ്നേഹഭാഷണമാണത്. ഏലിയായുടെ വ്യാകുലതകൾ കേട്ട അവിടുന്നു സഹായിയായി എലീഷായെ നൽകുന്നു. ക്രിസ്തുവിൻ്റെ വിടവാങ്ങൽ പ്രഭാഷണവും ഇതുപോലെ മൃദുലവും ആർദ്രവുമായിരുന്നു. പ്രിയപ്പെട്ടവരെ വേർപിരിയുമ്പോൾ അനുഭവപ്പെടുന്ന വിങ്ങലിച്ച ഹൃദയത്തോടെയാണ് അവിടുത്തെ സംസാരം. അതിനിടയിലാണ് അവിടുന്നു അവർക്കു സഹായകനെ വാഗ്ദാനം ചെയ്യുന്നത്. തനിക്ക് കിട്ടിയ ആത്മാവിൻ്റെ ഇരട്ടി പങ്ക് ഏലിയ, എലീഷാക്കു വാഗ്ദാനം ചെയ്യുന്നതുപോലെ, ക്രിസ്തുവും തൻ്റെ സന്തതസഹചാരികൾക്കു തൻ്റെ തന്നെ ആത്മാവിനെ അതിൻ്റെ

പൂർണ്ണതയിൽ ലഭിക്കുമെന്ന് ഉറപ്പു നൽകുന്നു. സ്നേഹം ദീപ്തമാകുമ്പോൾ അത് വാചാലമാകുന്നു; നിശബ്ദതയുടെ ആഴങ്ങളിൽ മൃദുസ്വരമായി നമ്മെ തഴുകുന്നു. ശാന്തതയിൽ, ശ്വാസനിശ്വാസങ്ങളോളം മൃദുലമായ നിശ്ശബ്ദതയിലാണ് ദൈവസ്വരം നാം ശ്രവിക്കുക. ആധ്യാത്മികതയുടെ ആഴങ്ങൾ നാം കണ്ടെത്തുന്നതും അവിടെയാണ് എന്ന് ഇത് നമ്മെ ഓർമ്മിപ്പിക്കുന്നു.

ആദ്യ ഈസ്റ്റർ ഞായറാഴ്ച വൈകിട്ടാണ് രണ്ടാം രംഗം നടക്കുന്നത് (യോഹ.20 -19-22). ഈശോ ശിഷ്യരുടെമേൽ നിശ്ചയിച്ചുകൊണ്ടു അവരോട് അരുളിച്ചെയ്തു: "നിങ്ങൾ പരിശുദ്ധാത്മാവിനെ സ്വീകരിക്കുവിൻ". വീട് വാങ്ങൽ പ്രഭാഷണത്തിൽ വാഗ്ദാനം ചെയ്യപ്പെട്ട ആത്മാവിനെ ക്രിസ്തു അവർക്കു നൽകുകയാണിവിടെ (D V 24). പരിശുദ്ധാത്മാവിനെ സ്വീകരിച്ച ശിഷ്യന്മാർ പിന്നീട് മീൻപിടിക്കാൻ പോകുന്നത് യോഹന്നാന്റെ സുവിശേഷത്തിൽ നാം കാണുന്നുണ്ട്. ക്രിസ്തുശിഷ്യർ മീൻ പിടിക്കാൻ പോകുന്നതിനെക്കുറിച്ചു കെ പി അപ്പൻ ഇപ്രകാരമാണ് പറയുന്നത്: "മീൻപിടുത്തം മതദർശനങ്ങളിൽ പ്രതീകാത്മകമായൊരു പ്രവൃത്തിയാണ്. ആഴങ്ങളിലെ പരാമർത്ഥങ്ങളെക്കുറിച്ചുള്ള അതിജീജ്ഞാസയുടെ പ്രതീകമാണത്. ഇനിയും കണ്ടെത്താത്ത മതപരമായ ജ്ഞാനത്തെക്കുറിച്ചുള്ള അബോധപരമായ ആഗ്രഹത്തിന്റെ ചിഹ്നമാണത്. പ്രതീകപഠനങ്ങളിൽ മീൻ തെന്നിമാറുന്ന അമൂല്യവസ്തുവാണ്. വിലയേറിയ അധ്യാത്മികാനുഭവങ്ങളും മനുഷ്യനിൽനിന്നു തെന്നി മാറുന്നു. ഈ അനുഭവത്തെ പ്രാപിക്കാനുള്ള അബോധപരമായ ആഗ്രഹത്തിന്റെ പ്രതീകാത്മകമായ ആവിഷ്കരണമാണ് മീൻ പിടുത്തം" (ബൈബിൾ: വെളിച്ചത്തിന്റെ കവചം). തീർച്ചയായും ആത്മാവിനെ സ്വീകരിച്ച ശിഷ്യർ ആത്മീയാനുഭവം തേടുന്നതിന്റെ പ്രതീകമായി നമുക്കിതിനെ കാണാനാകും. തുടർന്ന് അവരുടെ ഭീരുത്വവും സങ്കോചവും മാറി അവർ കൊടിയ പീഡകൾക്കിടയിലും സുവിശേഷത്തിനു സാക്ഷ്യമാകുന്നു. ദൗത്യം ആരംഭിച്ചശേഷം പത്രോസിന്റെ അമ്മായിയമ്മയെ സുഖപ്പെടുത്തുകയും മറ്റനവധി രോഗസൗഖ്യങ്ങൾ നൽകുകയും ചെയ്തശേഷം ക്രിസ്തുനാഥൻ പത്രോസിനോട് പറയുന്നത് ആഴത്തിലേക്ക് വലവീശുക എന്നതാണ്. അതിനുശേഷം അവരെല്ലാവരും അവിടുത്തെ അനുഗമിച്ചു (ലൂക്ക. 5:1-11). ഉത്ഥാനശേഷം ക്രിസ്തു കൂടെയില്ലാതെ മീൻ പിടിക്കാൻ പോയ അവർക്ക് ഒന്നും കിട്ടിയില്ല എന്നും ക്രിസ്തുവിന്റെ സാന്നിധ്യം വലനിറച്ചു എന്നും തുടർന്ന് അതേ ശിഷ്യർ സഭയുടെ നെടുംതൂണുകളായെന്നും നാം കാണുന്നു. അത് നമുക്കുള്ള ഒരു ഓർമ്മപ്പെടുത്തലാണ്; ക്രിസ്തു കൂടെയില്ലെങ്കിൽ ക്രിസ്തുവിന്റെ ആത്മാവും നമ്മെ വിട്ടുപോകും.

പന്തക്കുസ്ത തിരുനാളിലാണ് മൂന്നാം രംഗം നടക്കുക. ദൈവാത്മാവിനെ മനുഷ്യകുലത്തിനു മുഴുവൻ ദൈവം പ്രദാനം ചെയ്യുന്നു. ഉത്ഥാനഞായറാഴ്ച നിവൃത്തിയായ ദാനത്തിന്റെ മുർത്തമായ

വെളിപ്പെടുത്തലാണിവിടെ നടക്കുന്നത് (DV 25). "ആദിയിൽ ദൈവം ആകാശവും ഭൂമിയും സൃഷ്ടിച്ചു. ദൈവാത്മാവ് വെള്ളത്തിന് മീതെ ചലിച്ചുകൊണ്ടിരുന്നു" (ഉൽ. 1:1-2). ഭൂമിയുടെ ആരംഭം മുതലുള്ള പരിശുദ്ധാത്മാവിന്റെ സാന്നിധ്യവും ഇടപെടലുകളും നമ്മെ ഓർമ്മപ്പെടുത്തുന്നതാണ് ഈ തിരുവചനം. ദൈവാത്മാവ് പ്രപഞ്ചത്തിന്മേൽ അടയിരുന്നതിനുശേഷമാണ് 'ഉണ്ടാകട്ടെ' എന്ന ദൈവവചനത്തിന്റെ ആഗമനം. തുടർന്ന് പ്രപഞ്ചസൃഷ്ടി നടക്കുന്നു. ഇതുപോലെ, ദൈവാത്മാവ് ശിഷ്യരിൽ ആവസിച്ചതിനുശേഷമാണ് നവീനലോകത്തിന്റെയും തിരുസഭയുടെയും സൃഷ്ടി നാം കാണുക. ബിഷപ്പ് ഫുൾട്ടൻ ജെ ഷീൻ "ക്രിസ്തുവിന്റെ ജീവിതം" എന്ന കൃതിയിൽ പരിശുദ്ധാത്മാവിനെ സൂചിപ്പിക്കുന്ന മൂന്നു അടയാളങ്ങളെക്കുറിച്ചു പറയുന്നുണ്ട്. പ്രാവിന്റെ രൂപം ധരിച്ചുകൊണ്ടു അവിടുത്തെ ദൈവപുത്രസ്ഥാനവും നൈർമല്യവും വെളിവാക്കുവാനായി ക്രിസ്തുവിന്റെ ജ്ഞാനസ്നാനസമയത്തു കടന്നുവന്നതും തീനാവിന്റെ രൂപത്തിൽ ലോകത്തെ പരിവർത്തനം ചെയ്യുന്ന ആത്മാവിന്റെ ശക്തി പന്തക്കുസ്താനാളിൽ ശിഷ്യരുടെമേൽ ആവസിച്ചതും ഉത്ഥിതനായ ക്രിസ്തുവിന്റെ ശ്വാസമായി പുനരുജീവനശക്തിയെ അതിന്റെ പൂർണ്ണതയിൽ ആവിഷ്കരിച്ചതുമാണവ. "ദൈവമായ കർത്താവ് ഭൂമിയിലെ പൂഴികൊണ്ട് മനുഷ്യനെ രൂപപ്പെടുത്തുകയും ജീവന്റെ ശ്വാസം അവന്റെ നാസാരന്ധ്രങ്ങളിലേക്കു നിശ്ചയിക്കുകയും ചെയ്തു" (ഉൽ. 2: 7). ആദിമനുഷ്യന്റെ അധഃപതനത്തിനു കാൽവരിയിൽ വിലയേകിയവൻ, അന്ധന്റെ കണ്ണുകളിൽ ചെളിയുണ്ടാക്കി പൂശിക്കൊണ്ടു (യോഹ. 9:6) താൻ തന്നെയാണ് സൃഷ്ടിതാവെന്നു അർത്ഥശങ്കക്കിടയില്ലാത്തവിധം വെളിപ്പെടുത്തുന്നു. അതുപോലെതന്നെ തന്റെ ശിഷ്യരുടെമേൽ ദൈവാത്മാവിനെ നിശ്ചയിച്ചുകൊണ്ടു പുനരുദ്ധരിക്കപ്പെട്ട മനുഷ്യകുലത്തിന് നവാത്മാവിനെ പകരുന്നവനും താൻ തന്നെയാണെന്ന് പ്രഖ്യാപിക്കുന്നു (യോഹ.20:22). അവിടുന്നു ആദത്തിന് ജീവശ്വാസം നൽകിക്കൊണ്ട് മനുഷ്യവംശത്തിനു അടിസ്ഥാനമിട്ടുകിൽ തന്റെ ശിഷ്യർക്ക് ആത്മശ്വാസം നൽകിക്കൊണ്ട് സഭാതരുവിനു നാനദികുറിച്ചു. അങ്ങനെ സഭയുടെ യുഗം ആരംഭിക്കുകയാണ്. ഓർക്കുക; ദൈവാത്മാവ് തന്നെയാണ് ഈ പുതിയ ശരീരത്തിന്റെ ആത്മാവും.

സെഹിയോൻ ഊട്ടുശാലയെ സംബന്ധിച്ച നാലാമത്തെ ഉദ്ബോധനം സഭയുടെ പ്രാരംഭസാഹചര്യങ്ങളിൽ ശ്രദ്ധാലുവായിരുന്നുകൊണ്ടുതന്നെ അതിന്റെ ദൗത്യത്തോടുള്ള വിശ്വസ്തതയാണ്. ചരിത്രപരമായി പന്തക്കുസ്താതിരുന്നാളിൽ സെഹിയോൻ ഊട്ടുശാലയിൽ സഭ സ്ഥാപിതമായെങ്കിലും ഒരുവിധത്തിൽ സഭ ഇന്നും അവിടെത്തന്നെ തുടരുകയാണ്. ആത്മീയമായ അർത്ഥത്തിൽ പന്തക്കുസ്ത ഒരു ഭൂതകാലവസ്തുതയല്ല; സഭ എപ്പോഴും സെഹിയോൻ അനുഭവത്തെ

ഹൃദയാ വഹിക്കുന്നു (D V 66). ഫ്രാൻസിസ് പാപ്പ 2013 ഏപ്രിൽ 28 നു വത്തിക്കാനിലെ വി.പത്രോസിന്റെ ചത്വരത്തിൽ സൈന്യലേപന കൂദാശ നൽകുന്നതിനിടയിൽ പരിശുദ്ധാത്മനിറവിലേക്കു നയിക്കുന്ന മൂന്നു കാര്യങ്ങളെക്കുറിച്ചു അർത്ഥികളെ ഉദ്ബോധിപ്പിക്കുകയുണ്ടായി. ഒന്നാമത്, പരി. ആത്മാവ് ദൈവത്തിൽനിന്നുള്ള അതിനൂതനമായവയെല്ലാം നമുക്ക് തരും. നമ്മിലേക്ക് കടന്നുവന്നു എല്ലാം പുതുതാക്കും; നമ്മെത്തന്നെ രൂപാന്തരപ്പെടുത്തും! ലോകത്തിലുള്ള നൈമിഷികവസ്തുക്കൾപോലെയല്ല, പിന്നെയോ സുസ്ഥിരമാണത്. പിന്നീട് ലഭിക്കുന്നതല്ല, ഇപ്പോൾ ഇവിടെവെച്ചു അവിടുന്ന് നമുക്കായി തരുന്നവയാണ്. പരി. ആത്മാവിനായി ഹൃദയം തുറന്നുകൊടുത്താൽ അവിടുന്ന് നമ്മിലൂടെ ലോകത്തെ പരിവർത്തനം ചെയ്യും. എന്റെ മാതാപിതാക്കളോട്, മക്കളോട്, കൂട്ടുകാരോട് ഒക്കെയുള്ള സ്നേഹത്തിന്റെ പ്രകരണങ്ങളിലൂടെ ദൈവാത്മാവ് കർമ്മനിരതനാകുന്നു എന്ന ബോധ്യം എനിക്കുണ്ടാകണം. . സഭയുടെ പൊതുവായും സഭാതനയരുടെ വ്യക്തിപരമായുമുള്ള ജീവിതയാത്ര വളരെ ദുർഘടങ്ങൾ നിറഞ്ഞതാണല്ലോ. കല്ലും മുള്ളും നിറഞ്ഞ ഈ പന്മാവിലൂടെ കടന്നുപോകുമ്പോൾ നാം നഷ്ടയെര്യരാകരുതെന്നും ക്രിസ്തുവിനെപ്പോലെയും ക്രിസ്തുവിനോടൊത്തും ഇവയെ അതിജീവിക്കാൻ പരിശുദ്ധാത്മശക്തി നമ്മോടൊപ്പമുണ്ടെന്നുമുള്ള തിരിച്ചറിവിലേക്ക് നാം നയിക്കപ്പെടുക എന്നതാണ് നമ്മിലുണ്ടാകേണ്ട രണ്ടാമത്തെ ചിന്ത. കർത്താവിൽ പ്രത്യാശയർപ്പിച്ചുകൊണ്ടു വിശ്വാസയാത്രയിൽ സ്ഥിരോത്സാഹികളാകുക എന്നതാണ് മൂന്നാമതായി നമുക്കുണ്ടാകേണ്ട മനോഭാവം. നമ്മുടെ യാത്രയുടെ മർമ്മവും അതുതന്നെയാണ്! ഒഴുക്കിനെതിരെ നീന്തേണ്ടിവരുമ്പോൾ അതിനുള്ള ശക്തിയും അവിടുന്ന് തന്നെ പ്രദാനം ചെയ്യും. നമുക്കും സെഹിയോൻ ഊട്ടുശാലയിലേക്കു പോകാം: അവിടുത്തെ പുതിയ അന്തേവാസികളാകാം; ആത്മാവിനായി ദാഹിക്കുന്നവരാകാം. ആത്മവർഷത്തിന്റെ അനുഭവം പേറുന്നവരാകാം!

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JOSEPHINE RESEARCHER VI

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വിശുദ്ധിയുടെ ഉറവിടങ്ങളാകുക

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തന്നിലെ തീ കെടാതെ സൂക്ഷിക്കുക മാത്രമല്ല ആ തീപ്പൊരി തങ്ങളുടെ ദേഹത്തു വിഴുന്ന്വരെല്ലാം അതിനെ തീജ്വാലയാക്കുമാറ് അസാധാരണമാംവിധം ആത്മീയ തേജസ്സ് തുളുമ്പി നിന്നിരുന്ന ഷാജി ബ്രദർ, വിക്ടർ ബ്രദർ എന്നിവരെ അനുസ്മരിക്കുന്ന ഒരു ലേഖനമാണിത്.

കീലപദങ്ങൾ: ചെമ്പകപ്പാറ, ഷാജി ബ്രദർ, വിക്ടർ ബ്രദർ, ആത്മീയ തേജസ്സ്

കുറച്ചുനാൾ മുൻപ് എൻ്റെ സുഹൃത്തായ ഒരു വൈദികനൊപ്പം ഒരു ചെറുപ്പക്കാരൻ്റെ മരണവാർഷിക ചടങ്ങിൽ പങ്കെടുക്കാനായി ഇടുക്കി ജില്ലയിലെ ചെമ്പകപ്പാറ എന്ന ഗ്രാമത്തിൽ പോകാനിടയായി. തൻ്റെ 27-ആം വയസ്സിൽ വാഹനാപകടത്തിൽ മരിച്ചതാണോ ചെറുപ്പക്കാരൻ. 27 വർഷം മുൻപ് മരണമടഞ്ഞ ആ ചെറുപ്പക്കാരനെ അനുസ്മരിച്ച വൈദികൻ ഇന്നും ഗദ്ഗദകണ്ഠനായാണ് തൻ്റെ ഓർമ്മകൾ അയവിറക്കിയത്. കേരളത്തിൻ്റെ വിവിധ ഭാഗങ്ങളിൽനിന്നെത്തിയ ആളുകൾ വികാരാധീനരായാണ് വിശുദ്ധബലിയിൽ പങ്കെടുത്തത്. ദേവാലയത്തിലെ കർമ്മങ്ങൾക്കുശേഷം ആ വ്യക്തിയുടെ ഭവനത്തിൽ പോയപ്പോൾ അദ്ദേഹം താമസിച്ചിരുന്ന മുറിയിൽ പ്രാർത്ഥനാനിമഗ്നരായിരിക്കുന്നവരെയും കാണാനിടയായി. വൈവിധ്യങ്ങളായ ഒത്തിരിയേറെ കഴിവുകളുണ്ടായിരുന്ന അദ്ദേഹത്തിൻ്റെ ഓരോ കഴിവുകൾവീതം മരണശേഷം തങ്ങൾക്കും പകർന്നുകിട്ടി എന്ന് അഭിമാനിക്കുന്ന ശിഷ്യസമൂഹത്തെയും കാണാൻ സാധിച്ചു. ക്രിസ്താനുഭവത്തിലേക്ക് കടന്നുവന്നശേഷം വെറും 4 വർഷങ്ങൾമാത്രമാണ് ആ ചെറുപ്പക്കാരൻ ഭൂമിയിൽ ജീവിച്ചത്. ബ്ര. ഷാജി ജോർജ്ജ് എന്ന ആ യുവാവ് മരിക്കുന്നതിനുമുൻപ് വെറും ഒരു തവണ മാത്രം കണ്ടുമുട്ടുകയോ സഹവസിക്കുകയോ ചെയ്തവരും ഓർമ്മയാചരണത്തിനു അവിടെ സന്നിഹിതരായിരുന്നു എന്നതിൽനിന്നുതന്നെ ആ വ്യക്തിയുടെ പ്രാഭവം എത്രയായിരുന്നു എന്ന് നമുക്ക് ഊഹിക്കാം. വെറും നാലു വർഷങ്ങൾകൊണ്ട് സുവിശേഷത്തിനു ഇത്രമാത്രം സുദീപ്ത സാക്ഷ്യം വഹിക്കാൻ ബ്ര. ഷാജി പ്രാപ്തനായതെങ്ങനെ എന്ന ചോദ്യത്തിനുത്തരം കൊച്ചിയിലെ കത്തോലിക്കാ പ്രാർത്ഥന കൂട്ടായ്മയുടെ (Cochin Catholic Prayer Group) സ്ഥാപകനായിരുന്ന ബ്ര. ഒ.ജെ. വിക്ടറിലാണ് കാണാൻ സാധിച്ചത്. കേൾക്കുന്നോരും കേൾവിക്കാരിൽ വിസ്മയം

വർദ്ധിപ്പിക്കുന്നവിധമായിരുന്നു അദ്ദേഹത്തിന്റെയും ആത്മീയ തീക്ഷ്ണത. ലോകമെങ്ങും സുവിശേഷം പ്രഘോഷിക്കുവാൻ അഗ്നിപോലെ ജ്വലിക്കുന്ന ഒരു ആത്മാവ് സ്വന്തമായുള്ള ഒരു വ്യക്തി. തന്നിലെ തീ കെടാതെ സൂക്ഷിക്കുക മാത്രമല്ല ആ തീപ്പൊരി തങ്ങളുടെ ദേഹത്തു വീഴുന്നവരെല്ലാം അതിനെ തീജ്വാലയാക്കുമാറ് അസാധാരണമാംവിധം ആത്മാവിന്റെ അഭിഷേകം അദ്ദേഹത്തിൽ തുളുമ്പി നിന്നിരുന്നു. അദ്ദേഹത്തിന്റെ ദൈവവചനപ്രഘോഷണങ്ങൾ ശ്രോതാക്കളുടെമേൽ ആഗേയാസ്ത്രങ്ങൾപോലെ പതിക്കുകയും അവരുടെ ഹൃദയങ്ങളെ മമനം ചെയ്തു ക്രിസ്തുവിൽ പുതുവ്യക്തിത്വങ്ങളെ രൂപപ്പെടുത്തുകയും ചെയ്യുമാറ് അതിതീവ്രമായിരുന്നു. അദ്ദേഹത്തിന്റെ 25-ആം ചരമവാർഷികം ഇക്കഴിഞ്ഞ ജൂണിലായിരുന്നു. നിരവധി ആളുകൾ കൊച്ചിയിലെ സൗദി ഇടവകപ്പള്ളിയിലെ അദ്ദേഹത്തിന്റെ കബറിടത്തിൽ പ്രാർത്ഥിക്കാനായി ഇപ്പോഴും കടന്നുചെല്ലുന്നു. ഒരു സമർപ്പിത സമൂഹത്തിന്റെ സ്ഥാപകനായി ഒരു അത്മായനെ പരിഗണിക്കുന്നത് പലപ്പോഴും നമുക്ക് അചിന്തനീയമാണ്. എന്നാൽ മധ്യപൂർവ്വദേശത്തു സ്ഥാപിതമായി അമേരിക്കൻ ഐക്യനാടുകളിലും കർമ്മോത്സുകരായിരിക്കുന്ന വൈദികരും സന്യസ്തരും അത്മായരുമടങ്ങുന്ന കൃപയുടെ സമൂഹം (Community of Grace) എന്ന അപ്പസ്തോലിക സമർപ്പിത സമൂഹം തങ്ങളുടെ സ്ഥാപകനായി കാണുന്നത് ബ്ര. ഒ.ജെ. വിക്ടറിനെയാണ്. ഒരാൾ ദൈവത്തിനായി തന്നെത്തന്നെ സമർപ്പിക്കുമ്പോൾ ദൈവം അവനിലൂടെ മനുഷ്യന്റെ കണക്കുകൂട്ടലുകൾക്കതീതമായി എന്തെല്ലാം അത്ഭുതങ്ങളാണ് പ്രവർത്തിക്കുന്നത്! ഒരു സമൂഹത്തിലോ ഒരു ദേശത്തോ മാത്രമല്ല, ലോകം മുഴുവനിലും വിശുദ്ധിയുടെ പരിമളം പരത്താൻ ദൈവം അവരെ ഉപകരണങ്ങളാക്കി.

ഇന്നത്തെ ലോകത്തിൽ വിശുദ്ധിയിലേക്കുള്ള വിളിയെക്കുറിച്ചു ഫ്രാൻസിസ് പാപ്പാ പുറപ്പെടുവിച്ച അപ്പസ്തോലിക ഉദ്ബോധനം "ആനന്ദിച്ച് ആഹ്ലാദിക്കുവിൻ (Rejoice and Be Glad)" ഇപ്രകാരം പറയുന്നു: " പരിശുദ്ധാത്മാവ് ദൈവത്തിന്റെ വിശുദ്ധരും വിശ്വസ്തരുമായ ജനങ്ങളുടെ ഇടയിൽ സമൃദ്ധമായി വിശുദ്ധി പ്രദാനം ചെയ്യുന്നു"(No.6). കാഴ്ചയിൽ വളരെ നിസ്വരെന്നു തോന്നിച്ചിരുന്ന, സാധാരണക്കാരിൽ സാധാരണക്കാരായി ജീവിച്ച മുൻപറഞ്ഞ രണ്ടു മഹത് വ്യക്തിത്വങ്ങളും ഇതിനു മകുടോദാഹരണങ്ങളാണ്. ദൈവാത്മാവിനോട് വിശ്വസ്തരാകാൻ സാധിച്ചാൽ നമ്മുടെ ജീവിതവും വിശുദ്ധിയുടെ പരിമളം പരത്തുന്നതാവുമെന്ന് ഇവർ നമ്മെ പഠിപ്പിക്കുന്നു. ഒന്ന് മനസുവെച്ചാൽ നമുക്കും വിശുദ്ധരാകാം; നിന്റെ സഹോദരൻ എവിടെ എന്ന് ദൈവം ചോദിക്കുമ്പോൾ ഞാൻ എന്റെ സഹോദരന്റെ കാവൽക്കാരനാണോ എന്ന മറുചോദ്യം ചോദിച്ച കായേന്റെ മനോഭാവം ഒഴിവാക്കിയാൽ മാത്രം മതി. ക്രിസ്തു പഠിപ്പിച്ചതുപോലെ

എന്നെപ്പോലെ എൻ്റെ അയൽക്കാരനെയും സ്നേഹിക്കാൻ എന്ന് ഞാൻ തുടങ്ങുന്നുവോ അന്നുമുതൽ ഞാനും വിശുദ്ധിയുടെ പടവുകൾ ചവിട്ടിത്തുടങ്ങുന്നു. നമ്മുടെ അടുത്ത വാതിലിലെ അയൽക്കാരിലും നമ്മുടെ മധ്യത്തിലും ജീവിച്ചുകൊണ്ട് ദൈവസാന്നിധ്യത്തെക്കുറിച്ചു വിചിന്തനം ചെയ്യുന്നവരെ പാപ്പാ അഭിസംബോധന ചെയ്യുന്നത് "വിശുദ്ധിയുടെ മധ്യവർഗം" എന്നാണ് (No.7).

"അവനും അവൾക്കും വിശുദ്ധനാകാമെങ്കിൽ എനിക്ക് എന്തുകൊണ്ട് ആയിക്കൂടാ" എന്ന് സ്വയം ചോദിച്ചുകൊണ്ട് ആത്മീയതയിലേക്ക് കടന്നുവന്ന ഈശോസഭാസ്ഥാപകനായ വി. ഇഗ്നേഷ്യസ് ലയോളയുടെ ചോദ്യം ഇന്നും നമ്മുടെ മുൻപിൽ പ്രസക്തമാണ്. ഈ ചോദ്യത്തിനുള്ളതരം തേടുമ്പോൾ എടുക്കേണ്ട ഒരു മുൻകരുതലിനെക്കുറിച്ചും പാപ്പാ പ്രതിപാദിക്കുന്നുണ്ട്. "അവരവർക്കുവേണ്ടി ഉദ്ദേശിച്ചിട്ടില്ലാത്ത ചിലതു അനുകരിക്കാനല്ല, പ്രത്യുത ഓരോരുത്തരും അവരവരുടെ സ്വന്തം മാർഗ്ഗത്തിലാണ് വിശുദ്ധരാകേണ്ടത്" (No.11). 24 കാരറ്റ്

തനിത്തകമാകണമെങ്കിൽ അതിൽ മറ്റു ലോഹങ്ങളുടെ അംശങ്ങൾ ഉണ്ടാകാൻ പറ്റില്ല. ഇതുപോലെ, വിശുദ്ധിയിലേക്കുള്ള എൻ്റെ പ്രയാണം ഞാൻ ഞാനായിക്കൊണ്ടുതന്നെയാണ് പൂർത്തിയാക്കേണ്ടത്. വിശുദ്ധിയുണ്ടാകുവാൻ ഒരു മെത്രാനോ വൈദികനോ സന്യാസിയോ ആകണമെന്നില്ല. സ്നേഹത്തിലധിഷ്ഠിതമായി ജീവിക്കുന്നവരെല്ലാം വിശുദ്ധരാകാൻ വിളിക്കപ്പെട്ടവരാണ് (No.14). മുകളിൽ സൂചിപ്പിച്ച ആ അത്മായരത്നങ്ങളെപ്പോലെ നാമോരോരുത്തരും ഓരോ അഗ്നിസ്ഫുലിംഗങ്ങൾ ആയാൽ മതി. ചുറ്റുമുള്ള ചാരംപുരണ്ട ജീവിതങ്ങളെ ജ്വലിപ്പിക്കുന്നവരാകുക: അവരിലെ ഒരു തരി കനലിനെ ഒരഗ്നിഗോളമാക്കാൻ സാധിച്ചാൽ നമ്മുടെ ദൗത്യം സഫലമായി. അത് പലവിധത്തിലാണ് നമുക്ക് നിർവഹിക്കാനാവുക. കാരണം, ഓരോ വിശുദ്ധനും ഓരോ ദൗത്യമാണ് (No.19).

മനുഷ്യരായ നാം ബലഹീനരാണ് എന്നത് നിസ്തർക്കമാണ്. അതുകൊണ്ടുതന്നെ ഏതൊരു വിശുദ്ധൻ്റെയും ജീവിതത്തിലും തെറ്റുകളും പരാജയങ്ങളുമുണ്ടാകാം: പക്ഷെ, നാം ധ്യാനിക്കേണ്ടത് അവരുടെ ജീവിതത്തിൻ്റെ സമഗ്രതയാണ് (No. 22). വിശുദ്ധരായിരിക്കുക എന്നത് ഒരിക്കലും നമ്മുടെ മാനുഷികത കുറയ്ക്കുന്നില്ല; അത് നമ്മുടെ ബലഹീനതയും ദൈവകൃപയുടെ ശക്തിയും തമ്മിലുള്ള ഒരു നേർക്കാഴ്ചയാണ് (No.34). പ്രശസ്ത ഐറിഷ് സാഹിത്യകാരനായ ഓസ്കാർ വെൽഡ് തൻ്റെ "വെറും അപ്രധാനിയായ ഒരു സ്ത്രീ (A Woman of No Importance)" എന്ന നാടകത്തിൽ പറയുന്ന ഒരു വാചകമിപ്രകാരമാണ്: "ഒരു വിശുദ്ധനും പാപിയും തമ്മിലുള്ള ഏകവ്യത്യാസം ഇതാണ്; എല്ലാ വിശുദ്ധർക്കും ഒരു ഭൂതകാലമുണ്ട്, എല്ലാ പാപികൾക്കും ഒരു ഭാവിക്കാലവും".

ഫ്രഞ്ച് സാഹിത്യകാരനായ ലിയോൺ ബ്ലോയ് തൻ്റെ "ഒരു പാവം സ്ത്രീ (La Femme Pauvre)" എന്ന നോവലിൽ ഇപ്രകാരം പറയുന്നു; "ജീവിതത്തിലെ

ഒരേ ഒരു വലിയ ദുരന്തം ഒരു വിശുദ്ധനാകാത്തതാണ്". (ബ്ര. വിക്ടറിനെപ്പോലെയും ബ്ര. ഷാജിയെപ്പോലെയുമെല്ലാം വിശുദ്ധിയുടെ ഉറവിടങ്ങളാകാൻ നമുക്കും പരിശ്രമിക്കാം. നാമും ദൈവത്തിന്റെ കൃപയുടെ നീർച്ചാലുകളായി മാറുന്ന ദിനത്തിനായ് കാത്തിരിക്കാം. അബ്രാഹത്തോട് ദൈവം പറഞ്ഞതുപോലെ നാം ഓരോരുത്തരും സമൂഹത്തിൽ അനുഗ്രഹങ്ങളായിമാറട്ടെ (ഉത്പത്തി 12:2).

സഹായകഗ്രന്ഥസൂചി

Oscar Wilde (1893). A Woman of No Importance.

Léon Bloy (1897). La Femme Pauvre(The Woman Who Was Poor)

JOSEPHINE RESEARCHER VI

Part II

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മണൽത്തരികളെ സ്നേഹിച്ച കുഞ്ഞുനക്ഷത്രം

ജോമോൻ കൊട്ടാരത്തിൽ^{1*}, ഡോ. തോമസ് ജോർജ് വെങ്ങോലുവക്കൽ

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പ്രബന്ധസംഗ്രഹം

ക്രിസ്തുമസ് രാവിലെ ഭൂമിയിലേക്കിറങ്ങിവന്ന കുഞ്ഞുനക്ഷത്രം ഭൂമിയിലെ മണൽത്തരികളുമായി സംവദിക്കുകയും മണൽത്തരികൾക്കിടയിൽപ്പെട്ടു തെരുങ്ങപ്പെടുകയും ചെയ്തശേഷം തിരിച്ചു വാനവിഹായസ്സിലേക്കുയർന്നുപൊങ്ങുന്നതിനു സമാനമാണ് ക്രിസ്തുചരിതമെന്നു ഇവിടെ നിരീക്ഷിക്കപ്പെടുന്നു.

കീലപദങ്ങൾ: ആകാശം, ഭൂമി, നക്ഷത്രം, മണൽത്തരി.

ആകാശങ്ങൾ വിട്ടിറങ്ങി ഭൂമിയിൽ കുടിയേറിയ ഒരു നക്ഷത്രമുണ്ട്. എല്ലാവരും സീമാതീതമായ ആകാശങ്ങൾ സ്വപ്നം കാണാൻ ആഗ്രഹിക്കുമ്പോൾ ഭൂമിയുടെ അതിരുകൾ അതിർവരമ്പുകളാകാൻ മോഹിച്ച ഒരു താരകം. ഭൗമികർ ആകാശത്തെ താരകങ്ങൾ നോക്കി അന്തം വിടുമ്പോൾ ഭൂമിയിലെ മണൽത്തരികളിൽ സ്വർഗ്ഗത്തിന്റെ പ്രതിബിംബം തേടിയ സ്വർഗീയ നക്ഷത്രം. ആദിപാപക്കറകൾ തന്റെ ആയാസപൂർണ്ണമായ ഹ്രസ്വജീവിതം കൊണ്ട് കഴുകിയെടുത്തവൻ. താനാകുന്ന വർഷപാതം കൊണ്ട് പാപക്കറകളാകുന്ന ഉപ്പുരസത്തെ നീക്കി കാനനച്ചോലപോലെ തേന്മധുരമായ തെളിനീരുറവ നമുക്കായി ഒരുക്കിയവൻ. ഭൂമിയിലെ മണൽത്തരികളെയും ആകാശനീലിമയിലെ നക്ഷത്രങ്ങളാക്കി മാറ്റാൻ അവനു കഴിഞ്ഞു.

ആകാശത്തിലെ നക്ഷത്രങ്ങൾപോലെയാക്കാമെന്നു നക്ഷത്രദേവൻ മണൽത്തരികളോട് വാഗ്ദാനം ചെയ്തിരുന്നെങ്കിലും (ഉൽ.26:4), കുഞ്ഞുനക്ഷത്രത്തെ തങ്ങൾക്കരികിലേക്കു അയക്കുമെന്ന് അവ സ്വപ്നേപി വിചാരിച്ചില്ല. നക്ഷത്രങ്ങളെ എത്തിപ്പിടിക്കാമെന്നു വിചാരിച്ചിരുന്ന അന്തിയോക്കസ് എന്ന മണൽത്തരി അവസാനം നക്ഷത്രദേവന്റെ മുന്നിൽ മുട്ടുമടക്കിയത് (2 മക്ക.9) അവർക്കിടയിൽ പ്രചുരപ്രചാരം നേടിയിരുന്നു. തങ്ങൾക്കിടയിൽനിന്നു ഒരു നക്ഷത്രം ഭൂമിയിലേക്കിറങ്ങി അവിടെയുള്ള മണൽത്തരികളെപ്പോലും നക്ഷത്രങ്ങളാക്കുവാൻ തയ്യാറെടുക്കുന്നതായറിഞ്ഞ നക്ഷത്രങ്ങൾ അവന്റെ ജനനത്തിനു സാക്ഷിയാകാനായി തങ്ങളിലൊരുവനായ പങ്കാളി നക്ഷത്രത്തെ അയച്ചു. നക്ഷത്രാചാര്യൻ വഴി ഇതിനെക്കുറിച്ചറിഞ്ഞ ദീർഘദർശികളാകട്ടെ മണ്ണും മഞ്ഞും ഋതുക്കളും താണ്ടി മണൽപ്പരപ്പിലൂടെ യാക്കോബിൽനിന്നുദിച്ച ആ കുഞ്ഞു നക്ഷത്രത്തെ (സംഖ്യ 24:17) കാണാൻ പങ്കാളി നക്ഷത്രത്തോടൊപ്പം

സുദീർഘമായ യാത്ര പുറപ്പെട്ടു. ദൈവികനഗരത്തിൽ തന്നെ വസിക്കുന്ന ധൂമകേതുക്കളും അവന്റെ കിങ്കരന്മാരും ദുശാന്യക്കാരുമായ ചില പാറക്ഷണങ്ങളും ഇക്കാര്യം അറിഞ്ഞു. തങ്ങളുടെ അപ്രമാദിത്വം നഷ്ടപ്പെടുമെന്ന ഭീതി അവർക്കുണ്ടായി. അവരുടെ ഹിംസാത്മക മനോഭാവങ്ങൾ തിരിച്ചറിഞ്ഞ പങ്കാളിനക്ഷത്രം ഭൂമിയിൽ പിറന്ന കുഞ്ഞുനക്ഷത്രത്തെ ധൂമകേതുക്കളുടെയും അവന്റെ അനുചരരുടെയും ദൃഷ്ടിയിൽനിന്നു ഒളിപ്പിച്ചു നിർത്തി. ഇതറിയാതെ ദീർഘദർശികൾ ധൂമകേതുവിനോട് പങ്കാളിനക്ഷത്രത്തെക്കുറിച്ചു തിരക്കി. എന്നാൽ പിന്നീട് ധൂമകേതുവിന്റെ കയ്യിലിരിപ്പ് മനസിലാക്കിയ ദീർഘദർശികൾ പങ്കാളിനക്ഷത്രത്തെ കണ്ടെത്തി കുഞ്ഞുനക്ഷത്രത്തിന്റെ സമീപത്തെത്തി. തന്റെ ഇര കൈയ്യിൽനിന്നു പോയെന്നറിഞ്ഞ ധൂമകേതു കട്ടക്കലിപ്പിലായി. തന്റെ അഹങ്കാരചിഹ്നമായ ധൂമപടലങ്ങളെ വിതറിക്കൊണ്ട് നാടുമുഴുവൻ പൊടിപടലങ്ങൾ പടർത്തി അതിനെ വികൃതമാക്കി. താൻനക്ഷത്രശോഭ നൽകി തോട്ടം നോക്കാൻ ഏൽപ്പിച്ച കുഞ്ഞുനക്ഷത്രത്തിന്റെ കുടികിടപ്പുകാരാകട്ടെ മുന്തിരിത്തോട്ടത്തിന്റെ ഉപമയിൽ കാണുന്നപോലെ തോട്ടവും സത്രവും കൈയ്യടക്കി അവനെ പെരുവഴിയിൽ തള്ളാൻ നോക്കുകയാണ് ചെയ്തത്. എന്നാൽ ആകാശത്തിലെ നക്ഷത്രഗണങ്ങളാകട്ടെ കുഞ്ഞുനക്ഷത്രത്തിന്റെ ഈ എളിമയോർത്തു ആനന്ദപുളകിതരായി. 'അത്യുന്നതങ്ങളിൽ ദൈവത്തിനു മഹത്വം, ഭൂമിയിൽ ദൈവകൃപ ലഭിച്ചവർക്ക് സമാധാനം' എന്ന് അത്യുച്ചത്തിൽ ആർപ്പുവിളിച്ചുകൊണ്ട് അവർ കുഞ്ഞുനക്ഷത്രത്തിന്റെ മഹിമയെ വാനോളം വാഴ്ത്തി. കുഞ്ഞുനക്ഷത്രം മണൽത്തരികളെ തേടിയിറങ്ങിയതറിഞ്ഞു മണ്ണിന്റെ മണവും ഭൂമിയോളം താഴ്ന്ന ഹൃദയവുമുള്ള ആട്ടിടയർ അവനെ കാണാനെത്തി. തങ്ങൾക്കു സ്വന്തമെന്നു പറയാനാകെയുള്ള കീറത്തുണികളും ആട്ടിൻപാലും കുഞ്ഞുമ്മകളും നൽകി അവർ അവനെ എതിരേറ്റു. ഭൂമിയുടെ തോഴരും പ്രതിനിധികളുമായ ജീവജാലങ്ങളും കുഞ്ഞുനക്ഷത്രത്തെ കാണാനെത്തി. തങ്ങൾക്കു ചോരയും ചൂരും നൽകിയ കുഞ്ഞുനക്ഷത്രത്തിനു തങ്ങളുടെ ശ്വാസനിശ്വാസത്തിന്റെ ചൂടുനൽകി തണുപ്പുകറ്റികൊടുത്ത് അവ നന്ദി പ്രകാശിപ്പിച്ചു. എന്നും മണൽത്തരികളെ സന്ദേഹിച്ച കുഞ്ഞുനക്ഷത്രമാകട്ടെ മണൽത്തരികളുടെ കൂടെയായിരിക്കുന്നതു ജീവിതസാഹചര്യമായി കരുതി.

വഴിയേ പോകുന്നവരെല്ലാം തങ്ങളെ ചവിട്ടിയരക്കുന്നതും തങ്ങളുടെ മേൽ കുതിരകയറുന്നതുമാത്രം കണ്ടും അനുഭവിച്ചും ശീലിച്ച മണൽത്തരികൾക്കു കുഞ്ഞുനക്ഷത്രത്തിനെ സാമീപ്യം ഒരു പുതിയ അനുഭവമായിരുന്നു. നക്ഷത്രരാജ്യത്തെ വിശേഷങ്ങളും കൊച്ചുകൊച്ചു കഥകളും പറഞ്ഞും അവയെ താലോലിച്ചും സമാശ്വസിപ്പിച്ചും ആ കുഞ്ഞുനക്ഷത്രം അവയിലൊരാളായി മാറി. അവയുടെമേൽ

ഏൽക്കപ്പെടുന്ന ചവിട്ടുകൾ തൻ്റേയും വേദനകളായി കുഞ്ഞുനക്ഷത്രത്തിനു തോന്നി. കടൽതീരത്തിരുന്ന് അവൻ മണിക്കൂറുകളോളം അവയെ എടുത്തു ചുംബിക്കുകയും തലോടുകയും ചെയ്തിരുന്നു. കടലോളം ആഴത്തിൽ അവൻ അവരെ സ്നേഹിച്ചു. ഇതിനിടയിലും ചില ചെറുമണൽത്തരികൾ അവനെ തങ്ങളുടെ മുർച്ചയുള്ള ചെറുമുനകളാൽ കുത്തി നോവിക്കാൻ ശ്രമിച്ചു. കുഞ്ഞുനക്ഷത്രമാകട്ടെ മുത്തുചിപ്പിയുടെ തോടിനുള്ളിൽ കയറുന്ന മണൽത്തരിയെ ചിപ്പി സ്വീകരിക്കുന്നപോലെ ആ നോവുകൾ സ്വീകരിച്ചു. ആ മണൽത്തരികളെയും മുത്തുകളായി പരിണമിപ്പിച്ചു. ധൂമകേതുവിൻറെ കിങ്കരന്മാരായ പാറക്കുഷണങ്ങൾ കുഞ്ഞുനക്ഷത്രത്തെ ക്രൂരമായി വേദനിപ്പിച്ചപ്പോൾ അത്കണ്ടു സഹിക്കാൻവയ്യാതെ ആകാശത്തിലെ നക്ഷത്രങ്ങൾ തങ്ങളെത്തന്നെ മറച്ചു. അപ്പോൾ മണൽത്തരികൾ പകൽസമയത്ത് പോലും ഇരുട്ടിലായി. എന്നാൽ കുഞ്ഞുനക്ഷത്രത്തിൻ്റെ നന്മയിൽ പ്രസാദിച്ച നക്ഷത്രദേവൻ നീതിസൂര്യനായി അവനെ അവരോധിച്ചു. അവനോടൊപ്പം അവൻ്റെ പ്രിയപ്പെട്ട മണൽത്തരികളെയും അവൻ ആകാശത്തിലെ മറ്റുനക്ഷത്രങ്ങളോടൊപ്പം പ്രതിഷ്ഠിച്ചു. അവൻ അവരിൽനിന്നു 12 പേരെ തിരഞ്ഞെടുക്കുകയും 12 രാശി നക്ഷത്രങ്ങളുടെ അധിപരാക്കുകയും ചെയ്തു. കുഞ്ഞുനക്ഷത്രം ഭൂമിയിലേക്കിറങ്ങിയപ്പോൾ അവനോടൊപ്പം പോകാൻ സാധിക്കാതിരുന്ന മറ്റു നക്ഷത്രങ്ങളാവട്ടെ അതീവ സന്തുഷ്ടരായി. അങ്ങനെ ആകാശത്തിലെ നക്ഷത്രങ്ങളും കടൽതീരത്തെ മണൽത്തരികളും കുഞ്ഞുനക്ഷത്രത്തിൻ്റെ സ്നേഹത്തിൽ ഒന്നായിത്തീർന്നു.

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പ്രബന്ധസംഗ്രഹം

ജീവിതമെന്ന കടലിൽ രാത്രികളെ പകലുകളാക്കി അന്നന്നത്തെ അന്നമാകുന്ന ഒരു പിടി മീനിയായി വലയെറിയുന്ന ഒരു ക്രിസ്ത്യാനിയുടെ ഏറ്റവും വലിയ പ്രതീക്ഷ ഉത്ഥിതനോടൊപ്പമുള്ള ഒരു പ്രാതൽ തന്നെയാണ്. ലെയനാർദോ ബോഫ് എന്ന ബ്രസീലിയൻ തത്വശാസ്ത്രജ്ഞൻ രചിച്ച ജീവിതത്തിന്റെ കൂദാശകളും കൂദാശകളുടെ ജീവിതവും എന്ന കൃതിയുടെ വെളിച്ചത്തിൽ ഈസ്റ്റർ ആഘോഷത്തെ ഇവിടെ വിലയിരുത്തുന്നു.

കീലപദങ്ങൾ: കുടുംബം, ജീവിതം, കൂദാശ, ഈസ്റ്റർ, ഹല്ലെലൂയ്യ.

ലെയനാർദോ ബോഫ് എന്ന ബ്രസീലിയൻ തത്വശാസ്ത്രജ്ഞൻ രചിച്ച ജീവിതത്തിന്റെ കൂദാശകളും കൂദാശകളുടെ ജീവിതവും (Sacraments of Life, Life of the Sacraments) എന്ന കൃതിയിൽ തന്റെ വീട്ടിലുള്ള പഴയ ഒരു അലൂമിനിയം കോപ്പയെക്കുറിച്ചു ഓർമ്മിയ്ക്കുന്നുണ്ട്. പാരമ്പര്യമായി ലഭിച്ച, കൈപിടി തകർന്ന, പഴകിയ കോപ്പ ആ കുടുംബം നാട്ടിൻപുറത്തായിരുന്നപ്പോഴും അവിടെനിന്നു നഗരങ്ങളിലേക്ക് ചേക്കേറിയപ്പോഴുമെല്ലാം അവരോടൊപ്പം സഞ്ചരിച്ചു. കുടുംബത്തിലെ പതിനൊന്നു കുട്ടികളും അതിൽനിന്നാണ് കുടിച്ചു വളർന്നത്. ആ കോപ്പയിൽനിന്നു വെള്ളം മാത്രമല്ല അവർ കുടിച്ചത്; കുടുംബസംസ്കാരം, കുടുംബമഹിമ, കുടുംബചരിത്രം, ഇവയെല്ലാം ആ കോപ്പയിലെ ജലത്തോടൊപ്പം ശരീരത്തിലേക്കും മനസ്സിലേക്കും സാംശീകരിക്കപ്പെട്ടു. തങ്ങൾക്കു കിട്ടുന്ന വെള്ളം മലിനമായ നദിയിലെ ജലമായിരുന്നാലും ക്ലോറിൻ കലർന്നതായാലും ആ കോപ്പയിൽനിന്നു കുടിക്കുമ്പോൾ ഉന്മേഷകരവും ആരോഗ്യദായകവുമായി അനുഭവപ്പെട്ടിരുന്നു. ലോകത്തിന്റെ വിവിധ ഭാഗങ്ങളിൽ യാത്ര ചെയ്തപ്പോഴും ഒത്തിരി നീരുറവകളിൽനിന്നുള്ള വൈവിധ്യമാർന്ന തെളിനീരുകൾ രുചിച്ചപ്പോഴും ഈ കോപ്പയിലെ വെള്ളത്തിന്റെ മാധുര്യം അവിടെയൊന്നും ലഭിച്ചില്ല. തന്നെയും തന്റെ കുടുംബത്തെയും സംബന്ധിച്ചിടത്തോളം ആ കോപ്പയുമായുള്ള അഭേദ്യമായ ബന്ധം അതിനെ ഒരമൂല്യവസ്തുവായി മാറ്റിയിരിക്കുന്നു. ഇപ്പോൾ ആ കോപ്പ കുടുംബത്തിലെ ഒരു കുഞ്ഞിനെപ്പോലെ ഏവരുടെയും സ്നേഹവാത്സല്യഭാജനമായി വിരാജിക്കുന്നു.

ഈസ്റ്റർ അഥവാ ഉയിർപ്പുതിരുനാൾ എന്നത് ഓരോ ക്രൈസ്തവനെയും സംബന്ധിച്ചിടത്തോളം ഈ കോപ്പ പോലെയാണ്. അവന്റെ രക്തത്തിൽ അലിഞ്ഞുചേർന്നിരിക്കുന്ന വിശ്വാസകണികയുടെ പ്രതീകമാണത്. ജീവിതത്തിന്റെ ഗതിവിഗതിക്കൾക്കിടയിൽ പലപ്പോഴും ഉന്മേഷം നഷ്ടപ്പെടുമ്പോഴും ജീവിതത്തിന്റെ മാറ്റ് കുറയുമ്പോഴും പ്രതികൂലസാഹചര്യങ്ങൾ മനസ്സ് പതറിക്കുമ്പോഴും പുനരുത്ഥാനത്തെക്കുറിച്ചുള്ള ചിന്തകൾ വീണ്ടും വീണ്ടും മനസ്സിനെ തണുപ്പിക്കുന്നു. ക്രൈസ്തവവിശ്വാസത്തിന്റെ ആണിക്കല്ലും ഉത്ഥാനത്തിരുനാൾ ആണ്.വി. പൗലോസ് കോറിന്തോസുകാർക്കെഴുതിയ ലേഖനത്തിൽ ഇപ്രകാരം പറയുന്നു:"ക്രിസ്തു ഉയിർപ്പിക്കപ്പെട്ടിട്ടില്ലെങ്കിൽ ഞങ്ങളുടെ പ്രസംഗം വ്യർത്ഥമാണ്, നിങ്ങളുടെ വിശ്വാസവും വ്യർത്ഥം" (1 കോറി.15:14). ലോകചരിത്രത്തിൽ ക്രിസ്തുവിന്റെ ഉയിർപ്പുപോലെ ഇത്രമാത്രം വ്യതിരിക്തമായ ദൈവാനുഭവത്തിന്റെ അനുസ്മരണം മറ്റൊന്നില്ല. തീർത്തും ദുരിതപ്പെരുമഴയുടെ കാലത്തും പ്രത്യാശയുടെ കിരണങ്ങൾ വീശുന്ന ഉത്ഥാനത്തിരുനാൾ നമ്മുടെ പൂർവികരുടെ ത്യാഗപൂർണ്ണവും വീരോചിതവുമായ വിശ്വാസജീവിതത്തിന്റെയും ദൈവാശ്രയബോധത്തിന്റെയും ഒരു നേർക്കാഴ്ചയാണ്. പഴകി തേഞ്ഞതുപോലെ തോന്നുമെങ്കിലും നിരവധി ഓർമ്മകളുടെ മണിച്ചെപ്പാണത്. പ്രശ്നകലുഷിതമായ ഈ ലോകജീവിതത്തിനിടയിലും മധുരം പകരുന്ന സ്മരണകളാണ് അവിടെ നാം നുകരുന്നത്. ജീവിതമെന്ന കടലിൽ രാത്രികളെ പകലുകളാക്കി അന്നനത്തെ അന്നമാകുന്ന ഒരു പിടി മീനിയായി വലയെറിയുന്ന ഒരു ക്രിസ്ത്യാനിയുടെ ഏറ്റവും വലിയ പ്രതീക്ഷ ഉത്ഥിതനോടൊപ്പമുള്ള ഒരു പ്രാതൽ തന്നെയാണ്. കുഞ്ഞുങ്ങളെ, നിങ്ങളുടെ പക്കൽ മീൻ വല്ലതും ഉണ്ടോ എന്ന് ചോദിച്ചുകൊണ്ട് വലവീശി തഴമ്പിച്ച കൈകളെ വലയെറിയാനുള്ള പാങ്ങ് പഠിപ്പിക്കുകയും, തളർന്നവശനായി കടന്നുവരുന്നവനായി അപ്പവും മീനും ഒരുക്കി വയ്ക്കുകയും ചെയ്യുന്ന ക്രിസ്തുവെന്ന മഹാമുക്കുവന്റെ മഹാപ്രാതലിലേക്കുള്ള സ്വാഗതഗാനത്തിനു ആമ്മേൻ പറയാൻ ആരാണ് വിസമ്മതിക്കുക? അതുകൊണ്ടുതന്നെ ക്രിസ്തുസമൂഹത്തെ വീണ്ടുപോകാതെ പിടിച്ചു നിർത്തുന്ന സംരക്ഷണമതിലാണ് ഉയിർപ്പുതിരുനാൾ.

ക്രിസ്തുസമൂഹത്തിന്റെ സത്വവും സത്തയും ഉത്ഥാനമാണ്. ഇത്തരൂണത്തിൽ പുണ്യശ്ലോകനായ വി. ജോൺ പോൾ രണ്ടാമൻ മാർപാപ്പ 1986 നവംബർ 30 നു ആസ്ട്രേലിയയിലെ അപ്പസ്തോലിക പര്യടനത്തിനിടയിൽ അഡലെയ്ഡ് എന്ന സ്ഥലം സന്ദർശിച്ച അവസരത്തിൽ ഞായറാഴ്ച ദിവ്യബലിക്കുശേഷം നടത്തിയ ത്രിസന്യാജപത്തിനുള്ള മുന്നോടിയായി ധ്യാനചിന്തകൾ പങ്കുവെച്ചപ്പോൾ നൽകിയ സന്ദേശം വളരെ അർത്ഥവത്താണ്: "ജീവിതം മുഴുവൻ

അതിസുന്ദരമാണെന്നു നാം ധരിക്കേണ്ട, നമുക്കുചുറ്റുമുള്ള അന്ധകാരത്തെയും പാപത്തെയും പട്ടിണിയെയും പരിവട്ടത്തെയും കുറിച്ച് നാം ബോധവാന്മാരാണ്. പക്ഷേ ക്രിസ്തു പാപത്തെ കീഴടക്കിയെന്നും തന്റെ യാതനകളിലൂടെ ഉത്ഥാനത്തിന്റെ മഹത്വത്തിലേക്കു പ്രവേശിച്ചെന്നും നമുക്കറിയാം. നാം അവിടുത്തെ പെസഹാഹൃദയങ്ങളുടെ വെളിച്ചത്തിലാണ് ജീവിക്കുന്നത്-അവിടുത്തെ മരണോത്ഥാനങ്ങളുടെ രഹസ്യത്തിൽ! 'നാം ഉത്ഥിത ജനമാണ് ഹല്ലെലൂയ്യയാണ് നമ്മുടെ ഗീതം!' (We are an Easter People and Alleluia is our Song!). നാം പൊള്ളയായ സന്തോഷങ്ങളിൽ രമിക്കുന്നവരല്ല, പിന്നെയോ നിസ്വാർത്ഥസന്തോഷത്തിൽ വിരിയുന്ന വിശ്വാസത്തിൽനിന്നു ലഭിക്കുന്ന ആനന്ദമാണ് നമ്മുടേത്. എന്റെ അയൽക്കാരനെ സ്നേഹിക്കാനുള്ള മൗലികകർത്തവ്യത്തിൽനിന്നു വ്യതിചലിച്ചാൽ ഈ ആനന്ദത്തെക്കുറിച്ചു സംസാരിക്കാൻ ഞാൻ അപ്രാപ്യനാകുന്നു".

" നാം ഉത്ഥിത ജനമാണ് ഹല്ലെലൂയ്യയാണ് നമ്മുടെ ഗീതം" എന്ന വാക്കുകൾ ഹിപ്പോയിലെ വി. അഗസ്റ്റിന്റെ രചനയിൽനിന്നുള്ള ഉദ്ധരണിയാണ്. ഒരുവീഥത്തിൽ ഓരോ ക്രിസ്ത്യാനിയുടെയും ആപ്തവാക്യമാണിത്. ഭാവിയിലേക്ക് പ്രത്യാശയോടെ കണ്ണും നട്ടിരിക്കുന്ന ഒരു ജനമാണ് നാം. അതിനാൽ, ഈസ്റ്റർ നമ്മുടെ പ്രതീക്ഷയുടെ തിരുനാളാണ്; വേദനയുടെയും ദുരിതത്തിന്റെയും ഈ കാലവും കടന്നുപോകുമെന്നും ശാന്തിയുടെയും സമാധാനത്തിന്റെയും പുലരിപ്രഭ നമ്മുടെ ഹൃദയങ്ങളിലും വീശുമെന്ന പ്രതീക്ഷ നമ്മുടെ ഉൾക്കണ്ണുകൾക്കു പ്രദാനം ചെയ്യുന്ന തിരുനാൾ! പൗരസ്ത്യ സഭകളിൽ ഉപയോഗിക്കുന്ന പുഷ്പിത കുരിശുരൂപം (മാർത്തോമ്മാ സ്ലീവാ) ഈ പ്രതീക്ഷയുടെ അടയാളമാണ്. കുരിശാണ് രക്ഷ, കുരിശിലാണ് രക്ഷ എന്ന് നാം പ്രഘോഷിക്കുമ്പോൾ ക്രൂശിതനിൽനിന്നു ഉത്ഥിതനിലേക്ക് അധികദൂരമില്ല എന്നുള്ള ഓർമ്മപ്പെടുത്തലാണത്. എന്റെ ജീവിതത്തിലെ കുരിശുകളെ എന്നു മുതൽ പുഷ്പങ്ങളായി കാണാനും സ്നേഹിക്കാനും തുടങ്ങുന്നുവോ അന്നുമുതൽ ഞാനും ഉത്ഥാനത്തിന്റെ പാതയിൽ ചരിക്കുവാൻ തുടങ്ങുന്നു എന്നതിന്റെ ബിംബമാണ് ഈ പുഷ്പിത കുരിശുരൂപം. അതിനാൽ ക്രിസ്തുവിനെപ്പോലെ അകാരണമായി കുരിശിലേറ്റപ്പെടുമ്പോഴും കർത്താവിൽ ആനന്ദിച്ചാഹ്ളാദിക്കുന്ന, അവിടുത്തെക്ക് അവിരാമം സ്തുതികളാലപിക്കുന്ന, അനന്തനന്ദയും അനന്തസ്നേഹവുമായിരിക്കുന്ന ദൈവത്തിനു അനവരതം ഹല്ലെലൂയ്യ പാടുന്ന ജനമാണ് ക്രിസ്തുവിന്റേത് എന്ന ഓർമ്മപ്പെടുത്തലാണ് ഓരോ ഉയിർപ്പുതിരുനാളും.

സഹായകഗ്രന്ഥസൂചി
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ദൈവസങ്കല്പം: ഒരു ഗണിതവീക്ഷണം

ജോമോൻ കൊട്ടാരത്തിൽ^{1*}, ഡോ. തോമസ് ജോർജ് വെങ്ങോലുവക്കേൽ
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പ്രബന്ധസംഗ്രഹം

ഗണിതശാസ്ത്രത്തിൽ അപരിമിതമാനങ്ങൾ പറയുമ്പോൾ അതിനു സദൃശ്യമായി ജീവലോകത്തിലും ദ്വിമാനവും ത്രിമാനവും പരിമിതമാനവും മാത്രമല്ല അപരിമിതമാനവും സാധ്യതകളാണ്. പരിമിതമാനങ്ങൾക്കപ്പുറം അപരിമിതമായ, അനന്തമായ മാനങ്ങളുള്ള മറ്റു ശക്തികളുമുണ്ടാകാം. ഇത്തരൂണത്തിൽ നമുക്ക് അദ്യശ്യനായ ദൈവത്തെയും അനന്തമാനങ്ങളുള്ള ജീവനുള്ള അസ്തിത്വമായി സങ്കല്പിക്കുന്നത് തീർത്തും സാംഗത്യമാണ്.

കീലപദങ്ങൾ: ദൈവം, ഗണിതശാസ്ത്രം, പരിമിതമാനങ്ങൾ, അപരിമിതമാനങ്ങൾ.

ഗണിതശാസ്ത്രത്തിൽ ഒരു ബിന്ദുവിൻറെ മാനം (dimension) പൂജ്യമാണ് . ആ ബിന്ദുവിൽനിന്നു രണ്ടുവശത്തേക്കും നീട്ടിയാൽ ഒരു രേഖ ലഭിക്കും. അത് ഏകമാനമാണ്; നീളമെന്നു നാമതിനെ വിളിക്കും. ആ ബിന്ദുവിൽ നിന്ന് ആദ്യത്തെ രേഖക്ക് ലംബമായി മറ്റൊരു രേഖ വരച്ചാൽ കിട്ടുന്നത് ഒരു കാർട്ടീഷ്യൻ പ്രതലമാണ് (plane). നീളവും വീതിയുമുള്ള അത് ദ്വിമാനമാണ്. ആദ്യമെടുത്ത ബിന്ദുവിലൂടെ ഈ പ്രതലത്തിനു മറ്റൊരു ലംബം വരച്ചാൽ നമുക്ക് ലഭിക്കുന്നത് ത്രിമാനമായ മറ്റൊരു തലമാണ് (space). അവിടെ നീളവും വീതിയും ഉയരവും നമുക്ക് സംവേദ്യമാകും. ഇങ്ങനെ തുടർന്നുകൊണ്ട് ചതുർമാനവും പഞ്ചമാനവും പരിമിതമാനങ്ങളും (finite dimensions) അപരിമിതമാനങ്ങളുമെല്ലാം (infinite dimensions) ഗണിതശാസ്ത്രത്തിൻറെ ചിന്താവിഷയങ്ങളാണ്. ഏതൊരു മാനത്തിനും അതിനു താഴെയുള്ള മാനങ്ങളുടെ സവിശേഷതകൾ സംലഭ്യമാണെങ്കിലും ഒരേണ്ണത്തിൽനിന്നു അതിനു താഴെയുള്ള മാനങ്ങൾ നോക്കിക്കാണുമ്പോൾ അവ നിസ്സാരമായാണ് അനുഭവപ്പെടുക. രേഖയിൽ ഒരു ബിന്ദു എന്നത് എത്രമാത്രം നിസ്സാരമാണോ അത്രമാത്രം നിസ്സാരമാണ് ദ്വിമാനപ്രതലത്തിൽ ഒരു രേഖയും ത്രിമാനതലത്തിൽ ഒരു പ്രതലവും. അപ്പോൾ ത്രിമാനതലത്തിൽനിന്നുകൊണ്ട് ഒരു രേഖയോ ബിന്ദുവോ നോക്കിക്കാണുമ്പോൾ അവ എത്ര അതിനിസ്സാരമെന്ന് നമുക്ക് ഊഹിക്കാനാകും.

ഈ ഗണിതശാസ്ത്ര അളവുകോലിനെ നമ്മുടെ ജീവപ്രപഞ്ചവുമായി താരതമ്യം ചെയ്യുന്നത് സാധാരണമാണ്. ഊമ്പിനു പ്രതലങ്ങൾ മാത്രമേ കാണാൻ സാധിക്കൂ എന്ന് പറയാറുണ്ട് (Ant is said to be two-dimensional).

മനുഷ്യൻ ത്രിമാനതലങ്ങൾ ദർശിക്കാനാകും. നാം ഒരു കണ്ണടച്ചു മറുകണ്ണ കൊണ്ടുമാത്രം നോക്കിയാൽ വസ്തുക്കൾ പൂർണ്ണമായും ത്രിമാനത്തിൽ കാണാനാകില്ലല്ലോ? ഇതുപോലെ ഏതൊരു മാനത്തിലുമുള്ള ജീവജാലങ്ങൾക്ക് അതിലോ അതിനു താഴെയുള്ള തലങ്ങളിലോ ഉള്ള ജീവജാലങ്ങളെയാണ് കാണാൻ സാധിക്കുക. മുകളിലുള്ളവയെ സങ്കല്പിക്കാൻപോലും സാധിക്കണമെന്നില്ല; സങ്കല്പിച്ചാലും ശരിയാകണമെന്നുമില്ല. ത്രിമാനത്തിൽ ജീവിക്കുന്നവർ മുന്നോട്ടും പുറകോട്ടും നീങ്ങാം; ഇടത്തേക്കും വലത്തേക്കും പോകാം; മുകളിലേക്കും താഴേക്കും സഞ്ചരിക്കാം. ഈ ത്രിമാനത്തിനപ്പുറത്തേക്കു സമയവും കൂട്ടിച്ചേർത്തുകൊണ്ടു ചതുർമാനത്തെക്കുറിച്ചും നാം സംസാരിക്കാറുണ്ട്. അപ്പോൾ ചതുർമാനജീവികൾക്ക് വർത്തമാന സമയത്തിൽനിന്ന് ഭാവിയലേക്കും ഭൂതകാലത്തിലേക്കും സഞ്ചരിക്കാൻ സാധിച്ചേക്കും. സമയയന്ത്രത്തെക്കുറിച്ചു നാം പലപ്പോഴും കേൾക്കാറുള്ളത് ഇത്തരൂണത്തിൽ സ്മരണീയമാണ്. ഇതുപോലെ നാം ജീവിക്കുന്ന ഈ പ്രപഞ്ചം ഒരു ഹേതുവായി പരിഗണിച്ചുകൊണ്ട് അതിനപ്പുറത്തും ഇപ്പുറത്തുമുള്ള മറ്റു പ്രപഞ്ചങ്ങളിലൂടെ സഞ്ചരിക്കുന്ന ജീവനുകളുമുണ്ടാകാം. ഇത്തരത്തിൽ അപരിമിതമാനങ്ങളുള്ള ജീവനുകളുടെ പ്രപഞ്ചത്തിലെ സാന്നിധ്യം നമുക്കൊരിക്കലും നിഷേധിക്കാനാകില്ല.

ഗണിതശാസ്ത്രത്തിൽ അപരിമിതമാനങ്ങൾ പറയുമ്പോൾ അതിനു സദൃശ്യമായി ജീവലോകത്തിലും ദ്വിമാനവും ത്രിമാനവും പരിമിതമാനവും മാത്രമല്ല അപരിമിതമാനവും സാധ്യതകളാണ്. പരിമിതമാനങ്ങൾക്കപ്പുറം അപരിമിതമായ, അനന്തമായ മാനങ്ങളുള്ള മറ്റു ശക്തികളുമുണ്ടാകാം. ഇത്തരൂണത്തിൽ നമുക്ക് അദ്യശ്യനായ ദൈവത്തെയും അനന്തമാനങ്ങളുള്ള ജീവനുള്ള അസ്തിത്വമായി സങ്കല്പിക്കുന്നത് തീർത്തും സാംഗത്യമാണ്. നാം കാണുന്നതിനപ്പുറമുള്ളതെല്ലാം മിഥ്യയെന്നു വിചാരിക്കുന്നത്, ഒരുറുന്ന് മനുഷ്യനെക്കുറിച്ചു നീളവും വീതിയും മാത്രമുള്ള ദ്വിമാന ജീവിയാണ് മനുഷ്യൻ എന്ന് സങ്കല്പിക്കുന്നതിനു തുല്യമല്ലേ? ത്രിമാനംവരെയുള്ള വസ്തുക്കൾ കാണാനും അനുഭവിക്കാനും സാധിക്കുന്ന മർത്യൻ അനന്തമാനമുള്ള ദൈവത്തെക്കുറിച്ചു കൂലക്ഷമായി ചിന്തിക്കുകയും ഇല്ല എന്ന് സ്ഥാപിക്കാൻ വ്യഗ്രതപ്പെടുകയും ചെയ്യുന്നത് പലപ്പോഴും കണ്ടുകിണറ്റിലെ തവളയുടെ മനോഭാവം തന്നെല്ലേ?

"അനന്തമജ്ഞാതമവർണ്ണനീയം
 ഈ ലോകഗോളം തിരിയുന്ന മാർഗ്ഗം
 അതികലങ്ങളാണൊരിടത്തിരുന്നു
 നോക്കുന്നമർത്യൻ കഥയെന്തറിഞ്ഞു"
 നാലപ്പാട്ടു നാരായണമേനോൻ(കണ്ണൂർനീർത്തുള്ളി)

സഹായകഗ്രന്ഥസൂചി

<https://en.wikipedia.org/wiki/Dimension>

<https://ksaorg.sgp1.cdn.digitaloceanspaces.com/uploads/2022/04/40328.pdf>

JOSEPHINE RESEARCHER VI

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അപരിഹാര്യമായ പ്രശ്നങ്ങളില്ല!

ജോമോൻ കൊട്ടാരത്തിൽ^{1*}, ഡോ. തോമസ് ജോർജ് വെങ്ങാലുവക്കേൽ

സി.എം.ഐ^{1*}, ഡോ. സി. സിജോ ഫ്രാൻസിസ്^{1*}, സി. ബെറ്റ്സി

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പ്രബന്ധസംഗ്രഹം

ജീവിതത്തിൽ ഉണ്ടാകുന്ന പ്രശ്നങ്ങൾക്ക് പരിഹാരം കാണാനാകാതെ നിരാശയിലേക്കും ആത്മഹത്യയിലേക്കും തങ്ങളെത്തന്നെ തള്ളിവിടുന്ന ഒത്തിരിയേറെ ആളുകൾ നമുക്ക് ചുറ്റുമുണ്ട്. ജീവിതത്തിൽ അപരിഹാര്യമായ ഒന്നുമില്ല എന്നതാണ് ചെറുപ്പത്തിൽ പഠിച്ച ഗണിതം അവരോട് പറയുന്നത്. പ്രശ്നങ്ങളെല്ലാം പരിഹരിക്കാനുള്ളതാണെന്നും പരിഹരിക്കാനാവാത്ത പ്രശ്നങ്ങളില്ലെന്നുമാണ് നാം പഠിച്ച ഗണിതശാസ്ത്രം ഓരോ ദിവസവും നമ്മോട് ഉരുവിടുന്നത്.

കീലപദങ്ങൾ: ജീവിതപ്രശ്നങ്ങൾ, കണക്കുകൂട്ടലുകൾ, ഗണിതശാസ്ത്രം.

എന്തിനാ കണക്കു പഠിക്കുന്നത്? നാമൊക്കെ ചെറുപ്പത്തിൽ ചോദിച്ചിട്ടുള്ള ചോദ്യമാണ് ഇത്. ചിലരെങ്കിലും ഇപ്പോഴും ഈ ചോദ്യം തുടർന്നുകൊണ്ടേയിരിക്കുന്നു. യഥാർത്ഥത്തിൽ എന്തിനാണ് നാമിവയൊക്കെ പഠിച്ചത്? 'കുറെ കണക്കുകൾ ചെയ്യാൻ', 'ടീച്ചറിന് എന്തെങ്കിലുമൊക്കെ പഠിപ്പിക്കണ്ടേ, അതിനാണ്'; ഇതൊക്കെയായിരിക്കും പലരുടെയും ഉത്തരങ്ങൾ. ഒരർത്ഥത്തിൽ അവ തന്നെയാണുത്തരം! പക്ഷേ, കുറച്ചുകൂടി വിശാലമായ രീതിയിൽ ആ ഉത്തരത്തെ അപഗ്രഥിക്കണമെന്നുമാത്രം. നാമൊക്കെ സ്കൂളിൽ പഠിക്കുമ്പോൾ ഒത്തിരി കണക്കുകൾ ചെയ്തുകൂട്ടിയിട്ടുണ്ട്. ഒത്തിരിയേറെ തരത്തിലുള്ള കണക്കുകൾ പഠിച്ചിട്ടുമുണ്ട്. വളരെയേറെ സമയം അതിനായി വിനിയോഗിച്ചിട്ടുമുണ്ട്. ചിലർക്കെങ്കിലും കണക്കുകൾ ചെയ്യാത്തതിനു തല്പം ഇമ്പോസിഷനും കിട്ടിയിട്ടുമുണ്ടാകാം. ഒന്നോർത്തുനോക്കിയാൽ ചെയ്ത കണക്കുകൾക്കൊക്കെ എന്തെങ്കിലും ഉത്തരങ്ങൾ നമുക്ക് കിട്ടിയിട്ടുണ്ട്. ഉത്തരം കിട്ടാത്ത ഒരു കണക്കും നാം ചെയ്തിട്ടില്ല എന്നതാണ് സത്യം!

കണക്കു പഠിക്കുമ്പോൾ കണക്കിനുള്ളിലെ കണക്കുകൂട്ടലുകളുടെ അർത്ഥവ്യാപ്തിയുംകൂടി കണക്കിലെടുക്കുമ്പോൾ മാത്രമേ നമ്മുടെ പഠനം പൂർണ്ണമാവൂ. ഗണിതശാസ്ത്രത്തിൽ നമുക്ക് ചെയ്യാൻ കിട്ടുന്ന കണക്കുകളെ പ്രശ്നങ്ങൾ (problems) എന്നും അവയ്ക്കു കിട്ടുന്ന ഉത്തരങ്ങളെ പരിഹാരങ്ങൾ (solutions) എന്നും വഴികളെ പരിഹാരമാർഗ്ഗങ്ങളെന്നുമാണ് (steps) വിളിക്കുന്നത്. ഒരർത്ഥത്തിൽ ഏതുതരത്തിലുമുള്ള പ്രശ്നങ്ങളെ അഭിമുഖീകരിക്കാനും അവയെ തന്മയത്വത്തോടെ പരിഹരിക്കാനും നമ്മെ പ്രാപ്തരാക്കുക എന്നതാണ്

ഗണിതധർമ്മം. അതായത്, നമ്മുടെ പ്രശ്നങ്ങൾക്കെല്ലാം പരിഹാരങ്ങളുണ്ട് എന്ന ചിന്തയാണ് ഗണിതപഠനം നമ്മുടെ ഉപബോധമനസ്സിൽ അടിവരയിട്ടുറപ്പിക്കേണ്ടത്. പഠിച്ച കണക്കുകൾ നമ്മെ പഠിപ്പിക്കുന്ന ചില ജീവിതമൂല്യങ്ങളിൽ ഒന്നാണിത്. നാം കണക്കു പഠിച്ചത് ടീച്ചറിന് എന്തെങ്കിലുമൊക്കെ നമ്മെ പഠിപ്പിയ്ക്കാനല്ല, പിന്നെയോ ജീവിതത്തെക്കുറിച്ചു നമ്മെ പഠിപ്പിക്കുന്നതിനുവേണ്ടിത്തന്നെയാണ്!

നമ്മുടെ ജീവിതം ഒരു കണക്കു പുസ്തകമായി പലരും സങ്കല്പിക്കാറുണ്ട്. അവിടെ പക്ഷെ, ലാഭനഷ്ടക്കണക്കുകളുടെ പട്ടികയാണ് നാം പലപ്പോഴും തയ്യാറാക്കുന്നത്. അതിനു പകരം ജീവിത പാഠങ്ങൾ പഠിക്കാനും ജീവിത പ്രശ്നങ്ങളെ പരിഹരിക്കാനുമുള്ള പാഠപുസ്തകമായി നമുക്കതിനെ കാണാനാകണം. അങ്ങിനെ കാണുമ്പോൾ ജീവിതത്തിലെ പ്രതിസന്ധികളെപ്പോലും ഒരു ഗണിതശാസ്ത്രപ്രശ്നം പരിഹരിക്കുന്ന മനോഭാവത്തോടെ പരിഹരിക്കാനുള്ള ആത്മവിശ്വാസം നമുക്ക് സ്വായത്തമാക്കാനാകും. പഠനകാലഘട്ടത്തിൽ നാം അഭിമുഖീകരിച്ച നിരവധി ഗണിത പ്രശ്നങ്ങൾക്കും ജീവിതത്തിൽ നാം അഭിമുഖീകരിക്കുന്ന ജീവിതപ്രശ്നങ്ങൾക്കും ധാരാളം സാമ്യം കാണാനാകും. ഗണിതപ്രശ്നങ്ങളും ഗണിത ക്രിയകളുമില്ലാതെ ഗണിതമെന്ന വിഷയമില്ലാത്തതുപോലെ പ്രശ്നരഹിതമായ ജീവിതവുമില്ല. പ്രശ്നങ്ങളെയും പ്രതിബന്ധങ്ങളെയും സൗമ്യതയോടെ നേരിടുകയും അവയെ അതിജീവിക്കുകയും ചെയ്യുന്നവരാണ് വിജയം നേടുന്നത്.

ജീവിതത്തിൽ ഉണ്ടാകുന്ന പ്രശ്നങ്ങൾക്ക് പരിഹാരം കാണാനാകാതെ നിരാശയിലേക്കും ആത്മഹത്യയിലേക്കും തങ്ങളെത്തന്നെ തള്ളിവിടുന്ന ഒത്തിരിയേറെ ആളുകൾ നമുക്ക് ചുറ്റുമുണ്ട്. ജീവിതത്തിൽ അപരിഹാര്യമായ ഒന്നുമില്ല എന്നതാണ് ചെറുപ്പത്തിൽ പഠിച്ച ഗണിതം അവരോട് പറയുന്നത്. ഏതൊരു പ്രശ്നത്തിനും ഉത്തരം കണ്ടെത്താനാകും. അതിനാൽ പ്രതീക്ഷാനിർഭരതയോടെ നമുക്ക് ജീവിതത്തെ സമീപിക്കാം. ഓർക്കുക, പ്രശ്നങ്ങളെല്ലാം പരിഹരിക്കാനുള്ളതാണെന്നും പരിഹരിക്കാനാവാത്ത പ്രശ്നങ്ങളില്ലെന്നുമാണ് നാം പഠിച്ച ഗണിതശാസ്ത്രം ഓരോ ദിവസവും നമ്മോട് ഉരുവിടുന്നത്.

ഈ കാലവും കടന്നു പോകും
 ഈ ശിശിരവും പെയ്തൊഴിയും
 ഈ ഗതിവിഗതികൾക്കതീതനായി
 നീ നീതന്നെയായുണ്ടായിരുന്നെങ്കിൽ!

സഹായകഗ്രന്ഥസൂചി

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JOSEPHINE RESEARCHER VI

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ജോമോൻ കൊട്ടാരത്തിൽ¹, ഡോ. തോമസ് ജോർജ് വെങ്ങോലുവക്കേൽ സി.എം.ഐ¹, ഡോ. സി. സിജോ ഫ്രാൻസിസ്¹, സി. ബെറ്റ്സി കളപ്പുരയ്ക്കൽ¹

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പ്രബന്ധസംഗ്രഹം

ഉത്തരം കിട്ടാത്ത ചോദ്യങ്ങൾക്കു ഉത്തരം കണ്ടുപിടിക്കുക; പുതിയ പുതിയ ചോദ്യങ്ങൾ കണ്ടുപിടിക്കുകയും അവയുടെ ഉത്തരങ്ങൾ തേടുകയും ചെയ്യുക. ഇങ്ങനെ പ്രശ്നങ്ങളുണ്ടാക്കി അവയെ നിർധാരണം ചെയ്യുന്നത് ഗണിതശാസ്ത്രത്തിന്റെ വലിയൊരു ഹോബിയാണ്! പരിഹാരമില്ല എന്ന് തോന്നുന്ന പ്രശ്നങ്ങൾ സാധ്യതകളുടെ വലിയൊരു വാതായനമായിരിക്കാം നമ്മുടെ മുൻപിൽ തുറന്നിടുന്നത്. പ്രശ്നങ്ങൾ പെരുകുംതോറും ഗണിതശാസ്ത്രത്തിന്റെ വലിയൊരു കൂട്ടുന്നുണ്ട് എന്നപോലെ പ്രതിസന്ധികൾ നമ്മുടെ ജീവിതത്തിന്റെ മൂല്യവും കാച്ചിയുറപ്പിക്കുന്നു. എന്ന് ഗണിതശാസ്ത്ര പശ്ചാത്തലത്തിൽ നിന്നുകൊണ്ട് വിവക്ഷിക്കുന്നു.

കീലപദങ്ങൾ: പ്രശ്നങ്ങൾ, സാധ്യതകൾ, നിർധാരണം, ഗണിതശാസ്ത്രം, ഗ്രാഫ് തിയറി.

ഓരോ ഗണിതശാസ്ത്രശാഖയും മനുഷ്യന്റെ നിരവധിയായ ആവശ്യങ്ങൾ നിറവേറ്റുവാനായോ അവന്റെ സംശയങ്ങൾ നിവർത്തിക്കുവാനായോ കാലക്രമേണ ആവിർഭവിച്ചവയാണ്. ചരിത്രാതീതകാലം മുതലിങ്ങോട്ട് ഓരോരോ കാലഘട്ടങ്ങളിൽ മനുഷ്യന്റെ ആവശ്യങ്ങളും സംശയങ്ങളും വ്യത്യസ്തമാകുന്നതനുസരിച്ചു അതിനു പുതുനാനുകൾ തളിരിടുകയും ശക്തിയാർജ്ജിക്കുകയും കൂടുതൽ വികാസം പ്രാപിക്കുകയും ചെയ്തുകൊണ്ടിരിക്കുന്നു. ഇവയിൽ ഇളംതലമുറയിൽപ്പെട്ട ഗണിതശാസ്ത്രശാഖയാണ് ഗ്രാഫ് തിയറി (Graph Theory). അതുകൊണ്ടുതന്നെ ജനനത്തീയതി ഉള്ള ശാഖയായി ഇതിനെ വിശേഷിപ്പിക്കാറുണ്ട്. പരിഷ്കൃത ലോകത്തിലെ കമ്പ്യൂട്ടർ പരിജ്ഞാനവും സാങ്കേതികജ്ഞാനവും ആവശ്യമായ എല്ലാ മേഖലകളിലും ഈ ഇത്തിരിക്കുത്തന്റെ നിരസാന്നിദ്ധ്യം ഒരവിഭാജ്യഘടകമാണിത്. ഏതൊരു സങ്കീർണ്ണ പ്രശ്നത്തെയും ലഘുതരമാക്കി പരിഹരിക്കാൻ സഹായകമാകുന്ന ഗ്രാഫ് തിയറിയുടെ ഉത്ഭവം 1736 ൽ ആണ്. ലിയോണാർഡ് ഓയിലെർ എന്ന ഗണിതശാസ്ത്രജ്ഞനാണ് ഇതിന്റെ പിതൃത്വം അവകാശപ്പെടാവുന്നത്. അതിനു പിന്നിലെ കഥ ഇപ്രകാരമാണ്. പ്രഷ്യയിലെ കോണിഗ്സ്ബർഗ് എന്ന നഗരം (ഇപ്പോഴത്തെ റഷ്യയിലെ കലിനിൻഗ്രാഡ്) പ്രേഗൽ നദിയുടെ

ഈ കരകളിലുമായാണ് സ്ഥിതി ചെയ്യുന്നത്. പലവുരു കിലോമീറ്ററുകളോളം രണ്ടായി പിരിഞ്ഞും കൂടിച്ചേർന്നും ഒഴുകുന്ന പ്രേഗൽ നദി കോണിഗ്സ്ബർഗ് നഗരത്തെ രണ്ടു വലിയ ദ്വീപുകൾ ഉൾപ്പെടുന്ന നാലു കരകളായി ഭാഗിച്ചിരുന്നു. ഈ നാലു കരകളെ ബന്ധിപ്പിച്ചുകൊണ്ട് ഏഴു പാലങ്ങളുണ്ടായിരുന്നു. ഒരു കരയിൽനിന്നു തുടങ്ങി ഈ നാലു കരകളിലൂടെയും ഏഴു പാലങ്ങളിലൂടെയും ഒരൊറ്റത്തവണവീതം സഞ്ചരിക്കാനാവുമോ എന്നതും തുടങ്ങിയ കരയിൽത്തന്നെ തിരിച്ചെത്താനാവുമോ എന്നതും അവിടെയുള്ള ആളുകൾ ചിന്തിച്ചിരുന്ന ഒരു പ്രശ്നമായിരുന്നു. ഈ ചോദ്യത്തിന് നിഷേധാർത്ഥത്തിലുള്ള ഒരു ഉത്തരമായിരിക്കും ലഭിക്കുക എന്ന് 1736ൽ ഒയിലെർ ഒരു പ്രത്യേക വിധത്തിലുള്ള ഡയഗ്രാമങ്ങളുടെ സഹായത്തോടെ പ്രബന്ധരൂപത്തിൽ അവതരിപ്പിച്ചതാണ് പിന്നീട് ഗ്രാഫ് തിയറി എന്ന ഗണിതശാസ്ത്രശാഖയുടെ ഉത്ഭവത്തിനു നിദാനമായത്. ജ്യാമിതീയ രൂപങ്ങളുടെ സ്ഥാനങ്ങളുടെയും ഘടനയുടെയും സവിശേഷതകളുടെ സഹായത്തോടെയാണ് ഇദ്ദേഹം ഇത് തെളിയിച്ചത്. അതിനുശേഷം 200 വർഷങ്ങളോളം താരതമ്യേന നിർജീവമായിരുന്ന ഗ്രാഫ് തിയറി 1936ൽ ഡെനെസ് കോണിഗ് എന്ന ജർമൻ ഗണിതശാസ്ത്രജ്ഞൻ്റെ പുസ്തകത്തോടെ വീണ്ടും മുഖ്യധാരയിലേക്ക് വന്നു.

ഗണിതശാസ്ത്രത്തിൻ്റെ സ്വഭാവം പലപ്പോഴും ഇങ്ങനെയാണ്. ഉത്തരം കിട്ടാത്ത ചോദ്യങ്ങൾക്കു ഉത്തരം കണ്ടുപിടിക്കുക; പുതിയ പുതിയ ചോദ്യങ്ങൾ കണ്ടുപിടിക്കുകയും അവയുടെ ഉത്തരങ്ങൾ തേടുകയും ചെയ്യുക. ഇങ്ങനെ പ്രശ്നങ്ങളുണ്ടാക്കി അവയെ നിർധാരണം ചെയ്യുന്നത് ഗണിതശാസ്ത്രത്തിൻ്റെ വലിയൊരു ഹോബിയാണ്! വളരെ നിസ്സാരമെന്നു തോന്നുന്ന ഒരു വഴിക്കണക്ക് വിപ്ലവകരമായ പരിവർത്തനത്തിലേക്കു ലോകത്തെ നയിച്ചു. നമ്മുടെ ജീവിതത്തിലെയും നിസ്സാരമായ ചില പ്രശ്നങ്ങൾ ഒരു പക്ഷെ ജീവിതഗതിയെത്തന്നെ മാറ്റിമറിക്കാം. പരിഹാരമില്ല എന്ന് തോന്നുന്ന പ്രശ്നങ്ങൾ സാധ്യതകളുടെ വലിയൊരു വാതായനമായിരിക്കാം നമ്മുടെ മുൻപിൽ തുറന്നിടുന്നത്. പ്രശ്നങ്ങൾ പെരുകുംതോറും ഗണിതശാസ്ത്രത്തിൻ്റെ വലിയൊരു കൂട്ടുന്നുണ്ട് എന്നപോലെ പ്രതിസന്ധികൾ നമ്മുടെ ജീവിതത്തിൻ്റെ മുഖ്യവും കാച്ചിയുറപ്പിക്കുന്നു. എഡിസൺ ബൾബ് ഉണ്ടാക്കാൻ ശ്രമിച്ചു പലവട്ടം പരാജയപ്പെട്ടപ്പോൾ പറഞ്ഞതിപ്രകാരമാണ്: "ഞാൻ 1000 വട്ടം പരാജയപ്പെടുകയല്ല ചെയ്തത്, മറിച്ച്, എങ്ങനെ ബൾബ് ഉണ്ടാക്കാൻ കഴിയില്ല എന്നതിന് ഞാൻ 1000 വഴികൾ കണ്ടുപിടിക്കുകയാണ് ചെയ്തത്."

ഗ്രാഫ് തിയറിയുടെ മറ്റൊരു സവിശേഷത, അത് പിറവിയെടുത്തശേഷം 200 വർഷങ്ങളോളം അതിനു കാര്യമായ ചലനങ്ങൾ ഉണ്ടാകാനായില്ലെങ്കിലും പിന്നീട് ഏറ്റവും ശക്തി തെളിയിച്ചുകൊണ്ടിരിക്കുന്ന ഗണിതശാസ്ത്രശാഖയായി അത് മാറി

എന്നതാണ്. ഇതുപോലെ ഒരുവേള എഴുതിത്തള്ളപ്പെട്ടവരായിരിക്കാം അത്യന്താപേക്ഷിതരായി മാറുന്നത്. വിശുദ്ധവാരത്തിലൂടെ കടന്നുപോകുന്ന നമുക്ക് ഈശോയുടെ ജീവിതം ഇത്തരൂണത്തിൽ ധ്യാനവിഷയമാക്കാവുന്നതാണ്. തച്ചൻ്റെ മകനെന്ന് എഴുതിത്തള്ളപ്പെട്ടവൻ, അടിമയെപ്പോലെ കുരിശിലേറ്റപ്പെട്ടവൻ ഇതാ ത്രിലോകങ്ങളുടെയും അധിപനായി ഉയർത്തെഴുന്നേറ്റിരിക്കുന്നു. അതിനാൽ എഴുതിത്തള്ളപ്പെടുമ്പോൾ ശക്തമായ തിരിച്ചുവരവിൻറെ മുന്നോടിയായി അതിനെ കണ്ടുകൊണ്ടു പതിന്മടങ്ങു ബലവാന്മാരായി തിരിച്ചുവരാം.

ഒരുവഴിയടയുമ്പോൾ മറ്റൊന്നു തുറന്നീടിലും
 അടഞ്ഞതിൽത്തന്നെ മനമുടക്കി നിൽപ്പൂ
 തുറന്നവയൊന്നും മനതാരിൽ തുറക്കപ്പെടാതെ നിശ്ചലം:
 മനമിളക്കു മിഴിയനക്കു വഴികളൊരായിരം മുന്നിലുണ്ടേ.

സഹായകഗ്രന്ഥസൂചി

F. Harary (1969): Graph Theory, Addison-Wesley

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ത്രികോണസ്ഥരാകാര വ്യുത്തസ്ഥരാകാരം

ജോമോൻ കൊട്ടാരത്തിൽ^{1*}, ഡോ. തോമസ് ജോർജ്ജ് വെങ്ങാലുവക്കേൽ

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പ്രബന്ധസംഗ്രഹം

വികസിച്ച് വികസിച്ച് ബഹുഭുജങ്ങൾ എത്തിച്ചേരുന്നത് വ്യുത്തത്തോട് സാമ്യമുള്ള ബഹുഭുജങ്ങളിലേക്കാണ്. വശങ്ങളും എണ്ണം കൂടുന്തോറും വ്യുത്തത്തോട് അവ അടുത്തടുത്തുവരുന്നു എന്ന് നാം പഠിച്ചിട്ടുണ്ട്. സാമൂഹിക പശ്ചാത്തലത്തിലേക്ക് നമുക്കിതിനെ പലതരത്തിൽ പുനരാവിഷ്കരിക്കാം. ചുരുങ്ങിയ ചിന്തകളും മനോഭാവങ്ങളുമായി ഒരുങ്ങിക്കൂടി ജീവിക്കുന്ന ആളുകളെ നാം കാണാറുണ്ട്. എന്നാൽ ബഹുഭുജത്തിന്റെ വശങ്ങളും മൂലകളും വർദ്ധിക്കുമ്പോൾ ക്ലിപ്തമായ വശങ്ങളും മൂലകളും മയപ്പെടുന്നതുപോലെ ചിന്തകളും മനോഭാവങ്ങളും വിപുലമാകുന്നതോറും ജീവിതം കൂടുതൽ വഴക്കമുള്ളതായി മാറുന്നു. അങ്ങനെ കൂടുതൽ വിശാലമായ അർത്ഥത്തിൽ ലോകത്തെ കാണാനും പ്രശ്നങ്ങളെ ആഴത്തിൽ ഗ്രഹിക്കാനുമുള്ള ഒരു ചുവടുവയ്പിന്റെ പ്രതീകമായി വ്യുത്തത്തെ കാണാം.

കീലപദങ്ങൾ: ത്രികോണം, ബഹുഭുജങ്ങൾ, സൂച്യഗ്രസ്തുപാകൃതി, വർത്തുളാകൃതം, സമൂഹജീവിതം, ചിന്തകൾ, മനോഭാവങ്ങൾ.

കേരളപാഠ്യപദ്ധതിയിലെ ഒൻപതാം ക്ലാസ്സിലെ ഗണിതപുസ്തകത്തിന്റെ ഒൻപതാം അധ്യായത്തിൽ വ്യുത്തങ്ങളുടെ അളവുകളെക്കുറിച്ച് പ്രതിപാദിക്കുന്നുണ്ട്. യുക്ലിഡിയൻ ജ്യാമിതി പ്രകാരം ഏറ്റവും ചെറിയതും അടിസ്ഥാനപരവുമായ ബഹുഭുജമെന്നത് ഒരു ത്രികോണമാണ്. ത്രികോണത്തിനു മൂന്നു കോണുകളും വശങ്ങളുമാണുള്ളതെന്ന് നമുക്കറിയാം. തുടർന്ന്, ചതുർഭുജങ്ങൾ, പഞ്ചഭുജങ്ങൾ,... അങ്ങനെ വശങ്ങളും കോണുകളും കൂട്ടുന്നതനുസരിച്ച് ബഹുഭുജങ്ങൾ വളർന്നുകൊണ്ടിരിക്കുന്നു. ഇപ്രകാരം വികസിച്ച് വികസിച്ച് ബഹുഭുജങ്ങൾ എത്തിച്ചേരുന്നത് വ്യുത്തത്തോട് സാമ്യമുള്ള ബഹുഭുജങ്ങളിലേക്കാണ്. വശങ്ങളും എണ്ണം കൂടുന്തോറും വ്യുത്തത്തോട് അവ അടുത്തടുത്തുവരുന്നു എന്ന് നാം പഠിച്ചിട്ടുണ്ട്. വ്യുത്തത്തെ ഒറ്റപ്പെട്ട ബഹുഭുജങ്ങളുമായി താരതമ്യം ചെയ്യുന്നതിനുപകരം ബഹുഭുജത്തിന്റെ വശങ്ങളുടെ എണ്ണം കൂട്ടിക്കൊണ്ടിരുന്നാൽ ക്രമേണ വ്യുത്തത്തിനോടു്കാണുന്ന ചിന്ത ഗ്രീസിലാണുണ്ടായത്. ബി. സി. അഞ്ചാം നൂറ്റാണ്ടിൽ ജീവിച്ചിരുന്ന ആൻറിഫോൺ അവതരിപ്പിച്ച ഈ ആശയം നാലാം നൂറ്റാണ്ടിൽ ജീവിച്ചിരുന്ന യുഡോക്സസ് കൂടുതൽ പ്രായോഗികമാക്കുകയും മൂന്നാം നൂറ്റാണ്ടിൽ ജീവിച്ചിരുന്ന

ആർക്കിമിഡീസ് വൃത്തത്തിന്റെ ചുറ്റളവ് കണ്ടുപിടിക്കാനുള്ള ഒരു ക്രിയാപദ്ധതി ആവിഷ്കരിക്കുകയും ചെയ്തു.

സാമൂഹിക പശ്ചാത്തലത്തിലേക്ക് നമുക്കിതിനെ പലതരത്തിൽ പുനരാവിഷ്കരിക്കാം. ചില ഉദാഹരണങ്ങൾ നമുക്കിവിടെ പരിശോധിക്കാം. ഒന്നാമതായി ത്രികോണത്തിന്റെ ഒരോവശവും മൂലയും നമ്മുടെ മനോഭാവങ്ങളായി സങ്കല്പിക്കുക. ചുരുങ്ങിയ ചിന്തകളും മനോഭാവങ്ങളുമായി ഒരുങ്ങിക്കൂടി ജീവിക്കുന്ന ആളുകളെ നാം കാണാറുണ്ട്. എന്നാൽ ബഹുഭുജത്തിന്റെ വശങ്ങളും മൂലകളും വർദ്ധിക്കുമ്പോൾ ക്ലിപ്തമായ വശങ്ങളും മൂലകളും മയപ്പെടുന്നതുപോലെ ചിന്തകളും മനോഭാവങ്ങളും വിപുലമാകുന്നതോറും ജീവിതം കൂടുതൽ വഴക്കമുള്ളതായി മാറുന്നു. അങ്ങനെ കൂടുതൽ വിശാലമായ അർത്ഥത്തിൽ ലോകത്തെ കാണാനും പ്രശ്നങ്ങളെ ആഴത്തിൽ ഗ്രഹിക്കാനുമുള്ള ഒരു ചുവടുവയ്പിന്റെ പ്രതീകമായി വൃത്തത്തെ കാണാം.

രണ്ടാമതൊരു ചിന്ത ഇപ്രകാരമാണ്: ത്രികോണം മുതലായ ഏതു ചെറിയ ബഹുഭുജത്തിനും നിയതമായ വശങ്ങളും കോണുകളുമുണ്ട്. മൂലക്കിരുത്താനും വശത്താക്കാനും വശംകെടുത്താനും അവിടെ സാധ്യതകളുണ്ട്. എന്നാൽ വൃത്തമാകട്ടെ അനന്തവശങ്ങളുള്ള ബഹുഭുജത്തോട് സദൃശ്യമാണ്. ഒരു ജ്യാമിതീയ രൂപത്തെ അതിന്റെ വിസ്തീർണ്ണവുമായി(പരപ്പളവ്) തട്ടിച്ചു നോക്കുമ്പോൾ ഏറ്റവും കുറഞ്ഞ പരിധി ഉള്ളത് വൃത്തത്തിനാണ്. വൃത്തകേന്ദ്രത്തിന്റെ പ്രത്യേകത അത് വൃത്തത്തിലെ എല്ലാ ബിന്ദുക്കളിൽനിന്നും തുല്യ അകലത്തിലാണ്. കൈയകലത്തിലുള്ളവരെ എല്ലാവരെയും ഒരുപോലെ കാണുകയും ചേർത്തുപിടിക്കുകയും അതോടൊപ്പം അവയുടെ ചാലകശക്തിയായി നിലകൊള്ളുകയും ചെയ്യുന്നതിന്റെ പ്രതീകം. ഇവിടെ ശ്രദ്ധിക്കേണ്ട പ്രധാനപ്പെട്ട ഒരു കാര്യം വൃത്തങ്ങൾ സൃഷ്ടിക്കുമ്പോൾ അവ നമുക്ക് ചുറ്റുമുള്ളവ മറച്ചു കളയുന്ന ഉപജാപകവൃന്ദങ്ങളായി പരിണമിക്കരുത് എന്നതാണ്.

മറ്റൊരു ആശയം സംഘടനാ സംവിധാനങ്ങളുമായി ബന്ധപ്പെട്ടതാണ്. പണ്ടുകാലങ്ങളിൽ സംഘടിത സംഘടനാ സംവിധാനങ്ങൾ സൂച്യഗ്രസ്തുപാകൃതി (pyramidal) ആയിരുന്നെങ്കിൽ ഇന്ന് പലതും വർത്തുളാകൃതമാവുകയാണ് (circular). ഒരു വ്യക്തിയുടെ നിലപാടുകളും ആശയങ്ങളും എന്നതിനപ്പുറം സംഘാതമായ തീരുമാനങ്ങൾക്കാണ് ഇപ്പോൾ മുൻതൂക്കം. വീടുകളിൽപ്പോലും കുടുംബനാഥന്റെ അഭിപ്രായങ്ങളാണ് കാര്യങ്ങൾ നിശ്ചയിച്ചിരുന്നതെങ്കിൽ ഇന്ന് കുടുംബത്തിലെ എല്ലാവരും ആശയങ്ങൾ പങ്കുവെച്ചു തീരുമാനമെടുക്കുന്ന ശൈലിയിലേക്ക് മാറിക്കൊണ്ടിരിക്കുന്നു. ഏകപക്ഷീയമായ തീർപ്പുകല്പിക്കലുകളിൽനിന്നു സംയോജിത

നിലപാടുകളിലേക്കുള്ള മാറ്റം അനിവാര്യമായിക്കൊണ്ടിരിക്കുന്നു. അതുപോലെ അണുകൂടുംബങ്ങളുടെ ന്യൂനതകൾ തിരിച്ചറിഞ്ഞുകൊണ്ട് ചെറിയ കുടുംബം സന്തുഷ്ടകുടുംബം എന്നതിൽനിന്നു വലിയ കുടുംബം സന്തുഷ്ടകുടുംബം എന്നതിലേക്ക് പല രാജ്യങ്ങളും മാറിക്കൊണ്ടിരിക്കുന്നു. നാമൊന്ന് നമുക്കൊന്ന് എന്ന് നാമൊന്ന് നമുക്കൊന്ന് എന്ന് മാറുന്നതും ഒരുവിധത്തിൽ ത്രികോണീകരണത്തിൽനിന്നു വൃത്താകാരതയിലേക്കുള്ള ഒരു ചുവടുമാറ്റമാണ്.

നമ്മുടെ മനസ്സും ശരീരത്തിനൊപ്പം വളരട്ടെ. ഇടുങ്ങിയ ത്രികോണത്തിൽനിന്നും വിശാലമായ വൃത്തങ്ങളിലേക്കു പടരട്ടെ. നമുക്ക് ചുറ്റും സ്നേഹത്തിന്റെയും കരുതലിന്റെയും വൃത്തങ്ങൾ സൃഷ്ടിക്കാം.

ത്രികോണമായി ഹോമിച്ചു തീരാതെ
 ഉയരട്ടെ വളരട്ടെ ഞാൻ പടരട്ടെ
 ത്രികോണസ്ഥരാകാതെ വൃത്തസ്ഥരാകാം
 നമുക്ക് വ്യത്യസ്തരാകാം, വ്യതിരിക്തരാകാം.

സഹായകഗ്രന്ഥസൂചി
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Business Intelligence within E-Learning Environments

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Abstract

The goal of the study was to discover the implementation of business intelligence in the field of online learning platforms such as Byjus, Udemy, LinkedIn Learning, Unacademy, etc., and construct a comparative analysis between two online educational platforms given their business intelligence implementations.

Keywords: E-learning; business intelligence; BI in e-learning; learning analytics; data visualisation.

Introduction

Business intelligence the term refers to techniques and tools used to convert raw data to meaningful information that is used for business purposes. Business intelligence is the word that is booming in the whole world which makes magic with raw data. Companies are using huge amounts of money on business intelligence implementations to bring their companies to their desired positions.

Now a day's most organizations' students prefer e-learning platforms over regular education, though the relevance of online educational platforms/e-learning platforms is in the prime stage. The e-learning platforms can be accessed by worldwide users at any time also the e-learning platforms offer certification of respective courses and lifetime access to the content purchased by the user.

E-learning platforms offer interactive online services for education, utilizing advanced technologies for engaging learning. They provide learning modules, evaluations, and one-to-one communication, allowing learners to communicate and learn from scratch. Companies use BI strategies to market their content, generating revenue through user expansion, infrastructure expansion, and technology advancements. The e-learning platform market in India is expected to reach 312.13bn by 2026, with a 17 percent growth rate.

E-learning platforms offer various advantages and disadvantages, which can be analyzed using Business Intelligence (BI) and Online Analytical Processing (OLAP) technologies. In India, unicorn e-learning firms like BYJU'S, founded in 2011, are valued at \$22 billion and become the country's most valuable platform. Other popular platforms include Unacademy, Vedantu, and WhiteHat Jr. Coursera, Udemy, Skills, and EdX are globally used e-learning platforms. Each platform has its business intelligence strategies and analytics, providing different content and user data. Many students and institutions prefer e-learning over traditional education due to the quality content, updated with advanced technologies, and real-time scenarios. This case study will delve into the mismatching valuation of BYJU's and other e-learning platforms.

Business Intelligence in E-Learning

Business Intelligence (BI) is a crucial tool for supporting data selection, presentation, and analysis in e-learning platforms. It involves methodologies, technologies, and tools to transform data into meaningful information, enabling businesses to increase efficiency and profitability. BI in e-learning platforms aims to provide users with information to achieve greater success and efficiency. Stakeholders such as learners, instructors, course content authors, e-learning providers, and clients need to collaborate to create more efficient learning

processes and improve their skills. To achieve these goals, the learning environment must guarantee certain functionalities.

Data mining is a method of analyzing data from various perspectives to extract valuable information for a company's profit. It involves finding patterns among attributes in large databases and warehouses. In e-learning, data mining methods include forecasting, grouping, distilling data for human judgment, and discovering patterns and models. One of the main challenges is improving the e-learning experience for students enrolled in virtual courses. Various models, such as Association Rules, machine learning, deep learning, Decision Trees, and traditional statistical analysis, are used to address these problems.

Web mining techniques are applied to analyze blogs, discover navigation patterns, and reduce hypotheses, improving web applications. This is particularly useful for user profiling, web page personalization, server performance enhancement, and website structure improvement. Clustering and visualizations can help create similar groupings based on student behavior, enabling tutors to provide better feedback and learning recommendations. Combinations of Data Mining methods, such as multiple classifiers, genetic algorithms, and neuro-fuzzy models, have shown potential in web-based environments. This helps tutors understand student performance, study material quality, and learning behavior.

Visualization is a process where data is presented appropriately, revealing patterns and models. In e-learning platforms, student performance is analyzed and displayed in student profile sections as dashboards, allowing students to understand their progress, weak areas, and areas for improvement. This approach attracts more users and allows users to interactively study the presented data and the changes that occurred. Platforms track each user's learning process, presenting statistical data simply and understandably. High care must be taken when selecting data, as large amounts of data can be large. Descriptive statistics are commonly used, including average grades, e-course participation, performance on knowledge evaluations, most frequent errors in problem-solving, studied material, popular websites visited, and statistical reports about social networking tools. These reports should be informative, clear, and easy to understand.

Comparative Analysis: Byjus and Unacademy

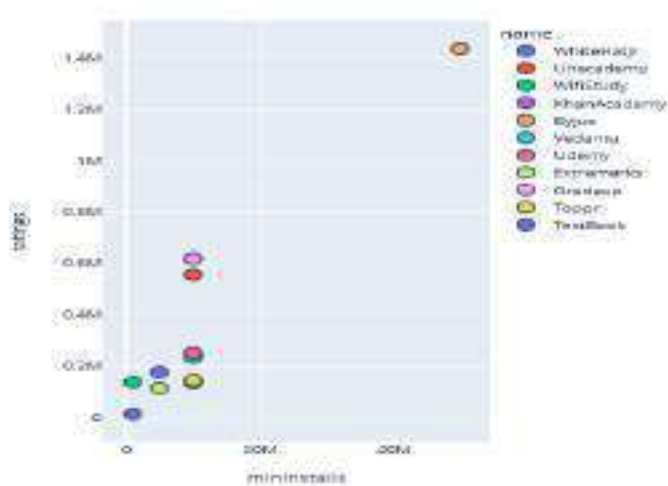
Byju's

BYJU, founded in 2011, is India's most valued e-learning platform. Initially providing online learning videos for 1 to 12th students and some classes for competitive exams, BYJUS has since expanded its offerings to include visualization-based content. In 2015, they launched the BYJUS Learning app, which has been a huge success, attracting many other e-learning companies. Despite facing challenges, BYJUS has successfully executed its business strategy. The platform initially focused on providing quality content for free, offering a freemium model for 15 days of limited access to content before paying for a subscription. By expanding its content to include NEET, JEE, UPSC, and CAT exams, Byjus gained more aspirants. Byjus follows a B2C model, focusing on two layers of audience: students and parents. Advertisements and demo videos attract students, while premium facilities are offered for free for one week. The interactive teaching mode and high-quality materials help students concentrate.

After the COVID-19 pandemic, Byjus acquired India's major offline tutor, Aakash Edtech, to escape the decline of most education companies. Byjus also tried to market its name through sponsorships of major sports teams and becoming the title sponsor of the FIFA World Cup 2022. However, Byjus has been criticized for its poor implementation of business intelligence, with recent financial reports showing a significant decline. The company has also attempted to acquire other successful companies in their countries but has faced criticism for

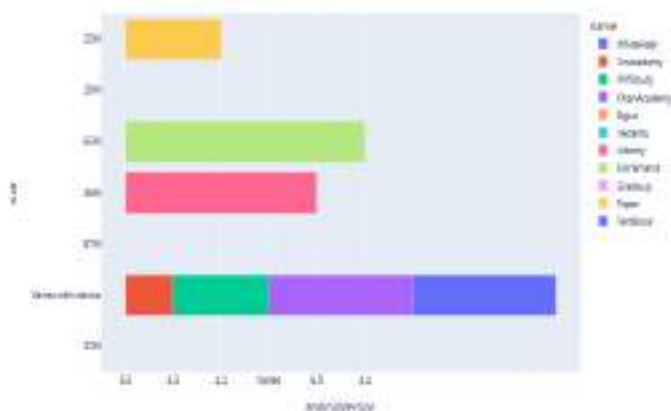
not fulfilling its audited financials. In conclusion, BYJUS and Unacademy are two prominent Indian e-learning platforms that have successfully implemented their business strategies and strategies. However, they have faced challenges in maintaining their financial reporting and addressing issues with their financial reporting.

Fig1. Education platforms ratings



Byjus has become an educational behemoth during the COVID-19 pandemic where the company has reached 40million users and 2.8 million paid subscribers.

Fig 2. Number of installations of educational platforms worldwide



Unacademy

Unacademy is an Indian e-learning platform founded by Gaurav Munjal, Hemesh Singh, Roman Saini, and Sachin Gupta. The platform, initially a YouTube channel, has grown into one of the largest platforms in India. Unacademy follows a freemium business model, providing both free and high-quality content for paid subscribers. The platform divides its platforms into two layers: the base model for non-paying users and the premium model exclusively for paid users. Unacademy's user base is around 30 million, with 350,000 paid subscribers. The platform mainly focuses on OTT platforms for advertisements in urban areas and TV and OOH methods in village areas. During the first nationwide lockdown, Unacademy experienced an 82% growth in revenue. After the relaxation of COVID lockdowns, Unacademy provided offline training, which helped it become a giant in its field. Unacademy's tutorials are short and cost-effective, with a cost-benefit ratio of about 10 minutes. Each lesson and course intuitively adjusts according to the training and user aptitude. However, compared to Byjus,

Unacademy has extensive courses without proper planning, making it difficult for users to choose the right course. Byjus' subscription plans are expensive, which may not be suitable for the middle-class population in India. Despite these challenges, Unacademy remains a top choice for its user base and user interface.

Conclusion

The research concludes that e-learning platforms are beneficial in post-pandemic society, and the use of business intelligence can enhance their effectiveness. These platforms provide user satisfaction and a new learning experience, increasing company revenue and user base. However, proper implementation and support are crucial. Platforms should understand users' preferences and weaknesses, analyze their strengths, and provide accurate feedback to make them more user-friendly.

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Real-Life Application of Business Intelligence in Transportation & Logistics

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Abstract

This case study explores the role of Business Intelligence (BI) in supporting logistics decision-making and transportation services. It highlights the characteristics of BI systems, their functionality, construction, and benefits resulting from their implementation. BI systems enable the transformation of efficient data into valuable information, enabling efficient decisions. They can be implemented in two ways: using data warehouses or data marts and ETL processes, or using BI in memory. The implementation of a specific BI system depends on the size of the logistics company, with larger companies having greater capabilities in this scope. Transportation logistics is now influencing decisions on production, storage, quantity, and logistics provider selection, reducing time and costs along the supply chain, which are part of strategic management.

Keywords: Data warehouse, transportation, logistics, business intelligence.

Introduction

Due to several variables that increased its complexity and caused it to be outsourced to third-party logistics companies, the job of logistics management underwent a major change. Third-party leaders are strategic partners in optimizing the supply chain and providing a competitive advantage. Transportation is a crucial link in a supply chain, connecting various entities and ensuring logistics execution. Outsourcing transportation is preferred due to its asset-intensive nature and different operations. A well-developed, efficient transportation system is essential for maximizing logistics benefits. Manufacturers rely on Transportation Service Providers (TSPs) for their transportation needs, which can be asset-based, non-asset-based, or non-asset-based. TSPs also provide value-added services like pickups, storage, and packing. To efficiently manage customer supply chains, third-party leaders use Business Intelligence tools like data warehousing and OLAP. These tools provide a unified view of the entire supply chain, improving the functioning of basic third-party services like transportation management and warehousing. By providing clients with specific information, third-party leaders can increase market responsiveness and improve internal organizational functions like human resources and financial management.

Methodology

The implementation of Business Intelligence (BI) systems in logistics management can improve decision-making processes, shorten analysis time, facilitate report creation, provide up-to-date data, consolidate data, apply visualization techniques, and lower functionality costs. BI tools should be tailored to business needs and user-friendly, as having the right information at the right time is crucial for today's global economy.

BI can enhance the effectiveness of services like transportation management, warehouse, and value-added services by providing in-depth analysis and reports on various functions involved in these services. Third-party leaders can provide clients with specific analysis and reports specific to their supply chain.

BI can also help customers increase responsiveness and market time, as well as improve organizational support functions like HR and financial management by providing an integrated view of these functions and supporting their specific decision-making requirements.

BI software can facilitate fast and easy selection of the best means of transport, reducing transportation costs and improving customer service. Route optimization and cargo load optimization software help find the best loading patterns for shipments, determine vehicle availability, and determine the exact costs of shipments.

Implementation of dashboards helps identify key performance indicators (KPIs) that fall outside accepted ranges, such as planning accuracy, capacity utilization, resource utilization, load balancing, route utilization, scheduling accuracy, vehicle availability, vehicle loading time, average transit time, cost of transportation per ton, on-time vehicle arrival, vehicle unloading time, order receipt accuracy, total order delivery time, on-time deliveries, goods delivery rate, and transportation costs.

BI systems also allow business users to perform ad hoc analysis and reports, align daily operations with strategic objectives, make independent analyses of marketplace transportation costs, and forecast economic and service impacts as consequences of changes in transportation models, allowing for the optimal operating strategy.

Conclusion

Business Intelligence (BI) systems have significantly improved decision-making processes in logistics, supply chain, and other business areas. They allow for cost reduction, and optimization in reverse logistics, support third-party logistics providers, and improve transportation efficiency through route optimization and inventory management. Analytics solutions provide better quality information for decision-making, improving the whole logistics area and enterprise.

A third-party leader in a logistics company should maintain consistency in improving existing services, adding new services, and making internal organizational functions more effective. BI tools like data warehousing can help achieve these objectives. Companies face intense competition, requiring cost reduction, increased functionality, flexibility, and the ability to make informed decisions based on operational and historical data.

Transportation Service Providers (TSPs) need to adapt BI solutions according to their business needs, moving towards BI Analytics solutions that not only show present behavior but also predict future behavior and suggest actions. TSPs should embrace BI in its nascent stages to stay competitive and move towards high-end BI solutions for market leadership and customer satisfaction.

The real future of business intelligence lies in the right use of these tools, guided by users who understand the business, data, and analytical methods involved and are familiar with software environments.

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Business Intelligence: Retail and Wholesale Marketing Case Study

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Abstract

In today's competitive market, BI is crucial for maintaining industry stability. This research investigates BI in a retail store using qualitative research methods and data mining and clustering. The study highlights the importance of requirements engineering, as even minor issues can cause major problems. The research also highlights the benefits for retail chain managers, emphasizing the need for continuous monitoring and adaptation to current and future trends.

Keywords: Business Intelligence, Benefits of BI, Data Warehousing, Data Mining.

Introduction

The current requirement to continuously improve management effectiveness in retail chains and the mounting pressure of cost-effectiveness in this (BI). The phrase “business intelligence” (BI) is broad and is frequently used to refer to technology, apps, tools, and procedures that collect, store, retrieve, and analyse data to add in decision-making. Business intelligence gives a greater visibility of your marketing techniques, which also enables you to identify possible issues and areas for improvement. You may gradually improve your marketing initiatives by using business analytics. You can use BI to find patterns in your industry and company. Then, you can take advantage of this trend to enhance your marketing and provide your business with a competitive edge in your industry.

Methodology

Our area of research is to uphold the benefits of using BI tools in retail marketing. For that, we choose two companies, one where the work is done manually and the other in which BI tools are used. By analysing both we understood the company where BI used to take marketing to the next level. Business intelligence in the retail sector assists in tracking how customers engage with eCommerce stores, and this data may be utilised to improve the shopping experience for customers. For instance, a consumer receives recommendations based on things they've previously browsed. Retailers can use business intelligence to make effective decisions based on consumer behaviour. Real-time data viewing enables businesses to instantly update their product offers and price points. From our research, we understood that BI in retail marketing helps to identify emerging consumer trends and also optimize store floor plans.

Business Intelligence (BI)

Business Intelligence (BI) is a system that enhances decision-making, cost reduction, and process quality by analyzing data and providing software solutions. BI includes technologies, applications, and processes for gathering, storing, and accessing data, enabling better decision-making. It covers various management branches, including marketing, financial management, and human resource management. Benefits of BI include faster reporting, improved decision-making, customer service, and increased revenue. Intangible benefits include eliminating software and hardware licenses, reducing headcount, and enabling new business ways.

Benefits of Business Intelligence

A study by Hannula and Pirttimäki found that Business Intelligence (BI) provides numerous benefits to organizations, including better decision-making, better anticipating threats and opportunities, growth of knowledge, increased sharing of information, improved efficiency, easier information acquisition and analysis, faster decision-making. The most significant benefits were harmonizing company personnel's thinking and broadening understanding of business.

Data Warehousing

Data warehousing is the technology that provides integrated and summarized information extracted from multiple, heterogeneous operational systems in a separate repository for the benefit of the decision-making process. A data warehouse is thus essentially a decision-support environment that leverages data stored in different sources by organizing it and delivering it to decision-makers across the enterprise regardless of their platform or their technical skill level. A large number of organizations have found data warehouse systems to be valuable tools to survive in a competitive and fast-evolving world. A data warehouse is a subject-oriented, integrated,time-variant, non-volatile collection of data in support of management's decision-making process. -W.H.Inmon,1993

Data Mining

Data mining is a process that identifies patterns in data, helping organizations overcome information overload. Traditionally, data is used for querying databases, but this method lacks exploratory characteristics. Data mining, which extracts hidden predictive information from large databases, is a powerful new technology that can analyze important information in data warehouses. Implemented on high-performance computers, it can provide insights into client responses and marketing strategies. The growing demand for data mining in new application domains suggests it can transform large passive databases into useful actionable information.

Domain: Freshmart Supermarket

Our area of case study is a supermarket where BI is yet to be implemented. For which it is impossible to analyze the sales of the supermarket. To analyze the trend statistically and mathematically. For the growth of a Business area, one must analyze the future trend and the going market trend for the increase in revenue and profit. Since BI is not yet implemented, the task is to analyze manually which is practically impossible.BI with the help of Data Mining forms clusters which is one source of increase in revenue. One of the main issues that wholesale-retail marketing or some other marketing faces is inventory cost. Since there is no BI, proper care and analysis should be taken manually to achieve a successful profit. When the analysis we made is not accurate, it may increase inventory costs which then results in a loss.

Implementation of BI in the Selected Domain

The Business Intelligence (BI) software industry is expected to reach \$22.8 billion globally by 2021, with further growth to \$29.48 billion by 2022. BI tools can increase revenue and reduce costs by analyzing sales trends, predicting future sales, and identifying customer preferences. Implementing BI improves merchandising, marketing, inventory management, and customer behavior, giving businesses a competitive edge.

Comparative Analysis

	Fresh Super Market	Nesto Hyper Market
Inventory cost	Inventory cost is high. The trend can be analysed	We can reduce the inventory cost. By implementing BI we

	manually but it is more time-consuming.	can analyse sales trends from which we will be able to predict future sales.
Customer Analysis	Manually analysing the customer purchasing trend based on different age limits is very much difficult.	We can analyze customers within an age limit for their average spending Through which we can suggest people of certain ages based on what they prefer.
Product Analysis	Grouping the products frequently purchased by customers based on brand and price without using the BI tool is time-consuming.	There might be products with several brands within different price ranges. Using BI, we can know which brand is commonly purchased and within what range.

Conclusion

The case study is not only useful for companies and BI vendors to implement BI tools in the marketing field but also for researchers to study the adoption process with a focus on models and methods of requirements engineering and their verification. These tools are necessary for gathering fast and crucial information which supports the decision-making process and decreases manual labour. The implementation of BI in the company will help us to enhance the value of management in the company and it also helps to improve the business process.

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Data Mining Techniques – Arun K Pujari

JOSEPHINE RESEARCHER VI

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Business Intelligence Implementation in the Travel and Tourism Sector

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Abstract

The digital era has led to rapid growth in the data population, making traditional methods inefficient. This has made it challenging for industries to obtain timely and relevant information, leading to the need for big data and business intelligence. This paper explores the application of business intelligence in the travel and tourism sector, using a systematic literature review method. The analysis highlights the importance of these tools for digital transformation, providing a competitive advantage and driving efficient and strategic actions in the industry. Examples include Airbnb, Expedia, Superset, and self-service BI.

Keywords: Business Intelligence, Competitive Intelligence, Data collection, Implementing Business Intelligence, BITOUR, comparative analysis.

Introduction

This paper highlights the importance of business intelligence (BI) in tourism businesses, highlighting its potential to boost productivity and competitiveness. Despite fragmented literature, the study highlights the benefits of BI adoption in the sector, including user-friendly data collection, archiving, retrieval, processing, and analytical tools. The tourism sector was among the first to adopt BI, benefiting from its advantages. The study is based on a literature review but could benefit from fieldwork and mixed methods research for more reliable outcomes. The findings will benefit society by enabling citizens to demand goods and services produced through innovation and wise decision-making.

Methodology

This paper examines the importance of Business Intelligence (BI) in the travel and tourism industry, focusing on its implementation and impact. It reviews journal articles and research papers, evaluating the development of BI in this sector. The paper discusses various BI platforms and tools, including BITOUR, and their impact on the industry. It also highlights the importance of predictive and prescriptive analysis, data collection, and the impact of BI on the tourism sector. A comparative analysis is conducted, considering leading companies like Expedia and Airbnb, to understand the extent of BI's progress.

Travel and Tourism

Tourism is the practice of attracting, accommodating, and entertaining tourists for leisure or business. As one of the world's largest and most competitive industries, success depends on quality marketing efforts. Companies like hotels, airlines, travel agents, and tour operators must use the latest marketing methods to stand out.

Implementation

Tourism businesses need data analysis to stay updated with market trends, manage performance, communicate with clients, and forecast new offerings. Key Performance Indicators (KPI) and Business Intelligence (BI) help monitor and manage these metrics. Common BI applications include customer feedback mining, forecasting demand, geospatial analytics, pricing optimization, social media analytics, monitoring, online advertising, and IoT

applications. Data mining software analyzes customer feedback, while geospatial analytics compare occupancy rates and profitability. Online advertising and video analytics manage customer sentiments on social media platforms.

Bitour

BITOUR is a business intelligence platform for travel and tourism analysis, utilizing open data and geo-referenced information to provide insights into a nation's tourist industry. It uses a three-phase methodology: requirement analysis, solution design, and implementation and deployment. Data sources include OpenStreetMap, Twitter, Tripadvisor, and Airbnb. The platform's solution architecture consists of ETL architecture, data integration, processing, and visualization. BITOUR allows users to view graphical views of desired cities or places, helping them identify better places to visit. It supports five functionalities: destination definition, tweet processing, sentiment analysis, tourist identification, and data analysis and visualization.

Merits

The travel sector is facing challenges like declining earnings, market conditions, health crises, and budget constraints. To thrive, businesses should adopt business intelligence (BI) to evaluate market prices, set precise prices, and understand travel costs. BI also helps businesses stand out, promote quality services, and manage assets effectively.

Importance

The travel industry is complex, with numerous systems and players interacting in real time. However, gaps in data collection make it challenging for travel companies to launch focused marketing and use predictive analytics. Business intelligence and analytics are crucial in tackling operational and revenue-impacting inefficiencies. By integrating data from travel agencies, internet portals, private websites, and social media, businesses can analyze market trends and consumer preferences, identifying untapped sales potential. For example, predictive analytics can help businesses identify the best course of action for cost reduction, customer satisfaction, and profitability. Key Performance Indicators (KPIs) for the travel industry include spending and savings, travelers' behavior and policy, suppliers, processes, travelers' safety, corporate social responsibility, and data quality. By analyzing trends and utilizing predictive analytics, businesses can develop effective strategies to improve their operations and achieve organizational goals.

Benefits

Expedia and Airbnb are rivals in the global travel market, with Expedia using BI analytics and Airbnb focusing on homestays and tourism experiences. With a market cap of \$31 billion, both companies have 1.8+ million online bookable listings and a 15% share of global room nights in private accommodations. Both companies are expected to compete and become more similar.

Conclusion

Business Intelligence (BI) is crucial in the travel industry for effective service management, decision-making, research, market analysis, and customer loyalty. It helps influence clients' perceptions and attracts them to your services. A BI platform called BITOUR combines information from TWITTER, OPEN STREET MAP, TRIP ADVISOR, and AIR BNB to gather data and integrate it into a data warehouse. This data is then used to make informed decisions about tourism activities in a region or destination. The platform helps visualize the results of data analysis, enabling decision-makers to make informed decisions about tourism activities and customer satisfaction.

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Abstract

Business Intelligence (BI) is a set of tools and technologies that transform data into information to improve decision-making in organizations. It can increase competitiveness and help organizations understand customer needs and demands better. In today's dynamic market, BI solutions are crucial for banks to manage and make timely, quality decisions. BI covers various areas, including CRM, Performance Management, Risk Management, Asset and Liability Management, and Compliance. Data warehouses and online analytical processes form an information base for BI applications. Data mining and knowledge acquisition are also important business segments of BI. This paper discusses the applications of BI in the banking and financial sector.

Keywords: Business Intelligence, elements of business intelligence, banking sector, financial sector

Introduction

Financial services and banking have increasingly adopted Business Intelligence (BI) solutions to improve operations by identifying, analyzing, and solving problems in real time. With over 2.5 billion gigabytes of data generated daily, BI tools provide a unified source of information for all employees. These tools help in generating actionable insights, trend analysis, and pattern identification, enabling better financial operations and decision-making. BI is a separate area encompassing factors of information technology, strategy, managerial accounting, corporate evaluation, and marketing. Modern banks are leaders in adopting new technologies and knowledge, making them prime targets for implementing BI infrastructure.

Benefits

Technology is transforming the banking and finance industry, enabling institutions to adapt to competition, customer demands, and risk management. Business Intelligence (BI) tools are transforming this by providing insights into customer data, improving operational efficiency, identifying profitable opportunities, and enhancing marketing. BI also aids in developing new investment strategies and risk reduction by tracking customer transactions and adjusting internal personnel. Overall, BI tools are driving profitability, reducing risk, and gaining a competitive edge.

Areas Encompassed

Business intelligence answers for banks need to Offer the decision makers from all commercial enterprise segments of the bank the ability to manipulate And take advantage of the potential of a mess of internal and external data resources. Commercial enterprise Intelligence covers many regions of Banking and monetary area, the most essential being :

- Customer Relationship Management
- Compliance
- Bank Performance Management
- Enterprise Risk Management
- Asset and Liability Management

Customer Relationship Management (CRM)

CRM is a crucial strategy for banks and other service providers to understand and retain customers. It involves focusing on understanding customers as individuals rather than as a set. CRM and technology control aim to enhance and consistently deliver accurate services to customers. CRM is a legitimate business method that helps banks identify their most valuable clients and prospects, and dedicate time and effort to expanding account relationships through personalized marketing, pricing, discretionary decision-making, and customized services. CRM is essential for banks to compete in the market and boost growth. By leveraging CRM, companies can improve customer service, make call facilities more environmentally friendly, sell products more efficiently, assist sales staff in closing deals quicker, simplify advertising and sales processes, find new customers, and increase customer satisfaction.

Bank Performance Management (BPM)

The banking and financial industry is a major buyer in automation, with many leading banks investing in key system workflows due to digitization and automation technology. Business Process Management (BPM) in banking provides flexibility and agility in operations, allowing banks to optimize customer-based operations and control internal monitoring strategies like compliance management. BPM software helps streamline banking operations, eliminate mistakes, and accelerate customer response time. The main objective of BPM is to achieve flexibility and agility in banking services. Robotic Process Automation (RPA) is also being used to automate various processes in the banking industry, such as money owed payable, customer support, loan processing, account closure, and credit card processing.

Enterprise Risk Management (ERM)

Organizational risk control (ERM) is crucial for financial institutions, including banks, insurers, and investment control groups, to manage economic, operational, event, and strategic risks. These companies face significant regulatory consequences and can impact the wider economic system. A robust ERM system can help maintain regulatory compliance, mitigate losses, boost business growth, and enhance profitability by optimizing risk exposures. By implementing robust ERM systems, financial institutions can avoid penalties and operational disruptions, manage potential losses proactively, and build customer acceptance, ultimately leading to increased profitability.

ALM Concept

The Asset-Liabilities Management (ALM) concept is a modern approach used by financial institutions to manage their assets and liabilities. It addresses market changes and exposure to risks like credit, forex, and hobby fee risks. The ALM concept enables banks to display daily changes in their asset and liability structure and limit risks. Its main challenge is to establish the correlation between risk and profitability of individual transactions, preventing excessive risks leading to losses. The ALM concept is based on providing the best profitability levels, efficient asset liability management, and management over banking change management. Risk management involves identifying and controlling risks at various levels, including risk exposure identification, risk assessment, risk financing, and risk management.

Compliance

In any financial institution or financial zone, the compliance branch is the frame liable for making sure the group as a whole remains compliant. Its goal is described, and it's to make sure the bank functions within the law, as a result preserving its integrity and popularity in the enterprise. In a vacuum, the compliance branch is typically tasked to:

- Guard the bank from facts theft
- Protect against fines imposed by the authorities

- Save you tax evasion
- Prevent money laundering
- Become aware of and examine chance areas
- Steer clear of activities that aren't within the bank's ethics coverage

Besides those, the department may also be tasked with growing a compliance program or coverage. That is typically accomplished through a joint attempt with senior management. The department establishes the overall coverage while the control establishes the tradition of compliance throughout the business enterprise.

Business Intelligence Architecture

A bank's business intelligence system consists of various layers, including operational database and external data, data integration and transformation, data warehouse, data access layer, and front end. Online Transaction Processing (OLTP) is the bank's fundamental data processing device, aiding daily business transactions. The information integration and transformation layer transforms data from operational and external resources into a database-friendly format. A data warehouse is used as the foundation for BI systems, enabling efficient statistics control and decision-making. Online Analytical Processing (OLAP) is software for quick, consistent, and interactive data analysis.

Conclusion

The banking industry is increasingly requiring a robust data system to meet complex customer and market demands, automate operations, and manage efficiently. Current banking data structures are evolving to meet these demands, but improvements in business intelligence systems are needed to fully utilize their capabilities. BI systems allow banks to anticipate future behavior, model consumer behavior, and make timely decisions, such as asset and liability control. By adopting and fully utilizing BI solutions, institutions can achieve sustained growth, profitability, and a competitive edge in the industry.

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E-Commerce and Business Intelligence

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Abstract

Business Intelligence (BI) has become crucial for organizations due to increased competition and data management complexity. BI systems help organizations understand their vast data, business, and customers, leading to better decisions and higher profits. However, SMEs often struggle to implement BI systems due to various reasons. This paper investigates the performance of e-commerce companies with and without BI, the challenges faced by SMEs, and the reasons why companies do not prefer BI. The analysis shows the benefits of BI, why small-scale organizations cannot use BI systems, and why companies do not prefer BI. The study concludes that companies with a skilled workforce see better results, increasing overall performance.

Keywords: Business Intelligence, E-Commerce, Business Intelligence tools. Business, SMEs.

Introduction

E-commerce and Business Intelligence are powerful tools for businesses to understand consumer behavior, market trends, and consumption patterns. However, challenges such as high implementation costs, support, and lack of focus can restrict businesses from implementing BI. Most e-commerce platforms use Business Intelligence to compete in the marketplace. A study by Nuclear Research found that businesses spend \$10.66 for every dollar spent on BI, resulting in a 1,000% ROI. Using Business Intelligence helps businesses reduce expenses, implement more efficient processes, and use resources more effectively. Some SMEs do not use BI due to challenges and lack of innovation. Some companies still do not use BI due to perceived time and budget constraints. The paper discusses the main components of Business Intelligence, its benefits, challenges, and reasons for not using it.

Methodologies

This study aimed to investigate the performance of companies with and without Business Intelligence in the market, particularly in Small Scale E-Commerce. Secondary data was collected through various methods, including documents and internet papers. No sensitive data was collected, and no surveys or customer involvement were used. Data was collected from existing research papers, short articles, and analytical representations, and no criteria were selected. The research focused on non-numerical data and filtered information from other sources.

Integral Components

Business Intelligence components simplify decision-making processes by acquiring, gathering, analyzing, and reporting data. Online Analytical Processing (OLAP) helps businesses manage vast data collections for strategic monitoring. Advanced Analytics provides dashboards and reports for product or service statistics, making decisions more effective. Real-time Business Intelligence (RBI) helps businesses track market trends and offers special offers. Data

warehousing stores vast data volumes for retrieval and analysis. BI tools create charts, graphs, and tables using collected data.

E-Commerce and SMEs



Figure 1: Key Components of BI.

Business Intelligence in E-Commerce

Business Intelligence (BI) techniques are increasingly being used in the e-commerce industry to collect customer behavior data. This data is crucial for companies to make informed decisions, as it helps them understand customer behavior and make countermeasures. Research shows that 69.82% of online shopping carts are abandoned without full transactions, and 58.6% of online shoppers have abandoned their carts in the past three months. By analyzing this data, companies can identify factors such as long checkout processes, shipping costs, payment security concerns, lack of payment options, product quantity restrictions, and site speed. BI also provides data reports on sales trends based on customer preferences and purchasing behavior, helping companies make more profit in the long run. However, data collection can be challenging due to privacy concerns. Despite these challenges, BI can lead to operational efficiency, gaining an edge over competitors, and providing valuable reports such as inventory reports, sales reports, and marketing reports.

Business Intelligence in SMEs

Small and Medium-sized Enterprises (SMEs) in Europe, with a staff of less than 250, are often hesitant to adopt Business Intelligence (BI) due to financial and human resource constraints. The adoption of BI is low due to the high cost of implementing BI practices, high capital requirements, and the need for advanced knowledge in database modeling and data warehouses. Senior staff may refuse to learn advanced technologies, forcing others to continue using the same tools. Additionally, busyness, commitments, and emergencies can prevent SMEs from adopting BI. Spreadsheets are used by 1 in 5 businesses for data analysis, but many find them difficult to analyze, lose historical data, and share. These challenges hinder SMEs from adopting BI systems due to a lack of skilled workforce, limited budget constraints, and an inability to manage the onboarding process. However, overcoming these challenges can lead to the development of low-cost solutions that can help SMEs make effective decisions in the long run.

Companies without Business Intelligence

Analysts predict a \$100 billion increase in Business Intelligence (BI) spending from 2013 to 2018, indicating a high trend. However, some companies still resist BI due to factors such as improper requirements gathering, impure data, and a build-and-leave-it approach. Improper requirements gathering and poor data quality can lead to slow analysis and incorrect solutions. Additionally, the build-and-leave-it approach can result in accountability issues and a lack of

education on BI usage. A recent study found that BI usage among employees was 22%, indicating a need for better resource utilization.

Tools Used

Analysts predict a \$100 billion increase in Business Intelligence spending from 2013-2018. However, companies resist BI due to improper requirements gathering, impure data, and a build-and-leave-it approach. A recent study found 22% BI usage among employees. The Figure above is a report made in Power BI based on Sales, Average sales, and by country.

Analysis



Business Intelligence can be used by any company, regardless of size. Larger companies have more funds to implement BI practices, while SMEs have lower capital. Despite challenges like implementation costs and time, affordable BI solutions like Datapine, Microstrategy, and SAS Business Intelligence can help SMEs analyze trends and grow into futuristic companies. These tools can help companies analyze trends and grow into successful enterprises.

Conclusion

SMEs generally use BI tools less than large-scale organizations due to budget constraints. However, BI can be effectively used by any company with a skilled workforce. Despite having access to BI, a skilled workforce is crucial for efficient use. Larger companies should educate employees on BI to improve results and reduce internal conflicts. Small-scale companies can use tools to improve efficiency and grow without financial concerns. As companies grow, they can apply other features of BI, ensuring they have potential for competition.

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Sports Business Intelligence

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Abstract

Data: New oil. Raw data useless; needs refining for insights. Knowledge from reports. Business relies on effective decision-making. Sports, big business; investment attracts stakeholders. Business intelligence transforms data into insights, aiding financial performance and competition. Stakeholders: athletes, teams, organizations. The paper explores sports business intelligence.

Keywords: Business Intelligence, Football, Cricket

Introduction

Data is the foundation of modern megatrends, shaping our lives and offering insights into the past, present, and future. Business intelligence collects, analyzes, and reports data for decision-makers, aiding strategy, competition analysis, and forecasting. Sports analytics, sponsorship, broadcasting, and athlete management are all influenced by data, enabling smart decisions and increased visibility.

Sports Business Intelligence

Business intelligence is revolutionizing professional sports by utilizing on-field sensors, wearable technology, statistics, team drafting, and engaging fans to gather live game data, improve fitness monitoring, and enhance team management strategies.

Bi Tools

Cloud-based analytics software offers custom in-game player insights, enhancing fan experience and aiding sports business operations. Tableau's Sports Management Analytics by Tableau empowers coaches to streamline operations, engage fans, and create data-driven dashboards. Boom Stats Analysis (BSA) is a cloud-based platform supporting multiple sports, enhancing team performance and providing opponent stats. SAP Sports One is a sports team management software that enhances collaboration, provides insights into team dynamics, and offers player tracking and development tools. Microsoft Sports Performance is a cloud-based analytics platform customized for athlete and team improvement, featuring predictive modeling, live dashboards for training regimens, video replay, and Power BI Solution Gallery for broadcast coverage. Game-scoring applications like Score Stream simplify game scoring and sharing memories, while Team Sideline is a cloud-based sports league management solution offering scheduling, roster and volunteer management, and payment processing. Team Snap covers a wide range of sports, and Hudl Technique records workouts, practices, and games with digital devices. Coaches can use playlists, slow-motion analysis, and player breakdown tools for feedback. Coaches can also use video analysis tools like Coach's Eye for quick player advancements.

Business Intelligence in Football

Football clubs use Business Intelligence (BI) to optimize revenue, analyze player contracts, track performance, manage injuries, and make strategic decisions. Real-time data monitoring and budget alignment are crucial for financial stability and performance.

Bi Tools for Football

Nacsport

Nacsport is a standout success in the sports industry, with innovative features that capture key moments and engage fans. This football analysis software offers an intuitive timeline for analysts to organize clips effectively. Users can add drawings, compare clips, and generate reports. Coaches share training drills and tailor video clips. The system ensures smooth operation and long-term excellence.

LongoMatch

LongoMatch is a football video analysis tool, providing detailed player statistics, including movements, possession, assists, penalties, goals, fouls, and more. It offers innovative features for real-time analysis and customizable dashboards. Users can export data in various formats. It enables coaches and fans to create presentations, filter video footage, and fulfill their dedicated analysis needs.

Dartfish Football Analysis

Dartfish is football software that turns matches into easily digestible figures, integrating with analytical tools like Opta, SportsCode, and InStat for comprehensive insights. It offers 3D recordings and interactivity for strategy discussions. The program uses AI for highlights, post-game debriefs, and form analysis. It enhances video replays for better decision-making. Whether for training, fan engagement, or pre-match prep, this affordable software is a must-have for winning teams.

Hudl

Hudl is a top online platform for performance analysis. It analyzes videos, tracks stats, and provides custom highlights. Features include ease of use, slow-motion playback, drawing tools, comparisons, and performance reports. Coaches can send videos for expert analysis. It works with standard recording devices, making it accessible and valuable for boosting team performance.

Cricket Business Intelligence

Criclytics enhances cricket player performance and team decisions by providing insights into weaknesses, pitches, and conditions, using high-tech devices and data analytics.

The Challenges: Data Cleaning and Preprocessing.

The growing number of matches in cricket's various forms has led to increased data complexity. Factors like field mapping, player tracking, ball tracking, and shot analysis add to the data's intricacy, making data cleaning and preprocessing more challenging.

Dynamic Modeling

In cricket, data analytics complexity grows with the multitude of variables related to players, the ball, and potential actions. The level of complexity in analytics and modeling depends on predictive questions, data representation, and computation. Factors like ball angle and hitting impact prediction add to the challenges of computation and predictions.

Predictive Analytics Complexity

The predictive analytics query requires highly granular dataset availability and the capability to synthesize data and create generative models that are highly accurate.

Bi Tools for Cricket

Insights by ESPNCricinfo :

Insights, developed by ESPNCricInfo, is a cricket analytics tool leveraging nearly two decades of historical cricket data and statistics. It combines ESPNCricInfo's cricket intelligence with extensive historical data through a comprehensive analytical process.

WASP (Winning and Score Predictor)

WASP predicts first innings scores and chasing team wins in limited-over matches, considering factors like pitch conditions, weather, dismissal probabilities, and venue history.

Visual Analytics powered by Qlik. This application was rolled out for the 2016 IPL.

Qlik developed Qlik Sense, providing viewers with league standings, team analysis, and player performance. This application enabled cricket fans to analyze self-service data and get to know their favorite players and teams.

Win Probability Statistic

Win probability statistics is a specialized metric for cricket, assessing player performance by calculating a team's real-time win probability based on historical data. It offers a comprehensive view of a player's contribution, going beyond traditional statistics like strike rate or batting average.

ScoreWith Data by IBM

ScorewithData accurately predicted Imran Tahir's significant role as the power bowler in a 2015 World Cup quarter-final, where he played a pivotal role in South Africa's victory against Sri Lanka.

Future

Sports management is adopting a 'data culture', monetizing player data for recruiters. Augmented analytics will provide real-time insights, while human experts remain crucial for nuanced analysis, positioning professional sports at the forefront.

Analysis and Conclusion

Business intelligence is a game-changer in the sports industry, transforming it from a physical activity into a data-driven business. Detailed analytics software empowers athletes, coaches, and managers to improve performance. It's applicable across various sports sectors, enabling informed decision-making, revenue growth, and enhanced fan experience. The future of business intelligence in sports is promising, driven by evolving technologies.

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Abstract

This project aims to provide a comprehensive overview of maternal health risks, focusing on Maternal Mortality Ratio (MMR) and various factors affecting women. Factors such as age, blood pressure, and heart rate are significant risk factors for maternal mortality. Analyzing these factors using Orange tool algorithms and a tableau, the dataset was collected from the UCI Machine Learning Repository website and rural Bangladeshi hospitals, community clinics, and maternal health care.

Keywords: Maternal Mortality Ratio (MMR), Systolic BP, Diastolic BP, Orange tool, Tableau and UCIMachine Learning Repository.

Introduction

The Maternal Mortality Ratio (MMR) in India is 113, a serious issue affecting both mothers and children. Factors such as age, blood pressure, and heart rate can classify risk levels and provide necessary measures to avoid them. Understanding the relationship between these factors is crucial for developing effective strategies to tackle MMR. This project aims to provide information on risk levels during maternity, guiding users to take necessary measures to prevent death.

Literature Review

A study by three scholars aimed to identify risk factors for maternal death and trends in maternal mortality in low- and middle-income countries. The research used the Generalized Linear Model and Multivariable Regression Models to analyze the relationship among various features and factors associated with maternal mortality. A study on maternal health in India found that despite safe motherhood policies and national initiatives, maternal mortality rates remain high due to maternal health issues such as severe bleeding, infections, high blood pressure during pregnancy, complications, and unsafe abortions. The WHO published a paper on maternal mortality, highlighting the high mortality rates due to maternal health issues. The Maternal and Child Health Journal published articles discussing factors affecting maternal mortality and providing medications and practices. A scoping review on the impact of the COVID-19 pandemic revealed that pregnant women experience more adverse outcomes compared to others. Multiple interventions, including diet modifications, weight loss, and increased physical activity, were found to be effective in reducing the risk.

Implementation

The Orange dataset consists of 1014 instances and 7 features, with 6 numerical and one categorical target variable. Feature selection is performed based on information gain, with BS being the most important feature. The dataset is split into 8:2 training and test data, with 80% selected for training and 20% for testing. Decision Tree, Gradient Boosting, and Naïve Bayes algorithms are used. Decision Tree is a structure with a root node, branches, and leaf nodes, while Gradient Boosting predicts continuous and categorical target variables. Naïve Bayes Theorem considers features in the dataset as independent as and faster than other algorithms. The model that suits the dataset is identified using the Test and Score technique, which calculates efficiency using measures like AUC, CA, F1, Precision, and Recall. A Confusion

Matrix is developed for the model with the highest Test and Score values. The Prediction technique checks the model's performance using test data. The Tableau implementation involves creating an Excel sheet with test and score values, and data visualization methods like Pie Charts, Bar Charts, and Bullet Graphs.

	#	Info. gain
1	BS	0.356
2	SystolicBP	0.225
3	DiastolicBP	0.103
4	Age	0.093
5	HeartRate	0.048
6	BodyTemp	0.034

Figure 3.1 Feature Selection (Ranking of features)

Decision Tree is a structure with a root node, branches, and leaf nodes, while Gradient Boosting predicts continuous and categorical target variables. Naïve Bayes Theorem considers features in the dataset as independent as and faster than other algorithms. The model that suits the dataset is identified using the Test and Score technique, which calculates efficiency using measures like AUC, CA, F1, Precision, and Recall. A Confusion Matrix is developed for the model with the highest Test and Score values. The Prediction technique checks the model's performance using test data. The Tableau implementation involves creating an Excel sheet with test and score values, and data visualization methods like Pie Charts, Bar Charts, and Bullet Graphs.

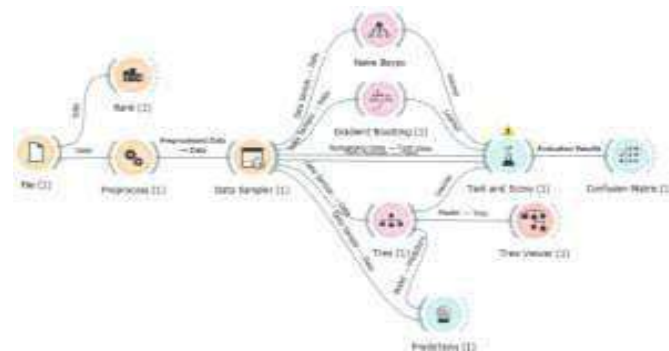


Figure 3.2 Preprocessing and methods performed in Orange

Result and Discussion Model

The implementation of Orange involves a dataset with 1014 instances and 7 features, which can be used to determine the patient's level of risk. The dataset is split into training and test data using an 8:2 ratio, with 80% of the training data being used for training and 20% for testing. The algorithms used are Decision Tree, Gradient Boosting, and Naïve Bayes.

Model	AUC	CA	F1	Precision	Recall
Tree (1)	0.971	0.860	0.859	0.859	0.860
Naive Bayes	0.832	0.711	0.699	0.706	0.711
Gradient Boosting (1)	0.946	0.821	0.818	0.821	0.821

Figure 4.1 Test and Score Measures for Various Models

A Decision Tree is a structure consisting of a root node, branches, and leaf nodes, with each node representing a test on an attribute. Gradient Boosting is a machine learning technique that predicts continuous and categorical target variables, while Naïve Bayes Theorem considers features in the dataset as independent from each other. The Test and Score technique is used to identify the model that suits the dataset, taking into account AUC, CA, F1, Precision, and Recall. A Confusion Matrix is created for the model with the highest values in Test and Score. Prediction techniques are used to check the model's performance, using the test data to check the model's accuracy.

		Predicted			Σ
		high risk	low risk	mid risk	
Actual	high risk	209	4	11	224
	low risk	10	285	34	329
	mid risk	14	41	204	259
Σ		233	330	249	812

Figure 4.2 Confusion Matrix Formed for DecisionTree

Tableau is used to visualize the models, with methods such as Pie Charts, Bar Charts, and Bullet Graphs. Interdependencies among features play a crucial role in selecting the appropriate model for visualization. The Confusion Matrix shows that 209 High-Risk instances were correctly interrupted as High Risk, 285 instances were correctly predicted as Low Risk, and 204 instances were correctly predicted as Medium Risk. The highest error occurred when 41 instances of Medium Risk were identified as Low Risk, but these errors were lower than the above values.

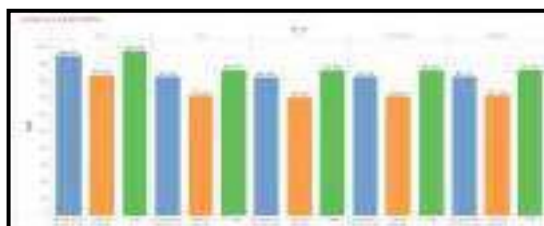


Figure 4.3 Data Visualization of Models using BarChart in Tableau

Conclusion

The project aims to identify the Level of Risk during Maternity using a dataset. The feature selection technique helps understand the relationship between factors and the Target Variable, Blood Sugar (BS). A hike in BS leads to a higher Level of Risk, requiring proper attention and emergency medication. The dataset was analyzed using algorithms like Decision Tree, Gradient Boosting, and Naïve Bayes Theorem, with an accuracy of 97.1%. The model aims to study the relationship between factors and the Level of Risk, enabling the development of necessary measures to overcome MMR issues.

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JOSEPHINE RESEARCHER VI

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Decision Tree-Based Prediction of Heart Failure

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Abstract

This article discusses a data mining application for predicting heart failure cases, highlighting the importance of accurate predictions. The system uses a dataset called "Heart Failure Prediction" and uses various techniques for preprocessing, model building, evaluation, and prediction. The tool used is ORANGE TOOL, with a dataset of 918 observations and 12 attributes.

Keywords: Heart failure, Machine Learning, Data mining techniques, Preprocessing, Model creation, Prediction.

Introduction

Heart failure is a prevalent disease causing blood pressure, cholesterol, diabetes, and hypertension. Early detection can save lives, but late diagnosis can lead to death. This article aims to develop a model using a dataset with high accuracy for predicting heart failure. The dataset includes 12 attributes, including age, sex, chest pain, BP, cholesterol, fasting blood sugar, ECG, and heart disease. The model identifies a close relationship between blood sugar (BS) and the Level of Risk, recommending proper attention and emergency medication. The model uses algorithms like Decision Tree, Gradient Boosting, and Naïve Bayes Theorem, with an accuracy of 97.1%. The model aims to study the relationship between these factors and the Level of Risk, enabling the development of necessary measures and strategies to overcome the issue of MMR.

Literature Review

Previous research has focused on identifying features that contribute to better heart prediction accuracy. Machine learning algorithms such as Logistic Regression, KNN, and Random Forest Classifiers have been used to improve heart disease prediction accuracy. Some studies have shown that each algorithm has its strengths and can be used effectively. For example, a system using KNN with simplified parameters achieved an accuracy of 81.85%. Another system using artificial neural networks in C and C# programming languages achieved an accuracy of 80%. In 2013, S. Vijiyarani et al. developed an efficient classification tree technique for heart disease prediction using Decision Trees, Random Forests, and LMT Tree algorithms. In 2008, Sellappan Palaniappan et al. developed an Intelligent Heart Disease Prediction System (IHDPS) using data mining techniques like Decision Trees, Naïve Bayes, and Neural Networks. The IHDPS is user-friendly, web-based, scalable, reliable, and expandable. In 2012, Nidhi Bhatla et al. proposed a novel approach for heart disease diagnosis using data mining and fuzzy logic, focusing on reducing the number of attributes used in heart disease diagnosis. Ghumbre et al. compared Support Vector Machine and Radial Basis Function (RBF) algorithms for heart disease prediction using a patient dataset in India.

Implementation

This article uses ORANGE TOOL and TABLEAU 2022.2 for data visualization and analysis. The "Heart Failure Prediction" dataset, containing 918 observations and 12 attributes, is used for prediction. The dataset is preprocessed using feature selection to avoid attributes

from preprocessing techniques, such as normalization, which cannot normalize the age attribute. Tableau simplifies raw data into understandable formats.

A.Data Preprocessing

1.Feature Selection

Feature selection is a method used to avoid preprocessing techniques' attributes, such as normalization, by removing the age attribute from the dataset.

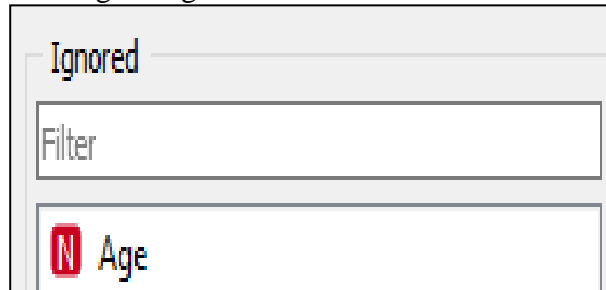


Fig: Feature Selection

2.Norm realization

Normalizing features in data mining reduces the range of attributes, preventing high values from dominating the dataset. This technique applies to all numerical attributes except age, as age cannot be normalized.

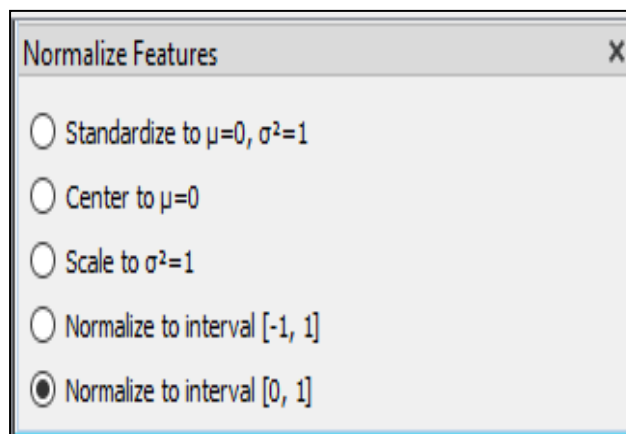


Fig: Normalization Feature

B.Classification Method

The dataset uses four classification methods: Naïve Bayes algorithm, K-Nearest Neighbor algorithm, Decision Tree algorithm, and Random Forest algorithm. K-Nearest Neighbor is a simple, Euclidean distance method used for regression and classification problems.

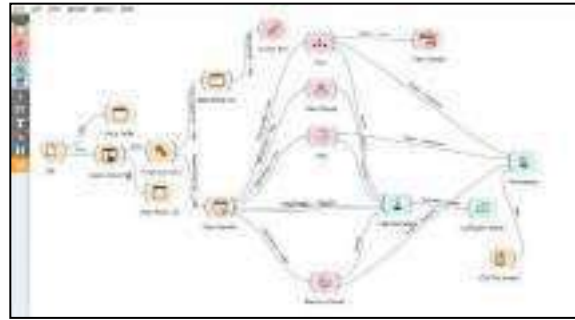


Fig: Model built using orange tool.

Naive Bayes is a supervised algorithm based on the Bayes theorem, assuming independence among predictors. Decision Tree is a tree-like structure used for classification and prediction, creating a tree-like structure using input variables. Random Forest is a supervised algorithm used for both classification and regression, creating a decision tree on sample data and averaging predictions to select the best solution.

$$P(c|x) = \frac{P(x|c)P(c)}{P(x)}$$

Labels: Likelihood, Class Prior Probability, Posterior Probability, Predictor Prior Probability

$$P(c|X) = P(x_1|c) \times P(x_2|c) \times \dots \times P(x_n|c) \times P(c)$$

Fig: Naïve Bayes Theorem

The results of the evaluation results show that the random forest model provides the highest accuracy (96.05%), recall, and precision values compared to other classification models, indicating that it predicts more accurately than other classification models.

Result and Discussion

The "Heart failure prediction" dataset, split into 918 rows, was used for model building and normalization features analysis. Four classification algorithms were used: KNN, Naïve Bayes, Decision Tree, and Random Forest. The Random Forest model demonstrated high accuracy, precision, and recall, making it suitable for predicting the heart failure dataset.

Conclusion

This project aims to build a model that can correctly predict the people who can have heart failure. For that, we created different models and selected one model which was the best. The best model is selected based on which has high accuracy, precision and recall. Here the best model selected is the Random Forest model and the prediction is done using new data given. The model was built using 735 rows of training data and 183 rows of testing data. Using this prediction, we can avoid situations where a person gets heart failure. Predicting heart failure earlier can save the lives of many people. Once the prediction is made, we take the necessary steps so that we can avoid a person's life by preventing risk.

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The COVID-19 Impact on Airport Traffic

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Abstract

The study examines the impact of COVID-19 on airports globally, focusing on Australia and the Northern and Southern American regions. It uses data from the Geotab Data & Analytics Team's "The impact of COVID-19 on commercial transportation and trade activity" to analyze traffic in these countries and their states. The research uses machine learning models like Logistic Regression, KNN, SVM, and Random Forest to predict the country with the highest airport traffic post-COVID-19. Data visualization techniques are used to support the analysis.

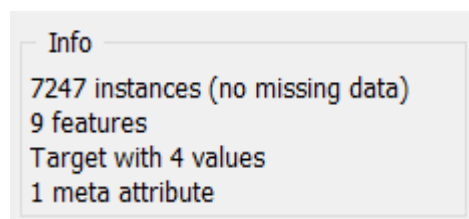
Keywords: Airports, Covid-19, data analytics, data visualization, regression.

Introduction

The COVID-19 pandemic had a profound impact on the aviation industry, causing a dramatic decline in global air travel, resulting in flight cancellations, and airport closures. Airports, integral to economic development, faced severe disruptions, affecting governments, industries, and passengers. The dataset, sourced from Geotab and Kaggle, focuses on airport traffic as a percentage of a baseline period, from February 1 to March 15, 2020, comprising 10 features and 7,247 instances with a four-value target variable. The pandemic led to a 60% reduction in global air travel, with the Middle East, Africa, Europe, and the Americas bearing the brunt, and the Asia-Pacific region experiencing the most significant drop in flight operations. Estimates by the Airport Council International showed over 50% passenger traffic loss and a 57% decline in air operation revenues in 2020. However, by mid-July 2020, air traffic began to rebound as the industry adapted to the new normal, prompting this study to examine the changing airport operational activities in the context of resuming air travel.

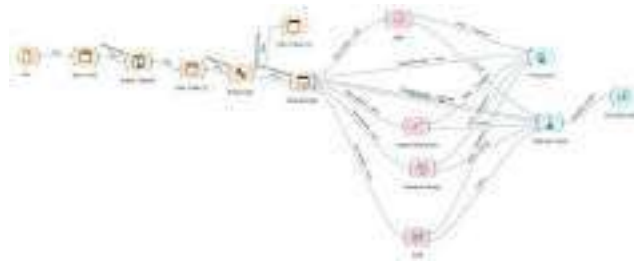
Implementation

The dataset used for the Data Visualization and Analysis holds about 11 features and 7247 instances. Out of these 11 features, one feature determines the possibility of being the target objective.



(Fig 3.1)

The chosen dataset predominantly comprises categorical variables, with only one numeric variable, aiming to predict airport traffic volume in major North American airports. Feature selection is crucial, and 'Percent of Baseline' stands out as a key feature influencing predictions, particularly concerning the 'Country' variable. No missing or irrelevant data required preprocessing. The dataset was divided into a training and test set with an 80% to 20% ratio. Using the Orange Tool, the different Classification, Regression, and Prediction models were used.



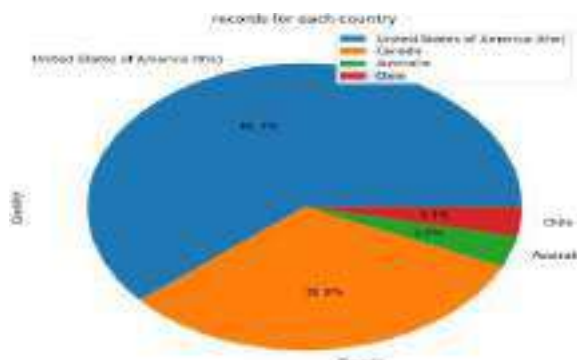
(Fig 3.2)

These results were computed for the Test and Score Evaluation and a conclusion was found that in all the 4 models Logistic Regression has a greater Accuracy with AUC of 72% and CA of 69%.

Model	AUC	CA	F1	Precision	Recall
GBM	0.681	0.662	0.672	0.683	0.662
RFM	0.575	0.453	0.528	0.600	0.463
Supportive SVM	0.718	0.603	0.659	0.695	0.603
Logistic Regression: ELM	0.720	0.690	0.705	0.692	0.690

(Fig 3.3)

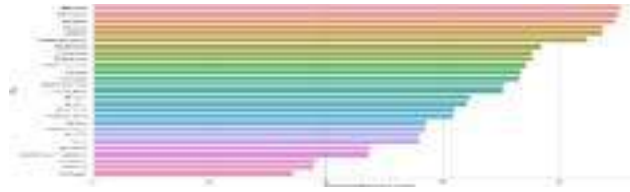
Python code was used to process a dataset containing both object and integer data types, including features like Aggregation Method, Date, Version, Airport Name, Percent of Baseline, Centroid, City, State, ISO_3166_2, Country, and Geography. Irrelevant columns were dropped, and a new 'weekday' column was created based on the 'Date' feature. The dataset had 28 airports linked to 4 countries, and the Percent of Baseline measured daily traffic from February 1, 2020, to March 15, 2020. Country-wise analysis revealed Australia and Chile had only one state and airport with regular daily traffic, while Canada and the USA had a more extensive presence. The Percent of Baseline ranged from 0 to 100%. To plot the no of countries with the count of records, a pie chart was used. (Fig 4.1)



(Fig 4.1)

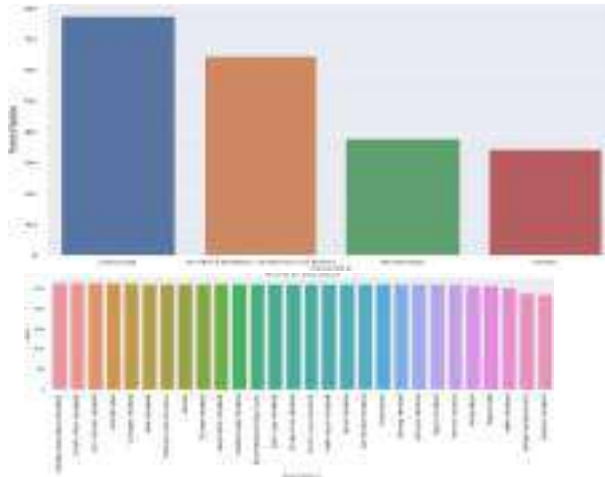
This pie chart gave the max count as 61.3% for the country ‘Canada’. And the lowest for ‘Chile’ with 3.3% of records.

To plot quick information regarding the city, state, country, and Airport Name with respect to its Percentage of Baseline the Barplot was used. (Fig 4.2)

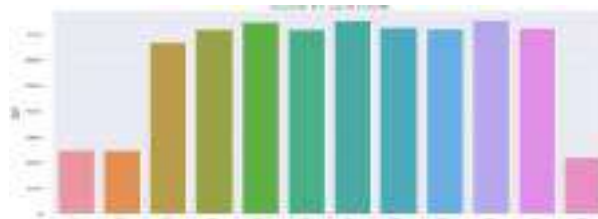


(Fig 4.2)

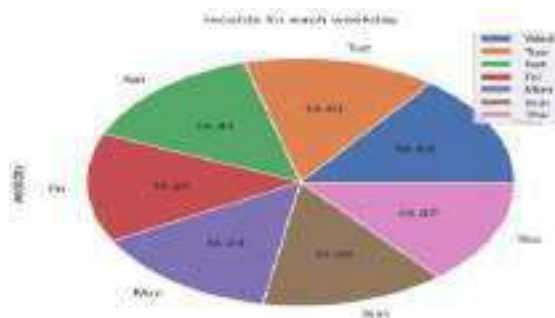
To plot the no of records at each airport, a count plot was executed, which showed that almost all the Airports ranged from 50-250. (Fig 4. 2)



To plot the records per month ie, to know the amount of traffic in months from Jan-Dec, a count plot was plotted which, which shows that the months Jan, Feb, and Dec had lesser traffic while months May, August, and October had similar and same amount of traffic i.e., a bit higher than the other 3 months. The rest of the months had a count of 100-700 range with all similar wavelengths. (Fig 4.3)



When the weekday values were counted, it showed that Tuesday and Wednesday were the days that had more traffic compared to the other days.



The Model creation begins with the analysing of test and train data to implement it. At first, the data was split into Test and Train Scores so that the variables are properly utilized.

```

#y1() return:

#Train Dataset: Used to fit the machine learning model.
#Test Dataset: Used to evaluate the fit machine learning model.
#Train: 80%, Test: 20%
# get the variables

X = air[['PassengerVolume']]
Y = air['Country']

from sklearn.model_selection import train_test_split
X_train, X_test, Y_train, Y_test = train_test_split(X, Y, test_size=0.2)

```

Logistic Regression

Logistic regression is a linear classifier used in machine learning for binary classification and multiclass problems. It is a statistical method that uses a dichotomous dependent variable to explain the relationship between it and one or more independent variables. The logistic function, or sigmoid function, is central to logistic regression, providing output values ranging between zero and one. It shares similarities with linear and polynomial regression.

Random Forest Classifier

Random Forest Regression is a machine learning technique that uses multiple decision trees to improve predictive accuracy in regression and classification tasks. It uses Bootstrap and Aggregation to create a forest of decision trees, increasing stability and accuracy. The approach involves random sampling of dataset rows and features to form individual models. To apply it effectively, follow standard machine learning steps, including defining questions, obtaining data, addressing anomalies, creating and training models, evaluating performance, refining models, updating data, or exploring alternative techniques.

Random Forest Regressor

Random forests are a versatile supervised machine learning algorithm that excels in classification and regression tasks. They consist of multiple decision trees constructed on randomly selected data samples, each providing predictions. The outcome is determined through a voting mechanism, enhancing accuracy and mitigating overfitting. Random forests are particularly effective in classification problems, as they combine the results of individual trees.

Support Vector Machine

Support Vector Machines (SVMs) are supervised learning techniques used for classification, regression, and outlier detection. They represent data points in an n-dimensional space, with each feature corresponding to a specific coordinate. The primary objective is to identify a hyperplane that effectively separates two classes. Support Vectors are the coordinates of individual data points closest to the decision boundary, playing a crucial role in defining the optimal hyperplane in SVM classification.

K-Nearest Neighbors Algorithm

K-Nearest Neighbors (KNN) is a versatile machine-learning algorithm used for regression and classification tasks. It calculates distances to nearest neighbors in the dataset and assigns points to groups. In this case, a K value of 5 was chosen and the Euclidean distance method was used. Data visualization was done using Tableau, Maps, and charts to plot the target variable and its dependent variable.

Result

The COVID-19 pandemic significantly impacted airport traffic in Canada, with a maximum reduction of 0.741% compared to the baseline. This trend aligns with geographic coordinates,

as Canada had higher values than the other three regions. Both Canada and the USA had the highest COVID-19 impact counts on airport traffic. Hamilton International in Canada was the busiest airport, operating at 0.9% of the baseline. Manitoba had the highest baseline of 0.9016, while Hamilton had the highest baseline of 0.9043%. The most challenging period for airport traffic was from August to December 2020, with a slight improvement in October and December. Daily traffic increased on Mondays and Tuesdays, with October having the highest traffic count at 868.

Conclusion

The COVID-19 pandemic significantly impacted the economy, particularly the airline industry. The IMF projected 6.1% global economic growth in 2021 but expected a moderation to 3.6% in 2022 and 2023. The pandemic caused a 4.6 billion passenger reduction in 2021, with global airports experiencing a 10.2 billion passenger decline. However, it was predicted that global passenger traffic would recover to 77% of 2019 levels in 2022, with a full recovery expected in 2024.

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Prediction and Visualisation of Used Car Price

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Abstract

This paper aims to create a system that predicts a used car's selling price using various factors such as year of manufacture, torque, power output, engine capacity, and seating capacity. The goal is to create multiple prediction models, select the most accurate model, and use data visualization to compare their accuracy. The paper uses Tableau (2022.2) and the Orange tool (v3.31.1) with a Kaggle website dataset. The target variable, selling price, is one of 12 characteristics in the dataset, which has 8128 rows. The goal is to make the model useful and accessible for users.

Keywords: Ada Boost, Random Forest, Gradient Boosting, Tree.

Introduction

The post-COVID era has led to a shift in car ownership, with many opting for used vehicles over new ones due to financial benefits. The lockdown has made it easier for families to commute, but setting a price for a used car can be challenging due to various factors such as age, engine capacity, power, and torque. This paper aims to develop a model that can estimate a used car's value, helping buyers and sellers determine its worth. The model takes into account factors like model year, miles driven, fuel type, seller type, mileage, engine capacity, maximum power, maximum torque, number of seats, and transmission type. The models are then used to forecast an automobile's selling price, with the target variable being the selling price, which is one of the 12 features in the dataset. The model offers the highest degree of accuracy, with 1.1% of the values missing.

Methodology

Data Preparation

This dataset contains information about used cars. This data can be used for a lot of purposes such as price prediction to exemplify the use of linear regression in Machine Learning. The columns in the given dataset are as follows: 1. name (text) 2. year (numeric) 3. selling_price (numeric) 4. km_driven (numeric) 5. fuel (categorical) 6. seller_type (categorical) 7. transmission (categorical) 8. Owner (categorical) 9. Mileage (numeric) 10. engine Converting text values into values in Excel (numeric) 11. power in bhp (numeric) 12. torque in Nm (numeric) 13. seats (numeric). In the data we have acquired attributes like mileage, engine capacity, maximum power, and torque are given in text data type as the units of all these values are also given in the columns therefore we convert them into numerical values using the find and replace feature of Microsoft Excel.

Data Pre-Processing

Missing Value Imputation

The replacement of a missing value is known as missing data imputation, or simply imputing.

The simplest approach to handling missing data is to remove the entries that have missing val

ues. This is the best course of action in this case since there are over 8000 instances and removing the rows that have missing values will only reduce the number of rows to 7906. We remove the rows with missing values because replacing the data with the most frequent or average values may alter the data in undesired ways.

Outlier Detection

There are outliers in the data and if the outliers are not removed from the data then the data can give unexpected and unwanted results therefore it is necessary to remove the outliers.

Converting Categorical to Numeric Value

The attributes like seller type and transmission type should be converted to numerical type from categorical because it is necessary to convert nominal data to ordinal data.

Implementation

Tableau

It is the leading visualization tool used for data analytics and business intelligence. It was started by an American Company in 2003. It supports powerful data discovery and exploration of data.

Orange

Orange is a data mining software and was developed by scientists at the University of Ljubljana in 1997. The widget is a user-friendly one that helps users to read data, display the data in table and graphical format, feature selection, comparison, and visualization of items.

Python

Python is an object-oriented, interpreted, high-level programming. It was created by Guido van Rossum and was released in 1991. It is mainly used for web development, software development, mathematics, and system scripting.

Classification Models

Gradient Boosting

The gradient boosting algorithm is one of the most powerful algorithms in the field of machine learning. Gradient boosting is one of the boosting algorithms used to minimize the bias error of the model. Gradient boosting algorithm can be used for predicting not only continuous target variable (as a Regressor) but also categorical target variable (as a Classifier). When it is used as a regressor, the cost function is Mean Square Error (MSE) and when it is used as a classifier the cost function is Log loss.

Random Forest

Random forest is a Supervised Machine Learning Algorithm that is used widely in Classification and Regression problems.

Steps involved in the random forest algorithm:

Step 1: In the Random forest, n number of random records are taken from the data set having k number of records.

Step 2: Individual decision trees are constructed for each sample.

Step 3: Each decision tree will generate an output.

Step 4: Final output is considered based on Averaging for regression.

Random forests are created from subsets of data and the final output is based on average or majority ranking hence the problem of overfitting is taken care of. It is comparatively slower. Random forest randomly selects observations, builds a decision tree, and the average result is taken. It doesn't use any set of formulas.

In Orange, we can set the number of individual trees to be built in Random Forest and the accuracy increases as we increase the number of trees up to a certain point and remains constant. However, increasing the number of trees decreases the performance of the process.

Decision Tree

A decision tree is a supervised learning algorithm and is used to make changes to both classification and regression problems. The aim of employing a Decision Tree is to form a training model that will be used to predict the category or value of the target variable by learning simple decision rules inferred from prior data (training data).

Ada Boost

AdaBoost also called Adaptive Boosting is a technique in Machine Learning used as an Ensemble Method. The most common algorithm used with AdaBoost is decision trees with one level which means with Decision trees with only 1 split. These trees are also called Decision Stumps. What this algorithm does is that it builds a model and gives equal weights to all the data points. It then assigns higher weights to points that are wrongly classified. Now all the points that have higher weights are given more importance in the next model. It will keep training models until and unless a lower error is received.

Performance Evaluation Criteria

These four models were chosen from many of the prediction techniques. Now we need to further evaluate these models for a more precise conclusion

The performance is evaluated mainly based on four factors they are:

Mean Squared Error

The mean squared prediction error measures the expected squared distance between what your predictor predicts for a specific value and what the true value is. It is thus a measurement of the quality of a predictor.

$$\text{MSE} = \frac{1}{n} \sum_{i=1}^n (Y_i - \hat{Y}_i)^2$$

Root Mean Squared Error

Root Mean Square Error (RMSE) is the standard deviation of the residuals (prediction errors). Residuals are a measure of how far from the regression line data points are; RMSE is a measure of how spread out these residuals are. In other words, it tells you how concentrated the data is around the line of best fit. Root mean square error is commonly used in climatology, forecasting, and regression analysis to verify experimental results.

$$\text{RMSE} = \sqrt{\frac{\sum_{i=1}^N (x_i - \bar{x}_i)^2}{N}}$$

Mean Absolute Error

Mean Absolute Error is a model evaluation metric used with regression models. The mean absolute error of a model concerning a test set is the mean of the absolute values of

$$\text{MAE} = \frac{\sum_{i=1}^n |y_i - x_i|}{n}$$

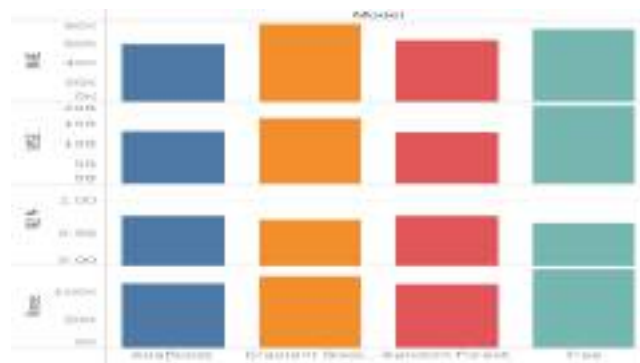
R-squared

The predicted R-squared indicates how well a regression model predicts responses for new observations. This statistic helps you determine when the model fits the original data but is less capable of providing valid predictions for new observations. The value of R-squared is desired to be always near to one.

$$R^2 = 1 - \frac{RSS}{TSS}$$

Result & Conclusion

The original Car Price Prediction dataset that contained 8128 rows and 12 features was found to have 1.1% missing values. Removing rows with missing values brought it down only to 7906 instances. After outlier analysis was done to further increase the quality of the dataset the number of instances was further brought down to 7052. The original Dataset was divided into test and train datasets in the ratio of 80% to 20%. In this 80% was used to train the model and 20% was used to test the model. Data Visualisation was used to analyse which model was best suitable for this dataset.



In this paper, a comparison was made between different prediction models for a certain dataset and Random Forest Regression was found to be the best one for this dataset.

Orange data mining software and Tableau were successfully employed for an application in the field of used car price prediction. This can help used car dealers, online used car websites and so on to predict the value of a used car when certain data about it is given.

The paper's goal is to build a prediction model that can predict the price of a car when given certain data about it done

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JOSEPHINE RESEARCHER VI

Part II

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Multi-Dimensional Health Locus of Control in Cancer Patients

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Abstract

The study investigates the health locus of control among cancer patients in the Idukki district using a descriptive method and convenience sampling. Data was collected from 100 individuals, focusing on the association between age, gender, and family type with health locus of control. The findings show a significant relationship between age and health locus of control, with a noticeable change observed as individuals aged 51 to 70 advance in age.

Keywords: Health locus, locus of control, cancer, cancer patient.

Introduction

Health locus of control refers to the belief that health is in one's control (internal control) or is not in one's control (external control). Health locus of control (LOC) reflects people's beliefs about who or what is responsible for the management of their health condition. LOC may influence a person's health behaviors and can therefore influence health outcomes. Locus of control (Rotter 1966) refers to an individual's beliefs about the extent of control that they have over things that happen to them. The more anxious or depressed a person is, the more external their locus of control tends to be, and a greater external locus of control is associated with a greater vulnerability to physical illness. Throughout a psychotherapeutic intervention, the locus of control tends to become more internalized.

Health Locus of Control

Health locus of control refers to an individual's belief about the extent to which they have control over their health outcomes. In the context of cancer patients, it is a concept that explores their perceived control over the onset, progression, and management of their disease. Understanding the health locus of control in cancer patients is crucial as it can greatly impact their mental well-being, coping mechanisms, and treatment adherence.

One aspect of the health locus of control in cancer patients is the internal locus of control. Individuals with high internal locus of control tend to believe that they have a significant role in their health outcomes. They may believe that their lifestyle choices and behaviors can influence the progression of their cancer and that they have control over the effectiveness of their treatment. This sense of control can be empowering for cancer patients, enabling them to engage actively in their treatment and adopt healthier behaviors that can improve their overall well-being.

On the other hand, cancer patients with an external locus of control tend to believe that external factors, such as fate, luck, or the decisions of healthcare professionals, determine their health outcomes. These individuals may feel helpless and perceive their cancer as something beyond their control. This can lead to feelings of anxiety, depression, and reduced motivation to follow treatment plans. Therefore, helping patients shift towards a more internal locus of control can be beneficial in empowering them and increasing their sense of control over their health.

It is worth noting that the health locus of control can be influenced by various factors, such as cultural beliefs, previous experiences, and the level of social support available to the patient. Healthcare providers play a crucial role in supporting cancer patients in developing a sense of internal locus of control. By providing clear and accurate information about their diagnosis, treatment options, and self-care strategies, healthcare professionals can empower patients to take an active role in their cancer journey. Additionally, fostering a supportive and collaborative relationship between the patient and the healthcare provider can further enhance the patient's perception of control and their ability to cope with the challenges of cancer.

The health locus of control in cancer patients is a significant factor that affects their mental well-being, coping mechanisms, and treatment adherence. Understanding whether individuals perceive their health outcomes as under their control or influenced by external factors is essential in providing appropriate support and interventions. Empowering cancer patients with an internal locus of control can enhance their engagement in their treatment and improve their overall quality of life. Healthcare providers have the responsibility to facilitate this shift towards an internal locus of control through clear communication, provision of accurate information, and emotional support.

This refers to the belief that individuals have regarding their ability to control their health outcomes. When it comes to cancer patients, this can play a crucial role in their overall well-being and treatment journey. Some may possess an internal locus of control, which means they believe they have the power to influence their health through lifestyle choices and adherence to treatments. On the other hand, some cancer patients may exhibit an external locus of control, feeling that luck or fate is responsible for their health outcomes. Research suggests that those with a strong internal locus tend to have better psychological adjustment during treatment, while those with an external locus may experience increased anxiety and lower quality of life. Understanding these differing perspectives is important for healthcare providers to tailor interventions accordingly and empower patients on their path toward overcoming cancer.

Results & Discussions

Cancer is a disease that is related and restricted to the body of an individual hence any patient can be approached with a similar treatment approach with subtle variations related to the location of the cancer and its severity. Treatment of cancer cannot be done in isolation, it needs to consider the bio-psych social model of health and need to consider individual differences. 8 Individuals differ widely with respect to their cognitive and emotional aspects. The cognitive aspects like attention, perception, memory, learning, reasoning, problem-solving, decision-making, etc, and their emotional aspects are particularly related to their emotional triggers, emotional expressions, and emotion regulation aspects. It is because of these reasons individuals will have their perceptions of health and illness, the causal factors for their illness, controlling measures, perceived effect of disease on their quality of life. Here we discuss the emotional competence and health locus of control in cancer patients. The results found that there is a significant difference in health locus of control based on gender is more common among females than males.

When considering the health locus of control of cancer patients in a specific age group, numerous factors come into play. Firstly, it is crucial to acknowledge that young cancer patients encounter unique obstacles as they navigate their diagnosis and treatment. They often grapple with feelings of fear, isolation, and uncertainty about their future. Moreover, these

individuals may have limited life experiences compared to older patients, which can exacerbate the emotional toll of cancer.

The concept of health locus of control refers to an individual's belief in their ability to control their health outcomes. When examining this concept in cancer patients based on age, different patterns can be observed. Younger cancer patients, typically in their twenties or thirties, tend to have a higher internal locus of control. They usually have a strong belief that they can influence their health outcomes through their actions, such as adhering to treatment plans, adopting a healthy lifestyle, and participating in support groups. This may be attributed to their relative youth, which often comes with a sense of empowerment and confidence to overcome challenges. On the other hand, older cancer patients, typically in their fifties or sixties, may have a higher external locus of control. They may believe that their health outcomes are largely influenced by external factors, such as medical professionals, medications, or luck. This could be due to the cumulative experiences of health issues they have encountered throughout their lives, leading to a perceived lack of control over their health.

Nevertheless, it is important to note that these patterns are not absolute and individual variations exist within each age group. Factors such as personal characteristics, previous experiences, and support systems can influence an individual's health locus of control regardless of age. Understanding these variations is crucial for healthcare providers to tailor their approach when working with cancer patients. Empowering younger patients by highlighting their control over their health can aid in their engagement with treatment plans and promote better outcomes. Older patients may benefit from interventions that focus on fostering a sense of control and providing support to manage any perceived lack of control. Overall, considering the age-specific health locus of control can contribute to more personalized and effective cancer care.

Conclusion

The study reveals that younger cancer patients have a higher internal locus of control, focusing on their actions as central to their health outcomes, while older patients attribute their well-being to external factors. Males generally have a stronger internal health locus of control than females. Family type also plays a role, with nuclear families having greater internal control over their health, while single-parent households tend to have an external outlook. These findings underscore the need for tailored support and interventions for cancer patients based on age, gender, and family structure to enhance their empowerment and involvement in managing their illness journey.

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Business Analytics for Rail and Metro Services

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Abstract

The increasing global fuel prices, pollution, and high traffic density have led to a growing dependence on Metro Rails, particularly in cities. These trains are efficient, cheaper, reliable, secure, and quick for millions of people. To improve service, Business Intelligence Methods are used to analyze various aspects of metro trains, such as audience preferences and traffic time. By analyzing these reports, proper decisions can be made to improve service, meet people's demands, and make profits by targeting the right audiences. The literature provides various Business Intelligence methodologies for analyzing Metro Systems.

Keywords: Metro rail, business intelligence, transportation, warehouses, innovation.

Introduction

Information Technology is revolutionizing businesses by enabling them to process large data volumes, improve strategies, and enhance effectiveness. Business Intelligence (BI) is a technology-driven process that collects, analyzes, and visualizes data to make informed decisions. The ultimate goal is to drive better business decisions, increase revenue, improve performance, and gain a competitive advantage. In the transportation sector, particularly Metro Rail Services, BI is essential for analyzing data and making informed decisions to improve services. With rising fuel prices, pollution, and traffic density, understanding customer demands and providing necessary insights are crucial for increasing revenue. This paper discusses the methodologies used to apply BI in metro services, presents a sample analysis of the Indian Metro Dataset, and discusses the challenges and benefits of each methodology, including the steps taken and difficulties faced in implementing them.

Methodologies

BI Methods

To gain a competitive advantage, businesses need to understand market trends, customer wants, and consumer attitudes. Data collection is the first step in gathering business intelligence, which can be done using data warehouses or other sources. The data is then preprocessed to ensure it is clean and organized for application of Business Intelligence methods. The second step is analysis, where the need for analysis is understood and the data is analyzed. This involves understanding the situation and purpose of the data, such as a company's revenue generation issue. Business Intelligence methods can help identify areas for improvement and improve revenue.

Sophisticated analytical tools can be used to collect and analyze data, allowing organizations to better understand customer thoughts and identify areas for improvement. Reporting and presentation are crucial for understanding the meaning of measurements, as poor interpretation can lead to critical commercial, operational, and marketing issues. Real-time data monitoring and analysis are essential for businesses to remain competitive and make informed decisions.

Metro Data Collection

Metro data collection follows the Business Intelligence Methodology, involving visits to stations and collecting information like date, time, temperature, holiday, gender, and people type. However, this data may contain incorrect information, requiring correction. Data can be gathered from data warehouses or repositories like Kaggle. The collected data must have all necessary parameters for analysis, such as the time of day people use the metro. Data preprocessing handles missing fields and normalizes data to a specific unit, ensuring accuracy and relevance in reports and insights.

Significance of Analysis

Business Intelligence is crucial in understanding usage patterns of metro services, such as time, age group, gender, and traveler type. By analyzing this data, businesses can improve their strategies and increase profits. For example, identifying peak usage times can increase services and improve service. In the metro services industry, business intelligence implementation is essential for understanding customers. Success factors include project management, clear planning, reliable managerial backing, data quality and management, matched solutions to customer needs, performance considerations of the BI system, and a stable and scalable structure. These elements contribute to the success of business intelligence implementation in the metro services industry.

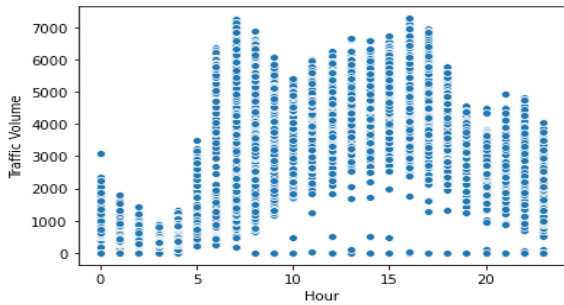
Analysis Report

The Indian Metro Dataset, sourced from Kaggle, was analyzed to gain insights into the Delhi Metro Services' Metro Details from 2017. The dataset, collected in 2017, includes core information like peak hours and day and time trends, with attributes such as location, time, and station details.:

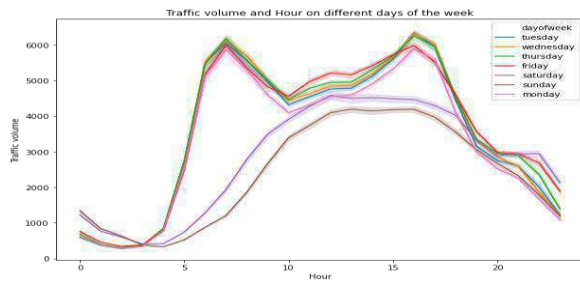
date_time	Date, time, and hour of the data that is collected in the local IST time
is_holiday	Categorical Indian national holidays combined with regional holidays
air_pollution_index	Air Quality Index (10-300)
Humidity	Numeric humidity in Celsius
wind_speed	Numeric wind speed in miles per hour
wind_direction	Cardinal wind direction (0-360 degrees)
visibility_in_miles	Visibility of distance in miles
dew_point	Numeric dew point in Celsius
temperature	Numeric average temperature in Kelvin
rain_p_h	Numeric amount in mm of rain that occurred in the hour
snow_p_h	Numeric amount in mm of snow that occurred in the hour
clouds_all	Numeric percentage of cloud cover
weather_type	Categorical short textual description of the current weather

weather_description	Categorical longer textual description of the current weather
traffic_volume	The density of people

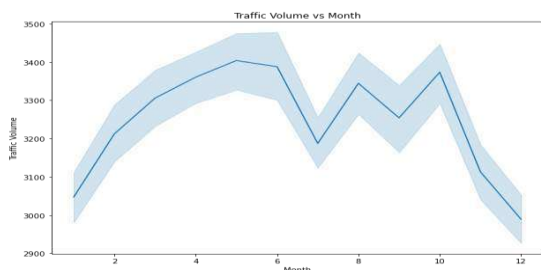
Scatter graph for traffic volume



The largest traffic of the day is seen around 7 am and 4 pm, which are the normal hours for students and office workers. This information may be seen by creating a scatter graph for traffic volume and hour. Many college-bound kids depend on the metro as their primary mode of transportation every day to get to and from school on schedule.



By looking at this graph, it is clear that weekends, namely Saturday and Friday, have lower traffic volumes than other weekdays. This is clear given that most people utilize the metro to commute on weekends when schools, universities, and offices are closed. As a result, traffic volume on weekends is lower than on weekdays. These are some of the core basic analyses that can be done with this data. Not only this but so many insights can be made which help to make a proper and meaningful decision.



The monthly traffic volume is shown as a line graph, with November, December, and January having the least traffic due to end-of-term exams. To increase revenue in metro services, it is suggested to slightly increase prices during peak hours (7 AM and 4 PM), which would not decrease customer numbers but increase revenue. A small increase of 10 rupees can significantly impact thousands of customers traveling, demonstrating the potential for business intelligence to significantly increase revenue or profit.

Conclusion

Business Intelligence (BI) is crucial for various industries, requiring a successful corporate work culture and utilizing the best human resources, technology, and business processes. Senior-level business sponsorship is essential for BI projects, and organizations must create a unified BI infrastructure using ERP investments and performance plans. BI is especially important for peak services like Metro and Rails, and businesses must build on their current knowledge management to keep their BI projects evolving.

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JOSEPHINE RESEARCHER VI

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A Predictive Study of Vehicle Insurance Purchases

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Abstract

This paper focuses on predicting vehicle insurance interest based on health insurance customer data. Insurance claims pose a challenge for insurance companies, and understanding target market demographics is crucial. Machine learning methods are used to mine data information, helping companies adjust their insurance sales strategies. The study aims to build a machine-learning model that classifies and predicts vehicle insurance claim status. By analyzing health insurance customer data, various predictive models are implemented to choose or change selling modes, and advertisements are activated for customers interested in auto insurance.

Keywords: Vehicle Insurance Claim, Machine Learning, Random Forest Regression Gradient Boosting, Purchase, Prediction

Introduction

The increasing reliance on automobiles has led to a need for insurance policies to compensate for loss, damage, illness, or death. Insurance companies face challenges in risk assessment, policyholder classification, resource allocation, insurance claim classification, and prediction in the insurance claim handling process. Cross-selling is a crucial method for insurance companies to grow their profit, as it builds relationships with customers and helps them understand the quality of service. Analyzing health insurance data helps insurance companies approach customers for vehicle insurance. Processing large amounts of insurance claim data requires computational tools, including machine learning approaches. This data can be structured, unstructured, or semi-structured. The main objective of this study is to build machine learning models for prediction and analyze status prediction in machine learning techniques. This will help insurance companies distribute advertisements and information about their insurance to their target group based on customer needs, ultimately achieving utility successfully.

Materials and Implementation

Development Tools

The model creation and prediction process utilize Anaconda Navigator and Python programming. The tool allows access to Jupiter Notebook, import scikit-learn framework, and Python programming for data processing. Statistical summary, correlation, and graphic data analysis are performed on the provided dataset. Initial data analysis includes statistical descriptions like mean, min, max, standard deviation, and quartiles. Tableau Visualization is used for model representation.

Data Collection

The data collected for the prediction of vehicle insurance is the Health Insurance dataset of the customers of the company. Health Insurance Cross-sell Prediction data is used to predict the response of the customer to the new vehicle insurance policy.

Dataset Description

```
df.describe()
```

	id	Age	Driving_License	Region_Code	Previously_Insured
count	381109.000000	381109.000000	381109.000000	381109.000000	381109.000000
mean	18052.000000	30.022584	0.967906	28.308007	0.438219
std	14018.030000	11.811811	0.248116	15.220088	0.498205
min	1.000000	20.000000	0.000000	1.000000	0.000000
25%	30278.000000	25.000000	1.000000	16.000000	0.000000
50%	18052.000000	30.000000	1.000000	28.000000	0.000000
75%	28082.000000	40.000000	1.000000	35.000000	1.000000
max	30109.000000	85.000000	1.000000	81.000000	1.000000

Fig 1: Statistical Description of the Dataset

The Health insurance dataset consists of the data of the customers who are provided with Health insurance. This data set is used in building the model to predict whether the health policyholders will be interested in Vehicle Insurance Provided by the same company. In this dataset, we have 381109 records or instances of the health insurance customer’s information. These records are within the total number of twelve attributes. The target value of the health insurance dataset is the Response of the customers (in the form of 1s and 0s)Table 1. The dataset is a mixture of Numerical and categorical datatypes (Float, int, object).

Data Preparation Technique

Data processing techniques such as data cleaning, integration, normalization, and transformation were used to prepare the data set for accurate prediction. The heatmap was used to identify the correlation of each attribute with the target column, and highly correlated columns was taken as dependent data. Supervised learning is a type of machine learning that uses labeled data to create a model and predict the output. It can be used for risk assessment, image classification, fraud detection, and spam filtering. Supervised learning uses various algorithms to create the model and identify new data to produce results. The difference between classification and regression is that classification results in a fixed value, while regression allows for any value within the data set range as the dependent data as shown in Fig. 3.



Fig 3: Heat map to determine the correlation of the attribute with the target attribute

Random Forest

Random forest is a model that works with multiple decision trees. To get the optimum result we have to choose the majority among the values as the best value. Random forest is mainly used in remote sensing to predict the accuracy of the data. The Random Forest is used for the regression because it can handle the continuous variables. In the case of the random forest, only the subset of the features is taken into consideration for splitting a node.

Gradient Boosting

Gradient boosting is a supervised Learning method in Machine Learning. It consists of parallel tree boosting and is the library for regression, classification, and ranking. In Python gradient, boosting is implemented with the open-source library known as XGBoost. These algorithms

are used to train particular data that have labels and then use the model to predict new data (fig 4). The way the tree is built and combined is different from the Random Forest. Gradient Boosting helps us to identify the relevant and most influencing attribute in the dataset. The properties which influence choosing this are 1) Consistency and 2) Accuracy.

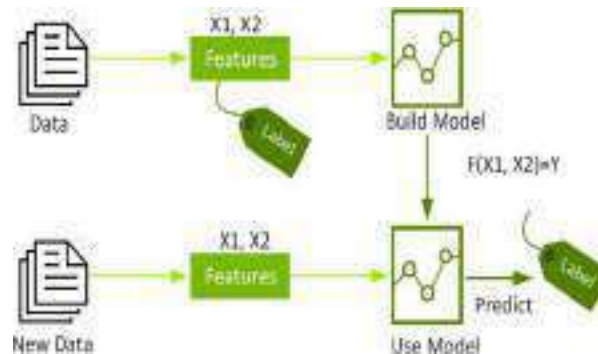


Fig 4: Gradient Boosting

Model Performance Evaluation Methods

Machine Learning uses evaluation metrics and classification reports to evaluate the performance of algorithms and target predictions. Confusion metrics, a two-dimensional table, explain predicted values using performance metrics like True Positive, True Negative, False Positive, and False Negative. To analyze and confirm the model, confusion metrics, accuracy, precision, recall, and F-score are considered. Accuracy evaluates the accuracy of predicted values, while precision measures the accuracy of predicted values. These metrics help in infer how models help in predicting targets. The recall rate of measures the proportion of the true value matched by the model among the total true values (fig 5).

<i>precision</i>	=	$\frac{TP}{TP + FP}$
<i>recall</i>	=	$\frac{TP}{TP + FN}$
<i>F1</i>	=	$\frac{2 \times precision \times recall}{precision + recall}$
<i>accuracy</i>	=	$\frac{TP + TN}{TP + FN + TN + FP}$
<i>specificity</i>	=	$\frac{TN}{TN + FP}$

Fig 5: True value table

Results and Discussion

The study uses Random Forest and gradient-boosting models for target prediction. The data set is divided into training and testing data. The model is trained with the training data and the correctness is checked through testing. Evaluation metrics and classification reports are used. The confusion matrix reveals that 65727 customers were not interested in purchasing new vehicle insurance, 1119 were not, 8623 were interested, and 753 were precited wrong. The classification report shows an accuracy of 87.3% and a precision of 88%, indicating the model's prediction is correct. To handle unbalanced customer data, the ROC-AUC curve is plotted, representing the probability of a positive being positioned to the right of a random negative. This model shows an AUC of 84.20 (fig 8).

```
Confusion Matrix:
[[65727  1119]
 [ 8623   753]]
```

Fig 6: Confusion Matrix

```

Classification Report is:
      precision    recall  f1-score   support

0       0.88       0.98       0.93       66846
1       0.40       0.08       0.13       9376

accuracy: 0.87 76222
    
```

Fig 7: Classification Report

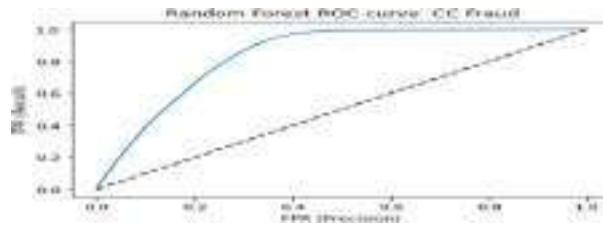


Fig 8 : ROC curve

Whereas comparing the random Forest model with the Gradient Boosting, we have trained the training set with the model. We can observe that the accuracy of the prediction with the model is not much deviated. As looking at the classification report accuracy is 87.6%, precision of 88(Fig 10). Due to the unbalanced data, we have to plot the ROC curve. From the Area under the graph (AUC) The confusion matrix of the model describes that 66582 correctly predicted that the customers were not interested and 264 did not predict correctly. And 9160 is predicted to be interesting and 216 is not predicted correctly (fig 9).

```

Confusion Matrix:
[[66582  264]
 [ 9160  216]]
    
```

Fig 9: confusion matrix of Xgboost

```

Classification Report is:
      precision    recall  f1-score   support

0       0.88       1.00       0.93       66846
1       0.45       0.02       0.04       9376

accuracy: 0.88 76222
    
```

Fig 10: Classification Report of XGBoost

Conclusion

This paper uses Random Forest and gradient-boosting supervised learning methods to predict the purchase of vehicle insurance from a customer with health insurance. Despite challenges in selecting the correct model, Random Forest and Gradient Boosting were found to be accurate. The accuracy and AUC scores of both models were compared and cross-checked to ensure accuracy. The study suggests that customer data from insurance policies can be useful for companies to develop profit. The creation of an automobile insurance purchase prediction model based on personal purchase information can be used in future personalized advertisements. The data analysis process includes data collection, explanation, preprocessing,

training, testing, prediction, and comparison with both models. Although not all machine learning algorithms can be implemented for prediction, the study suggests that insurance companies can use targeted marketing methods to increase profits. This helps create a strategy for advertisements and target the population for new vehicle insurance.

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Abstract

This paper uses machine learning to predict student mental health based on academic scores. It evaluates the correlation between depression and a student's CGPA. The project visualizes data using Tableau to determine the best model for classifying depression. The dataset was obtained from Kaggle and analytical tools like Tableau and Orange were used.

Keywords: Machine learning, mental health,

Introduction

This study uses machine learning to analyze the correlation between academic scores and mental health, specifically depression. Factors like age, marital status, anxiety, panic attacks, and treatment history are considered. The goal is to develop a machine learning model that accurately predicts the relationship between academic scores and mental health, reducing the incidence of serious illnesses and facilitating targeted healthcare services.

Implementation

Dataset

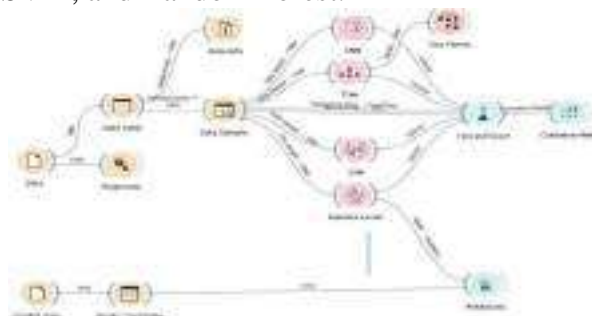
The dataset, sourced from Kaggle, includes 101 Google Forms surveys of University students to assess their academic and mental health. It includes 11 attributes, including timestamp, gender, age, course, year of study, CGPA, marital status, depression, anxiety, panic attacks, and seeking specialist help. The dataset classifies students based on academic scores and these dependent features, allowing for a comprehensive understanding of their mental health and potential treatment options.

Preprocess

Preprocessing is a crucial step in data analysis to improve its quality. It converts numerical values to categorical variables, extracts data information, and extracts statistical insights. The target variable is the attribute depression, which is determined by two values: yes, indicating depression, and no, indicating non-depression.

Model Building

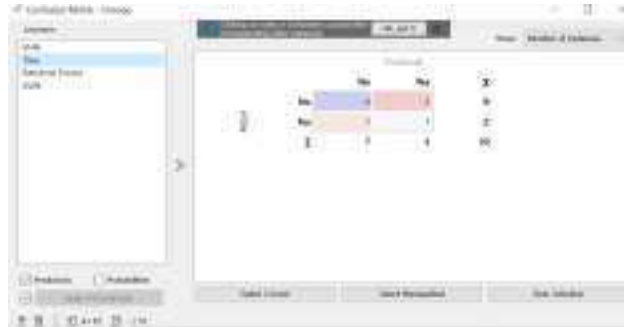
Model building involves creating data, statistics, and patterns using algorithms to generate predictions and inferences. In this case study, the model is analyzed using the open-source data analytical tool Orange, which offers visual programming for explorative qualitative data analysis and interactive visualization. The study uses classification algorithms like Decision Tree, KNN, SVM, and Random Forest.



The figure of a model built in orange

Decision Tree

Decision Tree is a supervised learning algorithm used for classification and regression problems. It aims to form a training model to predict target variable categories or values using simple decision rules inferred from prior data. The algorithm compares the foundation attribute values with the record's attributes, constructing a tree and derived rules for class classification. The accuracy of the Decision Tree is 0.938.



Confusion Matrix of Decision Tree

According to the confusion matrix of the decision tree, for the value 'yes' (means that are affected by depression), out of 2, 1 is predicted correctly as 'yes', and 1 is predicted as 'no'. Similarly, in the case of 'no' (means that are not affected by depression), out of 8, 6 is predicted correctly as 'no', and 2 is predicted as 'yes'.

K-Nearest Neighbours algorithm

The KNN algorithm is a supervised, easy-to-implementation method that solves both classification and regression problems. It classifies new samples based on the closest training samples in the feature field. The algorithm stores all available data and classifies new data points based on similarity. It is a non-parametric algorithm, making no assumptions on the underlying data. The accuracy of the KNN algorithm is 0.750.

According to the confusion matrix of random KNN, for the value 'yes' (means that are affected by depression), out of 2, 1 is predicted correctly as 'yes', and 1 is predicted as 'no. Similarly, in the case of 'no' (which means that are not affected by depression), out of 8, all 8 are predicted correctly as 'no'.



Random Forest

Random Forest is a classifier technique that uses multiple decision trees to improve predictive accuracy. It takes averages from each tree and uses majority votes to predict the final output. The accuracy of Random Forest is 0.938.



According to the confusion matrix of random forest, for the value ‘yes’ (means that are affected by depression), out of 2, 1 is predicted correctly as ‘yes’, and 1 is predicted as ‘no’. Similarly, in the case of ‘no’ (which means that are not affected by depression), out of 8, all 8 are predicted correctly as ‘no’.

Support Vector Machine (SVM)

Support Vector Machine (SVM) is a supervised learning algorithm used for classification problems in machine learning. It aims to create the best line or decision boundary to isolate n-dimensional space into classes, creating a hyperplane with maximum margin. The dimensions of the hyperplane depend on the features in the dataset. SVM chooses the utmost points or vectors, called support vectors, to create the hyperplane. It is memory efficient and versatile, using a subset of training points in the decision function. The algorithm maps data to high-dimensional space, making it easier to classify with linear decision surfaces. SVM can be used for both classification and regression challenges but is primarily used for classification.



According to the confusion matrix of SVM, for the value ‘yes’ (means that are affected by depression), out of 2, 1 is predicted correctly as ‘yes’, and 1 is predicted as ‘no’. Similarly, in the case of ‘no’ (means that are not affected by depression), out of 8, 7 is predicted correctly as ‘no’, and 1 is predicted as ‘yes’.

Experimental Results and Discussions

Model	AUC	CA	F1	Precision	Recall
RF	0.98	0.98	0.98	0.97	0.98
DT	0.95	0.95	0.95	0.94	0.95
KNN	0.92	0.92	0.92	0.91	0.92
SVM	0.90	0.90	0.90	0.89	0.90

The table shows that the random forest algorithm is the most accurate model for predicting cases, outperforming decision trees, KNN, and SVM. The AUC value, CA, F1 score, precision, and recall values indicate that Random Forest provides the highest accuracy, making it the final model.



Figure 4.3.c Prediction using random forest

In the above figure, test data is being given as input to predict the impact of academic scores on students' mental health. Based on the mentioned features the data is classified into students falling into depression as well as students not falling into depression accurately.

Conclusion

The study compared machine learning algorithms Decision tree, KNN, Random Forest, and Random Forests for accurately predicting students' depression. Using statistical techniques like precision, sensitivity, recall, F1 score, and overall accuracy, the random forest algorithm was found to provide the best results in predicting academic scores' impact on student mental health.

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Predicting the Status of Cirrhosis Disease through Logistic Regression

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Abstract

In the 21st century, one of the diseases we are facing is liver cirrhosis which may be the result of alcohol consumption, hepatitis, or any liver disease. The last stage for recovery from cirrhosis is liver transplantation which helps the survival of patients. Different attributes may affect the level of liver Cirrhosis. For the model creation and the prediction, we used the orange tool and for visualization, we used the tableau. The one method which gives high accuracy will be taken for prediction. Based on the accuracy, precision, and recall, we will be visualizing the model. Certain techniques such as decision tree, random forest, naive Bayes, and KNN are used in which the naive Bayes gives the best prediction.

Keywords: Cirrhosis disease, model creation, prediction, data mining technique.

Introduction

The failure or the malfunctioning of the liver may affect other organs and cause death. Therefore the chance for patients facing cirrhosis have less chance of survival. This article shows whether the patient will survive or die. The larger consumption of alcohol is the main reason for cirrhosis and the other reasons may include the usage of impure water and fatty food and contact with polluted air.

Implementation

Orange

Orange consists of graphical widgets that provide strategies from the core library and orange modules and give a decent graphical user interface. It is an open-source data mining, and machine-learning tool, for data visualization.

Tableau

Tableau is mainly for data visualization which helps in getting new insights and data interpretation more easily than other visualization tools.

Data Preprocessing

Missing Values

In the cirrhosis dataset, there are 13% missing values in which more than one column of the same row is having missing values and thereby decided to remove the rows with missing values.

Relevant Feature Selection

Feature selection is a technique in which the data that are relevant to the model are taken to classify the outcome correctly. In the cirrhosis prediction dataset, there are 19 features some of which are not relevant for the analysis. So we will be removing the irrelevant features. We take the information gain ratio for the feature selection. We set the information gain ratio as 8 which selects the 8 relevant attributes from the dataset. The one which affects the analysis is the edema and the bilirubin.

Normalization

The normalization feature helps to get the values of each attribute in a normalized manner, which makes the values a smaller range. We standardised the data to a range of 0 to 1.

Decision Tree

The decision tree is a classification technique in which we are creating a tree by splitting the values based on their attribute values. Using the decision tree, we can easily make an interpretation and conclusion. We calculate the information gain of each attribute and select one attribute that has high information gain as the attribute to be split.

Supervised Feature Selection - Information Gain

$$H(U) = - \sum_{i=1}^n p(i) \log_2 p(i) \\ + p(1) \sum_{j=1}^m p(j|1) \log_2 p(j|1) + p(2) \sum_{j=1}^m p(j|2) \log_2 p(j|2)$$

U represents the *i*th element; *P(i)* is the probability of the *i*th element; *P(j|1)* and *P(j|2)* are the probabilities that the total *i* appears a set in the datasets; *P(j|1)* is the conditional probability of the *j*th category given that case *i* appears, and *P(j|2)* is the conditional probability of the *j*th category given that case *i* does not appear.

KNN (K-nearest neighbor)

The K-nearest neighbor is a technique used to provide solutions for both regression and classification. It works by calculating the distance between the new dataset and the existing dataset. The new dataset will have the value of a data point which is having low distance. In this way, the KNN works. We can take any of the distance measures such as Euclidean distance, Manhattan distance, etc..



Formula:

$$P(A | B) = \frac{P(B | A) \cdot P(A)}{P(B)}$$

A, B = events
P(A|B) = probability of A given B is true
P(B|A) = probability of B given A is true
P(A), P(B) = the independent probabilities of A and B

Naïve Bayes

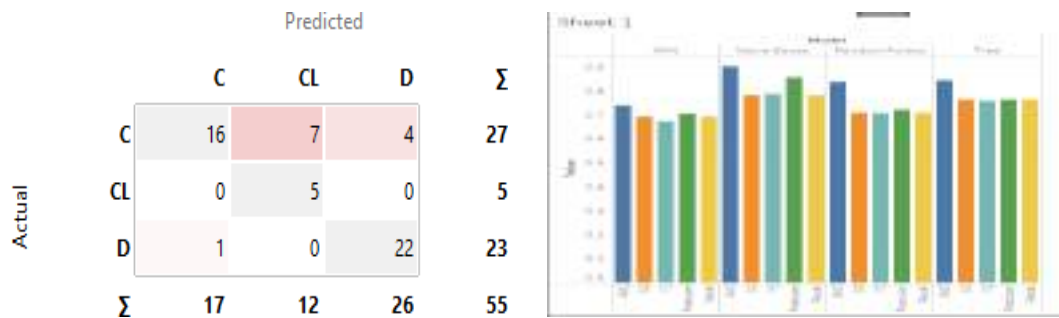
It is a classification technique that follows the Bayes theorem which considers each predictor as independent.

Random Forest

Random forest consists of the number of trees on various subsets of the given dataset and takes the average to improve the predictive accuracy of that dataset. The greater the number of trees, the greater the accuracy.

The performance of the model can be evaluated by using the precision, accuracy, recall, and f1

score. The data mining technique which has a high accuracy is taken into consideration for the classification of data. Therefore the technique we used here is naive Bayes which has an accuracy of 78.2% compared to others.



Result and Discussions

Through the visualization and the performance measures, we concluded that the model that can predict more accurately is the naïve Bayes. So by using naïve Bayes, we can predict the new patient data.

The inference we got from this confusion matrix is:

- Patients with status as censored were 27 of which 16 were correctly predicted as censored 7 of them predicted as censored due to liver tx and the remaining 4 with death.
- Patients with status as censored due to liver tx were 5 and all of them were correctly predicted.
- Patients with status as death were 23 22 of them correctly predicted as death and 1 of them were predicted as censored due to liver tx.

We tested the model using new data and we got the status as death for a patient by putting values for attributes as bilirubin as 0.3, N_days as 2466, copper 52, prothrombin as 11, age as 19379, edema as N, albumin as 4, stage as 3 and SGOT as 28.38.

Conclusion

This article easily shows how to predict the status of a cirrhosis patient with different attributes. The pathetic situation of people having cirrhosis and the chance for them to survive or to live can be slightly changed by using the technique we used in this article.

All the data mining techniques are used for either prediction classification or clustering of data which gives a new phase to the unknown data. Machine learning and artificial intelligence can utilize the raw data that are around us and make use of it in every sector such as business, education, health, politics, etc.

In this article, we have implemented machine learning and data mining techniques in the health sector which help the examination of a doctor more easier.

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JOSEPHINE RESEARCHER VI

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Loan Eligibility Category

Steffymol Sunny^{1*}, Jomon K Sebastian^{1*}, Sneha C S^{1*}, Aneesh N^{1*}

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Abstract

The project aims to develop an automated system to predict a customer's eligibility for a home loan, based on historical data. The model will reduce loan selection and select the best model with the highest accuracy. The data set is obtained from Kaggle's website, containing 615 rows and 13 features.

Keywords: Loan, Classification, KNN algorithm, Naïve Bayes algorithm, SVM, Decision Tree, Logistic Regression.

Introduction

Loans are financial instruments borrowed from banks or financial institutions, with the manual process being time-consuming and tedious. With numerous branches and a large customer base, financial institutions need more efficient automated systems for loan application processing. Loan lending is crucial for personal goals and bank operations. To reduce risk, financial institutions assess borrowers and assign credit scores. This data can be used to calculate credit risk and build models to determine loan eligibility. The project aims to design an automated loan eligibility model based on input attributes.

Literature Review

Numerous studies have been published on loan prediction, including one on machine learning models, another on credit risk analysis and prediction modeling using R, and another on ensemble techniques. These papers cover data collection, pre-processing, training, and testing for loan approval, with outlier detection and removal performed. Decision Tree has higher loan prediction accuracy. Another paper proposes a risk analysis method for sanctioning loans using R, which includes data selection, pre-processing, feature extraction, model building, prediction, and evaluation. An ensemble technique is presented for loan predictions using eleven machine learning models with nine properties, with Real Coded Genetic Algorithms calculating feature importance and K-fold validation determining model robustness. An Exploratory Data Analysis (EDA) is proposed for predicting loan amounts based on client needs, analyzing factors like annual income, customer trust, loan tenure, and repayment chances. The study found short-term loan interest was more prevalent.

Visualization

Loan Applicants Based On Marital Status

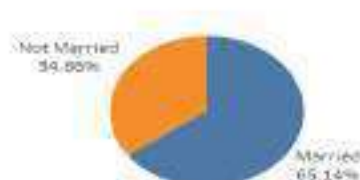


Fig Loan Applicants Based on Marital Status

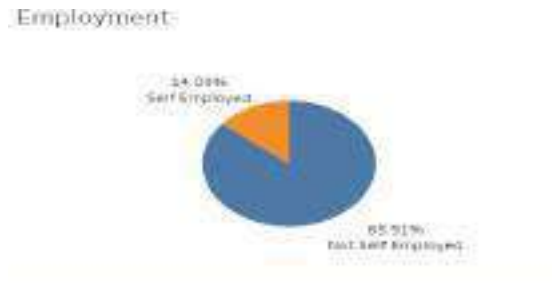


Fig Loan Applicants Based on Job Status

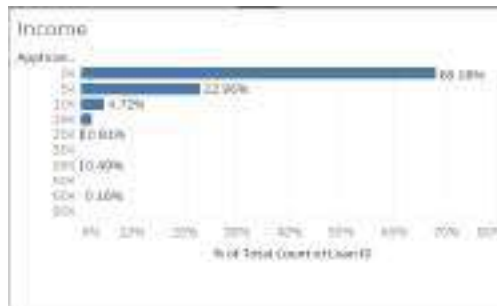


Fig Loan Applicants Based on Income Status

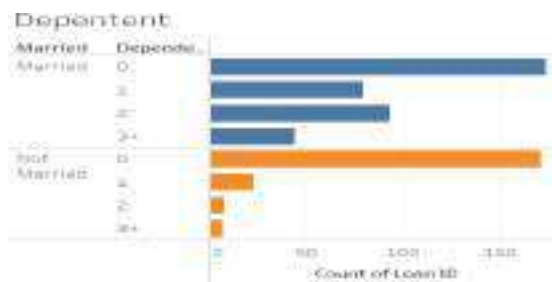


Fig Loan Applicants Based on Dependents and Married Status

Implementation

K-Nearest Neighbours Algorithm

The supervised machine learning algorithm simplifies regression and classification problems by calculating the distance between new samples and existing data points and assigning them to a common group.

Evaluation of Algorithm

	precision	recall	f1-score	support
0	0.65	0.65	0.65	23
1	0.64	0.64	0.64	22
accuracy			0.64	45
macro avg	0.64	0.64	0.64	45
weighted avg	0.64	0.64	0.64	45

KNN best accuracy: 80.00%

Logistic Regression

Logistic regression is a classification algorithm used for two output values. It uses a sigmoid/logistic function to fit data points and predict the target variable class. The maximum likelihood curve is chosen, and the prediction depends on the chosen threshold probability value.

Evaluation of Algorithm.

	precision	recall	f1-score	support
0	0.52	0.52	0.52	23
1	0.50	0.50	0.50	22
accuracy			0.51	45
macro avg	0.51	0.51	0.51	45
weighted avg	0.51	0.51	0.51	45

```
[[22 11]
 [11 11]]
LR accuracy: 51.11%
```

Decision Tree

The algorithm is a supervised method used for classification and regression tasks. It uses a tree structure with input attributes to predict class labels for new data. The algorithm calculates the maximum information gain for each attribute and moves from the root to the leaf node, comparing values with the new dataset.

Evaluation of Algorithm

	precision	recall	f1-score	support
0	0.73	0.70	0.71	23
1	0.70	0.73	0.71	22
accuracy			0.71	45
macro avg	0.71	0.71	0.71	45
weighted avg	0.71	0.71	0.71	45

```
[[26  7]
 [ 6 16]]
Decision Tree Accuracy: 82.22%
```

Support Vector Machine

The Support Vector Machine (SVM) is a supervised machine learning algorithm that classifies and predicts continuous values using regression. It is computationally inexpensive and accurate, aiming to identify a hyperplane that divides n-dimensional space into target classes. The hyperplane's dimensions depend on the number of attributes in the dataset.

Evaluation of Algorithm

	precision	recall	f1-score	support
0	0.71	0.65	0.68	23
1	0.67	0.73	0.70	22
accuracy			0.69	45
macro avg	0.69	0.69	0.69	45
weighted avg	0.69	0.69	0.69	45

```
[[15  8]
 [ 6 16]]
SVC accuracy: 69.89%
```

Naïve Bayes Algorithm

Naive Bayes is a supervised classification technique based on Bayes' Theorem, assuming feature independence. It's easy to build and implement, suitable for large datasets, and outperforms sophisticated algorithms.

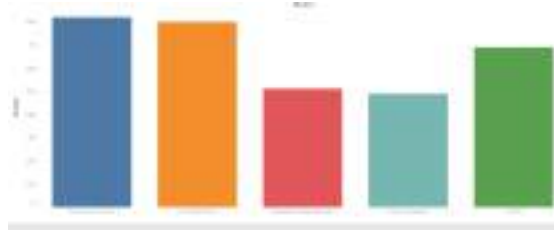
Evaluation of Algorithm

	precision	recall	f1-score	support
0	0.50	0.43	0.47	23
1	0.48	0.55	0.51	22
accuracy			0.49	45
macro avg	0.49	0.49	0.49	45
weighted avg	0.49	0.49	0.49	45

```
[[10 13]
 [10 12]]
Categorical Naive Bayes accuracy: 48.89%
```

Result and Discussion

The dataset was split into 80% split (492 rows) for model building, with 122 rows used for testing. The training-test phase involved 5-fold cross-validation, followed by classification algorithms like Naive Bayes, Logistic Regression, KNN, SVM, and Decision Tree. Decision Tree achieved the highest accuracy (82.22%) and was chosen as the final model.



Conclusion

The project successfully developed a loan eligibility model to predict customer eligibility for home loans. Compared to five machine learning algorithms, Logistic Regression showed superior results, with better performance with selected features.

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Reducing Staff Attrition using Gradient Boosting

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Abstract

Employee attrition is the gradual reduction in an organization's workforce due to resignation, death, and retirement. This project aims to classify whether an employee leaves the company based on various criteria. On average, the attrition rate for companies is projected at 18-19% annually. Employee attrition is downsizing, and unexpected resignations can cause significant losses for organizations. In the IT sector, attrition is a significant issue, and organizations are working to find solutions. It is crucial to know whether an employee will leave a company for various reasons. The project aims to build multiple classification models using the Orange tool and select the model with the best accuracy.

Keywords: Accuracy, Classification Model, Employee attrition, Organization.

Introduction

An efficient employee is a valuable asset for any organization. In a competitive world, companies can't afford to lose employees. Employee attrition and turnover differ: attrition is when employees leave without being replaced, while turnover involves departing employees who are meant to be replaced. To calculate the attrition rate:

Attrition Rate = (Number of employees who left in a year / Number of employees in a year) * 100. This formula helps measure how many employees leave the organization relative to the total number of employees in a given year. Reducing attrition requires improving employee satisfaction by offering better opportunities and a desirable work environment.

Implementation

Orange & Tableau

Tableau (2022.2) is a data analysis tool that simplifies data visualization for problem solving. It's user-friendly, offers mobile support, and responsive dashboards.

Orange (3.31.0) is an open-source data mining and visualization toolkit. It is used for explorative rapid qualitative features. In order to analyze any data and to bring out the important data analysis and interactive data visualization, we need to explore the data.

Data Description

The dataset, from Kaggle, has 4653 instances and 8 features used to classify employee attrition within 2 years.

In the training data, there are 4 numeric and 5 categorical variables among the 9 attributes.

Datasets are

- Leave or Not
- Education
- City
- Joining Year
- PaymentTier
- Age

Gradient Boosting (GB)

Gradient boosting is a popular technique where each predictor corrects the errors of the previous one. It's based on Classification and Regression Trees (CART). Each tree predicts, and the final prediction is made using a formula.

$$y(\text{pred}) = y1 + (\text{eta} * r1) + (\text{eta} * r2) + \dots + (\text{eta} * rn)$$

Fig: Gradient Boosting Formula

:

Tableau Visualization



Fig: Evaluation matrix visualization

The Gradient Boosting is having more accuracy (84.73%) than other classification models.

Result and Discussion

The "Employee Attrition" dataset has 4653 rows and 9 columns with the target variable "LeaveOrNot." It's split 70:30 for training and testing. Classification models used include KNN, Random Forest, Naïve Bayes, and Gradient Boosting. Here are the performance values for each model.

Model	AUC	CA	F1	Precision	Recall
kNN	0.790	0.778	0.768	0.772	0.778
Random Forest	0.853	0.824	0.819	0.820	0.824
Naive Bayes	0.699	0.713	0.702	0.700	0.713
Gradient Boosting	0.856	0.847	0.840	0.850	0.847

Fig Evaluation Result

Among the applied classification models, Gradient Boosting has highest accuracy which is 84.7%. The confusion matrix of GB is given below

		Predicted		Σ
		0	1	
Actual	0	888	44	932
	1	169	294	463
Σ		1057	338	1395

Fig: Confusion matrix of Gradient Boosting

An external test data was applied to test the classification using the GB model and the classification is as follows

Gradient Boosting	Age	Employed	Emp	Number of	Age	Gender	Employment	modelCorrect
1	35	1	Employee	1	35	Female	No	1
1	35	1	Part	1	35	Male	No	1
1	35	1	Non-Employee	1	35	Female	No	1
1	35	1	Employee	1	35	Male	No	1

Fig: Classification outcome for the given data

All the 8 features; Education, Joining Year, City, Payment Tier, Age, Gender, Ever Benched, Experience in current domain are necessary for the classification for the dataset.

Conclusion

Every organization's ultimate goal is to optimize profits, requiring skilled and experienced employees. Employee attrition has been a longstanding challenge, but it can be reduced by fostering a friendly environment, fair compensation, rewards, and encouragement. Data analysis reveals that females in Pune tend to leave organizations more quickly. Among classification methods, Gradient Boosting achieves the highest accuracy in predicting employee attrition.

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JOSEPHINE RESEARCHER VI

Part II

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Healthcare Business Intelligence

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Abstract

Business intelligence is a popular tool in decision support and business management systems, converting unprocessed data into knowledge. It includes tools like data warehouses, OLAP, ETL, and dashboards. In the public health sector, BI is used for financial and administrative activities, supporting patient diagnosis and long-term illness treatment. BI involves four steps: integration, storage, analysis, and presentation. In the presentation stage, a dashboard is used to provide information to end users, but implementing an efficient dashboard remains challenging.

Keywords: Business Intelligence, health sector, dashboard, data warehouse

Introduction

The healthcare industry is transforming with the integration of Business Intelligence (BI) to improve decision-making. Health informatics, a rapidly expanding field, analyzes medical data to make real-time and predictive analytics. BI is crucial for improving patient care, centralizing records, enhancing expense management, and leveraging data mining for preventive care. It also enables personalized treatment plans, contributing to more efficient healthcare delivery.

What is Business Intelligence?

Business Intelligence (BI) is crucial for healthcare organizations to improve decision-making, and understand strengths, weaknesses, and opportunities. Health informatics, a rapidly expanding field, plays a pivotal role in analyzing medical data. Access to public health data is essential for monitoring health communities, identifying links, and evaluating intervention effectiveness. BI applications in healthcare focus on improving patient care, centralizing records, enhancing expense management, and leveraging data mining for preventive care delivery.

Conceptual Architecture of Bi

BI comprises four stages: integration, storage, analysis, and presentation. It involves processes like Extract, Transform, and Load (ETL) and Online Analytical Processing (OLAP).

Integration: This is a crucial stage in BI since it involves ensuring the consistency of data from many sources before converting it into a single format. In BI language, the integration process is referred to as Extract, Transform, and Load (ETL).

Storage: This process, which frequently makes use of a relational database management system, organises the data in a data warehouse. The most common model now used in both open-source and commercial databases is relational databases. Analytically speaking, working with huge databases can be time-consuming.

Analysis: This procedure organises data in a way that makes it considerably better suited for analysis and reporting. OLAP is used in this stage. Instead of using tables, data is organized in a multidimensional aggregated structure and represented by data cubes. By converting raw data into a more user-friendly format, this format enables quick analysis. There are several ways to link relational databases to OLAP using both open-source and paid solutions. It is necessary to create objective measures or key performance indicators (KPIs).

Presentation: The end users receive the BI solution at this stage. Power users, business analysts, executive management, and casual users are all given the ability to make better-educated business decisions. The knowledge gained via this approach may then be applied to modify or alter present behaviour and aid the organisation in moving toward ideal procedures or objectives. Public health has employed KPI-presentation tools like Balanced Scorecards and Quality Dashboards. These technologies enable a variety of hospital-related tasks to be watched over.



Fig. Four steps involved in BI and their related process.

Bi in Public Health

Public health organizations collect vast amounts of data for policy development, healthcare delivery, and research. BI assists in diagnosing chronic diseases, assessing treatment outcomes, and identifying previously unknown illness patterns. Benefits of BI in Healthcare: BI optimizes resource allocation, enhances quality and efficiency, improves logistics and supply chain management, predicts treatment outcomes, controls costs, and provides physician profiling. BI Applications for Healthcare: BI applications include Decision Support Systems (DSS), Executive Information Systems, OLAP, Query and Reporting Services, Data Mining, Operational Data Services, and Integration Services.

Service Tools of BI for Health Care

Notable BI tools for healthcare include Tableau, Power BI, Sisense, and Qlik, which provide data analysis and visualization capabilities.

Clinical BI for Improved Patient Care: Clinical BI helps with patient medication, self-care tools, and patient dashboards for scheduling appointments and billing, enhancing overall patient care.

Dashboard Decision System

Dashboards are essential tools for summarizing and visualizing performance indicators, recognizing trends, measuring efficiency, and aligning strategies with organizational objectives. They help managers track department contributions, provide precise data points, and enable quick decisions, lower costs, and increase confidence in managing complex companies. The following are some advantages of using dashboards:

1. Visual presentation of performance measures.
2. The capacity to recognize and address negative trends, and produce thorough reports demonstrating new make better informed decisions based on trends on gathered corporate intelligence.
3. Efficiency measurements and inefficiencies.

4. Strategic alignment and organizational objectives.
5. Saving time over performing many reports.
6. Attaining complete visibility for all systems in an instant.

Dashboard in the Public Health Sector

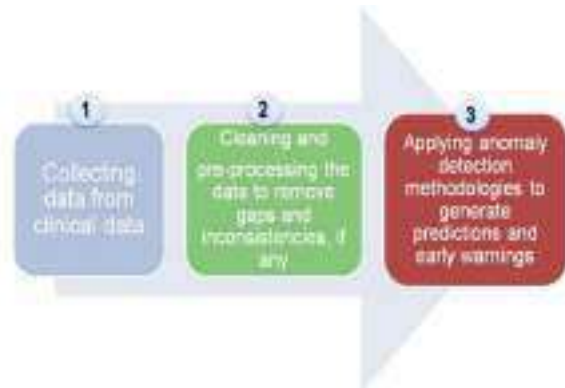


Fig. Three steps involved in using the dashboard for public health.

Future Scope of BI in Health Care

Analytics is becoming increasingly integral to healthcare, offering benefits like improved quality, cost reduction, and disaster response. However, challenges include data quality and availability. Despite these challenges, the integration of analytics in healthcare is expected to significantly change the future, with applications expanding for various purposes like enhancing efficiency, genetic data mining, and disaster response.

Conclusion

BI empowers public healthcare with data-driven decision-making. It plays a crucial role in various aspects of public health, from disease control to resource optimization.

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Wind Speed Prediction using Machine Learning Algorithms

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Abstract

The study aims to predict wind speed accurately, a crucial factor for businesses, management, and the economy. Researchers propose a machine learning-based random forest model to address wind power instability caused by wind's potential flow. The model outperforms decision trees and linear regression in capturing complex input-output relationships from multiple dimensions of input data. Unpredictable wind fluctuations can lead to low system reliability, high reserve capacity, and increased operational costs for grid-connected power plants. Accurate wind speed prediction is essential for receiving early severe weather alerts. The study analyzes wind and storm causes and demonstrates the model's performance.

Keywords: Comparative analysis, machine learning, Wind Speed prediction, decision tree, linear regression, random forest, Classification

Introduction

Adverse weather conditions affect various sectors, including transportation, logistics, and agriculture. Accurate and timely weather forecasts are crucial for planning and managing activities and preventing natural disasters. Wind power, a renewable energy source, is essential for efficient wind park management. The Kaggle 'Wind Speed Prediction' dataset, with 6574 instances of daily averaged responses from various weather sensors, is used in the study. The dataset includes attributes like TIME, DATE, WIND, RAIN, T.MAX, T.MIN, T.MIN.G, and Time Zone: GMT. Traditionally, numerical weather prediction (NWP) models were used for weather forecasting, but they are computationally intensive and limited to longer-term forecasts. Data-driven machine learning models have significantly reduced processing time and bridged the gap in short-term forecasting.

Methodology

Data Preparation

The Wind Speed Prediction dataset, used in numerous studies, estimates wind speed using factors like average wind speed, precipitation rate, and temperature. Machine learning techniques like linear regression, decision trees, and random forests are used for data visualization, while tableau is used for visualization. Figure 1 shows a preview of the features.

Attribute Information

1. DATE	(YYYY-MM-DD)
2. WIND	Average wind speed (km/h)
3. RAIN	First indicator value
4. RAIN2	Precipitation Amount (mm)
5. RAIN3	Second indicator value
6. T MAX	Maximum Temperature (°C)
7. T MIN	Third indicator value
8. T MIN2	Minimum Temperature (°C)
9. T MIN3	Fourth indicator value
10. T MIN4	Fifth indicator value

Figure 1: Dataset Overview

Data Preprocessing

Entities or patterns make up a dataset. The essential qualities of a data item, like as the mass of a physical object or the time at which an incident happened, are captured by a collection of characteristics that characterize data items. Therefore, eliminating the null values that hint at a problem while retrieving the dataset's accuracy would be the first step in beginning to improve the dataset's quality. The dataset must then be described in order to acquire a general understanding of it and to get started, as seen in figure 2.

	DATE	WIND	MO	RAIN	MO.1	TMAX	MO.2	TMIN	TMNO
1	1981-01-01	13.67	0	8.2	8.8	9.0	0.0	3.7	-1.0
2	1981-01-02	11.25	0	8.1	8.8	7.2	0.0	4.2	1.1
3	1981-01-03	11.25	0	8.4	8.8	5.0	0.0	5.3	-0.9
4	1981-01-04	8.83	0	8.2	8.8	5.6	0.0	3.4	-3.2
5	1981-01-05	11.32	0	10.4	8.8	7.2	1.0	-1.5	-3.9

Figure 2:Dataset Description

Equations

The mean absolute error (MAE) and mean squared error (MSE) are used to evaluate the performance of models on a test set. MAE calculates the discrepancy between expected and actual values, while MSE computes the square root of the mean difference between the two. Greater variances between y and \hat{y} have a greater impact on the error term. RMSE measures the model's error in predicting quantitative data, which is crucial for evaluating performance in machine learning during training, cross-validation, and monitoring post-deployment. Root mean square error is a popular metrics for this purpose.

$$MAE = \frac{1}{n} \sum_{i=1}^n |y(i) - \hat{y}(i)|$$

$$MAPE = \frac{1}{n} \sum_{i=1}^n \frac{|y(i) - \hat{y}(i)|}{\frac{1}{n} \sum_{i=1}^n y(i)}$$

$$MSE = \frac{1}{n} \sum_{i=1}^n (y(i) - \hat{y}(i))^2$$

$$RMSE = \sqrt{\frac{1}{n} \sum_{i=1}^n (y(i) - \hat{y}(i))^2}$$

Month	F	Avg. Rain	Avg. Wind
December		2.27	11.85
November		2.27	10.81
October		1.80	9.39
September		2.40	8.61
August		2.00	7.77
July		1.63	7.86
June		1.52	8.01
May		1.63	8.78
April		1.77	10.22
March		1.45	11.31
February		1.79	11.21
January		2.10	11.82

Figure 3: Month - Average Rain & Wind

Random Forest Classifier

A supervised learning system called the Random Forest Algorithm gathers samples from many data sets and forecasts the best answer. It is beginning to take the shape of a decision tree. Additionally, it is more precise than the decision tree. However, it is more difficult to construct and quite slow at prediction. Random Forest, as the name implies, is a classifier that uses a number of decision trees on different subsets of the provided dataset and averages them to increase the dataset's predictive accuracy. Instead than relying on a single decision tree, the random forest gathers forecasts from various trees and predicts the outcome based on the predictions that received the most votes.

Linear Regression

The linear regression algorithm, which is also known as linear regression, demonstrates a linear relationship between a dependent (y) variable and one or more independent (x) variables. Given that linear regression demonstrates a linear connection, it follows that determines how the dependent variable's value changes in relation to the independent variable's value.

Here,

$$y = a_0 + a_1x + \epsilon$$

Y=Dependent Variable (Target Variable)

X=Independent Variable (predictor Variable)

a_0 = intercept of the line (Gives an additional degree of freedom)

a_1 = Linear regression coefficient (scale factor to each input value).

ϵ = random error

The x and y variable values serve as training datasets for the representation of a linear regression model. Finding the best- fitting linear line and the ideal intercept and coefficient values such that the error is reduced is the major goal of a linear regression model. The error is the discrepancy between the actual and anticipated values, and reducing this discrepancy is the objective.

Decision Tree

The Decision Tree Algorithm is a member of the supervised learning algorithm family. The decision tree approach can be used to resolve classification and regression issues as well, unlike other supervised learning algorithms. Utilizing a decision tree, the objective is to develop a training model that can be used to forecast the class or value of the target variable by learning straightforward choice rules derived from the past (training data). Starting from the tree's base, decision trees anticipate the class label for a record. We contrast the root attribute's values with the record's attribute. Typically, the decision-making guidelines take the form of if-then-else sentences. The rules are more intricate and the model is more accurate the deeper the tree.

Experimental Results

As we can see, the wind is the most important attribute, and keeping that in mind from the attribute relationship results in keeping that in mind, the different machine learning algorithms are performed, such as logistic regression, random forest, and classification tree. After all these models have provided us with the MAE, MSE, and RMSE values, we have concluded that Random Forest Regressor has lower values in metrics than the others. Hence, after the result, one can know that Random Forest is performing the best. Therefore, it seems like a better model for our dataset.

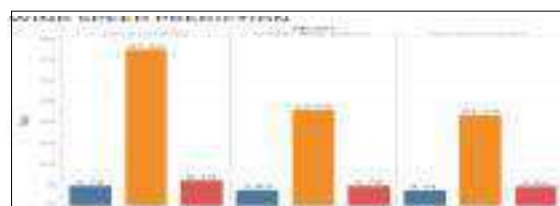


Figure 4: Bar Graph Representation

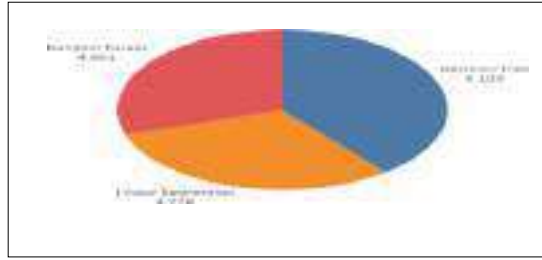


Figure 5:Pie Chart Representation

Conclusion

To utilize wind energy, accurate wind speed predictions are crucial. But putting the wind power online was quite challenging due to the erratic variations in the wind. This paper gave a general review of machine learning algorithms used in wind speed forecasting. The model that performs the best out of all of these is the random forest, with a comparably lower RMSE value of 4.6613963, after carrying out all the steps necessary to get the results, from preparation to preprocessing to attribute relationship and finally performing the models (random forest, linear regression, and classification tree).

Future Scope

There is lot of room for improvement based on the data because it is now possible to acquire real-time data that can be used to analyze all the existing models and develop new accuracy based on them. Testing the authors' model and doing a comparison with the new data available are two additional options. Since gathering data would take a while, data should be gathered from various sources repeatedly till then.

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Synthesis and Characterization of Thermoplastic

Pooja Parvathy P*, Dr. Jose James^{1*}, Dr. Sijo Francis^{1*}, Dr. Anu Antony^{1*} & Dr. Joby K V^{1*}

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Abstract

PMMA, or Polymethyl Methacrylate, is synthesized by polymerizing Methyl Methacrylate (MMA) monomers. The polymerization process, typically achieved through free radical polymerization, involves the chain growth of MMA monomers to form the PMMA polymer chain. This process results in the creation of a versatile thermoplastic polymer known for its ease of synthesis, environmental stability, and wide-ranging applications.

Introduction

Poly (Methyl Methacrylate), commonly known as PMMA, is a polymer system of growing scientific and technical interest, offering the potential to create a wide range of materials with diverse electrical, optical, and magnetic properties. As one of the most significant thermoplastics in the polymer field, PMMA is produced synthetically through the polymerization of methyl methacrylate. This transparent and rigid plastic is often used as a glass substitute in various products and is marketed under trademarks like Plexiglas, Lucite, and Perspex. With a global production exceeding 600,000 tons annually and a cost of around \$5 per kilogram, PMMA is renowned for its hardness, rigidity, and relative transparency compared to traditional glass, all while being lightweight and easily molded into various shapes. Pure atactic PMMA boasts amorphous characteristics, offering high surface gloss, brilliance, exceptional clarity with 92% transparency, and a refractive index of 1.49. Furthermore, PMMA exhibits a glass transition temperature of 105°C, coupled with robust mechanical strength, respectable chemical resistance, and excellent weather resistance.

Procedure

The monomer (MMA) was made inhibitor-free by washing it with 2% Sodium hydroxide (NaOH) followed by distilled water and was dried using anhydrous Calcium Chloride (CaCl₂) before experimenting. 50 ml pure MMA and 2gm BPO are taken in a 100 ml beaker and made a homogeneous mixture using a magnetic stirrer. This mixture is poured into a petri dish and kept in an air oven at 75°C for 6 hours. We get white transparent thermoplastic PMMA.

FTIR analysis was performed by Scimadzu IR prestige-21 FTIR spectrometer. The absorption spectrums were recorded from 650-4000 cm⁻¹ using a ZnSe ATR attachment. The thin film method is used for the FTIR characterization of MMA and PMMA.

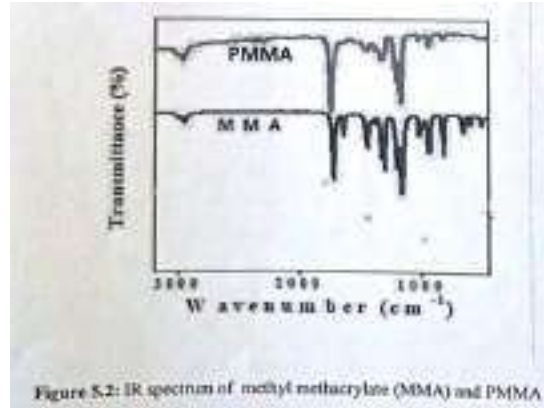
Results and discussions



Figure 5.1: PMMA pellets

Scanning Electron Microscopy (SEM) offers a remarkable glimpse into the microscopic world of materials like Polymethyl Methacrylate (PMMA), a transparent thermoplastic commonly known as acrylic or Plexiglas. When subjected to SEM, PMMA's surface morphology and

microstructure come into sharp focus. The SEM image of PMMA reveals intricate details, including surface topography, showcasing any imperfections, surface roughness, or structural features present. SEM can also help detect crystalline regions, foreign contaminants, and the size and distribution of particles if present. Furthermore, by examining fracture surfaces, SEM aids in assessing PMMA's toughness and fracture behavior.



The infrared (IR) spectrum of Polymethyl Methacrylate (PMMA), also known as acrylic or Plexiglas, provides valuable information about the chemical composition and molecular structure of this polymer. In an IR spectrum of PMMA, you can expect to observe several characteristic peaks and bands, each corresponding to different vibrational modes of the molecules in the material

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Enhancing Green Chemistry Learning Through Art

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Abstract:

Incorporating art performance into the teaching and learning of Chemistry yields numerous benefits for both students and educators. Active participation in the learning process leads to a more comprehensive and multidimensional understanding of the subject. This paper aims to demonstrate the effectiveness of utilizing a cooperative learning strategy alongside art performance to teach Green Chemistry. Throughout three successive batches of postgraduate students, this method proved successful in enhancing students' skills in the affective, cognitive, and psychomotor domains, fostering enthusiasm in both facilitators and students.

Keywords: Active learning, art performance, green chemistry, collaborative learning

Introduction:

Active participatory learning is an instructional approach that fosters student engagement and active involvement in the learning process, transcending traditional passive learning methods like lectures or reading. It emphasizes hands-on activities, group collaboration, and critical thinking, empowering students to construct their knowledge and develop vital 21st-century skills. This approach aligns with constructivism, where learning is an active process of meaning-making through personal experiences and interaction. Active participatory learning methods encompass a wide array of strategies such as project-based learning, cooperative learning, simulations, debates, and hands-on experiments. These methods encourage creativity, critical thinking, and problem-solving, promote communication, and create a positive classroom environment.

Green Chemistry through Collaborative Learning

Green Chemistry, as defined by Paul T. Anastas and John C. Warner, focuses on principles that reduce or eliminate hazardous substances in the design, manufacture, and application of chemical products. To enhance the understanding of the 12 Principles of Green Chemistry, an active, cooperative, and collaborative approach incorporating art performance was developed and applied consecutively to three groups of postgraduate students.

The method involves several steps, including grouping, initial discussions with the facilitator, sharing preliminary concepts, finalizing concepts and plans, performing or displaying the art piece, discussion and feedback sessions, and mind mapping. The facilitator's role includes observation, listening, and timely intervention. Students are encouraged to choose any form of performance, such as street plays, skits, short films, or theme dances, fostering creativity and free thinking. After the presentation, discussions cover performance recap, conveyed concepts, and feedback from observers, participants, and the facilitator. Finally, all learners engage in mind mapping on the topic.

This method develops various skills in the cognitive, affective, and psychomotor domains, providing enjoyment and ensuring student engagement. Feedback from students confirms the method's effectiveness, demonstrating improved understanding and application of Green Chemistry principles in their daily lives.

Conclusion:

Active participatory learning methods offer a valuable educational approach, enhancing student engagement, critical thinking, and collaborative learning. By actively participating in various activities and discussions, students construct their knowledge, develop essential skills, and cultivate a lifelong love for learning. This approach not only improves academic achievement but also prepares students for success in the dynamic 21st-century world. Incorporating art performance enriches the learning experience, particularly in the context of Green Chemistry.

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Nanotechnology in Cancer Diagnosis

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Abstract

Cancer remains a prominent global health concern, causing significant mortality and reduced quality of life. Despite various efforts to improve cancer treatment, early detection of cancer cells and targeted drug delivery remain crucial for enhancing therapeutic outcomes while minimizing side effects. Conventional cancer therapies often result in systemic toxicity and drug resistance. The utilization of nanotechnology presents a promising solution by enabling precise cancer cell targeting and early detection through innovative diagnostic methods. These advancements hold the potential to revolutionize cancer care, offering more effective and less harmful treatments to alleviate the global burden of this devastating disease.

Introduction

Genetic mutations can cause changes in the synthesis of certain biomolecules leading to uncontrolled cell proliferation and ultimately cancerous tissues. Cancer diagnostic and therapeutic strategies are targeted at early detection and inhibition of cancerous cell growth and its spread. Notable among the early diagnostic tools for cancers is the use of positron emission tomography (PET), magnetic resonance imaging (MRI), computed tomography (CT) and ultrasound.

Nanotechnology aids in tumor imaging

Nanoparticles like semiconductors, quantum dots, and iron oxide nanocrystals offer unique optical, magnetic, and structural properties crucial in cancer applications. They can be combined with various anti-tumor drugs and biomolecules, such as peptides and antibodies, for highly specific tumor labeling, aiding early cancer detection. Recent studies highlight the exceptional specificity of superparamagnetic iron oxide nanoparticles (SPIONs) with no reported side effects, making them ideal for lung cancer MRI imaging aerosols. Magnetic powder imaging, with its high resolution and sensitivity to cancer tissues, has also shown promise in tomographic imaging technology.

Nanotechnology Tools Used in Cancer Diagnosis

In current research, nanotechnology can validate cancer imaging at the tissue, cell, and molecular levels²⁰. This is achieved through the capacity of nanotechnology applications to explore the tumor's environment. For instance, pH- response to fluorescent nanoprobe can help detect fibroblast-activated protein-a on the cell membrane of tumor-associated fibroblasts. Hereon, we will discuss some nanotechnology-based spatial and temporal techniques that can help accurately track living cells and monitor dynamic cellular events in tumors.

Near Infrared (NIR) Quantum Dots

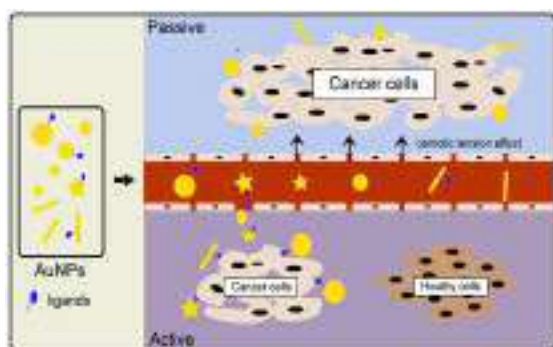
The lack of ability to penetrate objects limits the use of visible spectral imaging. Quantum dots that emit fluorescence in the near-infrared spectrum (i.e., 700-1000 nanometers) have been designed to overcome this problem, making them more suitable for imaging colorectal cancer, liver cancer, pancreatic cancer, and lymphoma²²⁻²⁴. A second near-infrared (NIR) window (NIR-ii, 900-1700 nm) with higher tissue penetration depth, and higher spatial and temporal resolution has also been developed to aid cancer imaging. A silver-rich Ag₂Te quantum dots

(QDs) containing a sulfur source has been reported to allow visualization of better spatial resolution images over a wide infrared range.

Nanoshells

Another commonly used nanotechnology application is the use of nanoshells. Nanoshells are dielectric cores between 10 and 300 nanometers in size, usually made of silicon and coated with a thin metal shell (usually gold). These nanoshells work by converting plasma-mediated electrical energy into light energy and can be flexibly tuned optically through UV-infrared emission/absorption arrays. Nanoshells are desirable because their imaging is devoid of heavy metal toxicity even though their uses are limited by their large sizes.

Nanotechnology in cancer biomarking



Cancer biomarkers are biological features whose expression indicates the presence or state of a tumor. These are used to study cellular processes, and to monitor or identify changes in cancer cells, and these results could ultimately lead to a better understanding of tumors. Biomarkers can be proteins, protein fragments or DNA. Among them, tumor biomarkers, which are indicators of a tumor, can be tested to verify the presence of specific tumors. Under current medical conditions, biomarkers from blood, urine, or saliva samples are used to screen individuals for cancer risk. But these biomarkers have not proven adequate for cancer screening.

Conclusion

By improving the interactions between the physicochemical properties of the nanomaterials employed, safer and more efficacious derivatives for diagnosis and treatment can be made available for cancer management. In sum, we sought to highlight the key advantages of nanotechnology and the shortfalls in their use to meet clinical needs for cancer. Adding to that, the therapeutic benefits of nanotechnology and future advancements could make them a therapeutic potential to be applied in other disease conditions. These may include ischemic stroke and rheumatoid arthritis which would require targeted delivery of a suitable Pharmacologic Agent at The Affected Site.

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JOSEPHINE RESEARCHER VI

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Cancer Treatment through Nano science

Manasy KS*, Sijo Francis^{1*}, Dr. Anu Antony^{1*}, Dr. Joby K V^{1*} & Dr. Jose James^{1*}

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Abstract

In this review, we outline the commonly used nanomaterials that are employed in cancer diagnosis and therapy. We have highlighted the suitability of these nanomaterials for cancer management based on their physicochemical and biological properties. We further reviewed the challenges that are associated with the various nanomaterials which limit their uses and hamper their translatability into the clinical setting in certain cancer types.

Introduction

Nanotechnology has led to several promising results with its applications in the diagnosis and treatment of cancer, including drug delivery, gene therapy, detection and diagnosis, drug carriage, biomarker mapping, targeted therapy, and molecular imaging. Nanotechnology has been applied in the development of nanomaterials, such as gold nanoparticles and quantum dots, which are used for cancer diagnosis at the molecular level. Given that, several studies have examined different forms of nanomaterials, such as liposomes, polymers, molecules, and antibodies, with the conclusion that a combination of these nanomaterials in cancer drug design can achieve a balance between increasing efficacy and reducing the toxicity of Tools in cancer therapy.

Nanospheres

Liposomes are nanoscale spheres composed of natural or synthesized phospholipid bilayer membrane and water phase nuclei. Neutral drugs can be transported in liposomes, but due to a poor avidity for acidic environments, they are not readily released from the inside of the liposomes. In tumors they can fuse with cells, are internalized by endocytosis, and release drugs in the intracellular space. In the case of the appropriate pH, redox potential, ultrasonic, and electromagnetic field, the liposome can also release the drug through passive or active ligand-mediated activity.

Nanotube

Carbon nanotubes possess a property that allows them to absorb light from the near-infrared (NIR) region, causing the nanotubes to heat up by the thermal effect and, hence can target tumor cells. The natural forms of carbon nanotubes promote noninvasive penetration of biofilms and are regarded as highly competent carriers for the transport of various drug molecules into living cells. Due to the suitability of carbon nanotubes, drugs such as paclitaxel are assembled with them and administered both in vitro and in vivo for cancer treatment.

Polymeric nanoparticles

Polymeric nanoparticles (PNPs) are inventions that relate to a solid micelle with a particle size range of 10-1000 nm. PNPs are collectively known as polymer nanoparticles, nanospheres, nanocapsules, or polymer micelles. PNPs serve as drug carriers for hydrophobic drugs and are widely used for drug discovery. The PNPs constructed from amphiphilic polymers with a hydrophilic and hydrophobic block can perform rapid self-assembly because of the hydrophobic interactions in an aqueous solution. Thus, to carry the hydrophilic charged molecules, such as proteins, peptides, and nucleic acids, these blocks are switched to allow interactions in the core and neutralize the charge.

Dendrimers

The dendrimers are nanocarriers that have a spherical polymer core with regularly spaced branches. As the dendritic macromolecule diameter increases, the tendency to tilt towards a spherical structure increases. There are usually two ways to synthesize dendrimers, a divergent method in which the dendrimers can grow outward from the central nucleus, and a convergence method, where the dendrimers grow inward from the edges and end up in the central nucleus.

Quantum Dots

Quantum dots (QDs) are small particles or nanocrystals of semiconductor materials between 2 and 10 nanometers in size. The ratio of the height of the surface to the volume of these particles gives the QDs the intermediate electron property which is between a mass semiconductor and a discrete atom. Various QD-based techniques such as modification of QD conjugates and QD immunostaining have been developed. With the improvement of multiplexing capability, QDs conjugation greatly exceeds the monochromatic experiment in both time and cost-effectiveness.

Conclusion

Nanotechnology has shown a lot of promise in cancer therapy over the years. Improved pharmacokinetic and pharmacodynamic properties and nanomaterials have contributed to improved cancer diagnosis and treatment. Nanotechnology allows targeted drug delivery with minimal systemic toxicities. The therapeutic benefits of nanotechnology and future advancements could make them a therapeutic potential to be applied in other disease conditions. These may include ischemic stroke and rheumatoid arthritis which would require targeted delivery of a suitable pharmacologic agent at the affected site.

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Preparation and Characterisation of Potassium Tris (Oxalato) Chromate (III)

Mirsana C S*, Ebey P.Koshy^{1*}, Sijo Francis^{1*}, Dr. Anu Antony^{1*}, Dr. Joby K V^{1*} & Dr. Jose James^{1*}

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Abstract

We have experimented to synthesize **Potassium Tris(oxalato)chromate (III)** complex from Merck grade samples of Potassium dichromate, Potassium oxalate monohydrate and Oxalic acid dihydrate. Then the compound (Potassium Tris(oxalato)chromate (III) complex) is characterized by FTIR spectrometer, UV-visible spectrophotometer, and magnetic susceptibility measurement.

Introduction

One of the most challenging research fields in modern chemistry is the design and synthesis of multifunctional compounds and materials with predictable structures and properties. Metal cations can be successfully used to link relatively stable coordination compounds containing potential bridging units leading to one, two- and three-dimensional systems.

Coordination compounds are important for at least three reasons. First, most of the elements in the periodic table are metals, and almost all metals form complexes, so metal complexes are a feature of the chemistry of more than half the elements. Second, many industrial catalysts are metal complexes, and such catalysts are steadily becoming more important as a way to control reactivity. For example, a mixture of a titanium complex and an organometallic compound of aluminum is the catalyst used to produce most of the polyethylene and polypropylene "plastic" items we use every day. Finally, transition-metal complexes are essential in biochemistry. Examples include hemoglobin, an iron complex that transports oxygen in our blood cytochromes, iron complexes that transfer electrons in our cells; and complexes of Fe, Zn, Cu, and Mo which are crucial components of certain enzymes, the catalysts for all biological reactions. Chromium (VI) has many industrial uses as pigments, catalysts, and fungicides. Chromium (III) is a common and stable oxidation state that displays significant kinetic inertness.

Experiment

Preparation of Potassium Tris(oxalato)chromate(III)

To a solution of 1.83 g potassium oxalate monohydrate and 4.67 g oxalic acid dihydrate in 70 ml water, 1.67 g powdered potassium dichromate is added in small portions with vigorous stirring. When the reaction has ended, the solution is evaporated nearly to 20% of its original volume and allowed to crystallize in an ice water bath. Potassium trioxalatochromate forms deep-green crystals. Collect the product by suction filtration, wash with 25 ml alcohol, and then dry in the oven. Record the mass of the product collected. IR and UV-vis. Spectra are also measured.

Results

Infrared Spectra

The IR spectrum of the complex was recorded in the solid state. Here the interaction of electromagnetic radiation of frequency 4000 – 450 cm with matter was studied.

The IR spectra of the complex exhibit bands corresponding to the bidentate oxalate ligand (ca. 1710, 1686, 1657 cm⁻¹ [$\nu(\text{C=O})$]; 780 cm⁻¹ [$\delta(\text{CO})$]) suggesting the presence of oxalate groups. The band observed at 893 cm⁻¹ has been assigned to $\nu(\text{C-C})$.

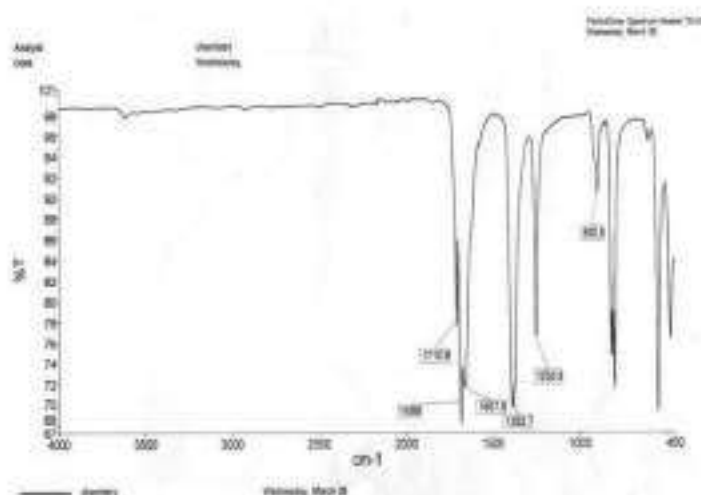


Figure1 IR spectrum of the complex

Electronic Spectra

In the electronic spectrum, the strong absorption maxima observed at 567 and 417 nm show d-d transitions (${}^4 A_{2g} \rightarrow {}^4 T_{2g}$ and ${}^4 A_{2g} \rightarrow {}^4 T_{1g}$) typical for Cr(III) octahedral complexes

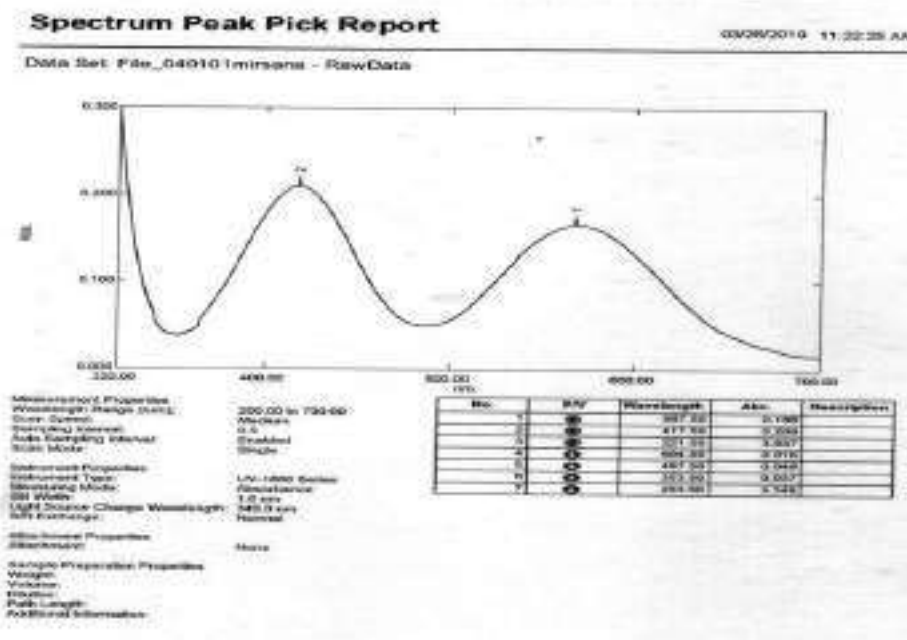


Figure 2-UV-vis. Spectrum of the complex

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Preparation of Zinc Oxide Nanoparticles and Synthesis of Zinc Oxide Nano Composites by Green Routes

Athmitha K Jiji* and Sijo Francis^{1*}, Dr. Anu Antony^{1*}, Dr. Joby K V^{1*} & Dr. Jose James^{1*}

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Abstract

Green-synthesized zinc oxide nanoparticles hold significant promise in nanotechnology, with a wide range of applications. When it comes to nanoparticle synthesis, employing plants can offer distinct advantages over other biological entities. This approach can overcome the time-consuming process of working with microbes and maintaining their cultures, which can often lead to a loss of their potential for nanoparticle synthesis. Therefore, the use of plant extracts in this context can have a profound impact in the coming decades. Additionally, it is a cost-effective, economical, and environmentally-friendly method

Introduction

Nanotechnology is an important field of modern research dealing with the strategy and manipulation of particle structures ranging in size from approximately 1 to 100 nanometers. Nanotechnology has the potential to create many new materials and devices with a vast range of applications, including medicine, electronics, energy, and the environment. Nanoparticles are of great scientific interest because they serve as a bridge between bulk materials and atomic or molecular structures.

In this work, the leaf extract of Aloe vera was used for the generation of zinc oxide nanoparticles. Nanoparticles are characterized by UV visible, FTIR X-ray diffraction spectroscopy. Synthesis of ZnO polymer Nanocomposites of selected polymer and characterization by UV visible, FTIR spectroscopy.

Materials

Zinc nitrate used as the precursor was purchased from Merck Chemicals and was used without treatment. The Aloe Vera leaves were collected locally. All aqueous solutions were prepared using double distilled water.

Synthesis of ZnO nanoparticles

The aloe Vera plant extract was added with zinc nitrate as the precursor with a total volume of 200 ml. The precipitate obtained was dried at 80 C showing the whole process of ZnO biosynthesis.

Synthesis of ZnO/Polymer Nanocomposites

ZnO/ polymer PVP Nanocomposites were prepared by mixing an aqueous solution of the polymer (1mM, in 5% HCl) with the synthesized ZnO nanoparticles (1 mM)

Result and discussion

UV-visible spectroscopic analysis of ZnO nanoparticle

The UV-Vis spectra were recorded over the 200–800 nm range. UV-visible absorption spectrum of synthesized nanoparticles is shown in Figure 1. The absorption for bulk ZnO occurs around 385 nm. The high blue shift absorption for the synthesized ZNPs in comparison with the bulk ZnO can be due to a high decrease in particle size. The UV-vis spectrum of ZnO gives a characteristic peak at about 360–390 nm. The absorption band at about 265–274 nm in the Nanocomposite spectra is worth mentioning, which is caused by the π absorption of the functional groups in the polymer

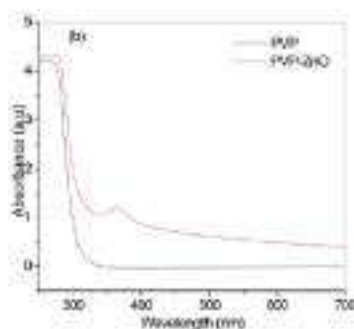


Figure 1 - UV-Vis. Spectra of PVP, and ZnO/PVP,

Fourier-transform infrared spectroscopy (FTIR)

FTIR spectra of PVP, ZnO nanoparticles, and the Nanocomposites are recorded at room temperature from 4000 to 500 cm^{-1} . In the ZnO nanoparticle spectrum, the absorption band at 531 cm^{-1} is typical of the Zn–O stretching vibration. The appearance of the Zn–O vibration mode at 544 cm^{-1} means the successful formation of ZnO/ PVP. The peak observed around 3600 cm^{-1} is attributed to the stretching vibration of the hydroxyl group and the peak appeared at 1730 cm^{-1} carbonyl groups present in the aloe Vera extract involved in the NP synthesis. Meanwhile, the peak observed around 1346 cm^{-1} and below is ascribed to the existence of metal oxide. The ZnO was formed from aloe Vera leaf extract where the free carboxylic and the amino group of the plant extract acted as both reducing and capping agents.

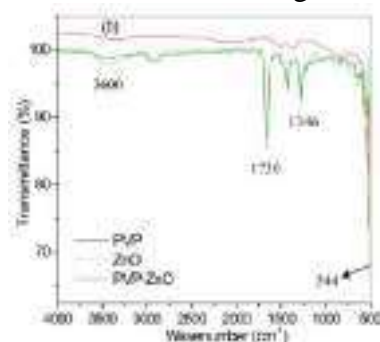


Figure 2.1: FTIR spectra of PVP, PVP/ ZnO

Conclusion

In the study, we have reported a green approach for ZnO synthesis using aloe Vera plant extract. The method is simple, inexpensive and eco-friendly without using toxic chemicals. FTIR studies clearly show the formation of ZnO and indicate that the plant extract contains various phytochemicals, which work as a capping and stabilizing agent for synthesized Zn NPs.

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JOSEPHINE RESEARCHER VI

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Timing and Spectral Analysis of Thermonuclear X-ray Burst from Atoll Source 4U 1636-536

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Abstract

Here we are presenting the results of the Thermonuclear X-ray burst of 4U1636-536 using ASTROSAT/LAXPC data during the year 2018. Light curve analysis of this source reveals 15 thermonuclear X-ray burst-like events. All the bursts are very strong and the burst peaks to persistent intensity 9 times except for two bursts B2 and B10. Energy resolved burst profile shows the burst-like event disappears above 30 keV. We fitted each burst in a different energy range with model BURS and found that the decay time decreases with energy.

1. Introduction

Low Mass X-ray binary (LMXB) are bright X-ray sources which accrete through the Roche lobe and overflow through the inner Lagrangian point. X-rays in this system are produced at the inner part of the accretion disk and the surface of the neutron star. X-ray variabilities which are mostly observed by LMXBs are X-ray bursts and QPOs [1]Walter & Lewin, 1997).

A thermonuclear X-ray burst (or type-I X-ray burst) is a quick, intense flash of X-ray emission caused by thermonuclear burning occurring on the surface of an accreting neutron star. Due to the intense gravitational pull of the neutron star, when a low-mass main sequence star and companion star are in orbit around one another, the companion star overflows its Roche-lobe and hydrogen is dragged into an accretion disc around the neutron star. Periodic X-ray bursts result from the repetition of the procedure. Most of the X-ray bursts with an energy output of $\sim 10^{39}$ erg last about 10-100 seconds, and repeat at regular intervals separated by several hours or days. They have durations ranging from a few seconds to a few minutes, with the burst profile showing a rapid rise (0.3 – 10 seconds) followed by a slower decline (5 – 100 seconds). Observation of X-ray bursts helps to determine the neutron star radius if the distance to the source is known. Here we are analyzing the Type-1 bursts from the atoll source 4U 1636-536.

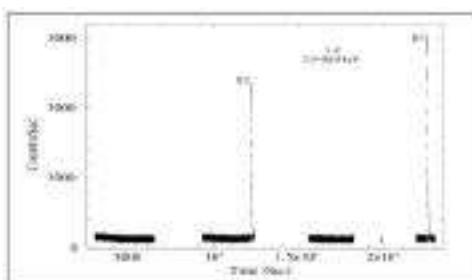
4U 1636–536, a persistent X-ray burster, is an LMXB comprising a neutron star and a late-type, low-mass companion star. It is approximately 19.5694 Light Years away and mass of $\sim 1.4 M_{\odot}$. The companion star is of mass 0.4–0.5 M_{\odot} . 4U 1636–536 is classified as an atoll source based on the track it traces in the Color-Color Diagram (CCD). Superbursts [3] and millisecond Quasi-Periodic oscillations [4] were detected in this source. Doublet and rare triplet bursts were detected from this source [5] in the AstroSat/LAXPC observed during 2016.

2. Observation Data Reduction

Astrosat is India's first dedicated multi-wavelength astronomy satellite. The satellite consists of five payloads. Here we analyse the AstroSat LAXPC observations of low mass X-ray binary 4U1636- 536 during the year 2018. Here, we analyzed four sets of data observed during 09 May 2018, and 06 August 2018 are used and analysed.

For analysing the data, we used LAXPC software developed by IUCAA. The command \$LAXPCDATAPATH\$ is used to set the datapath. Data file lists are made using the command \$laxpc_make_filelist\$, creating event files, filter files and an orbit file list. An Event file in FITS format is created using the command \$laxpc_make_event eventfiles\$. This produces a new file called 'level2.event.fits'. Using the filterfiles a new GTI file is created. A new GTI file named 'usergti.fits' is created using the command \$laxpcmake_stdgti filterfiles\$. These files are further used for the analysis and creation of lightcurves.

A light curve is created using the `level2.event.fits` file using the command `$laxpc_make_lightcurve$`. The parameters specified in that command are `-p`, `-t`, `-u`, `-o` and `-e`. Parameter `-p` is for denoting which `laxpc` counter is used. The parameter `-t` specifies the bin time of the lightcurve and here it is given 1 sec. Parameter `-e` denotes the energy ranges of the lightcurve and if nothing is given then the default value of 3 to 80 keV is used. The `usergti` filename is specified by `-u` and the output filename by `-o`. A background lightcurve is created using the command `$laxpc_make_backlightcurve$`. The background light curve is subtracted from the light curve produced using the tool `lcmath`.

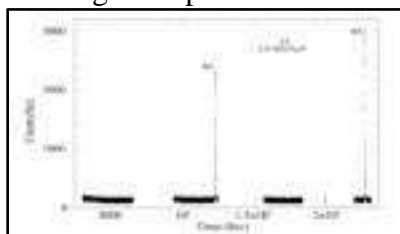


3 : Timing Analysis

Light are extracted into curves four different observation IDs. The lightcurve from the second observation ID is named L1 in this paper and it contains one burst, which we call B1. The lightcurve, L2 from the third observation ID contains two bursts B2 and B3. The bin time of all these light curves is 1s.

All the lightcurves have a persistent count rate of ~ 200 counts/sec and L1 contains a burst B1 with a peak count rate reaching ~ 947 counts/sec and a decay time of ~ 7 seconds.

The lightcurve 2 contains two bursts B2 and B3 respectively. B2 has a peak count rate of ~ 2368 counts/sec with a decay time of ~ 22 seconds and B3 has a peak rate of ~ 3076 counts/sec with a decay time of ~ 16 seconds. B3 is large compared to B2. These are shown in Figure 3.1.



3.1: Lightcurve 1 and L2 plotted with bin time 1 second in the energy range of 3.0 to 80.0 keV.

3.1 Energy-Resolved Burst Profiles

The default energy range of the lightcurves is 3.0 to 80.0 keV. To analyse the energy dependence of the bursts, light curves are created in different energy ranges. The lightcurves of the first burst B1 are created in 3-5keV, 5-7keV, 7-9keV, 9-11keV, 11-13 keV and 13-15 keV ranges. Lightcurves of all the other bursts are created in 3-6 keV, 6-9 keV, 9-12keV, 12-15keV, 15-18keV and 18-21keV. Their corresponding backlight curves are also created as before. The background-subtracted light curves are used for the analysis. The burst profiles of six energy values are plotted in the same window. These combined plots of a few sample burst profiles are given below in the following Figures 2.3 and 2.4.

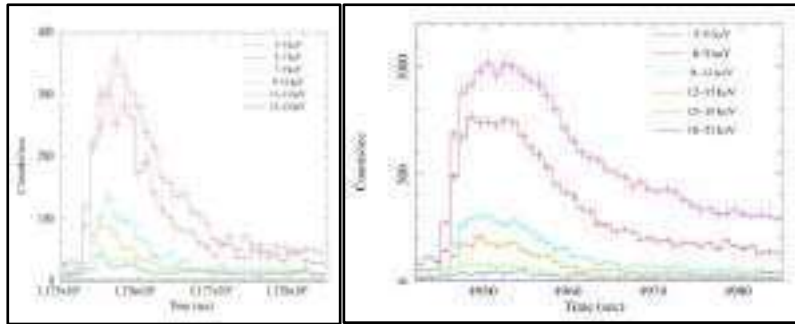


Figure 3.3: Energy-resolved burst profiles of L1:B1 and L2:B2

It is seen that the burst count rate is decreasing with increasing value of energy. The count rate is maximum for the 3.0 to 5.0 keV range in B1 and the 3.0 to 6.0 keV range in B2, and B3. Burst property is identifiable only up to ~21 keV.

3.2: Analysis of Thermonuclear Bursts

To observe the variation of Decay Time with different energies, the individual burst-like events are created in various energy ranges and fitted using model Constant(CO) and BURS. The CO model is used to fit the persistent part and the BURS model to fit the burst region. Few sample fitted burst profiles of lightcurve 1 in energy ranges 3.0 to 5.0 keV, 5.0 to 7.0 keV, 7.0 to 9.0keV, 9.0 to 11.0 keV, 11.0 to 13.0 keV and 13.0 to 15.0 keV are shown as in the below figures.

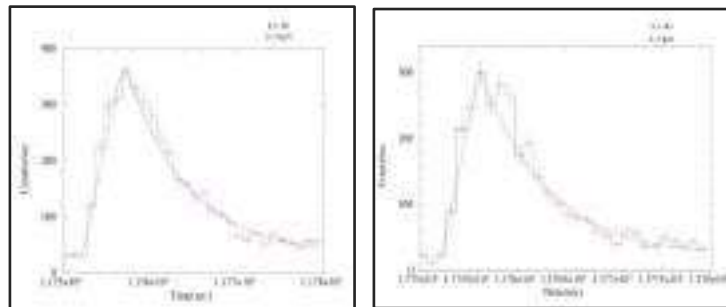


Figure 3.5: Energy range 3.0-5.0 keV and 5.0-7.0 keV of burst B1

The fitted parameters namely, CO (Constant), ST (Starting Time), PT (Peak Time), DT (Decay Time), and BN of B1 of light curve 1 in the various energy ranges are given in Table 2. We can see that burst characteristics, specifically, the decay time, change with energy range. The decay time of the burst is compared with the increasing energy range and the values are given in Table 3. From all these observations, it is seen that in most cases the decay time shows a decreasing nature as the energy increases. The plots of energy against decay time are shown in the following figures.

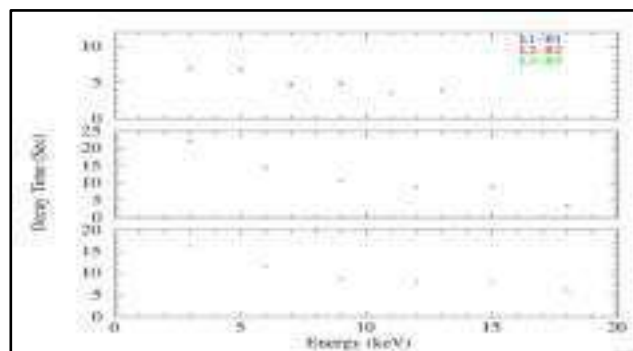


Figure 3.6: Variation of decay time with energy

Energy Range	ST (S)	PT (S)	DT (S)	BN (c/s)
3 to 5	11752.11	11756.83	7.00	350.0
5 to 7	11752.14	11756.06	6.83	285.0
7 to 9	11752.66	11756.05	4.75	127.64
9 to 11	11752.73	11755.33	4.87	86.0
11 to 13	11752.95	11754.77	3.49	45.0
13 to 15	11753.03	11755.16	4.04	33.0

Table 2: Variation of decay times with increasing energy in B1

Energy Range (keV)	Decay time (Sec)
3 to 5	7.00
5 to 7	6.83
7 to 9	4.75
9 to 11	4.87
11 to 13	3.49
13 to 15	4.04

Table 3: Fit parameters at different energy ranges of B1 of L 1

4: Results and Conclusion

The light curve is created for the atoll source 4U 1636-536 using 2018 year LAXPC data shows 15 Type I bursts. The third burst B3 has the highest count rate of ~3076 counts/sec. Burst B8 is with the second highest count rate of ~2961 counts/sec and B15 with ~2905 counts/sec. Energy-resolved analysis of these bursts shows that the burst-like property is only distinguishable up to 21 keV. All of the bursts show a decreasing intensity as the energy ranges are increased. The comparison of the decay time of each burst with different energy ranges showed a similar trait of reduced decay time with increasing energy.

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JOSEPHINE RESEARCHER VI

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Study of Oxalate Content in Tomato

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Abstract

Oxalate ion is present in a variety of fruits and vegetables. The content of oxalate ion present in a specific fruit or a vegetable can be determined by carrying out experiment on the crushed pulp of that fruit or vegetable. The experiment gives the strength of oxalate ion content which can be directly related to the amount of oxalate ion present in that specific fruit or vegetable.

Introduction

Oxalate is the dianion with the formula $C_2H_4^{2-}$, also written $(COO)_2^{2-}$. Oxalate occurs in many plants, where it is synthesized by the incomplete oxidation of carbohydrate. The root or leaves of Rhubarb and buckwheat are high in oxalic acid. Other edible plants that contain significant concentrations of oxalate include in decreasing order, star fruit (carambola), black pepper, parsley, poppy seed, amaranth, spinach, chard, beets, cocoa, chocolate, most nuts, most berries, fishtail palms, and beans. Although unusual consumption of oxalates (for example, the grazing of animals on oxalate-containing plants such as *Bassia hyssopifolia* or human consumption of wood sorrel) may result in kidney disease or even death due to oxalate poisoning.

Tomatoes are a popular fruit (though often used as a vegetable) widely cultivated and consumed worldwide. They are native to South America but have been grown in Mexico and other parts of the Americas for thousands of years. Tomatoes are members of the nightshade family, along with potatoes, peppers, and eggplants. Tomatoes are a good source of vitamins A and C, potassium, and fiber. They also contain lycopene, a powerful antioxidant thought to have several health benefits, including reducing the risk of certain types of cancer and heart disease. There are many varieties of tomatoes, ranging in size from small cherry tomatoes to large beefsteak tomatoes. They can be eaten raw or cooked in various dishes, including salads, soups, sauces, and stews. Tomatoes can also be canned or dried in recipes throughout the year. Tomatoes are generally considered a healthy food choice but contain a moderate number of oxalates. Oxalates are compounds in many plant-based foods that can form kidney stones in some individuals. Additionally, drinking plenty of water and maintaining a healthy lifestyle can help prevent the formation of kidney stones.

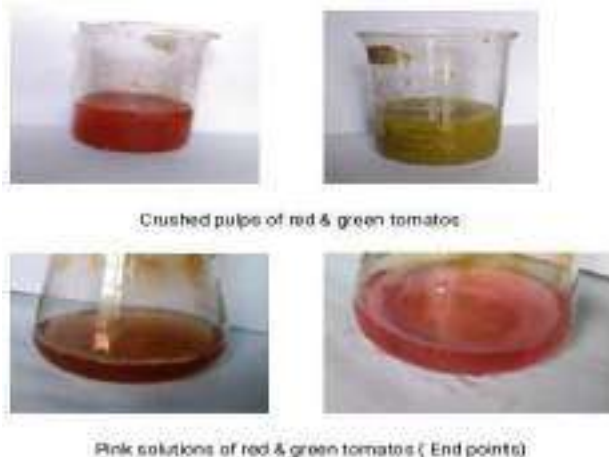
This report describes a method for the estimation of oxalate ion content in red and green tomatoes. Oxalate ions are extracted from the fruit or vegetable by boiling pulp with dil. H_2SO_4 . Then the oxalate ions are estimated volumetrically by titrating the dilution with standard $KMnO_4$ solution.

Procedure

1. Weigh 50 g of fresh (green) tomato pulp and crush it to a fine pulp using a pestle and mortar.
2. Transfer the crushed pulp to a beaker and add about 50 ml dil. H_2SO_4 to it. Boil the content for 2 minutes.
3. Cool and filter the contents in a 100 ml measuring flask.
4. Make the volume up to 100 ml by adding distilled water.
5. Take 20 ml of solution from the measuring flask into a titration flask and add 20 ml of dil. H_2SO_4 to it.
6. Heat the mixture to about $60^\circ C$ and titrate it against N/10 $KMnO_4$ solution taken in

a burette. The end point is the appearance of permanent light pink colour.

7. Repeat the above procedure for ripened (red) tomato



Results and Discussions

Weight of fruit taken each time = 50 g

Volume. of pulp extract taken in each titration = 20 ml

Normality of KMnO_4 solution = 1/10

Tomato type	Volume of KMnO_4 added (ml)
Red	27.6
Green	23

Results

Normality of oxalate ion in red tomato = 0.138N

Normality of oxalate ion in green tomato = 0.115 N

Strength of oxalate ion in red tomato = 6.072 g/litre

Strength of oxalate ion in green tomato = 5.060 g/litre

Conclusions

Our observations showed that the oxalate ion content in ripened tomatoes (red) is more than that of fresh (green) tomatoes. Hence, we can conclude that oxalate ion content in tomatoes increases with ripening. The estimation of oxalate ion content can help in research in many other fields, such as various harmful effects of oxalate on our body and its relation with kidney disorders.

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Impact of National Education Policy on Brain Drain in India

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Introduction

The development of a country is an intricate process influenced by a myriad of economic, social, political, and cultural factors. Each nation embarks on a unique developmental path based on its specific circumstances, available resources, and challenges. The competitiveness of a country, in this context, is shaped by the diverse types of capital it possesses. The different types of capital are (i) Natural Capital (Natural Resource Capital), (ii) Man Made Capital (iii) Financial Capital (iv) Institutional Capital (v) Human Capital (vi) Knowledge Capital (vii) Cultural Capital. In the contemporary digital age, knowledge capital holds significant importance. The rapid advancements in technology and the prevalence of digital platforms have transformed the way societies function. Access to information, innovation, and the ability to adapt to technological changes are crucial components of knowledge capital. Countries that prioritize education, research and development, or countries that foster a culture of continuous learning are better positioned to thrive in the digital era. Knowledge capital not only drives economic growth but also enhances a nation's resilience in the face of global challenges. While all types of capital are essential for a nation's development, the increasing dominance of the digital order underscores the critical role of knowledge capital. Investment in education, technology, and innovation is key to ensuring sustainable and inclusive development in the contemporary world. But developing countries like India are facing a threat of Brain Drain which decelerates the development process of the country. The migration of highly educated individuals seeking better opportunities abroad, remains a persistent challenge for India. This phenomenon poses significant implications for the nation's economic growth, intellectual capital, and social development. Against this backdrop, it is relevant to discuss the measures to be taken in the context of the National Education Policy (NEP) 2020.

Brain Drain and Impact

Brain-drain, the phenomenon of skilled professionals seeking opportunities abroad, has a historical backdrop that spans several decades. Notably, countries like India witnessed a significant exodus of professionals and scientists, particularly to the United States and Western nations. Certain regions, such as India, China, the Philippines, and various African nations, have been hotspots for brain drain. Conversely, countries like the United States, Canada, Western Europe, and Australia have been favoured destinations for skilled migrants. The motivations behind brain drain are multifaceted. Skilled individuals often migrate in pursuit of enhanced career prospects, access to cutting-edge research facilities, higher income avenues, political stability, and an improved quality of life.

The impact of brain drain on source countries is complex. While it results in a loss of crucial human capital necessary for economic progress and innovation, remittances from expatriates can bolster the economy of these nations, offering a dual effect. Destination countries benefit significantly from brain drain. They gain access to highly skilled workers who contribute substantially to their economies, research institutions, and cultural diversity, enriching the social fabric. In response, some source countries have initiated "brain gain" initiatives. These strategies aim to reverse brain drain by creating attractive job opportunities, enhancing research infrastructure, and providing incentives for skilled professionals to return home, thereby bolstering domestic expertise. Additionally, a contemporary concept known as "brain circulation" has emerged. This phenomenon underscores the fluidity of the talent

movement, where professionals traverse between countries, accumulating diverse experiences, fostering international networks, and contributing to multiple nations throughout their careers. This dynamic interplay fosters a global exchange of knowledge and expertise, challenging the traditional notion of brain drain as a unidirectional flow.

Data Point regarding Knowledge Capital

As per data shared by Union Minister of State for Education Subhas Sarkar in the Lok Sabha in February, 30.13 lakh Indian students have gone abroad for higher studies since 2017. In 2022 alone, 7.5 lakh students left the country, a 69 percent increase compared with 2021 and a 28 percent rise from the pre-pandemic figure in 2019.

Another interesting fact is that the economic ascent of both China and India can be ascribed to a myriad of factors fostering sustained development. While both nations stand as formidable economic giants in Asia, China has surged ahead. China's rapid progress can be primarily attributed to its emphasis on human development, including healthcare and education, coupled with its authoritarian political structure and equitable resource distribution. These factors have propelled China into becoming the world's fastest-growing economy.

In contrast, India's lag can be traced back to its shortcomings in prioritizing crucial areas such as improving literacy rates and investing substantially in human development. Additionally, India's democratic system, while a fundamental strength, has faced challenges in swift decision-making, potentially hindering rapid economic advancement when compared to China's centralized approach. Now China is a 16 trillion-dollar economy and India is a 3.9 trillion-dollar economy. The question is what transformed China into such a big economy. The answer to this is the innovation and research of that country. Knowledge generation is a competitive pillar for every country. This is evident from the number of patents, which is 1.2 million, filed by China every year. At the same time India has only 54000 patents to its credit in a year. This figure itself shows the urgent need to give more emphasis to knowledge generation. At this juncture National Education Policy is relevant

The National Education Policy (NEP) 2020 emphasizes the importance of innovative pedagogy and smart learning environments. Educational institutes in India should focus on incorporating smart education to stay ahead in the global learning landscape. This incorporation demands a focus on five crucial aspects: making education enjoyable, engaging, efficient, effective, and ethical. Enjoyable and engaging smart education can leverage augmented reality (AR) and virtual reality (VR) technologies to create immersive learning experiences, enabling students to explore complex concepts and virtual environments. Collaboration tools, discussion forums, and social learning networks should be considered to foster peer interaction and collaborative problem-solving, boosting student engagement and motivation. NEP 2020 aims to make Indian institutions globally competitive, thereby retaining talent domestically.

Negative Impacts of Brain Drain

1. **Loss of Human Capital:** Brain drain results in the loss of highly skilled and educated professionals, which can hinder the development of a knowledge-based economy in India. This loss of human capital is particularly significant in sectors such as technology, medicine, engineering, and academia.
2. **Reduced Innovation:** Many of the brightest minds leave India, which can lead to a decline in innovation and technological advancement within the country. This can hinder the development of cutting-edge industries and limit economic diversification.
3. **Economic Consequences:** When highly skilled individuals emigrate, India loses out on the potential economic contributions they could have made through taxes, entrepreneurship, and job creation. This can lead to a brain drain-induced economic loss.
4. **Healthcare Sector:** Brain drain in the healthcare sector can result in a shortage of doctors, nurses, and medical professionals, particularly in rural areas. This affects the overall health and well-being of the population.

5. Education Sector: The emigration of teachers, researchers, and educators can negatively impact the quality of education in India, which can have long-term consequences on the country's human capital development.

Positive Impacts of Brain Drain

1. Remittances: Many Indian expatriates send remittances back to their families in India, contributing to household income and helping to reduce poverty for some. These remittances can also have a positive impact on the overall economy.
2. Skills and Knowledge Transfer: Some individuals who emigrate gain valuable experience, knowledge, and skills abroad, which they may bring back to India at a later stage. This can benefit various industries and sectors.
3. Diaspora Engagement: The Indian diaspora can serve as a valuable resource for the Indian economy by fostering economic, political, and cultural ties with other nations. This can lead to trade and investment opportunities.
4. Return of Talent: Over time, some individuals who emigrate may choose to return to India, bringing their expertise and global exposure back to the country. This can contribute to the development of various sectors.

Conclusion

India, with a population of 1,428,627,663, forms 17.76% of the world population. The Human Flight and Brain Drain Index, ranging from 0 (low) to 10 (high), for India was 7.5 in 2023. Brain Drain affects India due to limited educational infrastructure, lack of research opportunities, and attractive prospects overseas. However, the ongoing debate regarding the overall impact, shows positive effects on both source and destination countries. The brain drain continues to challenge India's economic growth and development. However, the NEP 2020 represents a significant step toward tackling this issue. By creating an environment conducive to education, research, and innovation, India can transform brain drain into brain gain. Sustained efforts in education reform, infrastructure development, and global collaborations are essential. Retaining intellectual capital ensures a brighter future for the nation and its citizens. Through these strategic initiatives, India can nurture its talented youth, encouraging them to contribute significantly to the nation's progress.

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Recycling of PET Bottles

Sijo Francis^{1*}, Dr. Anu Antony^{1*}, Dr. Joby K V^{1*} & Dr. Jose James^{1*}

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Introduction

Polymers are essential materials composed of repeating monomer units linked together to create long chains. Polyethylene terephthalate (PET) is a common thermoplastic polymer within the polyester family. PET finds widespread use in various applications, including clothing fibers, liquid, and food containers, thermoforming in manufacturing, and as an engineering resin when combined with glass fibers. One of its most well-known applications is in the production of soft drink bottles. Additionally, PET-based materials are in demand for their stability and durability in antimicrobial coatings, particularly in the medical field due to the rise in nosocomial infections and antibiotic-resistant bacteria.

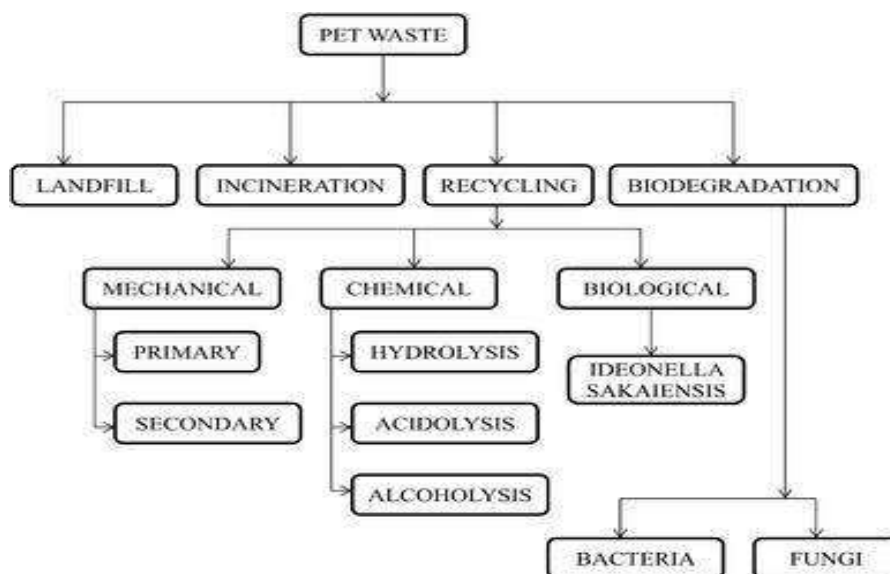
PET Bottles

PET is a colourless, transparent polymer that is almost unbreakable and can be recycled well. These good properties led to a broad distribution of PET as a packaging material for beverages. By contrast with beverage cans or cartons, the transparency allows the beverage to be seen. The unbreakable nature of PET is an advantage over glass bottles. Moreover, PET is distinctly lighter than glass.

Recycling of PET Bottles

Recycling processes are the best way to economically reduce PET waste. On the other hand, as the price of virgin PET remains stable, new and cheaper technologies for recycling PET benefit the PET recycling industry by providing the industry with relatively cheaper PET. Different methods can be adopted for the degradation of PET.

Steps in PET Bottle Recycling



Procedure

The PET bottle is cut into small pieces of appropriate size. It is washed with distilled water & dried. To a 10% NaOH solution in 100 ml mixed solvent of ethanol and water (20:80) in a 300 ml flask, 2g PET resin was added and the flask was heated to 110°C for 0.5 hr. The unreacted residue was filtered and the filtrate was acidified by 20% sulphuric acid to give a solution with white solids. White solids separated by filtration were washed with water and dried.

PET flakes



Unfiltered TPA.

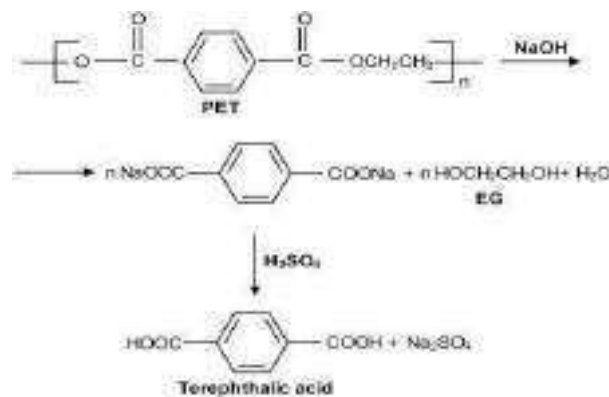


The white powder of TPA



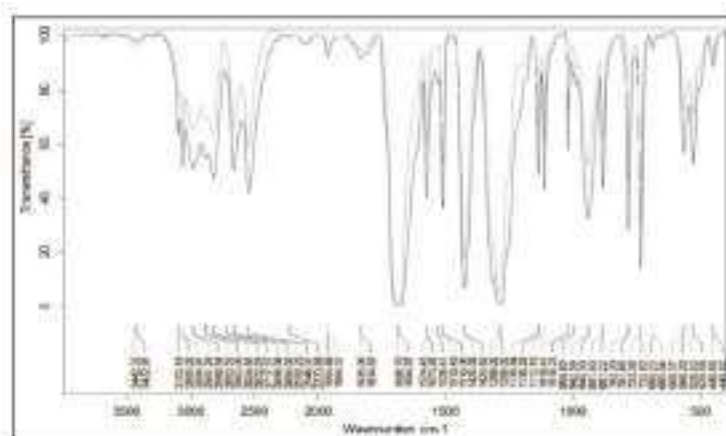
Results and Recommendations

PET resin was decomposed to disodium terephthalate by the reaction with NaOH, which was then protonated to terephthalic acid (TPA) by sulphuric acid.



- The Melting Point of Terephthalic Acid was found to be 300°C.
- TPA is a white crystalline powder.
- The white solid product obtained through alkaline hydrolysis of PET was characterized by a recording of FT-IR spectra to be confirmed as terephthalic acid. The FT-IR spectra of the obtained product have shown the same characteristic bands as well as standard TPA.

FT-IR Spectra of standard TPA and TPA obtained by alkaline hydrolysis of PET
Based on the findings & results of this project, it is recommended that,



- ✓ Various government, private sectors, NGOs & industries can create job opportunities for limited-income people to participate in PET/ plastic collection.
- ✓ Promote recycling of PET bottles & other plastic waste through adoption of good practices in collection & selection of the appropriate methods.
- ✓ Designing community PET recycling collection programs greatly increases the quantity & quality of collection & reduces the overall recycling cost. Two best practices are,
 - To establish an effective & ongoing consumer education program.
 - To design PET bottles with screw-neck tops as accepted for recycling.
- ✓ Promote & encourage current investments in PET recycling by offering subsidies.
- ✓ Prohibit the impart of second-hand machinery/ old technology for soft drinks& water bottling factories, however new machinery contributes to waste saving.

JOSEPHINE RESEARCHER VI

Part II

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Examining the Impact of Number of Children on Teacher's Social Emotional Competency

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Abstract

The primary objective of the study was to evaluate the social-emotional competency of school teachers in Kerala. The study was conducted on a group of 327 teachers including both males (N=265) and females (N=62). A convenient sampling method was used to select the sample. The present study tried to find out any significant difference in teachers' social-emotional competence with respect to their demographic details. The researcher used self prepared questionnaire and the Teachers' Social Emotional Competency Scale (2008) developed by W.L. Nonglait and E.B. Myrthong for data collection. The data was collected by using the survey method. The statistical procedures used to analyse the acquired data were the 't' test, ANOVA, and correlations. The study found that there is a significant difference in the social-emotional competency of teachers based on certain demographic factors such as gender, residential area, marital status, monthly income, etc. Further, it revealed that the teachers' social-emotional competency did not vary on the basis of total experience, religion, qualification, and the number of children. The study also revealed that the social-emotional competency of teachers related to age, as the age increased the social-emotional competency of teachers became reduced.

Keywords:- Social Emotional Competency

Introduction

Teachers play a vital role in the development of students, not only academically but also in their social and emotional growth. Social-emotional competency is an essential aspect of effective teaching, as it enables educators to connect with students, understand their needs, and create a supportive learning environment. This study aims to investigate whether there is a significant difference in teachers' social-emotional competency based on the number of children they have.

Brown, J., Wilson, A., & Martinez, D.(2021) "Teachers' Social-Emotional Competency and Classroom Management Strategies". This research explored the relationship between teachers' social-emotional competency and their classroom management strategies. The study demonstrated that teachers with higher social-emotional skills were more likely to implement proactive and positive behaviour management techniques, resulting in improved student behaviour. This is fulfilled when the number of children is controllable for the teacher within the limited boundaries.

In addition to this Anderson, T., Martinez, L., & Brown, M. (2018) "The Impact of Teachers' Social-Emotional Competency on Parent-Teacher Relationships" explored how teachers' social-emotional competency influences the quality of parent-teacher relationships. The results indicated that teachers with strong social-emotional skills were more effective in building collaborative partnerships with parents, leading to increased parental involvement and support for students in conflict resolution and collaboration a strong bond benefiting the child's well-being,

A study conducted by Garcia, J., Smith, L., & Johnson, K. (2022) investigated in their research “Teachers’ SocialEmotional Competency and Classroom Climate” the impact of teachers’ social-emotional competency on classroom climate. The study found that teachers who demonstrated higher than 40 social-emotional skills created a positive and inclusive classroom environment, fostering a sense of belonging and enhancing student engagement.

It's important to note the number of children as a factor to support and foster their individualism, whereas large classes may pose more challenges. However, it's not only the matter but also the support, resources, and training available to teachers. Schools can help enhance the social and emotional competencies of teachers through professional development, support programs, and creating conducive teaching environments.

Variables		Sum of squares	df	Mean square	F
Self-regulation and management of emotions	Between Groups	151.75	4	37.93	1.62
	Within Groups	7518.59	322	23.35	
	Total	7670.34	326		
Articulation of interpersonal knowledge and skills	Between Groups	504.54	4	126.13	2.24
	Within Groups	18071.12	322	56.12	
	Total	18575.67	326		
Ability to discern and understand others	Between Groups	72.64	4	18.16	0.87
	Within Groups	6671.07	322	20.71	
	Total	6743.71	326		
Ability to interact effectively	Between Groups	113.75	4	28.43	0.62
	Within Groups	14106.71	322	20.71	
	Total	6743.71	326		
Teachers Social Emotional Competency Total	Between Groups	2127.36	4	531.84	1.38
	Within Groups	123963.66	322	43.81	
	Total	126091.02	326		

Results and Analysis:

The distribution of the sample based on the Number of Children shows majority of the sample had 2 children. It is 42.5 percent of the total sample. A sample having no children was 23.2 percent of the total sample. A sample having a single child (N=52) was 15.9 percent. A sample has 3 children (N=49) and more than 3 children (N=11) and their corresponding percentages are 15 and 3.4 respectively.

Table no. 1: ‘ANOVA’ with respect to number of children.

From the above table, the ‘F’ values of the table are not statistically significant. The table shows that there won’t be any significant difference in teachers’ social-emotional competency on the basis of the number of children. This may be because individual differences in personality such as empathy, emotional intelligence, and communication skills can significantly impact a teacher’s social–emotional competency but are not necessarily linked to whether the teacher has children or not or the number of their children. Therefore, the hypothesis ‘there will be a significant difference in teachers’ social-emotional competency on the basis of the number of their children’ is rejected.

Conclusion:

The findings of this study have found that there was no significant difference in teachers’ social-emotional competency based on the number of their children. Thus the hypothesis is rejected and therefore emotional competency was not varied on the basis of the number of children. This has provided valuable insights into the relationship between the number of children teachers have and their social-emotional competency. Understanding this relationship can help inform teacher training and professional development programs, ultimately contributing to improved teaching practices and student outcomes.

Reference:

Brown, J., Wilson, A., & Martinez, D.(2021) “Teachers’ Social-Emotional Competency and Classroom Management Strategies”.

Anderson, T., Martinez, L., & Brown, M. (2018) “The Impact of Teachers’ Social-Emotional Competency on Parent-Teacher Relationships”

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W.L. Nonglait and E.B. Myrthong , ‘Social Emotional Competency Scale’ (2008) .

JOSEPHINE RESEARCHER VI

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Attitude of College Lectures towards Educational Administration

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Abstract

The major objective was to study the attitude of college lectures towards educational administration. The sample constituted a of total 203 college lecturers belonging to seven districts of Kerala. The Attitude towards Educational Administration scale prepared by Dr. T.R. Sharma was used this for this study. The data was collected, scored, and calculated. Statistical procedures used are mean, Standard Deviation. 't' test, ANOVA, and Correlation. The study revealed that there is significance in the attitude of college lectures toward educational administration based on some demographic factors such as monthly income and residential area. Also, the study revealed that age, and educational qualifications designation did not affect the attitude toward educational administration. The study shows that 69.5 percent hold extremely negative attitudes towards educational administration. About the attitude, the assistant professors hold a highly negative attitude towards educational administration.

Keywords: Attitude, College Lectures, Educational Administration

Introduction

The research was about finding out whether there are any significant differences in the attitude of college lecturers based on their type of institution. Mangore (2015) examined the Attitude of Teachers towards the Teaching Profession and the result indicates that there is a significant difference in Positive attitudes towards the Teaching Profession of the Arts and Sciences group. Science groups have negative attitudes toward the teaching profession. Sharma, (July- August 2013) conducted a study on the attitude of teachers towards Continuous Comprehensive evaluation (CEE) the study conducted was mainly an argument to find out the attitude of teachers towards continuous and comprehensive evaluation. Accordingly, the hypothesis was formulated. For this purpose, a sample of 100 teachers was purposively selected. After establishing proper rapport the attitude scale was administered to the subjects. The data was scored according to the scoring procedure given in the manual. To study the significance of difference between the various groups t-test was applied. The overall results indicated that there is a significant difference between the attitude of school teachers toward continuous comprehensive evaluation of locality experience and the nature of the school. For the collection of data for the present study, the investigator used a standardized tool named. Teachers' attitude scale towards continuous comprehensive evaluation given by Dr. Vishal Sood and Dr. Mrs. Arti Anand. Educational policy needs to be directed toward improving aspects of teaching, such as instructional practices and teacher attitudes. Kumar (2016) conducted a study on the Research aptitude of different academic streams at the postgraduate level. The study aimed to assess the research aptitude of postgraduate students of Haryana. The study was conducted on 150 students and the finding shows negative attitude among the post-graduate students towards research.

The basic qualities of an ideal teacher are genuinely affectionate and tender-heartedness, a readiness to share the responsibility involved in a lecture room, an inspiration to provide meaningful training experiences for all scholars, and an eagerness towards their subjects. Negative attitudes displayed in the school by teachers may result in negative performance while positive attitudes put forth by teachers in the school may result in a positive performance. The attitude of a teacher, consciously or unconsciously, directly or indirectly affects students' academic performance.

Results and Discussions

	DESIGNATION			Total
	Designation, Professor	Designation, Assistant professor	Designation, Guest faculty	
Attitude- above 50	1	18	8	27
attitudegroup: Attitude- 43 - 50	1	25	9	35
Attitude below 43	5	83	53	141
Total	7	126	70	203

The table revealed that there are 203 faculties; among that attitude, more than 50 are assistant professors.

The study shows that 18 assistant professors have an attitude above 50. the samples belonging to assistant professors were (N=126), 62.1 percent and those belonging to guest faculty were (N=70), 34.6 percent and those belonging to the category of professor were (N=7), 3.4 percent. The samples belonged to a group who were not stressed (N=74), 63.5 percent and who felt stressed were in (N=74), 36.5 percent. Attitudes that were above 50 were considered extremely high and positive attitudes, those that belonged to a score of 43-50 were considered moderated positive attitudes and the group that belonged to less than 43 belonged to a category of extremely low negative attitude towards educational administration. majority of samples belonged to the married group 74.9 Percent (n=152), and the rest were unmarried 25.5 percent (N=51). The majority of the sample were Postgraduates (N=140), 69.0 percent, and samples with Ph.D. were (N=51),25.1 percent and those with Ph.D. and above qualified were (N=12), 5.9 percentages. 40.39 % of respondents belong to the age group of 30 – 39 (n = 82). Among them male respondents are (n=29) 14% and female respondents are (n=53) 26% of the total sample.

Respondents belong to the age group of 20-29 is 34.9 (n = 71). Among them, male respondents are (n=15) 7.28 and female respondents are (n=56) 27.5% And 13.7% of respondents belong to the age group of 40-49 (n = 28). Among them male respondents are (n=11) 4.4% and female respondents are (n=17) 8.3% And 7.88 respondents belong to the age group of 50-59 (n = 16). Among them male respondents are (n=11) 5.4% and female respondents are (n=5) 2.4 % And 2.95 respondents belong to the age group of 60 and above (n = 6). Among them male respondents are (n= 5) 2.4% and female respondents are (n=1) .49%

Conclusion

The present study on Teachers' Attitudes toward Educational Administration reveals that the Teachers' Attitude toward Educational Administration is unfavorable to a percentage of 69.47. As per the hypotheses included it reveals the demographics that the researcher developed were not the reasons for developing a negative attitude towards educational administration among teachers. It might be based on the educational system that prevailed in Kerala.

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Career Conflict among Adolescents

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Abstract

The main objective of the study is the evaluation of career conflict among adolescents in Idukki district, Kerala. A total of 300 adolescents, including boys(N=132) and girls(N=168), participated in the study. The sample was chosen using a convenient sampling technique. The current study aimed to determine whether there were any appreciable differences in adolescent career conflict according to their demographic information. For data collection, the researcher employed a self-made questionnaire and the Career Conflict Scale (2015). The survey approach was used to gather the data. The 't' test, ANNOVA the statistical technique utilised to examine the collected data. According to the study, there is a significant difference in career conflict among adolescents depending on certain demographic factors, such as the type of school which is higher among the students of government schools as compared to students of CBSE. Additionally, it showed that there was no difference in adolescent career conflict based on the type of family, religion, birth order, or the level of education of the parents.

Introduction

The choice of a career is among life's most crucial choices. The time in a student's life when they must make ethical decisions about their careers is adolescence. It is a period of major life transformation. The career will depend on the courses taken at this level. The most crucial time for adolescents is picking a career. Career selections that, if made improperly, could substantially impair a person's future adolescence (both physically and emotionally).

Career conflict has an impact on a lot of students. The professional choice process is crucial for both adolescent boys and females. To better their future, adolescents must choose a profession at a specific stage of life. However, an adolescent decision about their career is influenced by several factors, including environmental, social, and personal factors. Adolescents find it challenging to select the ideal career because of this. Adolescent boys and girls select distinct vocations, as shown by several research. The career decision-making process highlights how individuals choose a career trajectory; moving from a state of confusion to a decision. Mau, Calvert& Gregory (1997). In 2004, Kniventon performed a study on students' career conflicts. The research is concerned with identifying several elements that influence students' career decisions. Employment opportunities, personal aptitudes, educational attainment, cultural influences, family ties, gender differences, school type, decision-maker location, religion, environment, family values, personality, financial circumstances, socioeconomic status, parents' educational and occupational backgrounds, and employment opportunities are just a few of these variables.

The adolescent stage is typically viewed as a difficult and important one since the pupils must confront and handle numerous basic adjustments. A person learns to deal with the physical and social changes that distinguish adult behaviour from that of children during the psychological phase of adolescence. Stress is a result of many factors during this time. One of the most common challenges that teenagers face is choosing a career path. Making early career decisions is the most difficult for adolescents. One of the most important developmental stages of adolescence is the exploration of one's future aspirations and job objectives.

Adolescents strive to develop a sense of self-worth and responsibility for their decisions during their years in school. The upper secondary stage should be utilised by students to help them decide on the right educational and professional paths based on their interests, abilities, aptitudes, goals, and personality qualities. Therefore, every adolescent should carefully select their career to ensure that it is a perfect fit. The selection of a rewarding vocation should be the aim of today's youngsters.

Result and Discussions

Table no:1

Mean standard deviation and corresponding 't' values obtained based on the type of school

Variables	Mean of government school N=87	SD	Mean of CBSE school N=213	SD	't' value
Social	65.80	6.143	63.74	6.604	2.504*
Educational	32.14	3.087	30.91	3.765	2.533*
Personal	31.94	3.639	30.73	3.329	2.780**
Work culture	27.28	4.100	25.03	4.408	4.088**
Family	37.55	5.434	35.40	6.425	2.743**
Gender	25.10	5.632	20.43	5.438	6.688**
Career conflict	219.82	20.804	206.24	20.054	5.261**

*significant at 0.05 level ** significant at 0.01 level

Young people's career conflict has important features. All other dimensions are significant at the 0.01 level, except for the educational dimension, which is significant at the 0.05 level. The students from government schools had a higher mean score in the overall career conflict scale and all of its subscales than the students from CBSE schools, according to all the aspects. It suggests that the sort of education had an impact on the conflict in the career.

The study revealed that there is no significance based on the type of family. It indicated that the type of family does not affect career conflict. The study again revealed that there is no significance based on religion. It indicated that religion does not affect career conflict among adolescents. Hence, the hypothesis is rejected.

The study revealed that there is no discernible difference based on the father's educational background. It showed that adolescents' career conflict is unaffected by the father's educational background. It became clear that the educational background of the mother had no bearing. It showed that adolescent career conflict is unaffected by the mother's educational background.

The study showed that adolescents' social subscales were based on where they lived. The estimated 'F' value of the subscale social is (4.03) and is significant at the 0.05 level, and the overall level of professional conflict among adolescents is significant at the 0.05 level. As per the study, the subscale social is higher among rural and lower among semi-urban and shows

semi-urban urban kept a difference with rural groups. Urbans did not vary with the other two groups.

Conclusion

The study "Career Conflict among adolescents" attempts to examine the degree of career conflict among adolescents based on their various demographic characteristics, including, type of school, religion, birth order, type of family, and father and mother's educational background. Based on age group, the researcher can discover that there is a sizable variance in professional conflict among adolescents. According to the study, there is a significant difference in career conflict among adolescents depending on certain demographic factors, such as the type of school which is higher among the students of government schools as compared to students of CBSE. The study contributes to our understanding of adolescent career conflict. The study's findings open up a new channel of knowledge and insights for all parties involved, particularly those who are involved in the education system, such as educators, researchers, policymakers, counsellors, and other higher authorities.

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Emotional Maturity among Young Adults

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Abstract

The prime objective of the study was to evaluate the emotional maturity among young adults. The study was conducted on a group of 300 young adults including both males (N=125) and females (N=175). A convenient sampling method was used to select the sample. The tools used were a self-prepared questionnaire and an emotional maturity scale (Singh & Bhargava, 2010). The obtained data was analyzed using the SPSS tool and conducted t t-tests, ANOVA, and Correlation. The study found that there is no significant difference in emotional maturity among young adults based on demographic factors such as gender, religion, residential area, job status, education, family structure, marital status, and consumption of alcohol. The study also revealed that emotional maturity is related to age, as the age increased the emotional maturity among young adults became reduced.

Keywords: Emotional Maturity, Young Adults

Introduction

The concept of the 'young adult', also synonymous with adolescence and youth, is heavily context-dependent. Over time, the perception of the concept has shifted from merely a developmental outlook to one that is also bound by a socio-cultural understanding. Broadly, it is believed to be a stage between childhood and adulthood and is influenced by several social, economic, and cultural factors. Young adulthood is a unique developmental period that occurs between the ages of 18 and 25 years, during which there are key developmental tasks that allow the young adult to participate in self-exploration and identity formation (James and James, 2008). Young adulthood is a period of transition from adolescence to early adulthood with significant age-appropriate developments. "Emerging adulthood" is a term often used to refer to the period beginning in the late teenage years and extending into the mid-twenties (Feldman, 2017).

Emotional Maturity means a person's ability to control his/her emotions and express them in a socially desirable manner. Emotions can be described as some sort of feelings that are associated with some instincts or biological drives. According to Raruch, Grotberg & Stutman (2008), "The capacity to sublimate, to direct one's instinctive hostile energy into creative and constructive outlets is part of Emotional Maturity." It means controlling one's emotions rather than allowing the emotions to control which doesn't mean the emotions to be hidden or repressed. An emotional person can give expression to his emotion at the right time and in a proper manner. This means emotional maturity is having proper emotions at the proper time and expressing them in the proper form and proper quality. Emotional Maturity is the result of healthy emotional Development.

Emotional immaturity may play a role in impulsive and violent offenses, such as assault or robbery. It may not have the same impact on white-collar crimes, which often involve complex motivations and decision-making processes. Emotional maturity can be a contributing factors to crime rates, particularly regarding impulsive and aggressive offenses. Understanding emotional immaturity can help healthcare professionals develop targeted interventions to prevent or treat emotion-related mental health problems.

Results and Discussions

The emotional maturity among young adults hasn't got any significant difference by gender. The present study supported the study of Jane Smith (2018). This study explored to examine the relationship between emotional maturity and social relationships, specifically considering

gender as a potential influencing factor. The research involved a large sample of participants from diverse backgrounds, including both males and females. The findings indicated that there were no significant differences in emotional maturity and social relationship skills between genders, suggesting that these aspects of human development are not inherently gender-dependent.

The age group doesn't play an important role in building emotional maturity among young adults. The mean of age group 20 and below is 114.16 and its standard deviation is 27.41. The mean of the age group above 20 is 107.73 and its standard deviation is 29.41. Thus the difference is not statistically different.

Emotional maturity is not statistically significant based on education, religion, residential area, and job status. It is important to recognize that individual cases can differ and some individuals may find that the factors play a role in their emotional development.

The mean score for the emotional maturity of the nuclear family is slightly higher than the mean score for the emotional maturity of the joint family and the mean score for the social relationship of the joint family is higher than the mean score for the social relationship of the nuclear family. However, the calculated 't' value is lower than the table value (1.96) and there is no significant relationship between emotional maturity and family type.

As per the results, the emotional maturity among young adults has no significant difference based on marital status. The present findings contradicted to previous study conducted by Anderson, Johnson, Thompson et al.,(2020). The study revealed that emotional maturity was positively associated with social relationship satisfaction among both single and married individuals. However, the relationship between emotional maturity and social relationship satisfaction was significantly stronger among married individuals compared to single individuals.

The findings also revealed that the emotional maturity of young adults was not significantly varied based on consumption of alcohol. The mean of individuals who consume alcohol is 113.59 and the mean of individuals who do not consume alcohol is 107.49. However, the difference is not statistically significant. The present findings contradicted with the study of Anderson and Wilson et al.,(2019). The study shows that nonconsumers of alcohol exhibited higher levels of emotional maturity compared to alcohol consumers.

The study also revealed that total emotional maturity is negatively related to age, which means that as age increases, emotional maturity decreases. Emotional maturity can contribute to development at any age, and it can be influenced by a range of individual and environmental factors. While age can be a contributing factor, it is just one element in the complex development of emotional maturity.

Conclusion

The study was conducted within a limited period, so it has certain limitations. However, the study found that emotional maturity is related to age. Therefore, emotional maturity is an indispensable aspect of a young adult's life, and profoundly influences the personal growth, overall well-being, and success of an individual. Emotional maturity plays a pivotal role in managing stress, maintaining mental health, and achieving professional success. Thus, recognizing and cultivating emotional maturity is crucial for guiding young adults toward a fulfilling and well-rounded life.

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Maximizing Team Performance through Effective Management

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Abstract

In the fast-paced and dynamic business environment of India, maximizing team performance through effective management is a critical imperative. This article explores the multifaceted landscape of team management in the Indian context, probing into the unique challenges and opportunities. It provides insights into the key strategies for effective management, including leadership, communication, cultural sensitivity, and talent development geared toward optimizing team performance.

Keywords: Team performance, Effective management, Leadership, Communication, Cultural Sensitivity, Talent Development

Introduction

India, a burgeoning economic powerhouse, thrives on diversity, innovation, and a youthful workforce. The success of organizations in this diverse and complex environment heavily relies on maximizing team performance. Effective management is not only about steering the ship but also about navigating the turbulent waters of varied cultures, languages, and aspirations. This study attempts to explore the nuances of team management in the Indian context and outline strategies to ensure teams perform at their zenith.

Challenges in the Indian Context

Managing teams in India comes with a unique set of challenges. India's multicultural landscape, varying languages, and regional disparities require a management approach that is not one-size-fits-all. Managers must understand and navigate these challenges to maximize team performance. Moreover, the generational diversity within the workforce, from Baby Boomers to Gen Z, adds another layer of complexity.

Multigenerational workplaces often require different management approaches. According to a survey conducted by the Confederation of Indian Industry (CII), understanding the motivations and aspirations of various age groups is pivotal for ensuring their alignment with organizational goals. In the Indian context, where family values hold immense significance, especially among older employees, recognizing and respecting these values is essential for effective team management.

Strategies for Maximizing Team Performance

The various strategies which can be followed in organisations to maximise team performance are:

1. Leadership: Leadership is the cornerstone of effective team management. In India, where hierarchical structures are still prevalent in many organizations, leaders need to strike a balance between authority and approachability. The research survey conducted by the Indian Institute of Management, Bangalore, suggests that leaders who adopt a more participatory leadership style tend to have higher employee engagement levels.

Additionally, a study by the Tata Institute of Social Sciences (TISS) underscores the importance of empathetic leadership in the Indian culture. Leaders who show empathy and actively listen to their team members tend to create a more positive work environment and foster better team performance.

2. Effective Communication: In a country with 22 officially recognized languages and a multitude of dialects, effective communication is a paramount challenge. Organizations need to implement communication strategies that cater to linguistic diversity. Studies show that companies investing in multilingual communication tools have a 23% higher rate of cross-functional collaboration.

The digital age has further transformed communication in India. A report by Nielsen indicates that organizations leveraging digital communication channels have a competitive edge. It reveals that 76% of Indian consumers prefer digital channels for communication, making it essential for companies to adapt to this trend.

3. Cultural Sensitivity: Recognising, understanding, and respecting the rich tapestry of Indian culture is essential for effective team management. A study by the National HRD Network found that organizations that promote cultural sensitivity and diversity tend to have more innovative and high-performing teams. Encouraging cultural exchanges, celebrations, and training programs can foster an inclusive work environment in organisations.

The Confederation of Indian Industry (CII) emphasizes the importance of cultural sensitivity by highlighting that fostering a sense of belonging among team members from diverse backgrounds can result in a 33% increase in team productivity.

4. Talent Development: India is the home to a vast pool of talent, but nurturing and developing that talent is crucial for team performance. The National Association of Software and Service Companies (NASSCOM) surveys indicate that organizations with robust talent development programs witness a 21% increase in employee productivity. Investing in continuous learning, upskilling and career growth opportunities is a pivota for effective team management.

In the Indian context, talent development often requires a customized approach. A study by the National Skill Development Corporation (NSDC) highlights the importance of skill development initiatives tailored to regional and sector-specific needs. Developing industry-specific skills and knowledge can result in a 25% increase in team performance.

Case Study: Infosys - A Model of Effective Team Management

Infosys, one of India's leading IT services companies, stands out as a model of effective team management. The emphasis of Infosys on leadership development, language diversity, cultural sensitivity and talent development has consistently led to high team performance. Infosys invests significantly in leadership training programs, linguistic diversity initiatives and cross-cultural awareness workshops. These efforts have contributed to the strong global presence and continued success of the company.

Infosys has taken a comprehensive approach to leadership development. They have introduced initiatives such as mentorship programs and leadership training modules customized to different employee segments. These initiatives have resulted in a 20% increase in the retention of high-potential employees.

Infosys is also a frontrunner in leveraging technology for communication and collaboration. They use digital tools to bridge language gaps and encourage cross-functional collaboration. Their digital communication approach has led to a 30% improvement in project delivery timelines.

Infosys fosters a culture of cultural sensitivity through initiatives like cultural exchange programs and celebrating diverse festivals. Such efforts have led to a 25% increase in employee satisfaction scores.

Finally, Infosys has implemented tailored talent development programs that address the specific skills and knowledge requirements of its employees. These sector-specific programs have resulted in a 15% improvement in project quality.

Conclusion

Maximizing team performance through effective management is an ongoing journey, especially in the diverse and dynamic landscape of India. Leaders and managers in this context must be agile, adaptable and sensitive to the unique challenges presented by this multifaceted environment.

By prioritizing leadership development, multilingual communication, cultural sensitivity, and talent development, organizations can create an environment where teams thrive, innovate and achieve their full potential. In the Indian dynamic business landscape, effective team management is not just a goal; it is a competitive advantage that can lead to sustainable success.

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Resilience in Management: Thriving in Challenging Times

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Abstract

In the volatile business world, resilience in management is not just a desirable trait but a necessity. This article attempts to analyse the vital concept of resilience in management and offers insights into thriving during challenging times by providing empirical evidence of how adaptive leadership, effective communication, employee support and a culture of learning are essential for resilient management. The study also discusses the role of technology in building resilience.

Keywords: Resilience, Adaptive leadership, Effective communication, Employee support

Introduction

In a rapidly changing business environment, resilience is the linchpin of effective management. Resilient leaders adapt, persevere and guide their teams through adversity, ensuring stability and progress. This article covers the indispensable concept of resilience in management, demonstrating the impact of resilience on organizational performance.

Significance of resilience in management

Resilience in management has demonstrated its significance through various research studies. Organizations led by resilient leaders consistently outperform their counterparts, especially during the period of crisis. Research studies revealed that companies with resilient leadership achieved a 5.3% increase in revenue during the 2008 financial crisis period compared to their less resilient peers. In a more recent study by McKinsey, companies with resilient leaders fared 2.2 times better in total shareholder return during the COVID-19 pandemic compared to less resilient companies.

Role of technology in building resilience

In the digital age, technology plays a pivotal role in building resilience. Recent data shows that organizations embracing technology for resilience purposes are better equipped to handle disruptions. According to Gartner, 85% of organizations that integrated digital technologies into their resilience strategies reported a significant reduction in downtime during disruptions.

Moreover, artificial intelligence and data analytics have become valuable tools in predicting and mitigating risks. Research studies by Accenture found that companies using AI for risk management reduced their exposure to disruptive events by 50% and decreased the associated costs by 25%.

Strategies for thriving in challenging times

The strategies that organisations can adapt to face the issues include:

1. Adaptive Leadership: Adaptive leadership has a quantifiable impact on organizational success. It was found the Harvard Business Review states that companies with adaptive leaders were 10% more likely to survive industry disruptions and had a 7% higher return on assets compared to those without adaptive leadership. Moreover, organizations utilizing data-driven insights for adaptability were found to outperform their peers by 5%.

2. Effective Communication: Empirical evidence underscores the importance of effective communication in resilient management. The studies revealed that organizations with

transparent and empathetic communication experienced a 47% decrease in employee turnover and a 17% increase in productivity. Organizations leveraging digital communication tools showed a 25% improvement in engagement metrics.

3. Employee Support: The study published in the Journal of Occupational Health Psychology found that organizations investing in employee well-being programs saw a 28% reduction in sick days and a 22% increase in job performance. Moreover, organizations implementing telemedicine and virtual well-being programs experienced a 35% improvement in employee health and productivity.

4. Learning and Adaptation: Resilience in management is inextricably linked to a culture of learning and adaptation. International studies revealed that companies embracing a culture of adaptability had a 34% higher profit margin compared to those resistant to change. In a survey conducted by the Boston Consulting Group, 82% of companies that actively promoted a culture of learning and adaptation reported increased revenue over the past three years.

Conclusion

The analysis demonstrates that resilience in management is more than a buzzword; it's a proven strategy for success. It is just a snapshot of the overwhelming evidence supporting the impact of resilient leadership. By adopting adaptive leadership, nurturing effective communication, prioritizing employee well-being and fostering a culture of learning and adaptation, managers can transform challenges into opportunities. Organizations with resilient management can perform better, adapt faster and emerge stronger in the face of uncertainty, especially when technology is embraced as a resilience enabler.

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Influencing Factors of Stress Vulnerability among Middle-Aged People

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Abstract

The prime objectives of the study examine Influencing factors of stress vulnerability among middle-aged people. The present study analyse the differences between socio-demographic details and stress vulnerability among middle-aged people. The sample was selected by using a convenient sampling method (n=249). The tools used were a self-prepared socio-demographic data sheet stress vulnerability scale (L.H. Miller and A.D. Smith, 1985). The obtained data was analyzed using the SPSS tool and conducted t-test. ANOVA and Correlation. The study found that there is a significant difference in Stress vulnerability among middle-aged people based on some demographic factors such as type of Economic status, Religion, , Education qualification.

Keywords: Stress Vulnerability, Middle- Aged people

Introduction

The middle-aged population represents a significant demographic group experiencing various stressors due to work, family, health, and societal expectations. According to WHO “Stress can be defined as a state of worry or mental tension caused by a difficult situation. Stress is a natural human response that prompts us to address challenges and threats in our lives. Everyone experiences stress to some degree. The way we respond to stress, however, makes a big difference to our overall well-being”.

Stress vulnerability refers to an individual's susceptibility to experiencing negative effects from stressors in their environment. It is a concept used in psychology and psychiatry to understand why some people are more likely to experience mental health problems in response to stress than others. Several factors can contribute to stress vulnerability, including genetic predisposition, early life experiences, personality traits, coping skills, and social support. For example, individuals with a family history of mental illness may be more vulnerable to stress-related disorders, such as anxiety or depression. Similarly, people who experienced childhood trauma or abuse may be more susceptible to stress-related disorders later in life. Personality traits can also play a role in stress vulnerability. Some individuals may be more prone to negative thinking patterns, perfectionism, or low self-esteem, which can increase their susceptibility to stress-related problems. On the other hand, people with positive coping skills, such as problem-solving, social support, and relaxation techniques, may be more resilient to stress.

Stress vulnerability is a complex and multifactorial concept that is influenced by a range of biological, psychological, and social factors. Understanding stress vulnerability can help healthcare professionals develop targeted interventions to prevent or treat stress-related mental health problems.

Results & Discussions

Stress vulnerability among middle-aged people can be influenced by a variety of factors, including religion. Different religions may have specific teachings, practices, and support systems that can affect how individuals in this age group cope with stress. Stress vulnerability among Muslims is different from Hindus. It is higher among Hindus and lower among Muslims. Muslims have low levels of stress vulnerability. Christians and others are not differentiated. The calculated 'F value of stress vulnerability is 9.149 and it is higher than the table value 3.78 and it is significant at 0.001 level. So, there is a significant difference in the stress vulnerability among middle-aged people based on their religion. .The present findings

supported the study. Watson et al. (1990), the study found that there is a significant difference in stress vulnerability with respect to religion.

Middle-aged individuals may experience stress due to financial concerns, job stability, and other economic factors. The calculated F value of stress vulnerability is 61.71 and it is higher than the table value 4.60 and it is significant at 0.001 level. So, there is a significant difference in the stress vulnerability among middle-aged people based on their economic status. Middle-aged belongs to the high class and the middle class is different from the lower class. The high class has lower levels of stress vulnerability.

Typically, higher levels of education can provide individuals with better problem-solving skills and access to higher-paying jobs, potentially reducing financial stress. However, the relationship between education and stress vulnerability is complex and can vary from person to person. Lower education qualifications may face more challenges in the job market and may have limited access to resources that could help alleviate stress. Higher education levels can also provide individuals with better health awareness and coping strategies, which can contribute to reduced stress. The f value of stress vulnerability is 9.149 and it is higher than the table value 3.78 and it is significant at 0.001 level. So, there is a significant difference in stress vulnerability among middle-aged people based on their educational qualifications. Further the study revealed that there is no significant difference in Stress vulnerability among middle-aged people based on some demographic factors such as type of gender, age group, residential area.

Conclusion

The study found that there are significant differences in Stress Vulnerability among middle-aged couples based on certain demographic factors. Such as religion, economic status, and educational qualification. Further, it revealed that the Stress Vulnerability among middle-aged couples did not vary based on Gender, age group, or Occupation, The study was conducted within a limited period, so it has certain limitations. Stress vulnerability among middle-aged individuals is relevant and significant due to its wide-ranging implications for health, economy, family dynamics, mental well-being, and the development of effective interventions.

Reference

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JOSEPHINE RESEARCHER VI

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Abstract

The prime objective of the study was to evaluate the social relationships among young adults. The study was conducted on a group of 300 young adults including both males (N=125) and females (N=175). A convenient sampling method was used to select the sample. The tools used were self prepared questionnaire and the social relationship scale (Dr. Pradeep Kumar, Faheem Nabi, and Neha Thakur,(2017). The statistical procedures used to analyse the acquired data were the 't' test, ANOVA and correlations. The study found that there is a significant difference in social relationships among young adults based on certain demographic factors such as age, job status, and consumption of alcohol. Further it is also revealed that the social relationships among young adults did not vary based on gender, education, family structure, marital status, and place of residence.

Keywords: Social Relationship, Young Adults

Introduction

A 'young adult' is a term used to describe individuals who are in the stage of life that follows adolescence and precedes full adulthood. It's a transitional period characterised by various developments and challenges. Young adults typically fall into the age range of roughly 18 to 35 years old. Young adults though considered self-reliant and self-dependent, right guidance from significant others like parents and elders can help overcome the traumatic situation stemming from dealing with difficult choices.

A relationship between two or more individuals is termed a social relationship. For people, the social relationship is a sense of belongingness that pulls them together. Social relationships can be considered the basic units of social structures or society that bound people to live and work together. Social relationship is crucial for everyone for support and security throughout life and considerable research confirm that engagement in pleasing social relationships is also the key dimension for the psychological development of any individual. The major social relationship realm in a student's life includes parents, siblings, friends, peers, relatives, and teachers.

The social relationship among young adults is reduced in the present day due to advanced technologies. Thus the decline in good social relationships can affect the person's emotional maturity and well-being. The purpose of this paper is to identify the influence of social relationships on the sociodemographic factors of young adults. Once this objective is fulfilled various strategies or measures can be employed to reduce conflicts, shape the personality, and can build good social relationships among young adults.

Results and Discussions

The majority of social relationship scale hasn't got any significant difference by gender. Even though the subscales of social relationships such as siblings and peers have significant differences with the gender of the sample population at 0.05 level. It is clear that despite of other subscales, only siblings and peers got a significant difference with the gender. The peer group relationship and sibling relations significantly varied among males and females. Both of these relationships are higher among females than males. In all the subscales and total social relationships, females obtained a higher mean score than males. However, the difference is not statistically significant.

The results showed that there is a significant age difference in the total social relationship and its subscales except for relatives and strangers. The total relationship and its subscales parents, siblings, and friends show a significant difference at 0.01 level, and peers, strangers show a significant at 0.05 level.

The total social relationship and its sub-scales such as parents, siblings, friends, relatives, teachers, and strangers do not statistically differ based on education. The subscale peers show significant differences. The corresponding 't' value is 2.03. The calculated 't' value (2.03) is higher than the table value (1.96) and it is significant at 0.05 level. It means that there is a significant difference with the peers based on education.

The findings showed that the social relationship among young adults has no significant difference based on the family type. The calculated 't' value is lower than the table value (1.96) and it is statistically not significant. The mean score of the social relationship of a joint family is higher than the mean score of the social relationship of the nuclear family. While the social relationship among young adults has no significant difference based on marital status.

The subscales of parents, siblings, and strangers of social relationships do not vary based on the consumption of alcohol. In subscales relationship with friends, relatives, peers, teachers, and the total social relationship is statistically significant. It also revealed that nonalcoholic consumers keep more social relationships than alcohol consumers.

The subscale peers in the social relationship scale significantly differed based on religion. The calculated 'F' value of the subscale peers (3.20) is higher than the table value (2.99) and it is statistically significant at 0.05 level. It means that religion is influenced the peer group relationships. Muslims and Christians kept a difference in peer relationships. It is higher among Christians and lower among Muslims. Hindus do not differ from each other.

The residential area is a factor that influenced the subscale teachers in the social relationship scale. The calculated 'F' value of the subscale teacher (3.10) is higher than the table value (2.99) and it is statistically significant at 0.05 level. The semi-urban group remained different from the urban. Relationship with teachers is higher among semi-urban and it is lower among urban. Rurals do not differ from each other groups.

The total social relationship and the subscales of siblings and friends significantly differed based on job status. The subscales siblings and friends are significant at 0.01 level and total social relationship is significant at 0.05 level. The employed group kept a difference between the unemployed and students group in sibling relationships. It is higher among employed people and it is comparatively lower among the unemployed group. However, the group mean analysis of friends' relationships does not show any significant difference.

Conclusion

Social relationships are also an integral aspect of human existence, playing a crucial role in shaping the development and well-being of young adults. As they transition from adolescence to adulthood, the support and interactions they receive from various individuals significantly impact their emotional, cognitive, and social growth.

The study found that there is a significant difference in social relationships among young adults based on certain demographic factors such as age, job status, and consumption of alcohol. Further it is also revealed that the social relationships among young adults did not vary on the basis of gender, education, family structure, marital status, and place of residence.

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Self-confidence among Single Adolescents

Shiyon Sebastian*, Swetha Joy*, Dr. Justin Joseph^{1*}, Dr. Mathew Kanamala^{1*}, Mr. Manu Kurian^{1*} & Dr. Sr. Sijo Francis^{1*}

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Abstract

The prime objective of the study was to evaluate the self-confidence among single adolescents. The study was conducted on a group of adolescents (single child - 62, others - 120). Convenient sampling method was used to select samples. The present study was focused on finding out whether there is any significant difference in self-confidence among single adolescents and other adolescents. The study also tried to find out any difference in self-confidence with respect to age, gender, education, birth order, residential area, family type, and occupation of father and mother. The tools used were a self-prepared socio-demographic sheet, Agnihotri's Self-confidence Inventory developed by Regha Gupta and The data was collected by survey method. The statistical procedures used to analyse the acquired data were the 't' test, ANOVA, and correlations. The study found that single adolescents have higher levels of self-confidence. The study also revealed that there is a significant difference in self-confidence based on the type of family, birth order and occupation of the father. Self-confidence was more or less similar among boys and girls. It is not varied based on the occupation of the mother, residence type, age, and education. The study revealed that there is no correlation between age and self-confidence.

Keywords: Self-confidence, Single Adolescents

Introduction

The word adolescence is Latin in origin, derived from the verb 'adolescence', which means "to grow into adulthood". Adolescence is a time of moving from the immaturity of childhood into the maturity of adulthood. Though there is no single event or boundary line that denotes the end of childhood or the beginning of adolescence experts think of the passage from childhood into and through adolescence as composed of a set of transitions. These transitions are biological, cognitive, social and emotional which can be turbulent times for them. In the adolescent period, siblings play an important role in the social lives of most individuals.

Self-confidence is a crucial aspect of an individual's emotional and psychological development, particularly during adolescence a transitional phase between childhood and adulthood. Adolescence is marked by significant physical, cognitive, and social changes, leading to a heightened need for self-assurance and identity formation. During this time, young people may encounter various challenges that can either boost or hinder their self-confidence. Understanding the factors influencing self-confidence in adolescents is essential for fostering a positive self-image and empowering them to navigate life's complexities with resilience and assertiveness (Kaur. H, 2018).

Understanding and nurturing self-confidence during this period are essential for positive mental health, academic achievement, and building strong interpersonal relationships. In this context, it becomes essential to explore the factors influencing self-confidence in adolescents and identify strategies to help them develop a healthy sense of self-belief and resilience. While it offers certain advantages for parents and their children, it also brings its own set of unique challenges and considerations. Understanding single-child adolescents' experiences can inform parents, educators, and policymakers about how to best support their development and address any potential disadvantages they may face.

Results and Discussions

The findings showed that there is no significant difference in self-confidence among the adolescents based on gender, age group, education, residential area, and mother occupation. Because, Self-confidence is a result of a person's experience, upbringing, personality, and personal beliefs. It can vary widely among individuals within the same demographic groups. Additionally, people from different backgrounds can have similar levels of Self-confidence due to their unique life experiences and coping mechanisms.

The results also showed that there is a significant difference in self-confidence based on the family type. Here, it is found that a Nuclear family has more Self-confidence than a joint family. The Mean of a joint family is 24.61 and the mean of the nuclear family is 39.72.

Birth order is a factor that affects Self-confidence among adolescents. Single children have a higher level of Self-confidence and Middle children have a lower level of Self-confidence. The present findings supported the study conducted by Jean, T (2002). The research showed a significant difference in self-confidence between first-born and last-born adolescents, with first-borns reporting higher levels of self-confidence.

Father's occupation is also a factor that affects Self-confidence among adolescents. Children whose fathers work in the public sector have the highest Self-confidence and children whose fathers work in the private sector have the lowest Self-confidence.

Conclusion

Self-confidence in single adolescents refers to their belief in their abilities, worth, and capacity to handle challenges and succeed in various aspects of life. During this critical developmental stage, self-confidence plays a significant role in shaping their social, academic, and emotional well-being. Single adolescents with higher self-confidence are more likely to engage in positive behaviors take on new challenges, and maintain better mental health. Building self-confidence in adolescents can be achieved through supportive environments, positive reinforcement, setting achievable goals, and encouraging them to develop their strengths and talents. However, it is essential to note that self-confidence can fluctuate due to various factors, including peer pressure, academic stress, and personal experiences. Therefore, fostering a nurturing and encouraging atmosphere is crucial in helping adolescents build and sustain their self-confidence.

The study revealed that there is a significant difference in self-confidence based on the type of family, birth order and occupation of the father. Self-confidence was more or less similar among boys and girls. It is not varied based on the occupation of the mother, residence type, age, and education. The study revealed that there is no correlation between age and self-confidence.

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JOSEPHINE RESEARCHER VI

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Role of Residential Area in Self-Concept and Emotional Competence among Adolescents

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Abstract

The major objective was to study emotional competence and self-concept among adolescents. The sample constituted a of total 220 school students. The Emotional Competencies Questionnaire in Youth and Adolescents Scale was prepared by Izabela, Zych, Rosario Ortega-Ruiz, Raquel Muñoz-Morales, and Vicente J. Llorent (2018) was used for this study. Self-concept was measured using the Adolescents Self-concept Short Scale: A version of PHSCS Feliciano Veiga, António Leite (2006). The data was collected, scored, and calculated Statistical procedures used are mean, Standard Deviation, 't' test, ANOVA, and Correlation. The study reveals emotional competence is higher in urban residents area but Self-concept was more or less similar among urban and rural areas.

Keywords: residential areas, self-concept, and emotional competence.

Introduction

Adolescence is a critical developmental stage marked by profound emotional and cognitive changes, where self-identity and emotional competence play a pivotal role in shaping future well-being. This research endeavors to shed light on the often-overlooked influence of residential environments on the self-concept and emotional competence of adolescents.

In a study conducted by Mehrotra, K & Dua, R. Sai (2014) on gender and locality matter in emotional competence among adolescents. The findings of the study revealed that the students have an average level of emotional competence on various dimensions of the emotional competence scale and the girls showed more enhancements in positive emotions than the boys. Urban students showed more positive enhancement in positive emotions than rural students. On all the other dimensions of the emotional competence scale and also on overall emotional competence, rural and urban students were found similar.

While previous studies have primarily focused on familial and peer dynamics, this investigation delves into the potential impact of neighbourhood characteristics, community resources, and socioeconomic factors on the intricate psychological landscape of young individuals.

Hundekar, et al, (2015) conducted a study on the Emotional competence of working and non-working women. The study was an attempt to examine the emotional competence of working and non-working women from urban and rural areas or Dharwad Taluk. The findings of the study suggested that emotional competence was higher in both urban employed and nonemployed women. Rural employed and non-employed women were incompetent with their emotions.

Kumar S (2012), attempted to explore the study on Emotional competence of senior secondary school teachers about their age, gender, type of school, and locality. The study was conducted to evaluate emotional competence based on gender, age, school type and locality. 200 secondary school teachers were taken as samples for this study. The findings of the study revealed that there is no significant difference was found in the emotional competence of teachers based on gender whereas a significant difference has been found in the emotional competence of teachers based on their age and type of school.

By analyzing the interplay between residential contexts and psychological development, this study aims to provide a comprehensive understanding of the multifaceted determinants that shape adolescent self-identity and emotional resilience.

Results & Discussion:

The sample collected shows that 70.0 percent of the adolescent sample belonged to the rural residential area (N=154). The percentage of Urban settlers is 30.0 percent (N=66).

Table - 1 Mean, Standard Deviation and Corresponding to 't' value of self-concept and emotional competence of adolescents based on their residential area.

Variables	Mean of Urban (N=66)	SD	Mean of rural (N=154)	SD	't' Value
Adolescents Self Concept Short Scale	126.45	15.97	125.98	16.34	0.196
Emotional Competence Scale	62.25	9.22	56.68	13.12	3.12*

**Significant level at 0.001

The table revealed that there is no significant difference in adolescents' self-concept based on residential areas. In the case of adolescents, self-concept is more or less similar among urban and rural areas. The 't' value is 0.196 therefore it is lower than the table value so there is no significance.

Considering the emotional competence in adolescents, urban residents have the highest level of emotional competence. The calculated 't' value (3.12) is higher than the table value, therefore it is significant at 0.001 level.

The present finding supported the study (Thompson,1995) The study found that individuals from rural areas scored significantly higher on measures of emotional awareness and empathy compared to those from urban areas. The researchers suggested that this might be due to stronger community bonds and more face-to-face interactions in rural areas.

This finding holds crucial implications, shedding light on potential socio-environmental influences on emotional development during adolescence. Urban environments often offer greater exposure to diverse social interactions, educational resources, and cultural experiences, which might contribute to the observed elevated emotional competence.

Conclusion

In Conclusion, the findings from this research shed light on the intricate interplay between residential areas, self-concept, and emotional competence among adolescents. The study reveals that while urban residents exhibit higher levels of emotional competence, the self-concept of adolescents remains relatively consistent across both urban and rural areas. These results highlight the complexity of the factors shaping adolescent development, suggesting that the influence of residential environments on emotional and psychological well-being may differ in nuanced ways. Further exploration is warranted to unravel the underlying mechanisms that contribute to these disparities, ultimately guiding the development of targeted interventions and support systems to enhance the holistic growth of adolescents, irrespective of their residential context.

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Role of Gender in Self-Concept and Emotional Competence among Adolescents

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Abstract

The major objective was to study emotional competence and self-concept among adolescents. The sample constituted of total 220 school students. The Emotional Competencies Questionnaire in Youth and Adolescents Scale was prepared by Izabela, Zych, Rosario Ortega-Ruiz, Raquel Muñoz-Morales, and Vicente J. Llorent (2018) was used for this study. Self-concept was measured using the Adolescents Self-concept Short Scale: A version of PHCSCS Feliciano Veiga, António Leite (2006). The data was collected, scored, and calculated. Statistical procedures used are mean, Standard Deviation, 't' test, ANOVA and Correlation. The Study reveals that emotional competence is higher among females, but self-concept was more or less similar among males and females.

Keywords: Emotional Competence, Self-Concept

Introduction

In contemporary society, the intricate interplay between gender and the development of self-concept and emotional competence among adolescents has garnered significant attention from researchers and psychologists. In a study conducted by Mehrotra, K & Dua, R. Sai (2014) Gender and locality matter in emotional competence among adolescents. The findings of the study revealed that the students have an average level of emotional competence on various dimensions of the emotional competence scale and the girls showed more enhancements in positive emotions than the boys. Urban students showed more positive enhancement in positive emotions than rural students. On all the other dimensions of the emotional competence scale and overall emotional competence, rural and urban students were found similar.

Adolescence, characterized by a pivotal period of self-discovery and emotional maturation, often coincides with the emergence of societal and cultural expectations linked to gender roles. Tariq Bhat (2022) conducted a Study of Socioemotional Competence Among Adolescence about Mental Health. The results revealed that there are diverse levels of social-emotional competence among adolescents. There is no significant difference in social-emotional competence and mental health among adolescents respect with to their Gender. The study also reveals that there is a positive interrelation between "Socio-Emotional competence and mental health among adolescents".

Consequently, understanding the influence of gender on the intricate web of self-identity formation and emotional regulation is crucial for comprehending the multifaceted challenges faced by adolescents during this critical phase of development. In a study conducted by Habib, U., Habib, O., Ansari, A (2016) on emotional competence in male and female adolescents of Jammu and Kashmir. The findings of the study revealed that male and female adolescents differ significantly with respect to their emotional competence. The various dimensions of emotional competence further revealed that female adolescents scored significantly higher on three dimensions of emotional competence (happiness, love, and interest). Dimension-wise analysis of emotional competence revealed that male and female adolescents do not differ on the following dimensions i.e., anger, sadness, and jealousy but they do differ on the dimensions of happiness, love, and interest.

This research endeavors to explore the nuanced connections between gender, self-concept, and emotional competence, to shed light on the dynamic interrelationship between these key elements in the context of adolescent psychological growth and well-being.

Results & Discussion:

The major findings of the study are given below:

The samples on the basis of class of study and gender revealed that 8 males (3.63%) and 33 females (15%) belonged to the 8th standard. In the 9th standard, there are 33 males (15%) and 15 females (6.81%). In the 10th standard, there are 15 males (6.81%) and 13 females (5.90%). In the 11/12th standard there are 12 males (5.45%) and 31 females (4.09%). In the above table, 16 males (7.27%) and 44 females (20%) were undergraduates.

T-test

Table 1 - Mean, Standard Deviation and corresponding 't' values obtained by boys and girls in self-concept and emotional competence of adolescents based on their gender.

Variables	Mean of boys (N=84)	SD	Mean of girls (N=136)	SD	't' Value
Adolescents Self Concept Short Scale	126.05	15.21	126.16	16.83	0.49
Emotional Competence Scale	54.53	14.01	60.72	10.55	3.71**

**Significant level at 0.001

The table revealed that there is no significant difference in adolescents' self-concept on the basis of gender. In the case of adolescents, self-concept is more or less similar among boys and girls. The 't' value is 0.49 therefore it is lower than the table value so there is no significance.

Considering the emotional competence in adolescents, girls have the highest level of emotional competence. The calculated 't' value (3.71) is higher than the table value, it is significant at 0.001 level.

The study found significant differences in emotional competence between male and female adolescents. Females displayed a higher degree of emotional competence compared to males, specifically in the areas of emotional expression and empathy.

The data unequivocally demonstrate that adolescent girls exhibit a markedly higher level of emotional competence when contrasted with their male counterparts. This finding is particularly significant as emotional competence plays a pivotal role in shaping an individual's ability to comprehend, manage, and effectively respond to emotions, thereby influencing various aspects of psychological well-being and social interactions. The observed discrepancy in emotional competence between genders points towards potentially intricate socio-cultural and developmental dynamics that may contribute to this phenomenon. It is conceivable that societal expectations and norms, as well as variations in emotional expression and communication styles, may contribute to the observed divergence.

Conclusion

In conclusion, the research findings underscore the profound impact of gender on the development of self-concept and emotional competence among adolescents. The evidence suggests that societal norms and cultural expectations significantly shape the way adolescents perceive themselves and manage their emotions, leading to distinct gender-based patterns.

Acknowledging the complex interplay between biological, psychological, and socio-cultural factors is crucial for implementing targeted interventions and fostering an inclusive environment that promotes healthy self-perception and emotional well-being for all adolescents, irrespective of gender. Further interdisciplinary research is warranted to unravel the intricate dynamics at play and devise comprehensive strategies that empower adolescents to navigate their identities and emotions in a way that fosters holistic growth and resilience.

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Abstract

This study aimed to evaluate the emotional maturity of young adults in Kerala, involving a sample of 250 individuals aged 18-25, consisting of 100 males and 150 females, selected using a convenient sampling method. The primary objective was to identify any significant variations in emotional maturity based on demographic factors.

Data collection involved a self-prepared questionnaire and the Emotional Maturity Scale by Singh & Bhargava (2010), gathered through a survey. Data analysis employed 't'-tests, ANOVA, and correlations.

The results disclosed notable disparities in emotional maturity concerning gender and marital status. However, no significant variance was observed with regard to age group, residential area, family structure, emotional handling, taking initiative, or achieving a balanced life. A notable outcome was the lack of correlation between age and emotional maturity, implying that age alone is not a dependable indicator of emotional maturity in young adults.

Keywords: Emotional Maturity, Young Adults

Introduction

According to Brackett & Salovey (2006), Emotional maturity plays a crucial role in personal development and is associated with better mental health, improved communication, and more successful interpersonal interactions. When people think about maturity, the first thing that often comes to mind is age. Emotional maturity involves understanding, regulating, and expressing emotions. It empowers individuals to navigate life's challenges, fostering fulfilment and happiness.

Emotions are intricate psychophysiological states shaped by internal and external factors, encompassing physiological reactions, subjective experiences, and behavioural displays. Emotional maturity involves the ability to delay gratification, handle frustration, engage in long-term planning, and adapt to life's demands while maintaining effective interpersonal relationships.

Emotional stability results in improved self and interpersonal adjustments, heightened life satisfaction, and effective stress management. It is vital to understand that emotional maturity is not guaranteed with chronological adulthood, emphasizing its importance for healthy relationships. While related, emotional balance and emotional maturity differ; the former involves managing positive and negative emotions, primarily observed in adults, and should not be confused with emotional control, which some employ out of fear of consequences.

The period of young adulthood presents a myriad of challenges. While these individuals attain legal maturity, they often find themselves unprepared to navigate the complex situations that arise. Young adults tend to require more time to assess their issues and determine the most suitable course of action. Of particular concern is the emotional maturity of young adults. Emotional maturity is critical for individuals to exercise control over their emotions, express them in a healthy manner, and maintain self-respect and a positive self-concept. Contrary to common belief, age is not a reliable indicator of emotional maturity. It varies from one person to another. Developing emotional maturity is of utmost importance for young adults, as it can

have a profound impact on their transitional phase in life. The purpose of this paper is to identify the influence of emotional maturity on the sociodemographic factors of young adults.

Results and Discussions

The research titled Emotional Maturity among Adolescents and Its Importance by Mridula C. Jobson (2020) also yielded findings similar to those of previous studies. Factors such as age, gender of the participants, type of family, and the presence of siblings showed no association with the emotional maturity of the participants.

Emotional maturity played a central role in the assessment, allowing individuals to identify the causes of conflicts, seek common ground, and find mutually beneficial solutions. This quality is particularly advantageous for young adults as it equips them with conflict resolution skills and nurtures social and emotional competencies, such as empathy and emotional awareness.

The study specifically examined emotional maturity in young adults from Kerala's Idukki district, using tools like the Emotional Maturity Tool for data collection. Various statistical techniques, including mean, standard deviation, 't'-tests, cross tabs, ANOVA, and correlation, were employed to analyze the data and gain insights into the region's levels of emotional maturity.

The major findings of the study reveal that the majority of young adults in the sample fell within the 20-25 age group, with unmarried individuals exhibiting higher emotional maturity levels compared to their married counterparts. Additionally, males displayed greater emotional maturity than females, but emotional maturity did not significantly vary with age. Marital status was a key determinant, with emotional maturity differing significantly between married and unmarried young adults, while residential area, religion, and the pursuit of a balanced life showed no significant influence on emotional maturity. Furthermore, the type of family structure did not impact emotional maturity. Lastly, the findings suggest that young adults' abilities in handling emotions were relatively similar across the sampled population.

The tenability hypothesis was tested by examining the relationship between emotional maturity and various demographic factors. The results revealed that there were significant differences in emotional maturity based on gender and marital status, partially accepting the hypothesis. However, no significant differences were found based on qualification, age group, residential area, family type, handling emotions, taking initiative, balanced life, and religion, leading to the rejection of the hypothesis in these cases.

Conclusion

Youth, when equipped with knowledge and opportunities, can drive positive development. Young adulthood is pivotal, as it presents challenges and responsibilities shaping future paths. Emotional maturity is vital in this phase, impacting later well-being. This study examines emotional maturity in young adults and its link to socio-demographic factors, offering insights for stakeholders and future generations.

Referrance

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Mathematical Problem-Solving Ability among Single Adolescents

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Abstract

The prime objective of the study was to evaluate the mathematical problem-solving ability among single adolescents. The study was conducted on a group of adolescents (single child - 62, others - 120). Convenient sampling method was used to select samples. The present study was focused on finding out whether there is any significant difference in the mathematical problem-solving ability among single adolescents and other adolescents. The study also tried to find out any difference in the mathematical problem-solving ability with respect to age, gender, education, birth order, residential area, family type, and occupation of father and mother. The tools used were self self-prepared socio-demographic sheets and a Problem-Solving Ability Test developed by L.N Dubey and Dr. C P Mathur. The data was collected by survey method. The statistical procedures used to analyse the acquired data were the 't' test, ANOVA and correlations. The study found that single adolescents have lower levels of mathematical problem-solving ability. The study also revealed that there is a significant difference in the mathematical problem-solving ability among adolescents based on age, gender, education, birth order, and occupation of the father. There is no significant difference in the mathematical problem-solving ability based on the occupation of the mother, type of family and residential area. The study revealed that there is a correlation between age and problem-solving ability.

Keywords: Problem Solving Ability, single adolescents

Introduction

The word adolescence is Latin in origin, derived from the verb 'adolescence', which means "to grow into adulthood". Adolescence is a time of moving from the immaturity of childhood into the maturity of adulthood. Though there is no single event or boundary line that denotes the end of childhood or the beginning of adolescence experts think of the passage from childhood into and through adolescence as composed of a set of transitions. These transitions are biological, cognitive, social and emotional which can be turbulent times for them.

Mathematical problem-solving ability is an essential skill for adolescents to develop as they prepare for their future academic and professional careers. Adolescents who have strong mathematical problem-solving skills are better equipped to handle complex problems and challenges that require analytical thinking and logical reasoning. In this essay, we will explore the importance of mathematical problem-solving ability in adolescents and how they can develop and improve this skill. Benjamin, E. W(2015).

Adolescents can also benefit from working with a tutor or mentor who can provide guidance and support as they develop their mathematical problem-solving skills. Another way for adolescents to improve their mathematical problem-solving ability is to use technology. Understanding single-child adolescents' experiences can inform parents, educators, and policymakers about how to best support their development and address any potential disadvantages they may face. This knowledge can help shape educational practices, parenting strategies, and social policies that promote positive outcomes for single-child adolescents. Additionally, studying this group can contribute to the broader understanding of family dynamics and the impacts of family structure on child development.

Results and Discussion

The results indicated that there is a significant difference between gender and problem-solving ability. Here, it is found that girls have more problem-solving ability than boys. The mean of boys is 6.44 and the mean of girls is 7.78. Hence, these findings contradict the study

of Fanai L. (2020). They found that no significant difference was found in mathematical problem-solving ability with respect to gender.

There is no significant difference between family type and problem-solving ability. This may be because the problem-solving ability in mathematics is primarily influenced by factors such as cognitive skills, education, and exposure to mathematical concepts. Family type might have an impact on a person's environment and upbringing, but it is not a direct determinant of one's mathematical problem-solving ability.

The findings also revealed that there is a significant difference between Self-confidence on the basis of age group. The calculated t value of problem-solving is 3.57 is higher than the table value this indicates that there is a significant difference between problem-solving abilities based on age group.

Education is a factor that affects the problem-solving ability among adolescents. The high school group kept a difference between the UG and HSS groups. HSS students have the highest problem-solving ability and high school students have the lowest problem-solving ability.

There is a significant difference in problem-solving ability by birth order. The single-child group kept different from the other group. Middle children have the highest problem-solving ability and single adolescents have the lowest problem-solving ability.

Father's occupation is also a factor that affects the problem-solving ability among adolescents. Children whose fathers work in the private sector have the highest mathematical problem-solving ability and children whose fathers work in the public sector have the lowest problem-solving ability. The study conducted by Mayer, R. E (1982) supported the present study. Children whose fathers worked in the private sector showed significantly higher mathematical problem-solving ability compared to children with fathers in other sectors. However, the problem-solving ability in adolescents doesn't vary by the Mother's occupation and residential area

The results also indicated that there is a correlation between age and problem-solving ability. This may be because the increase in mathematical problem solvability with age can be attributed to several factors, such as accumulated knowledge, experience, and cognitive development over time. As people grow older, they have more exposure to mathematical concepts and problem-solving techniques, which enhances their skills. The study conducted by Mazana et al., (2019) found a statistically significant positive correlation between age and mathematical problem-solving ability, indicating that older students tended to perform better in solving math problems.

Conclusion

The level of mathematical problem-solving ability among single adolescents may vary due to various factors, such as individual interest, educational background, and exposure to mathematical concepts. It's essential to provide a supportive learning environment and tailored guidance to help them improve their skills. Mathematical problem-solving ability among adolescents can vary widely based on individual aptitude, education, and exposure to mathematical concepts. Encouraging problem-solving activities and providing a supportive learning environment can help enhance their mathematical abilities.

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