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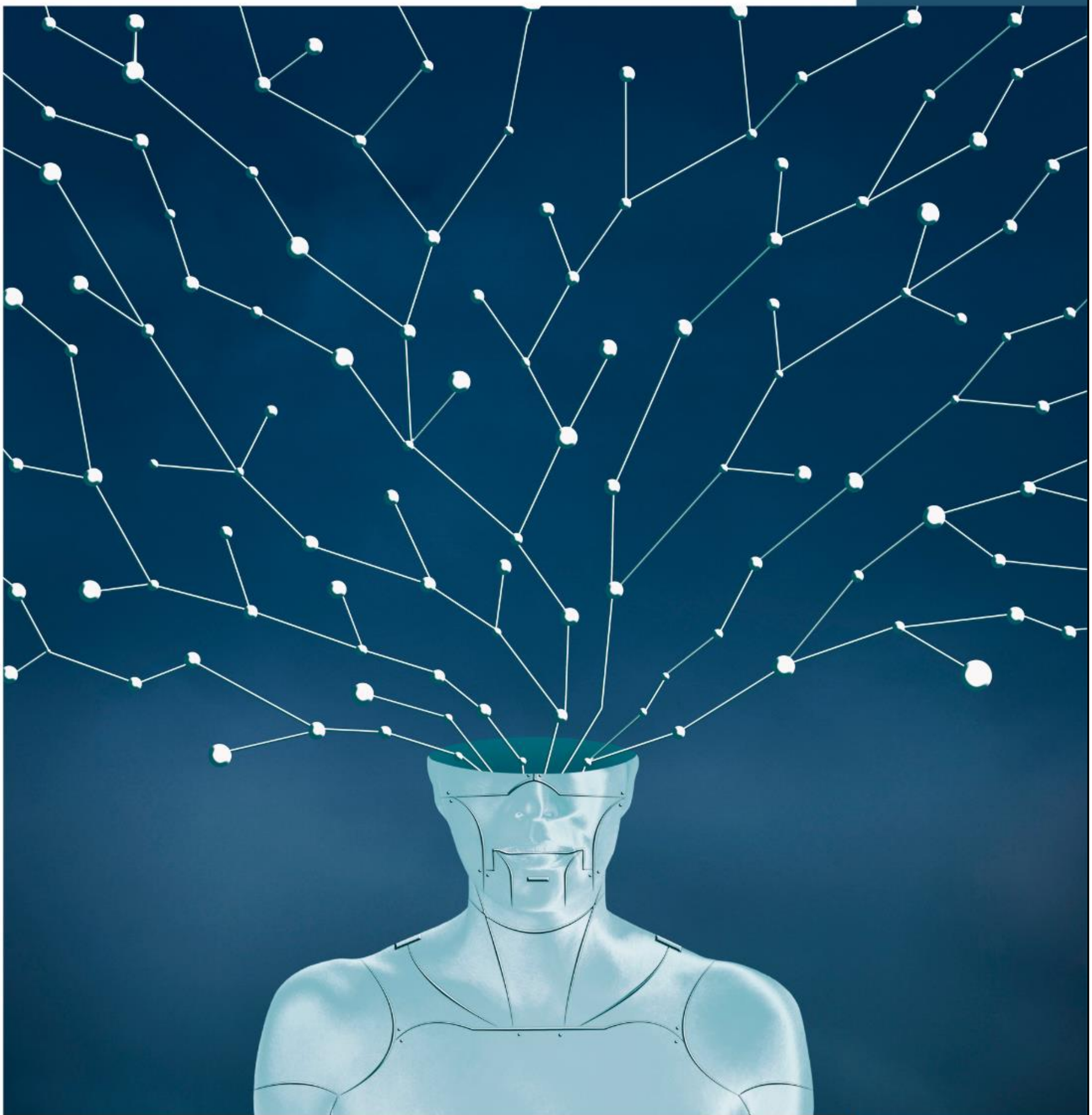
A Plethora of Research

A Multidisciplinary Approach



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A Plethora of Research: A Multidisciplinary Approach

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PREFACE

In today's rapidly evolving world, research is essential to increasing knowledge, fostering innovation, and tackling difficult problems in a variety of sectors. We open up fresh perspectives, reveal obscure realities, and pave the way for advancement through study.

This book serves as a tribute to the efficacy of study and the perseverance of those who set out on a quest for knowledge. It brings together a selection of innovative findings, varied viewpoints, and cutting-edge concepts with the objective of advancing knowledge and motivating upcoming generations of academics.

This book's goal is to demonstrate the astounding scope and complexity of current research across a wide range of fields. You can find a rich tapestry of themes covering academic fields like science, technology, the humanities, social sciences, and more inside these pages. Each chapter offers a distinctive window into a particular topic, providing a glimpse into the most recent discoveries, theories, and real-world applications that influence our world.

In their quest for knowledge, the scholars profiled in this book have devoted countless hours, impressive brainpower, and unflinching resolve. They have successfully navigated the complexities of their individual disciplines, overcame obstacles, and revelled in the excitement of discovery. Their painstaking labour and the revolutionary effects it has on their various fields show how passionate they are about their subjects.

I hope that this collection of studies will encourage readers to delve into uncharted territory, challenge preconceived assumptions, and pique their own unique curiosity about the subject. Research is a field that is continually changing, with new discoveries and perspectives being challenged every day. We may encourage a culture of collaboration and conversation that drives us towards greater heights of learning by sharing the most recent discoveries and concepts.

I urge you to take pleasure in the wonders that await you beneath these writings as you set off on this adventure into the world of inquiry. May you be inspired by this book to embark on an independent intellectual voyage, use it as a springboard to explore new ideas, and leave your own imprint on the world's growing body of knowledge.

Happy reading!

- Dr. Shaveta Chugh

Editor

ACKNOWLEGEMENT

A research book is a labour of love that involves the assistance, direction, and encouragement of several people and organisations. I want to extend my sincere gratitude to everyone who contributed to the publication of this book.

My sincere thanks to God, whose generosity of spirit and divine direction served as a vital aspect of this journey. Additionally, I am grateful to my dear family members for being my primary source of encouragement and the inspiration behind my goals.

I owe a huge debt of gratitude to the researchers and academics whose innovative research served as the basis for this book. Their unrelenting commitment, rigorous thinking, and perceptive insights have pushed the limits of expertise in their specialised disciplines. This book would not be possible without their enthusiasm and dedication, and I am incredibly appreciative of everything they have done.

The academic institutions and research organisations that have promoted an atmosphere of intellectual curiosity and offered the necessary tools for undertaking research deserve my deepest gratitude. The concepts and discoveries revealed on these pages have been greatly influenced by their encouragement and dedication to knowledge advancement.

I would like to thank the reviewing team who gave so generously of their valuable time and expertise to assure the calibre and rigour of the studies provided in this publication. Their painstaking attention to minutiae and astute ideas greatly increased the work's overall value.

I also wish to acknowledge the publisher Bhumi Publishing, India and the people who helped me because they gave me the tools, inspiration, and advice I needed to succeed in my study projects.

Finally, I want to express my sincere gratitude to the book's readers. This work exists because of you. I hope the information and viewpoints offered on these pages advance your own field of expertise and encourage you to delve further into the areas that interest you.

Although it would be hard to name everyone who contributed to this work, please understand that your work is greatly valued and recognised.

We appreciate your participation in this amazing trip. This book has evolved thanks to the help and cooperation of all of you.

- Dr. Shaveta Chugh

Editor

DEDICATION

This book is dedicated to

my father who taught me

the power of pen to transform ideas into knowledge and

spread it widely for good of the society.

TABLE OF CONTENT

THE EVOLVING ROLE OF ECOLATE TEACHERS IN EDUCATION

Lakshmi S
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Abstract:

An Ecolate individual is one who understands and uses in a very sustainable way the resources available to him keeping in mind the needs of the future generation. Just as we give importance to the rise of literates and numerates of a nation, it is equally important to give importance to its Ecolate population too. The responsibility of moulding children into Ecolate individuals lies with teachers since they are considered as the makers of the future. In order to build an Ecolate nation, it is extremely essential that teachers themselves should be Ecolate. Only then can they inculcate environmental responsibility among students which is the stepping stone to the creation of an Ecolate society. There is no doubt about the fact that teachers hold and create a lasting impression in the minds of the students and they are extremely capable of developing a sense of responsibility towards environment in their students. Teachers can help realise students the importance of environmental protection and can initiate strategies to create a positive environmental attitude among students. This in turn will help the students to identify the numerous environmental problems around them and will also ensure their wholehearted willingness to participate in the conservation of environmental problems. This article throws light on the importance of teachers as Ecolate educators for creating a sustainable society.

Keywords: Ecolate, Sustainability, Environmental Responsibility

Introduction:

An Ecolate individual is one who understands and uses in a very sustainable way the resources available to him keeping in mind the needs of the future generation. The goal of Environmental Education is to help people to understand the complexities of environment and pursue sustainable developmental ways to prevent harm to the environment. For this, Environmental Education must adopt a wholesome approach which covers the ecological, social, cultural and other aspects of all environmental problems. These environmental problems should be familiar to the learner in their own home, society and country and should help the learners acquire knowledge, values and skills necessary to solve these problems.

The present Environmental Education curriculum develops only awareness, knowledge and understanding about the environment. There is no scope for the development of skills, Environmental Attitude or participation in environmental activities. This trend is seen reflected in the teacher community too. The teachers should be well aware and informed about the importance of conserving the environment and the need to create a sustainable society. Only then can they be successful in moulding the students to become Ecolate citizens. The teachers should set up healthy examples before the students, this will help them to develop interest in the natural environment. They have the responsibility of ensuring that their educational offerings on creating a sustainable society is worthwhile for the community and nation at large. Thus, the creation of an Ecolate society mainly depends mainly on teachers as they can develop all the transactional skills to build knowledge regarding new facts and concepts in the environment and have an impressive role to play in all platforms of environmental education. The role of the teacher and students should go be in unison for the creation of an Ecolate society.

Importance of ecolate students in the society:

Environmental education plays a vital role in the development and well-being of students. Developing environmental awareness: Environmental education helps students develop an understanding of the natural world, including ecosystems, biodiversity, and the interconnections between humans and the environment. It raises awareness about environmental issues, such as climate change, pollution, and habitat destruction, imparting a sense of responsibility towards the environment and in turn towards the community at large.

- Promoting sustainability: Environmental education provides students with the knowledge, skills, and attitudes necessary to make sustainable choices and lead environmentally responsible lives. By learning about sustainable practices, resource conservation, and alternative energy sources, students can become active participants in building a more sustainable future.
- Encouraging students to think critically and solve problems: Environmental education encourages students to think critically, apprehend complex environmental issues, and consider multiple perspectives. It promotes problem-solving skills, as students are challenged to find innovative solutions to environmental challenges. This empowers them to become informed and active global citizens who can contribute to creating a more sustainable society.
- Connecting to real-world issues: Environmental education provides a pathway for the unison of classroom learning and real-world environmental issues. By engaging in hands-on activities, field trips, and environmental projects, students can apply their knowledge and see the direct impact of their actions on the environment. This experiential learning fosters a deeper understanding and emotional connection to the natural world.

- Enhancing interdisciplinary learning: Environmental education integrates various disciplines such as science, geography, social studies, and ethics. It promotes a holistic approach to learning, helping students understand the interconnectedness of environmental, social, economic, and cultural systems. This interdisciplinary approach enhances students' overall education and prepares them to address complex environmental challenges.
- Fostering personal and social development: Environmental education nurtures personal growth by instilling values of respect, empathy, and responsibility towards nature and the environment. It promotes teamwork, collaboration, and communication skills through group projects and environmental initiatives. Additionally, spending time in nature has been shown to improve mental and physical well-being, reducing stress and enhancing overall health. In summary, environmental education is crucial for students as it develops environmental awareness, promotes sustainability, encourages critical thinking, connects to real-world issues, enhances interdisciplinary learning, and fosters personal and social development. By equipping students with knowledge and skills to address environmental challenges, environmental education empowers them to become informed and active participants in shaping a sustainable future.

Teachers play a crucial role as environmental educators in promoting awareness, knowledge, and action related to environmental issues. Outlined below are some areas where Ecolate teachers can succeed in making a world of difference to the students and society at large.

- Environmental education curriculum: Teachers can incorporate environmental education into their curriculum by designing lessons and activities that raise awareness about environmental issues, explore sustainability concepts, and promote responsible behaviour. They can integrate environmental topics across subjects such as science, geography, social studies, and even art and literature.
- Field trips and outdoor activities: Teachers can organize field trips to nature reserves, parks, or environmental centres to provide students with hands-on experiences and a deeper understanding of the natural world. Outdoor activities, such as nature walks or gardening projects, can also help students connect with nature and develop a sense of environmental responsibility.
- Role modelling and personal behaviour: Teachers can serve as role models by practicing environmentally responsible behaviour in their own lives. By demonstrating actions like conserving energy, reducing waste, and using sustainable resources, teachers can inspire students to adopt similar practices and understand the importance of individual actions.

- Encouraging critical thinking and action: Teachers can foster critical thinking skills by encouraging students to analyse and discuss environmental issues, explore different perspectives, and develop their own solutions. They can facilitate debates, projects, and initiatives that encourage students to act, such as organizing environmental campaigns or participating in community clean-up events.
- Collaboration and partnerships: Teachers can collaborate with local environmental organizations, experts, or community members to enhance the learning experience. Guest speakers, workshops, and partnerships can provide additional resources, expertise, and real-world examples to enrich students' understanding of environmental issues.
- Empowering students as change-makers: Teachers can empower students to become active agents of change by helping them identify environmental problems in their communities and develop projects or initiatives to address them. This can include organizing recycling programs, initiating energy-saving campaigns, or advocating for environmental policies.

By assuming the role of environmental educators, teachers have the potential to inspire and equip students with the knowledge, skills, and values needed to become environmentally conscious and responsible citizens. Their efforts can contribute to building a more sustainable and environmentally conscious society.

The environmental responsibility of school teachers is extremely important, as it can have a significant effect on the future of our planet.

- Educating the next generation: School teachers have a crucial role in educating the next generation about environmental issues, including climate change, pollution, and the importance of conservation. By modelling responsible environmental behaviour, teachers can inspire their students to become responsible citizens and advocates for the environment.
- Reducing the carbon footprint of schools: Schools have a significant carbon footprint due to energy consumption, transportation, and waste generation. By practicing environmentally responsible behaviour, teachers can reduce the environmental impact of their school, which can lead to cost savings and contribute to a more sustainable future.
- Leading by example: Teachers are role models for their students, and by taking environmental responsibility seriously, they can set a positive example that students can emulate. When students see their teachers recycling, conserving energy, and reducing waste, they are more likely to do the same.

- Supporting the school's sustainability goals: Many schools have adopted sustainability goals as part of their mission, and teachers play a critical role in achieving those goals. By incorporating environmental responsibility into their teaching, teachers can support the school's sustainability initiatives and help create a more sustainable future.

Overall, the environmental responsibility of secondary school teachers is vital for the well-being of the planet and the future of our children. By practicing environmentally responsible behaviour and incorporating environmental education into their teaching, teachers can make a significant contribution to a more sustainable future.

Teachers play a crucial role as environmental educators in shaping students' understanding and behaviour towards the environment. Teachers possess the knowledge and expertise to educate students about environmental issues, such as climate change, biodiversity loss, and sustainable practices. They can provide accurate information, raise awareness, and foster a deeper understanding of the interconnectedness between human actions and the environment. Through their teachings, teachers can inspire students to participate in solving environmental problems and make a sustainable change in the environment. They can encourage students to adopt sustainable habits, participate in conservation initiatives, and become responsible stewards of the environment. Environmental education involves developing critical thinking skills and problem-solving abilities. Teachers can facilitate discussions, engage students in analysing environmental challenges, and empower them to develop innovative solutions. This cultivates a sense of agency and empowers students to address environmental issues. Teachers can organize field trips, outdoor activities, and practical experiments that allow students to engage directly with nature. These hands-on experiences foster a deeper connection to the environment and provide opportunities for students to observe, appreciate, and understand the natural world. Teachers can empower students to become environmental advocates. By encouraging them to voice their concerns, participate in environmental campaigns, and engage with local communities, teachers can instil a sense of environmental responsibility and empower students to make a difference. Overall, teachers as environmental educators have the power to shape students' attitudes, values, and behaviours towards the environment. By imparting knowledge, inspiring action, fostering critical thinking, providing hands-on experiences, and promoting advocacy, teachers can nurture environmentally conscious individuals who are committed to protecting our planet.

Strategies to promote environmental education by teachers:

Teachers can incorporate a variety of activities to promote environmental education and engage students in learning about the environment.

- Nature walks and field trips: Take students on nature walks or field trips to local parks, nature reserves, or environmental centres. Allow them to observe and explore natural habitats, ecosystems, and biodiversity first hand. Encourage students to ask questions, take notes, and engage in discussions about what they observe.
- Environmental experiments and investigations: Conduct hands-on experiments or investigations related to environmental topics. For example, students can measure and analyse water quality, test soil pH levels, study the impact of pollution on plants or animals, or create models to understand concepts like greenhouse gases or the water cycle.
- Recycling and waste reduction initiatives: Implement recycling and waste reduction initiatives in the classroom or school. Set up recycling stations, educate students about proper waste sorting, and involve them in monitoring and managing the recycling process. Encourage students to reduce waste by promoting reusable items and discouraging single-use plastics.
- Community engagement projects: Encourage students to get involved in community projects that focus on environmental conservation or sustainability. This could include organizing a community clean-up day, planting trees or gardens, or collaborating with local organizations to address environmental issues specific to the community.
- Environmental debates and discussions: Organize debates or discussions on environmental topics, allowing students to explore different perspectives and develop critical thinking skills. Assign roles for students to represent different stakeholders, such as environmental activists, policymakers, or industry representatives, and encourage respectful dialogue.
- Documentary screenings and discussions: Show relevant environmental documentaries or films in the classroom, followed by group discussions. This can help students gain insights into environmental challenges and spark conversations about potential solutions and actions they can take.
- Environmental art and creative projects: Encourage students to express their understanding and feelings about the environment through art and creative projects. This could include creating environmental-themed artwork, writing poems or stories, designing posters or infographics, or even producing short videos or presentations to raise awareness about specific environmental issues.

- Sustainable lifestyle challenges: Assign sustainable lifestyle challenges to students, such as tracking their energy consumption, reducing water usage, or adopting eco-friendly habits at home. Encourage students to document their progress and share their experiences, allowing them to reflect on their personal impact and develop a sense of responsibility.
- Developing environmental awareness: Environmental education helps students develop an understanding of the natural world, including ecosystems, biodiversity, and the interconnections between humans and the environment. It raises awareness about environmental issues, such as climate change, pollution, and habitat destruction, fostering a sense of accountability and responsibility towards the environment. towards the environment.
- Promoting sustainability: Environmental education provides students with the knowledge, skills, and attitudes necessary to make sustainable choices and lead environmentally responsible lives. By learning about sustainable practices, resource conservation, and alternative energy sources, students can become active participants in building a more sustainable future.
- Encouraging critical thinking and problem-solving: Environmental education encourages students to think critically, analyze complex environmental issues, and consider multiple perspectives. It promotes problem-solving skills, as students are challenged to find innovative solutions to environmental challenges. This empowers them to become informed and active global citizens who can contribute to creating a more sustainable society.
- Connecting to real-world issues: Environmental education provides a pathway for the meeting of classroom learning and real-world environmental issues. By engaging in hands-on activities, field trips, and environmental projects, students can apply their knowledge and see the direct impact of their actions on the environment. This experiential learning fosters a deeper understanding and emotional connection to the natural world.
- Enhancing interdisciplinary learning: Environmental education integrates various disciplines such as science, geography, social studies, and ethics. It promotes a holistic approach to learning, helping students understand the interconnectedness of environmental, social, economic, and cultural systems. This interdisciplinary approach

enhances students' overall education and prepares them to address complex environmental challenges.

- Fostering personal and social development: Environmental education nurtures personal growth by instilling values of respect, empathy, and responsibility towards nature and the environment. It promotes teamwork, collaboration, and communication skills through group projects and environmental initiatives. Additionally, spending time in nature has been shown to improve mental and physical well-being, reducing stress and enhancing overall health.

Role of ecolate teachers for a sustainable future:

Teachers play a crucial role in promoting a sustainable future. There are a multitude of ways by which this can be achieved.

- Incorporate sustainability across the curriculum: Infuse sustainability principles into various subjects and lessons, not just in science or environmental studies. Show students how sustainability relates to topics such as mathematics, social studies, language arts, and art. This interdisciplinary approach helps students understand the relevance and interconnectedness of sustainability in different aspects of their lives.
- Model sustainable behavior: Teachers should lead by example and practice sustainable behaviors in their classrooms and personal lives. This includes conserving energy, reducing waste, using sustainable materials, promoting recycling, and minimizing the use of single-use plastics. By modeling sustainable behavior, teachers inspire and encourage students to adopt similar practices.
- To help students think critically and solve problems: Encourage students to think critically about sustainability challenges and engage them in problem-solving activities. Teach them to analyse complex issues, consider multiple perspectives, and develop creative solutions to real-world sustainability problems. Encourage students to take ownership of their learning and become active participants in finding sustainable solutions.
- Promote environmental stewardship: Instil a sense of responsibility and stewardship towards the environment in students. Help them understand that they have the power to make a great change on the world through their choices and actions. Encourage them to take care of their local environment, participate in environmental initiatives, and become advocates for sustainable practices in their communities.
- Integrate technology for sustainability: Utilize technology to enhance sustainability education. Use online resources, virtual field trips, interactive simulations, and

educational apps focused on sustainability and environmental issues. Help students understand how technology can be harnessed for sustainable development, such as renewable energy, green transportation, and environmental monitoring.

- Engage in community partnerships: Collaborate with local organizations, environmental groups, and experts to bring real-world experiences and expertise into the classroom. Arrange guest speakers, organize field trips to sustainability-focused businesses or projects, or invite community members to share their experiences and knowledge. These partnerships help students connect their learning to the broader community and understand the practical applications of sustainability.
- Encourage student projects and initiatives: Provide opportunities for students to take the lead in sustainability projects and initiatives. Support and guide them in designing and implementing projects related to waste reduction, energy conservation, water conservation, biodiversity preservation, or sustainable gardening. These hands-on experiences empower students to become agents of change and develop leadership skills.
- Foster global awareness and citizenship: Help students understand the global dimensions of sustainability and their role as global citizens. Explore environmental issues and sustainability practices around the world. Foster cross-cultural understanding and empathy towards different communities and ecosystems. Encourage students to think beyond their local context and consider the broader impact of their actions on a global scale. By integrating sustainability into teaching practices, inspiring students to act, and fostering a sense of responsibility, teachers can make a significant contribution to building a sustainable future. They have the power to shape the mindset and values of future generations, creating a more environmentally conscious and responsible society.

Conclusion:

In summary, environmental education is crucial for students as it develops environmental awareness, promotes sustainability, encourages critical thinking, connects to real-world issues, enhances interdisciplinary learning, and fosters personal and social development. By equipping students with knowledge and skills to address environmental challenges, environmental education empowers them to become informed and active participants in shaping a sustainable future. These activities not only provide valuable environmental education but also promote student engagement, critical thinking, and a sense of ownership in addressing environmental issues. By making the learning experience interactive and meaningful, teachers can inspire and empower students to become environmentally conscious and active participants in creating a sustainable future.

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BIOTECHNOLOGICAL APPROACHES FOR ENVIRONMENTAL MANAGEMENT: AN OVERVIEW

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Abstract:

With the depletion of natural resources, the carbon footprint of the planet is growing more quickly than its carrying capacity. Building an environment-conscious system of coexisting on Earth is therefore urgently needed. Biotechnology has led to the creation of an array of sustainable solutions such as bioenergy, biopesticides & biofertilizers, environmental monitoring, microbial bioremediation, and phytoremediation among other environmentally friendly products that can contribute to mitigating these issues. Bioenergy refers to energy derived from organic matter, such as plants, crop residues, and organic waste, which can be converted into fuel, providing a renewable and sustainable alternative to fossil fuels. Biopesticides are effective and environmentally sustainable alternatives to synthetic pesticides which often only affect the target pest and therefore do not pose negative effects on the environment. Biofertilizers such as *Rhizobium*, *Azotobacter*, blue-green algae, *Azolla* and VAM promote plant growth without the detrimental effects on the environment that are associated with chemical fertilizers. Environmental monitoring involves the use of biological tools and techniques to assess and track the presence of the various environment pollutants. Microbial bioremediation uses microorganisms to degrade, transform, and detoxify various pollutants, including organic compounds and heavy metals, thus restoring the ecosystem and phytoremediation harnesses plants for the same. The aim of this review paper is to discuss the role of these emerging biotechnological approaches in ensuring environmental management.

Introduction:

Sustainability is the idea of maximizing environmental, social, and economic elements in order to satisfy current needs without compromising those of future generations. Natural resources must only be used at a rate that permits their natural renewal, according to sustainable development. The negative effects of human activity have begun to come to light during the past century, and the significance of environmental sustainability is now being understood. The ability to create more environmentally friendly goods and procedures is one way that biotechnology has the potential to support sustainability. Through the use of bioenergy, biopesticides & biofertilizers, environmental monitoring, microbial bioremediation, and phytoremediation, the writers of this article seek to explore how biotechnology contributes to environmental management.

Bioenergy:

Coal, oil, and gas are a few examples of fossil fuels that dominate the world's energy systems. The release of Greenhouse Gases (GHSs) such carbon dioxide, nitric oxide, and methane is just one of their many detrimental effects (Ritchie *et al.*, 2020). Over-reliance on the use of fossil fuels as an energy source leads to severe climate externalities such as extreme weather conditions, ocean acidification, rise in sea level and air pollution. According to Jeswani et al. (2020), the transportation sector relies on fossil fuels the most (96.3% in 2018), and it also accounts for 23% of global energy-related CO_2 emissions.

Biofuels are an effective, affordable, and environmentally friendly replacement for conventional fuels. They were originally employed as transportation fuel in the 1940s. This renewable energy source can be manufactured by fermenting biological feedstock that contains fermentable sugar, lipid, or carbohydrates (Mat Aron *et al.*, 2020). Bioethanol, which is produced by the fermentation of sugars generated from plant biomass like corn, sugarcane, and switchgrass, and biodiesel, which is produced from vegetable oils, animal fats, or used cooking oil, are the two main biofuels that account for the majority of the bioenergy market.

The first, second, third, and fourth generations of biofuels are categorized based on the biological feedstock used in their production. Due to concerns over food security, the first generation of biofuels which used edible feedstock, made their usage disputable. To circumvent these drawbacks, a second generation of biofuel that uses non-edible lignocellulosic feedstock, like forest leftovers and woody biomass, was developed. However, this type of biofuel cannot be used directly because it requires a series of pre-treatment steps to extract the fermentable sugar. Microalgae biomass, which has numerous advantages over past generations of biofuels like a rapid growth rate and low production cost, is used to produce the third generation of biofuel. Microalgae can be grown on wastewater, which is rich in nutrients and only needs a little amount of space. The fourth generation biofuel focuses on the genetic modification of the microalgae such as *Chlamydomonas reinhardtii sp., Phaeodactylum tricornutum sp., and Thalassiosira pseudonana sp*. such that it captures large amounts of CO_2 while also giving an increased productivity and adaptability in low nutrient wastewater for biofuel generation (Mat Aron *et al.*, 2020).

Biopesticides and biofertilizers:

Chemicals used to manage diseases and pests are classified as conventional pesticides. Numerous chronic health conditions, including cancer, diabetes, respiratory disorders, neurological disorders, and reproductive syndromes, are caused by chemical pesticides such as organochlorines, organophosphates, carbamates, pyrethroids, triazines, and neonicotinoids (Nicolopoulou-Stamati *et al.,* 2016; Rani *et al.,* 2021). On an ecological level, overuse of chemical pesticides has resulted in decreased soil health, bioaccumulation and biomagnification within ecosystems, decreased dissolved oxygen content in water bodies leading to the extinction of aquatic species, increased toxicity levels specifically affecting higher trophic levels, and decreased soil microbial diversity (Rani *et al.,* 2021). Biopesticides are substances made from organic materials including fungi, bacteria, and plants. They have been demonstrated to have a low environmental impact while being successful at controlling pests. These substances can stop the growth and spread of pests without causing pest resistance. The three main types of biopesticides are microbial, biochemical, and plant-incorporated protectants (PIPs). Bacteria, bacteriophages, fungus, viruses, and nematodes are the sources of microbial biopesticides (Thakur *et al.,* 2020). Over 90% of the market for microbial biopesticides is dominated by Bacillus thuringiensis, but Beauveria bassiana, Baculovirus, Steinernema, Nosema, and Chlorella are also notable contributors. Biochemical biopesticides are products of natural origin that have active components that control pests through mechanisms that are safe for the environment, humans, and the target pest. Examples include natural minerals, secondary metabolites, insect growth regulators, plant growth promoters, essential oils, and semiochemicals. Transgenic plants known as PIPs make the plant resistant to insect attack. Toxic complex (Tc) proteins from Xenorhabdus and Photprhabdus, Bt Cry proteins, -amylase inhibitors, double-stranded ribonucleic acid, Mir1-CP from maize, and protease from Baculovirus are some examples of insecticidal molecules used in PIP technology (Fenibo *et al.,* 2021). Biopesticides eliminate the possibility of target pests developing resistance to them, in contrast to conventional pesticides. Additionally, biopesticides avoid the drawbacks of chemical pesticide use, such as bioaccumulation, biodiversity losses, the rise of secondary pests, and the eradication of natural/beneficial enemies, hence promoting sustainability.

Chemical fertilisers have been used extensively to boost agricultural yield over the last few decades. In spite of the fact that they offer easily accessible macronutrients (N, P, K, Ca, Mg, S) and micronutrients (Zn, Cu, Mo, Mn, B and Cl), these fertilisers have hazardous environmental impacts when used excessively. These harmful effects include air pollution, eutrophication of water bodies, loss of biodiversity, and poor soil quality (Suhag, 2016; Aggani, 2013; Rai & Shukla, 2020). A type of organic fertiliser known as a "biofertilizer" contains living microorganisms that can increase soil fertility and increase crop output. These microbes include mycorrhizal fungus, phosphate-solubilizing bacteria, and nitrogen-fixing bacteria. By lowering chemical inputs, preserving soil nutrients, and improving soil health, biofertilizers advance sustainability in agriculture (Rai & Shukla., 2020; Chaudhary *et al.,* 2022).

Nitrogen-fixing biofertilizers such as diazotrophs use a biological process called nitrogen fixation to transform inaccessible atmospheric nitrogen into soluble form, or ammonia. Then, bacteria that are capable of nitrifying and oxidising ammonia, such as Azotobacter, Clostridium, Azospirillum, and Bacillus sp. (free living nitrogen-fixers), convert ammonia to nitrite and nitrates, respectively (Chaudhary *et al.,* 2022). Bacillus, Rhizobium, Aerobacter, Pseudomonas, Aspergillus, and Penicillium are a few examples of bacteria and fungi that break down insoluble phosphates in the soil, enhancing its bioavailability and defending plants from stress situations (Chaudhary *et al.,* 2022). In a symbiotic association with plant roots, mycorrhizal fungi like Ectomycorrhiza and Endomycorrhiza increase nutrient uptake (Mn, P, Fe, and S) and water absorption while lowering stress and promoting plant growth (Rai & Shukla, 2020). Thus, biofertilizers are an essential component of sustainable agriculture due to their ability to improve soil health, reduce chemical inputs, and promote better crop yields.

Environmental monitoring:

Due to rapid industrialization and urbanization, developing countries are facing numerous environmental issues, characterized by the pollution of water, air, and soil. For instance, in agricultural regions, the compounds N, P, and K can be easily carried by drainage and surface water from farmland to valuable water resources, leading to a decline in water quality. This situation calls for the implementation of innovative biosensors for water quality monitoring. Recently, there has been a suggestion to employ cellular-based biosensor technologies, such as the bioelectric recognition assay (BERA). These technologies involve utilizing live, functional cells within a gel matrix, combined with a sensor system capable of detecting changes in the electrical properties of the cells. Cells that have the ability to specifically interact with a target substance generate a distinctive pattern of electrical potential in response to their interaction with the analyte. These biosensors have been used for the detection of various insecticides, such as paraoxon (organophosphate) and carbofuran (carbamate), as well as a series of organophosphate pesticides such as chlorpyrifos-oxon, chlorfenvinphos and azinphos-methyl oxon, dipterex, dichlorvos, and omethoate (Ferentinos *et al.,* 2013; Pakshirajan *et al.,* 2015)

Microbial bioremediation:

Various environmental issues have resulted from the heavy industrialization, warfare, widespread use of synthetic xenobiotics, and large-scale use of heavy metals in the previous decades (Bayat *et al.*, 2015). To combat this menace, usage of microorganisms with the ability to break down, change, or chelate different harmful substances is a popular practice, known as bioremediation (Dzionek *et al.,* 2016). It converts harmful pollutants present in soil, water, and the air into benign ones using fungi and naturally occurring microorganisms. Microbes involved in this practice include *Acinethobacter, Actinobacter, Acaligenes, Arthrobacter, Bacillins, Berijerinckia, Flavobacterium, Methylosinus, Mycrobacterium, Mycococcus, Nitrosomonas, Nocardia, Penicillium, Phanerochaete, Pseudomonas, Rhizoctomia, Serratio, Trametes an Xanthofacter* (Singh *et al.,* 2014). Microbes modify the contaminants through their metabolic activities which lead to their biodegradation. Depending on how saturated and aerated a region is, several bioremediation procedures are used. Techniques used *in situ* are ones that cause the least amount of disruption to the site's soil and groundwater and provide cost-effective solutions since they remediate toxins where they are instead of excavating and transporting them. The most popular in situ remedies are bioventing, biosparging and bioaugmentation. Some common e*x situ* procedures include land farming, composting and biopiles technique. Moreover, slurry reactors or aqueous reactors are specifically designed for ex situ treatment of polluted soil and water (Adams *et al.*, 2020; Vidali, 2001).

Phytoremediation:

Phytoremediation is an innovative and environmentally friendly approach that utilizes plants to remove, degrade, or immobilize various pollutants from soil, water, and air. It offers a sustainable solution for remediation of contaminated sites, reducing the reliance on costly and disruptive conventional methods. Some commonly used plants in phytoremediation include *Brassica juncea* known for its ability to accumulate heavy metals, such as lead, zinc, and cadmium, *Populus spp* effective in removing organic contaminants, such as benzene, toluene, and trichloroethylene, from soil and groundwater, *Helianthus annuus*, commonly used to remediate soils contaminated with radioactive metals like uranium and cesium, *Salix spp.* excellent for removing heavy metals and organic contaminants from both soil and water and *Phragmites australis* which is efficient in removing heavy metals and organic pollutants from water bodies. (Yan *et al.,* 2020; Babu *et al.,* 2021).

Conclusion:

In light of the many environmental problems the world is currently experiencing, sustainable development has emerged as a critical goal. In this regard, biotechnology presents a possible route for fostering sustainability across numerous industries. By using the bio-alternatives covered in this review, we can lower our dependency on harmful items made from chemicals. We can lessen our impact on the environment, preserve diversity, and maintain the long-term health of our world by embracing these sustainable choices. To assure the optimum of these procedures, it is crucial to continue this field's study and development. We can build a more robust and equitable future for all with a focused commitment towards better management of the environment.

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INNOVATIONS IN PUBLIC DISTRIBUTION OF RATION: A CASE STUDY OF RAJASTHAN AND PUNJAB

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Abstract:

Digitalisation of public distribution system including digitalisation of fair price shops, and warehouses in most of the States was launched in 2016 under aadhaar enabled biometric verification and automation of FPSs. Considering the positive moves made by various state governments, Rajasthan records best position in terms of automation and innovative practices followed for distribution of subsidised food items to the targeted population. Punjab is listed for biannual distribution of subsidised ration. The present paper is an attempt to record the best practices followed by the state of Rajasthan and Punjab in the distribution of subsided food items, problems encountered in its process and corresponding solutions. Based on the recommendations of the state Food and Supplies department, two villages each of Rajasthan and Punjab were visited. The field visits are held during Jan-Feb 2018 in a project funded by Government of Haryana. Accordingly, the problems and prospects of *Annapurna Bhandar Yojana* in Rajasthan and distribution of six months ration in Punjab are documented. The scope for replicating best practices elsewhere is also discussed.

Introduction:

The advent of World War II also initiated a much desired move of targeted distribution of ration under public system in India. In order to ensure food security at the micro levels the public distribution system (PDS) facilitated food supply to the poor at subsidized rates which also became an important component of the Indian policy under its planned development. Revamped in 1997, public distribution system followed a targeted approach under the banner targeted public distribution system (TPDS). The system works through a large network of fair price shops (FPS) as distribution points. Both the Centre and the States/U.T.'s share responsibility in the procurement, storage and distribution at multiple levels.

The roles defined for the Centre are to procure food grains from farmers at minimum support price, allocate and transfer it to the States/U/T.s, and maintain buffer stock to control food grain prices. Similarly, the States are given autonomy to identify eligible households on set criterion, issue appropriate identification cards, authorise fair price shops, and transport supply to the fair price shops for distribution to eligible card holders. Ideally, the system would ensure distribution of subsidised food grained to all eligible poor households to meet their food requirements. However, various gaps pertaining to procurement mechanism, storage system, leakage during transportation and distribution process, unrevised system of identification of eligible households leading to error of exclusion and error of inclusion have been identified by various reports (Planning Commission; 2005). Given the limitations, the central government has initiated a plan scheme on end-to-end computerisation of TPDS operations including digitalisation of beneficiary database, online allocation of food grains, automated system of supply to the fair price shop dealers and also from dealers to the beneficiaries.

To address the gaps in TPDS, the state governments have undertaken reforms in public distribution system to make it more efficient and viable under the National Food Security Act (NFSA) 2013 which is a transition from welfare approach to right based approach for food and nutritional security of the people. The National Food Security Act, 2013 provides for door step delivery of foodgrains to the TPDS outlets; ensure transparency through end-to-end computerisation; leveraging “aadhaar” for unique identification and biometric verification; introducing schemes such as cash transfer, food coupons, etc. in specific area and manner; preference to public institution or public bodies such as Panchayats, self-help groups, co-operatives in licensing FPSs and management of FPSs by women and their collectives, and diversification of commodities distributed under PDS over time (NFSA, Chapter 5, Section 12, part 2). Accordingly, digitalisation of public distribution system including digitalisation of fair price shops, and warehouses in most of the States was launched in 2016 under aadhaar enabled biometric verification and automation of FPSs. Considering the positive moves made by various state governments, Rajasthan record noticeable spread in terms of automation and innovative practices in the distribution of subsidised food items to the targeted population. Punjab has the distinction of biannual distribution of subsidised ration under PDS. The present paper is an attempt to record the best practices followed by the state of Rajasthan and Punjab in the distribution of subsided food items, problems encountered in the process and solutions opted by them. Based on the recommendations of respective State Food and Supplies department, two villages each of Rajasthan and Punjab are selected for the survey. The PDS officials and Fair Price Shop owners are interviewed to understand the functioning of the system under PDS. In order to understand the functioning of *Annapuran Bhandar Yojna under PDS of Rajasthan,* one owner of FPS in the village *Shikarpura* and another in the village *Lakhana Sitaramputra*

Jaatwala of Jaipur district in Rajasthan who are running shops under the Yojana are included for the study. On the other hand, in order to understand the functioning of bi-annual distribution of subsidised ration under PDS of Punjab, two rural and two urban FPSs dealers in Sangrur and Hoshiarpur districts of the state are contacted. In all, four dealers from Punjab were included for the study. Semi-structured questionnaire is used for the interviews. The field visits are held during Jan-Feb 2018 in a project funded by Government of Haryana. Of various initiatives taken by respective state governments in the distribution of subsidized food to targeted population, the problems and prospects of the much talked of *Annapurna Bhandar Yojana* in Rajasthan and bi-annual distribution of ration in Punjab are documented in the present paper.

Best practices of Rajasthan:

1. Besides distribution of wheat, rice, kerosene oil, fortified *atta,* and sugar under PDS, the government of Rajasthan has initiated a non-PDS scheme under the banner *Annapurna Bhandar Yojana* wherein non-PDS items of daily use in good quality are made available to the consumer at reasonable rates through the PDS set up of fair price shops (FPSs). The Rajasthan State Food and Civil Supplies Corporation signed a tripartite agreement with the Future Group and the FPS owners. The agreement has fixed the prices of non-perishable daily use commodities such that benefit of discounted prices is shared between FPS dealer and the consumer. The 40 percent of benefit goes to the FPS dealer and 60 percent goes to the consumer**.** The Rajasthan State Food and Civil Supplies Corporation collect one percent service charge from the Future Group to use it on promotional activities. The Corporation get into agreement with FPS dealers who are willing to invest Rs 25,000/- to Rs 50,000/- to refurbish their outlets.

   The field observations, formal and informal interactions with the officials and FPS owners reveal that the refurbish outlets are viable for the areas with minimum 1000 households as its success depends on more number of footfall.

Problems faced in this initiative and corresponding solution by the corporation:

The Corporation found that the price differences of subsist items of daily use available at the FPSs are not much as compared to those availed in open market which has been the main problem in attracting greater footfall to FPSs for getting daily use products. This has greatly discouraged FPS dealers to keep a varied range of products beyond subsidized items for sale and the business remained limited. Thus the Corporation entered the scene and engaged directly in the bulk purchase of the products from the original seller/manufacturer and launched few non-PDS items of daily use under its own brand name “Raj”. This initiative by-passed the margin of the middle agent and helped them to reduce the price of the daily use products by removing middle channel costs. In this model of operations, maximum benefits are transferred to the consumers. The Corporation subsequently launched products like 'Raj Tea' at Rs 140/- per kg and 'Raj Salt' at Rs 4-5/- per kg. The Corporation is in the process to launch more products like refined oil, washing powder, pulses and powdered spices under its banner so that maximum price benefits are transferred to the consumers. A few non-PDS items of daily use at subsidized rates records a satisfying response from the consumers. As a case study the FPS under *Annapuran Bhandar Yojna*, a village named Shikarpura in the Jaipur district is visited (Picture 1). This shop seems to have almost all items of daily use and the dealer seems satisfied with the public response.

The Corporation has set up a model where a predefined list of products is supplied by the Future Group to the *Annapurna Bhandar* outlet in the first month of its opening. The items not sold by the end of first month of its operation, are taken back by the Future Group. The facility to take back unsold items of sale by Future Group is given to the FPS dealers for the first month only. Based on its first month experience of sale and customers demand for products, the FPS owner prepares the list of items to raise its order of products to the Future Group for the second month. The inventory for the second month operations is maintained by the FPS owner on the basis of previous months experience and thus has a relatively fair chance of clearing the inventory from the second month onwards. Henceforth the outlet functions on self sustainable basis and no further stock is taken back by the Future Group after the first month. The system secures dealers interests by providing leftover stock support in the first month of operation.

2. A village named *Lakhana Sitaramputra Jaatwala* of Jaipur district in Rajasthan is adopted by the State Bank of India to introduce cashless system of operations under its cashless village mission. Cashless society has spread its wings across all sections of society by now, however, village Sitaramputra Jaatwala was an experiment and example of its own in 2018. It is an interesting and distinct example of cashless society then where even the street vendors/ *rehri wala* carry handheld card swipe machines. All shopkeepers and service providers including hair cutter sitting under the tree is provided with a card swipe machine. The PDS and non-PDS system works on cashless system efficiently. Cashless system has convinced people of fraud free distribution of ration. Informal interaction with the society reveals certain drawbacks of the cashless system as well. Illiterate poor people and elderly find it very difficult to cope with the cashless transactions. There are many who have no money or fewer amounts in their newly opened bank accounts find it difficult to first go to the bank to deposit money and then operate with debit cards issued by the bank. Given the problems, the initiative of the State Bank of India has spread its wings all over and is appreciated for its efforts to make majority of the people comfortable with cashless transactions. Picture 2 shows the FPS in cashless village of Jaipur.

Picture 1: Manpura at Bhatawala, Vatika Road, Shikarpura, Rajasthan

Picture 2: Total cashless village Lakhana Road, Jaipur, Rajasthan

Another important point that needs special mention is that the Rajasthan government has kept the system open to include new families as beneficiaries under PDS system after proper verification process. This system is more economical and efficient by keeping entry and exit of beneficiaries open as per their eligibility as a beneficiary. The flexible system of updating the list of beneficiaries certainly holds over undertaking a full-fledged one time survey of identification of beneficiaries.

Best practices of Punjab:

Besides interacting with the Food and Supplies officials of Punjab, the team had visited two rural and two urban FPSs in Sangrur and Hoshiarpur districts of the state. Punjab has set up an example in distributing ration biannually. Six months ration is distributed for the period October to March and April to September. The state launched automation in 2017 thereby ration is distributed after biometric verification through the point of sale (POS) machines. Due to limited number of POS machines, area inspectors are given the responsibility of operating the POS machines at each FPS. The POS machines are launched in all districts of Punjab. Picture 3 shows a view of stock for distribution kept in a godown in Hoshiarpur and Picture 4 shows the stock for distribution that is kept in a tractor in Sangrur district. The dealer has no space to keep the stock so he plans to distribute the stock directly from the tractor and covers the same with a huge plastic sheet called *tarpal*.

There is a time lag in distribution of ration due to various reasons related to procurement of foodgrains and other clearances. In the year 2018, the first set of distribution in Punjab started in the month of July. Punjab has also launched IRIS scanning machines to avoid problems related to delay in distribution due to mismatch of thumb impressions at POS machines. However, it s found that the training of dealers and area inspectors to use these instruments is still underway.

Picture 3: FPS in Hoshiarpur, Punjab

Picture 4: Phirni Road, Sangrur Punjab

Interactions with the officials, FPS dealers, and consumers revealed that six months distribution system is working smoothly in Punjab as both consumers and dealers are comfortable and satisfied. Above all, the staff of the Food and Civil Supplies department is relived of the monthly pressures. Major responsibility on the ground is on area inspectors whose presence is must during the distribution in any area under his jurisdiction. The only observed gap relates to the selection of PDS beneficiaries. The government need to conduct period survey to avoid errors in inclusion and exclusion of beneficiaries under PDS.

Punjab has tradition that each household irrespective of class, caste and creed keep a large aluminium container, locally called a drum, to store wheat. This helps the consumer to store six months ration safely and comfortably. Few families even store extra wheat outside the drum but all are comfortable to keep it safe in their houses either inside or outside the wheat drum. The FPS is a side business of almost all FPS dealers as they just have to invest few days in the delivery of ration after every six months.

Discussion:

Considering the fact that footfall of over 1,000 people ensures secure operations of *Annapurna Bhandar* outlets, it is believed that FPSs that caters to a larger area and greater number of families can be converted to a small departmental store on trial basis in any state all over India. This will resolve many problems including that of ration depots not found open on working days of a month. On similar lines, Punjab is in the process of negotiating with Markfed to engage in supply of more number of daily use items through FPSs. The profit margins can be further raised if the government is directly engaged in bulk buying of products from producers and distributing the same through the FPSs so that maximum benefit reaches the consumer.

The success of six monthly distribution of subsidised ration in Punjab largely depends on its culture of storing foodgrains for over a season. Large storage of foodgrains has been in practice among the people of Punjab that has been an agricultural state and this practice of people has remained an advantage to Punjab to launch six monthly distribution of subsidised ration to targeted population. The same has not been in practice with people of Jaipur district of Rajasthan. Moreover, the affordability of people to purchase six months ration also has to be considered for its successful implementation elsewhere. Depending on the social fabric of a state / place, these models can be modified or amalgamated to improve efficiency and effectively in the distribution of subsidised ration.

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ASPECTS OF COMPUTERS IN THE FIELD OF DIGITAL FORENSICS

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Abstract:

Today, digitalization is developing quickly, and all types of businesses and individuals are utilising it to improve their operations. For that reason, we require a digital system that enables us to complete a variety of jobs more quickly. The information is built around how computers are used in digital forensics. All of these businesses are utilising the advantages of digitalization in their daily operations as the globe moves more and more towards it. Digitalization has made it possible for working processes to operate quickly and efficiently. All we need to employ digitalization is a computer or a system. The PCs must be installed with specific forensics software tools before the task can be completed. It benefits us with quick operations. Computers, for instance, are too helpful for the Covid-19 positive forensics test in the year 2020. It is considerably simpler to test now that computers are involved.

Keywords: Computer, Digital World, Types of Digital Forensic, Tools.

Introduction:

The use of investigation and analytical methods to collect and preserve data from a specific computing device in a way that is appropriate for presenting in court is known as computer forensics. To conduct a structured investigation and preserve a recorded chain of evidence in order to determine exactly what occurred on a computing device and who was accountable for it, computer forensics is used.Digital forensics is a method of combining cutting-edge technology and scientific understanding that can be utilised in court.In order to fully understand what occurred on a digital device, the major goal of digital forensics is to present an organised examination while organising a documented chain of proof and evidence.Due to the rapid advancement of technology, digital forensics equipment needs to be updated. When two objects are related to one other and then moved between them, forensics is predicated on the idea that each criminal leaves a mark behind. This means that a criminal can be connected to a crime by marks evidence brought in from the crime scene.

Objectives:

The major goals listed here are:

- Designing a strategy at a hypothetical crime scene that helps you ensure that the acquired digital confirmation is not corrupted.

- It helps to imply the motive for the crime and the resemblance of the primary culprit.
- It can assist with computer and familiar data retrieval, exploration, and maintenance in a way that favours the inspection agency's ability to present such data as evidence in court.
- Recovering deleted data and ejected documents from digital storage to support and confirm the evidence.
- This implies that you quickly define the facts and provide you the opportunity to assess the victim's likely reaction to the malicious activity.
- Producing a computer forensic detail that contains comprehensive information on the investigation procedure.

The following series of custody is required to preserve the evidence.

Process of digital forensics:

A recognised factual and forensics action employed in digital forensics examination is the digital forensics operation. The first five steps in a digital forensics operation are as follows:

Identification: It is the first stage of a digital forensic investigation. What evidence is present, where it is acquired, and how it is gathered (in what order) are the main components of the identification operation. It detects potential sources of relevant evidence as well as important data custodians and positions. Computerised storage devices include personal mobile phones, laptops, PDAs, and other devices.

Preservation: It is the process of keeping pertinent computerised data stored. Data is currently segregated or separated [2]. It entails prohibiting people from using the electronic device so that the demand for the digital confirmation is not met.

Analysis: Currently, inspection agents reconstruct data fragments and can draw judgements based on witnesses discovered [3]. However, it can be needing enough iterations of examination to support a particular crime concept. The event under investigation is the subject of a well organised search for supporting evidence.

Documentation: The History of all detectable data must be designed during this step. Documents are first and foremost predicated on displaying skill and methodology. It assists with cleaning up and assessing the crime scene. Along with pictures and crime-scene retailing, it includes the necessary evidence and documentation of the crime site.

Presentation: During this final stage, the operations of outlining, summarising, and clarifying opinions are completed. Digital forensics encompasses more than just straightforward data collection, processing, and presentation. One must first be a scientist before being able to work in the field of digital forensics because it all revolves around the most recent study and needs to be current.

Types of digital forensic:

The examination of various sorts of evidence is divided into specialised sub-branches within the field of digital forensics.

Mobile forensics: It focuses on providing information about mobile phones and other portable electronics. Mobile phones are the most convenient source of evidence today, and they are also the most common type of digital evidence discovered at crime scenes. Important data can be recovered, including call logs, SIM contacts, incoming and outgoing MMS/SMS, pictures, videos, audio, conversations, documents, and network information.

Computer forensics: Digital forensics' subsidiary field is known as computer forensics. It mostly handles cases related to data kept on computing devices. Finding out and describing the current state of digital evidence held in devices like laptops, computers, storage devices, and other electronic equipment is the aim of computer forensics.

Network forensics: The focus of network forensics is on issues involving computer network policy. LAN or WAN network traffic may be present.

Database forensics: A sub-branch of database forensics links the review and examination of the database with the review and examination of the database and its metadata. Additionally, it manages vehicles connected to the database.

Live forensics: It most likely deals with the analysis and review of cases involving actual live situations. Maintaining the validation of any modifications is beneficial.

Email forensics: This technique involves recovering emails, together with deleted emails and contact information.

Examples of its applications include:

In a recent instance, business associations used digital forensics in cases involving compliance issues and problems.

Fraudulent investigations:

Investigations into bankruptcies and workplace email and internet abuse Investigation of cases of fraud Industrial problems an answer to the employee dispute.

Importance of forensic knowledge:

The value of forensic expertise is essential for defending anyone. It is very important to law and justice. It aids in bringing due justice to the victim as well as in identifying, apprehending, and punishing offenders. An investigator can benefit from knowing the forensics investigation process, techniques, and methods by ensuring that all of the evidence is correctly gathered and helps to maintain authentication and integrity. If, however, legal and technical forensics investigation procedure is improperly followed, the following issues develop:

- Destroy the justice system's evidence.

- Lack of credibility and integrity in the proof, which prevents it from being admitted in court.
- Evidence that is crucial and valuable being tampered with or destroyed.

Computer role in digital forensics:

It is becoming more difficult to implement laws, assistance in recovering data that can be used as evidence is becoming more and more necessary. This will only increase demand for PC criminology professionals. More than ever, this expanding field of study needs IT specialists skilled in this type of information recovery for law implementation. According to Forbes Magazine, IT specialists will be in high demand in 2015, but only for well-established IT points. Although it is not an easy job, IT expertise in law implementation alters the fundamentals of legal authority with technique and dominance to provide examples and have unmixed effects.

Tool for computer forensics:

A variety of software programmes are utilised in the field of computer forensics. The people who work in this field are referred to as investigators. Searching for the encrypted file was one of the tasks they had to complete. The phrase "live box" and other modern tools are available for the research. They are the best options in the business because of this phrase. In the majority of cases, routine operations are carried out, such as recovering deleted files and passwords as well as recovering from raw data. The evidence amassed during the course of the inquiry will be provided as proof to the attorneys, courts, and police for further action. The primary goal of computer forensics is to solve cases, which is just as vital as recovering data. The ability to process all of this data to find the answer and end the case is provided by the computer forensics tools.

Difficulties in digital forensics:

Digital Forensics must contend with numerous deadlines. These are as follows:

High volume and speed: Issues with storing, obtaining, and analysing large amounts of data for forensics purposes have frequently arisen, and are also encouraged by the accessibility and extensive marketing of digital material.

Complexity explosion: The amount of evidence is too much for one host to handle. This is dispersed among a number of virtual or actual locations, including cloud resources, social networks, and storage units connected to personal networks. Because of this, it takes more knowledge, effort, and resources to correctly and totally rebuild the evidence. Using the methods of computer forensics tools, certain challenging jobs were also completed extremely quickly.

Approaches for ant forensics emerge: Data stowing away is one of the cautious procedures that includes encryption, jumbling, and shrouding techniques. Collaboration between global purviews is essential in creating hermetically sealed cases for legal requirements, in any instance, as it allows for the research of cybercrime and the gathering of evidence. Security experts require the best research tools for that.

Legitimacy: Modern foundations are more complex and virtualized, frequently shifting their multifaceted nature to the periphery (as in hazy figuring) or allocating some responsibilities to outsiders (as in stage as-an administration systems).

Privacy investigations: Nowadays, people spend a lot of time online and frequently communicate with one another through social networks or other online communities. When computing is added, it aids in the discovery and collection of all information necessary to create an attack that violates a client's security and is also connected to a number of issues.

Enhancement of standards: Investigating cybercrimes on the front lines may call for cooperative data processing or the use of redistributed computation and capacity. The development of acceptable standard arrangements and considerations will therefore be a vital advancement for the computerised criminology network.

Digital forensics benefits:

We will now talk about the advantages of digital forensics. These are as follows:

- A company's computer system or network system can assist in communicating crucial information if it is accommodated.
- To ensure the computer system's accuracy.
- To identifies cybercriminals proficiently or skillfully anywhere in the world, at any time.
- It helps a business save money and important time by allowing for the essence, processing, and explanation of the strong evidence, which then allows for the presentation of the activities of cybercriminals in court.
- By presenting evidence against them in court, cybercriminals are sentenced to punishment.
- Developed cybersecurity measures to protect software, hardware, and the data on them from theft or destruction.
- The process of identifying and coercing the population of all data to provide undeniable risk factors for additional analysis.
- The capacity to reduce or eliminate sample issues is a crucial advantage of forensic accounts.

Disadvantages of digital forensics:

Despite all of the benefits of digital forensics, there are a lot of drawbacks as well. Here are some of them:

- Most investigators lack the necessary technical expertise in the subject of investigation. As a result, they are unable to provide any instances' intended results.
- Demand the provision of credible and genuine proof. Legal professionals should have extensive computer skills.
- It represents the potential for confidential documents to be made public.
- It is too expensive to create electronic records and store information.
- In court-received digital evidence. In this approach, there is never any tampering.

Conclusion:

The forensic analysis of electronic equipment has unquestionably been quite effective in locating computer and cybercrime. Organisations are emphasising the need of having the necessary incident management tools to deal with system abusers. And the most crucial instrument in this process is digital forensics. Computers are essential to digital forensics. The work of locating criminals has become quite simple with the use of computers. The investigators are assisted by new technology when looking into any case. Throughout the conversation, we've come to the conclusion that digital forensics is crucial to our culture and has gotten much simpler thanks to computers alone. The amount of evidence is too much for one host. This is dispersed among a number of virtual or actual locations, including cloud resources, social networks, and storage units connected to personal networks. As a result, reconstructing the evidence correctly and completely requires additional expertise, effort, and resources. Consequently, computers play a crucial and practical role in digital forensics.

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DOCUMENT REVIEW - A SYSTEMATIC TOOL FOR RESEARCH

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Abstract:

Document review is a valuable tool for quantitative data collection, as it provides a cost-effective and time-efficient way to collect large amounts of data. It can also help identify trends and patterns in the data, which can inform future research studies. It is used to compile background data, ascertain whether programme plans have been implemented, create interview questions, questionnaires, focus group questions, or an observation guide, and answer fundamental evaluation questions about participant quantity and type, staff quantity and type, and programme costs. The primary purpose of document review is to gather valuable insights into a wide range of topics, including social trends, political movements, and economic patterns. Document review is essential for conducting thorough and reliable research. To plan and conduct a successful document review, it is important to carefully select the documents, establish a clear set of criteria for evaluating the documents, maintain a systematic approach to reviewing the documents, and maintain objectivity throughout the review process. Finally, documenting the review process is essential for transparency and reproducibility. Document review involves defining the research question, selecting search terms and databases, screening and selecting relevant documents, extracting data, and synthesising the findings. It is important to maintain a systematic approach, assess the quality of the included studies, present findings in a clear and concise manner, document the review process, and analyse and interpret the information gathered from documents. Researchers must carefully consider which method is most appropriate for their research question and data set, and acknowledge any potential biases or limitations. Ethical considerations when reviewing personal or sensitive documents are also important, such as obtaining informed consent and taking steps to mitigate biases. Successful research studies have utilised document review as a tool.

Keywords: Document Review, Quantitative Research, Types, Steps, Softwares, Ethical Considerations

Introduction:

Meaning of document review:

Research is an ocean in which every element works to become a whole. Research is the systematic process of collecting and analysing data to answer research questions. One of the methods used in research is document review, which involves the examination of existing documents to gather information. Document review is a valuable tool for quantitative data collection as it provides a cost-effective and time-efficient way to collect large amounts of data. This method allows researchers to access data that may not be available through other means, such as surveys or interviews. Document review can also help identify trends and patterns in the data, which can inform future research studies. However, it is important to note that document review has its limitations and should be used in conjunction with other methods for a comprehensive understanding of the research topic. Overall, document review is an effective tool for quantitative data collection that can provide valuable insights into a wide range of research topics.

Need to use document review for research:

- To compile background data: You can better understand the background, guiding principles, and operation of the programme you are evaluating as well as the organisation in which it operates by reading existing documents.
- To ascertain whether programme plans have been implemented: Examining programme documents may show a discrepancy between official programme purpose statements and actual programme implementation. Before starting the evaluation, it is crucial to ascertain whether such a difference exists and to define the programme's intent.
- When you require knowledge to support the creation of additional data collection tools for evaluation, it will be easier for you to create interview questions, questionnaires, focus group questions, or an observation guide if you review existing documents to comprehend the programme and organisation you are evaluating.
- When information is required to respond to what-and-how-many evaluation questions Answers to fundamental evaluation questions about participant quantity and type, staff quantity and type, and programme costs can be found by looking through programme documents.

Purpose of document review:

Document review is a crucial aspect of quantitative data collection that involves the examination and analysis of various types of documents, ranging from official records to personal letters and diaries. The primary purpose of document review is to gather valuable insights into a wide range of topics, including social trends, political movements, and economic patterns. By carefully examining these documents, researchers can identify key themes and patterns that can inform their research and help them draw meaningful conclusions. Document review also allows researchers to identify gaps in existing knowledge and develop new hypotheses for further investigation. Ultimately, the insights gained from document review can help researchers better understand complex social phenomena and make informed decisions based on their findings.

How to plan and conduct document reviews?

To plan and conduct a successful document review, there are several tips to keep in mind. Firstly, it is important to carefully select the documents that will be reviewed. This involves identifying relevant sources and filtering out irrelevant ones. It may also involve prioritising certain types of documents over others, depending on the research question being investigated. Secondly, it is crucial to establish a clear set of criteria for evaluating the documents. This can include factors such as the date of publication, the author's credentials, and the level of detail provided in the document. Thirdly, it is important to maintain a systematic approach to reviewing the documents, such as organising them by theme or topic. This can help ensure that all relevant information is captured and that no important details are overlooked. Finally, it is essential to maintain objectivity throughout the review process and avoid any biases or preconceptions that may influence the interpretation of the data. By following these tips and best practises, researchers can conduct thorough and rigorous document reviews that yield valuable cannot be overstated. A well-structured system ensures that all relevant documents are accounted for and reviewed in a timely manner. This not only saves time and resources but also minimises the risk of missing important information. Additionally, a clear system allows for easy tracking of progress and the identification of any potential roadblocks or issues that may arise during the review process. It is also important to involve multiple reviewers to ensure consistency and accuracy in the interpretation of the data. Finally, documenting the review process itself is crucial for transparency and reproducibility, as well as for identifying areas for improvement in future reviews. Overall, creating a clear and organised system for document review is essential for conducting thorough and reliable research.

Phases to conduct document review:

The phases of conducting a document review include defining the research question, selecting appropriate search terms and databases, screening and selecting relevant documents, extracting data from the selected documents, and synthesising the findings to develop an accurate interpretation of the data. It is important to maintain a systematic approach throughout the review process, including establishing clear inclusion and exclusion criteria, using standardised forms for data extraction, and ensuring that all reviewers are trained on the review protocol. In addition, it is essential to assess the quality of the included studies and consider potential sources of bias in the data. This can be done through tools such as risk of bias assessments or Grade criteria. Once all data has been extracted and synthesised, it is important to present findings in a clear and concise manner that accurately reflects the evidence base. This may involve using tables or diagrams to summarise key findings or conducting meta-analyses to quantify effect sizes. Finally, documenting the review process itself is crucial for transparency and reproducibility, as well as for identifying areas for improvement in future reviews are also critical in ensuring the validity and accuracy of research findings.

Techniques for analysing and interpreting information gathered from documents:

These techniques may include content analysis, discourse analysis, and thematic analysis, among others. Researchers must carefully consider which method is most appropriate for their research question and data set. Additionally, it is important to acknowledge any potential biases or limitations in the analysis process and to address them accordingly. Ultimately, the success of a research project relies heavily on the quality of document review and analysis, making it imperative for researchers to approach these tasks with diligence and care. By doing so, they can ensure that their findings are trustworthy and contribute meaningfully to their field of study.

Ethical considerations when reviewing documents:

Researchers must ensure that they are respecting the privacy and confidentiality of the individuals involved and that they are not exploiting their information for personal gain. This may involve obtaining informed consent from participants, anonymizing data, or seeking approval from an ethics committee. Additionally, researchers must be aware of potential biases or prejudices that may influence their interpretation of the data and take steps to mitigate these factors. Ultimately, a thorough and ethical approach to document review and analysis is essential for producing reliable and valuable research outcomes.

Examples of successful research studies that utilised document review as a key methodological tool include the investigation of historical trends and patterns, the analysis of government policies and regulations, and the examination of organisational structures and processes. Document review has also been used in legal research to analyse court cases and legal precedents. In addition, document review can be an effective method for studying cultural artefacts such as literature, art, and music. However, it is important to note that document review should not be used as the sole method of data collection, as it may lead to biassed or incomplete findings. Therefore, researchers should consider using multiple methods of data collection to ensure a comprehensive understanding of their research topic. Overall, document review is a valuable tool for conducting research in a variety of fields, but it requires careful planning and execution to produce accurate and meaningful results.

Types of document review:

Archival research:

What is archival research?

Archival research involves examining historical documents such as diaries, letters, and government records. Archival research can provide a wealth of information about past events and social trends, but it can also be time-consuming and challenging to access certain documents. Despite these challenges, archival research remains a valuable tool for social scientists seeking to understand the complexities of human behaviour and societal structures. By examining primary sources, researchers can gain a more nuanced understanding of historical events and the people who lived through them. Archival research also allows for the exploration of previously overlooked or marginalised perspectives, shedding light on the experiences of individuals and groups who may have been excluded from mainstream narratives. Additionally, archival research can provide insights into long-term trends and patterns that may not be immediately apparent through other forms of data collection. Overall, while archival research may require significant time and effort, it offers unique opportunities for uncovering new knowledge about the past and present.

Steps involved in archival research:

To conduct archival research, several steps are typically involved. The first step is to identify the research question or topic of interest. This will help guide the selection of relevant archives and materials to examine. Once a topic has been identified, the researcher must locate and access relevant archives. This may involve visiting physical archives in person or accessing digital archives online. Once access has been gained, the researcher must carefully examine and analyse the materials, taking detailed notes and documenting sources along the way. It is important to critically evaluate the reliability and validity of archival sources, as they may contain biases or inaccuracies. Finally, the researcher must synthesise their findings into a cohesive narrative or argument that contributes to existing knowledge in their field. Overall, archival research can be a rewarding but challenging process that requires careful planning, attention to detail, and critical thinking skills.

Examples for archival research:

Examples of how researchers have used archival materials to contribute new insights or perspectives to their field. include studies on the history of medicine, political movements, and cultural trends. For instance, historians have used archives to trace the development of medical practises and the evolution of diseases over time. They have also examined political movements through the lens of archival documents, shedding light on how social and economic factors have influenced political change. In addition, researchers have used archives to explore cultural trends such as fashion, music, and art. By analysing primary sources such as photographs, letters, and diaries, they have been able to gain a deeper understanding of how these trends have shaped society. Overall, archival research has played a vital role in advancing knowledge across a wide range of disciplines and will continue to do so in the future.

Content analysis:

What is content analysis?

Content analysis is a research method that involves systematically analysing and interpreting the content of communication, such as text, images, or audio. It is often used to study patterns and trends in media coverage, public opinion, and social discourse. Content analysis can be both quantitative and qualitative in nature, depending on the research question and the data being analysed. Some common techniques used in content analysis include coding, categorising, and identifying themes or patterns. This method has been widely used in fields such as psychology, sociology, political science, and communication studies to gain insights into various phenomena. With the increasing availability of digital data and tools for analysis, content analysis is becoming an even more powerful tool for understanding our world.

Steps involved in content analysis:

The first step in content analysis is to define the research question or hypothesis. This involves identifying the variables of interest and determining the scope of the study. Next, researchers must select a sample of data to analyse, which can be done through random sampling or purposive sampling. Once the data has been collected, it must be coded into categories that reflect the variables of interest. After coding, researchers can begin analysing the data using statistical methods such as regression analysis or hypothesis testing. The results of the analysis should be presented clearly and concisely, with appropriate visual aids such as graphs or tables. Finally, researchers must draw conclusions from their findings and discuss the implications of their study for future research or practical applications. It is important for researchers to acknowledge any limitations of their study and suggest areas for further investigation. Overall, conducting a research study requires careful planning, attention to detail, and a thorough understanding of the scientific method. By following these steps, researchers can produce valuable insights that contribute to our understanding of the world around us.

Examples of content analysis:

1. Social media analysis: With the rise of social media, there is a wealth of data available for researchers to analyse. By examining trends in social media posts, researchers can gain insights into public opinion, consumer behaviour, and more.
2. News media analysis: Another area for investigation is news media coverage. By analysing news articles and broadcasts, researchers can gain insights into how different topics are being covered and what biases may be present.
3. Advertising analysis: Advertising is another area where content analysis can be useful. By examining advertisements across different mediums, researchers can gain insights into how companies are targeting different demographics and what messages they are trying to convey.

4. Literature analysis: Finally, content analysis can also be used to examine literature. By analysing books, articles, and other written works, researchers can gain insights into themes and trends in literature as well as the cultural values that underpin them. Overall, content analysis is a valuable tool for researchers looking

What is a literature review?

A literature review is a critical analysis of existing research on a particular topic. It involves identifying and evaluating relevant studies, synthesising their findings, and identifying gaps in the current knowledge base. Literature reviews are essential for researchers to gain a thorough understanding of their research area and identify key research questions. They also help establish the significance of the research by highlighting its contribution to the existing body of knowledge. A well-conducted literature review can provide valuable insights into the current state of research on a topic as well as identify areas where further investigation is needed. Overall, literature reviews are an important component of any research project and are essential for ensuring that research is conducted in a rigorous and informed manner.

Steps to conduct a literature review:

The first step in conducting a literature review is to clearly define the research question or topic of interest. This will help to focus the search for relevant literature and ensure that the review is comprehensive and relevant. Once the research question has been identified, the next step is to conduct a systematic search of relevant databases and sources, such as academic journals, books, and online resources. It is important to use a variety of search terms and strategies to ensure that all relevant literature is identified. Once the literature has been gathered, it is important to critically evaluate each source in order to determine its relevance and quality. This involves assessing factors such as the author's credentials, the publication date, and the methodology used in the study. It may also be necessary to assess any potential biases or limitations in the study. After evaluating each source, it is important to synthesise the findings into a coherent narrative that addresses the research question or topic of interest. This involves identifying common themes and patterns across different sources as well as

Examples of literature review:

Once the literature review is complete, it can be used to inform the development of research hypotheses or guide the design of a study. However, it is important to acknowledge that there may be potential biases or limitations in the sources reviewed. For example, studies may have been conducted on a small sample size or may not be generalizable to other populations. Additionally, there may be publication bias, where only studies with significant results are published. leading to an overrepresentation of certain findings in the literature. It is also important to consider the context in which the research was conducted, as cultural and societal factors may influence the results. Despite these limitations, systematic reviews and meta-analyses can provide valuable insights into the current state of knowledge on a particular topic. By synthesizing data from multiple studies, researchers can identify patterns and trends that may not be apparent in individual studies. Furthermore, these types of reviews can help identify gaps in knowledge and areas for future research. Ultimately, it is important to approach any research with a critical eye and consider the strengths and limitations of the evidence presented. Despite these limitations, synthesising the findings from multiple sources can provide a comprehensive understanding of a topic and help identify gaps in knowledge that can inform future research. Overall, conducting a thorough literature review is an essential step in any research project and can greatly enhance the quality and validity of the study.

There are several software options available to researchers looking to conduct a literature review. One popular choice is EndNote, which allows users to organise and manage references as well as create bibliographies in various citation styles. Another option is Zotero, which offers similar features and can also be used as a browser extension. Mendeley is another popular software that allows for easy collaboration with other researchers and provides personalised recommendations for relevant articles. For those looking for a more advanced tool, Covidence offers features such as screening and data extraction assistance, as well as team management capabilities. . In addition to these software options, there are also numerous online databases available for researchers to access. PubMed is a widely used database that provides access to over 30 million citations and abstracts in the biomedical field. Google Scholar is another popular option that allows for easy searching of scholarly literature across multiple disciplines. For those interested in open access research, the Directory of Open Access Journals (DOAJ) provides access to thousands of peer-reviewed journals that are freely available online. Additionally, social media platforms such as Twitter and ResearchGate have become increasingly popular among researchers for sharing and discussing their work with colleagues around the world. With so many tools and resources available, researchers have more options than ever before for collaborating, discovering new information, and advancing their fields of study. Ultimately, the choice of software will depend on the specific needs of the research project and the preferences of the researcher or research team. Regardless of the chosen software, conducting a thorough literature review is crucial for any research project and can greatly contribute to its success.

Ways to interpret data collected from document review:

One way to interpret the data collected from document reviews is to conduct a content analysis. This involves systematically categorising and coding the information found in the documents to identify patterns and themes. Another approach is to use statistical analysis to identify trends and relationships between variables. Document review is a crucial step in any research process, as it provides valuable insights into the topic being studied. By carefully examining the documents, researchers can gain a deeper understanding of the subject matter and identify key issues and trends. Content analysis is a useful tool for this process, as it allows researchers to organise and categorise the information in a meaningful way. Statistical analysis, on the other hand, is particularly useful for identifying patterns and relationships between variables. By using both methods together, researchers can gain a comprehensive understanding of the data collected from document reviews. Ultimately, this information can be used to inform decision-making processes or to develop new theories and hypotheses about the topic being studied. Whether you are conducting academic research or working in industry, document review is an essential tool for gaining insights into your chosen field. This can be done using software such as SPSS or SAS. Additionally, qualitative methods such as discourse analysis or narrative analysis can be used to examine the language and meaning within the documents. It is important to consider the context in which the documents were produced and how this may affect their interpretation. Finally, triangulation can be used to validate findings by comparing data from multiple sources, such as interviews or observations, with the data collected from document reviews. Overall, careful consideration of the research question and appropriate methods for analysing document data can lead to valuable insights for any research project.

Ethical considerations in document review:

The ethical considerations of data analysis should also be taken into account when conducting document reviews. It is important to ensure that the data being analysed is obtained ethically and legally and that any personal information is protected. In addition, researchers should be transparent about their methods and intentions when using document data and obtain informed consent from any individuals whose information may be included in the analysis. It is also important to consider the potential impact of the research on any groups or individuals represented in the documents and take steps to minimise harm or negative consequences. Overall, ethical considerations are crucial for ensuring that document reviews are conducted in a responsible and respectful manner. By carefully balancing ethical concerns with rigorous analysis techniques, researchers can gain valuable insights while also upholding important ethical principles. whenever reviewing documents. Making sure that the data being analysed was obtained ethically, legally, and with the utmost care is crucial. Additionally, when using document data, researchers should be open and honest about their procedures and goals. They should also get the consent of any individuals whose data may be used in the analysis. Additionally, it is crucial to take precautions to lessen any harm or unfavourable effects and to take into account how the research may affect any groups or people mentioned in the documents. In general, ethical issues are essential for guaranteeing that document reviews are carried out in a responsible and respectful manner. This is especially important when dealing with sensitive information, such as medical records or personal data. It is crucial to maintain confidentiality and protect the privacy of individuals involved in the research. Additionally, it is important to consider the potential impact of the research on marginalised communities and ensure that their voices are heard and respected. Informed consent should be obtained from all participants, and any risks or benefits should be clearly communicated. Furthermore, researchers should strive to minimise any harm caused by their work and prioritise the well-being of those involved. Overall, ethical considerations are integral to conducting responsible and effective document reviews that uphold the values of integrity, respect, and fairness. Researchers can gain insightful knowledge while upholding crucial ethical principles by carefully balancing ethical considerations with rigorous analytical techniques.

Advantages of document review:

Document reviews offer several advantages to researchers. Firstly, they provide access to a vast amount of data that may not be available through other research methods. This allows researchers to gain a comprehensive understanding of a particular topic or issue. Secondly, document reviews are cost-effective and efficient, as they do not require extensive fieldwork or data collection. Thirdly, document reviews can be used to validate or challenge existing theories and hypotheses. Finally, document reviews can be used to inform policy decisions and improve practices in various fields. However, there are also some limitations to document reviews that researchers should consider. For example, documents may be incomplete or biased, which could affect the accuracy and reliability of the findings. Additionally, documents may not provide sufficient context or background information, which could make it difficult for researchers to interpret the data accurately. To address these limitations and ensure ethical considerations are met during document reviews, researchers should carefully select their sources and thoroughly analyse the data. They should also consider the potential impact of their research

Disadvantages of document review:

Document review has its own disadvantages when used in quantitative research. One of the main disadvantages is that it relies heavily on the quality and accuracy of the documents being reviewed. If the documents are incomplete or biassed, it can lead to inaccurate conclusions. Additionally, document review can be time-consuming and labour-intensive, especially if a large number of documents need to be analysed. Another potential disadvantage is that document review may not provide a complete picture of the research topic as it only focuses on written materials and does not take into account other factors such as personal experiences or opinions. However, despite these limitations, document review remains a valuable research tool in many fields. It allows researchers to gather large amounts of data quickly and efficiently, which can be especially useful in fields such as history or law. Additionally, document review can provide insights into the language and culture of a particular time period or community. It also allows for the identification of patterns and trends that may not be immediately apparent through other research methods. Overall, while document review may have its drawbacks, it remains an important tool for researchers looking to gain a deeper understanding of their subject matter. Despite these limitations, document review can still be a valuable tool in quantitative research when used appropriately and with caution.

Conclusion:

In conclusion, document review can be a useful tool in quantitative research, but it is important to consider its limitations and potential disadvantages. Researchers should carefully select their sources and thoroughly analyse the data to ensure accuracy and avoid biassed conclusions. . Additionally, it is important to acknowledge that document review may not always provide a complete picture of the phenomenon being studied, as some information may be missing or incomplete. Therefore, it is recommended that researchers use multiple sources of data to triangulate their findings and increase the validity and reliability of their results. Despite these limitations, document review can still be a valuable method for gathering data in quantitative research, particularly when studying historical or archival materials. As with any research method, it is important to approach document review with caution and to carefully consider its strengths and weaknesses before incorporating it into a study design. By doing so, researchers can maximise the benefits of this method while minimising its potential drawbacks. They should also be aware of the potential time and labour required for document review and acknowledge that it may not provide a complete picture of the research topic. Overall, document review can be a valuable addition to quantitative research when used appropriately and with caution.

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AWARENESS OF YOUNGSTERS ABOUT PUNJAB AS A TOURIST DESTINATION

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Abstract:

In today's world where due to development in information technology, the whole world has become a global village. Tourism has become a major social phenomenon of modern society. Today tourism is not just about sightseeing and entertainment but also an agent of social and economic development of the country. While India is rich in diversity to offer visiting tourists, some of the states encompass all the richness, which the country possesses and Punjab is one of among these states and Punjab, is the unique state which provides such richness. The main aim of this paper is to know the level of awareness of youngsters about Punjab state as a tourist destination and to find out the benefits provided by Punjab as a tourist destination.

Keywords: Tourism, Awareness, Tourist Destination, Punjab

Introduction:

Tourism refers to temporary movement of people from one place to another outside their normal place of work and residence for specific purpose i.e leisure, business or cultural connections. Mostly countries around the world are promoting their tourism industry because its supports local economies by creating jobs and stimulating long-term growth. Tourism in India has become an important part of Indian economy as mostly preferable place amongst domestic and overseas traveler and has become 3.5 lakh crore business in India which is contributing to sustainable development of the country. Punjab is situated in the north-western corner of the country and has an area 50362 sq.km. It has been divided into 4 divisions and 17 districts. The climate in Punjab ranges from bracing cold in winter of scorching heat in summer with winter and summer monsoons. During summer the temperature ranges from 21.4 o C to 41.2 o C and in winters temperature ranges from 30.7 °C – 1 °C. The annual average rainfall in the state is 900mm. Punjab endowed with music and melody and history and legen, has a great heritage of famous religious shrines, palaces, monuments, and historical embodiments, wetlands and much more to attract all categories of tourists.

Research methodology:

The research is exploratory in nature. Primary data has been collected directly from sample respondents through questionnaire and with the help of interview and the secondary data was collected from Standard textbooks, and Internet sources. Convenience sampling technique was used to acquire the data from the 100 respondents of Ludhiana City. The data is analyzed with the help of Percentage method and mean.

Objectives of the study:

1. Awareness of youngsters about Punjab as a tourist destination
2. To study the benefits provided by Punjab as a tourist destination.
3. To find out the problems faced by the tourists in Punjab.
4. To provide suggestions regarding the problem faced by the tourists.
5. To find the most visited places in Punjab.

Data analysis and interpretation:

Table 1: Demographics of the respondents

Demographics of the respondents	No. of the respondents Male	%age of the respondents	No. of the respondents Female	%age of the respondents	Total	%age
Gender	53	53%	47	47%	100	100%
Qualification						
Less than 20	13	13%	13	13%	26	26%
21-25	18	18%	13	13%	31	31%
26-40	12	12%	8	8%	20	20%
41-60	7	7%	11	11%	18	18%
More than 61	3	3%	2	2%	5	5%
Occupation						
Business	21	21%	15	15%	36	36%
Service	6	6%	2	2%	8	8%
Housewife	0	0%	9	9%	9	9%
Agriculture	14	14%	10	10%	24	24%
Students	12	12%	11	11%	23	23%
Annual income						
Upto Rs.10,000	4	4%	2	2%	6	6%
10,001 to 25,000	9	9%	11	11%	20	20%
25,001 to 50,000	12	12%	18	18%	30	30%
50,001 to 1,00,000	28	28%	16	16%	44	44%

Interpretation: The above table shows that out of 100 respondents 53% are male and 47% are female in the survey. The majority of the respondents i.e. 31% of respondents belong to the age group of 21 to 25 years. The distribution of the respondents in five different occupation under which business was the highest with 36% of the respondents followed by the service occupation there are 8% of the respondents. Hence, only 9% were housewife. The distribution of the annual income in 4 different groups under which 44% of the respondent's income range between 50001-100000.

Table 2: Awareness regarding tourist destination in Punjab

Options	M	F	% age of the respondents
Yes	53	47	100%
No	0	0	0
Total	53	47	100%

Interpretation: While talking about the awareness of the destination spots in Punjab, 53men and 47 women out of the total respondents said they were.

Table 3: Source of information about Tourist Destination

Options	No. of respondents	% age of the respondents
Internet	45	45%
Newspaper/ Magazines	22	22%
TV	13	13%
Friends/ Relatives	36	36%
Total	100	100%

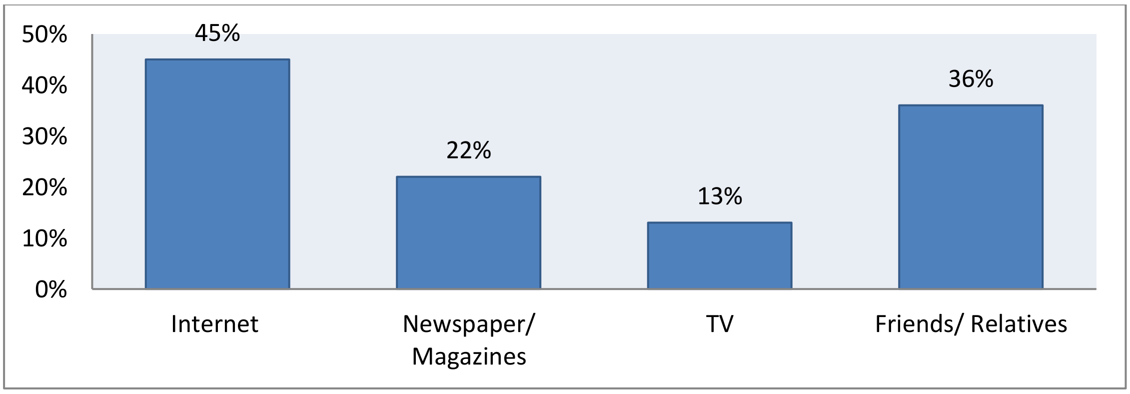

Figure 1: Source of information about Tourist Destination

Interpretation: The above bar chart interprets that majority of the respondents i.e. 45% of the respondents know about tourist destination from internet, 22% from Newspapers/ Magazines, 13% from T.V. and remaining 36% from Friends and Relatives.

Table 4: Purpose of visit

Options	No. of respondents	% age of the respondents
Business	13	13%
Holiday/ Leisure	16	16%
Social Activities	12	12%
Religious Activities	41	41%
Educational trip	11	11%
Health	7	7%
Total	100	100%

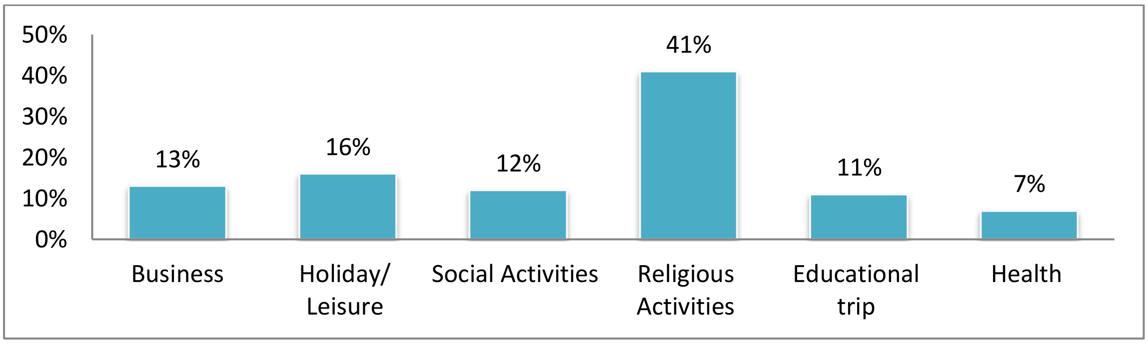

Figure 2: Purpose behind the visit

Interpretation: The given bar graph shows that the main purpose to visit to Punjab was religious activities by 41% of the total respondents. This was followed by Holiday/ Leisure by 16% of the respondents and 13% for business and 12% for social activities. Further, 11% for educational trip and the remaining 7% respondents for purpose of health.

Table 5: Most visited cities

Options	No. of respondents	% age of the respondents
Amritsar	46	46%
Jalandhar	9	9%
Chandigarh	18	18%
Ludhiana	12	12%
Bathinda	7	7%
Patiala	5	5%
Kapurthala	3	3%
Total	100	100%

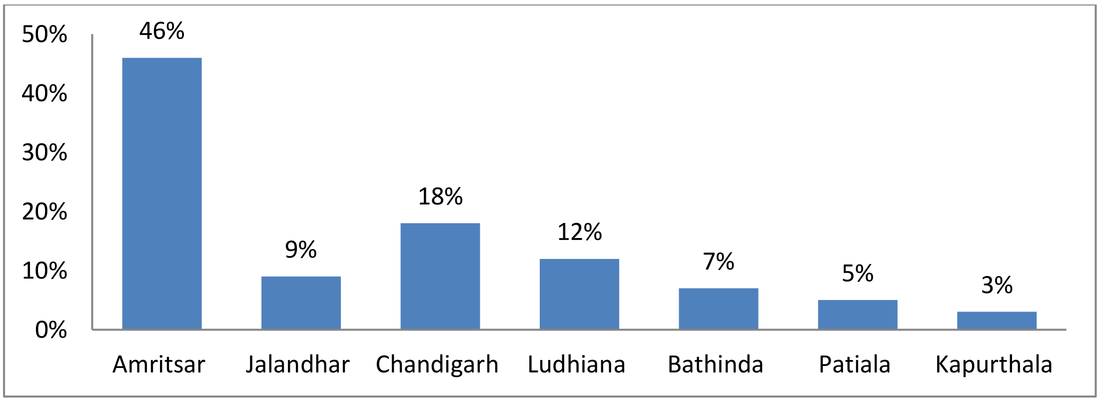

Figure 3: Purpose behind the visit

Interpretation: The above bar graph shows that the most visited city in Punjab is Amritsar by 46% of respondents. This was followed by Chandigarh by 18% of respondents, then Ludhiana by 12% of respondents, Jalandhar by 9% of respondents, Bathinda by 7% of respondents, Patiala by 5% of respondents then Kapurthala by 3% of respondents.

Table 6: Most visited tourist destination

Tourist destinations	No. of respondents	% age of the respondents
Golden temple	42	42%
Jallianwala Bagh	12	12%
Wonder Land Theme Park	1	1%
Iman Nasir Masjid	0	0%
Moti Bagh Palace	0	0%
Anandpur Sahib	15	15%
Nangal Dam	2	2%
Chattbir Zoo	3	3%
Rock Garden	2	2%
Sukhna Lake	5	5%
Lodhi Fort	0	0%
PAU Museum	1	1%
Bathinda Fort	0	0%
Gobindgarh Fort	8	8%
Kiratpur Sahib	0	0%
Wagah Border	9	9%
Total	100	100%

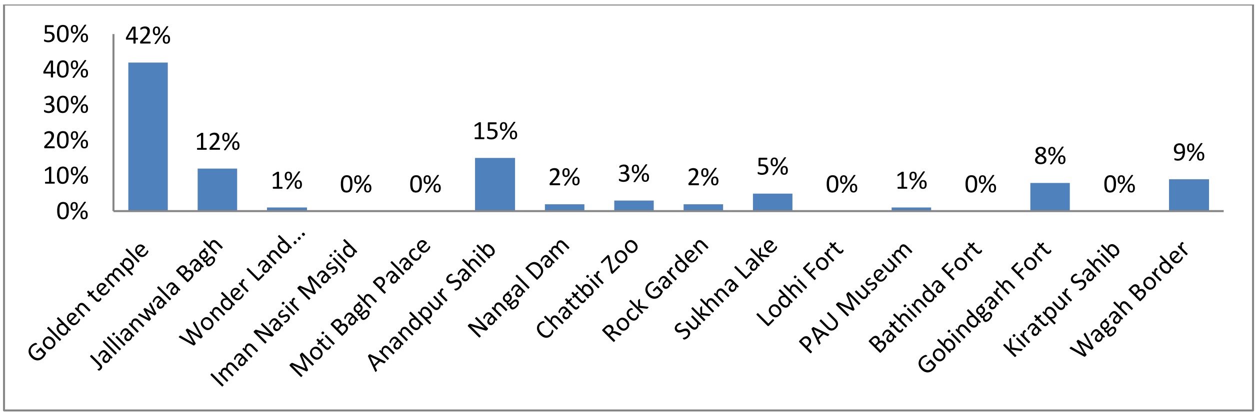

Figure 4: Most visited tourist destination

Interpretation: The above bar graph shows that the most visited tourist destination in Punjab is Golden Temple by 42% of the respondents, then Anandpur Sahib by 15% of respondents, Jallianwala Bagh by 12% of respondents, Wagah Border by 9% of respondents, Gobindgarh fort by 8% of respondents, Sukhna Lake by 5% of respondents, Chattbir Zoo by 3% of respondents, Rock Garden by 2% of respondents and lastly 2% for Nangal Dam.

Table 7: Employment opportunities generated by tourism

Options	No. of respondents	% age of the respondents
Yes	97	97%
No	3	3%
Total	100	100%

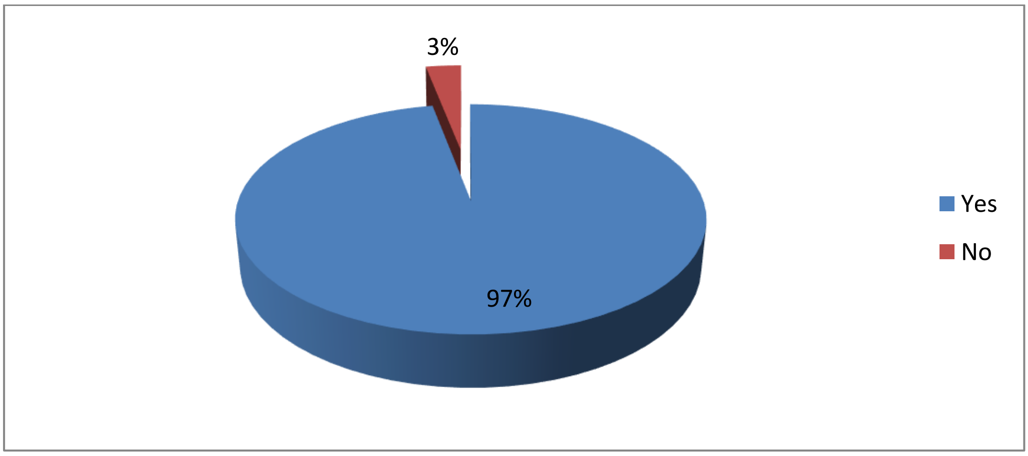

Figure 5: Employment opportunities generated by tourism

Interpretation: The above pie chart shows that 97% of the respondents are agree that tourism generates employment opportunities in Punjab and remaining 3% of respondents are disagree.

Table 8: Type of career preference

Options	No. of respondents	% age of the respondents
Travel Agent	22	23%
Tourist Guide	19	20%
Transport Officer	11	11%
Hotel Manager	45	46%
Total	97	100%

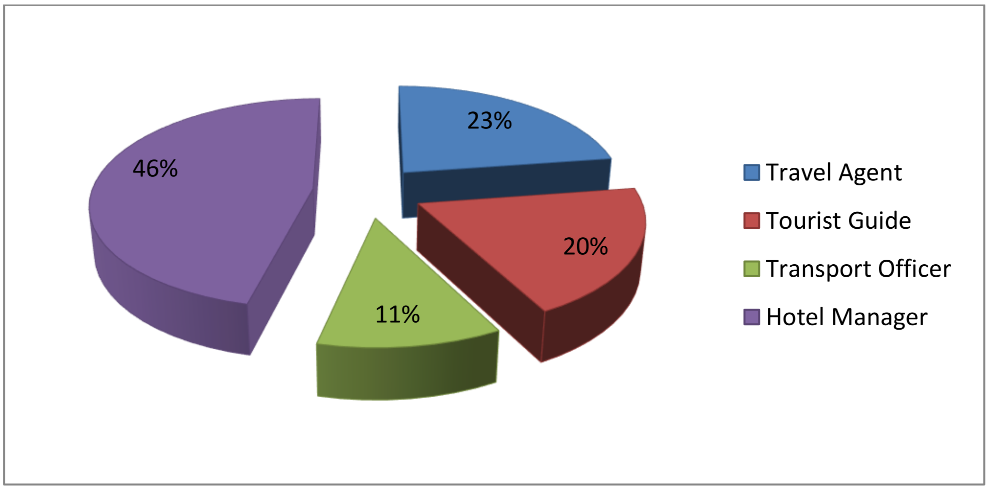

Figure 6: Type of career preference

Interpretation: Out of 97% of respondents, 23% of the respondents prefer travel agent as a career option and 20% of respondents prefer tourist guides, 11% of respondents prefer transport officer and the remaining 46% of respondents prefer Hotel Manager.

Table 9: Type of tourism preferred

Options	No. of respondents	% age of the respondents
Adventure tourism	9	9%
Cultural tourism	18	18%
Eco tourism	17	17%
Heritage tourism	22	22%
Wildlife tourism	7	7%
Traditional tourism	19	19%
Rural tourism	8	8%
Total	100	100%

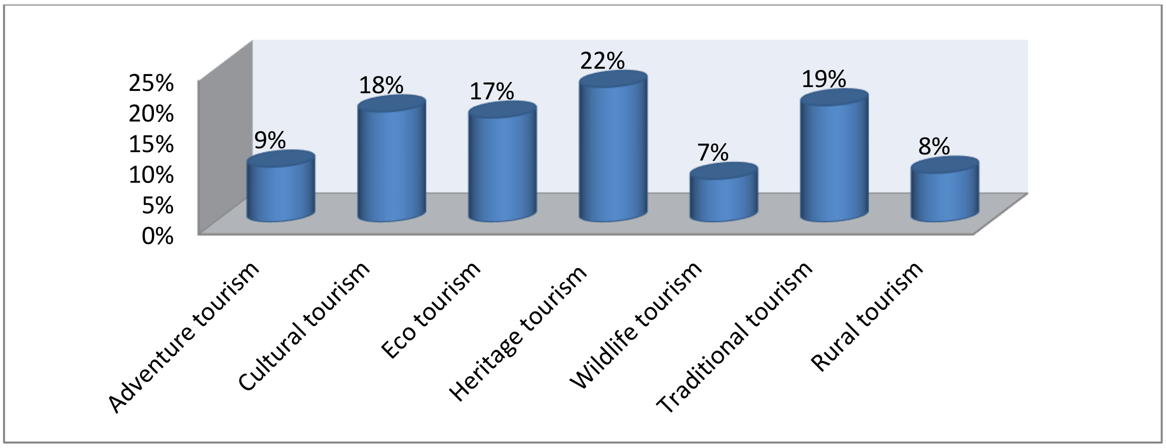

Figure 7: Type of tourism preferred

Interpretation: The above bar graph shows that the majority of the respondents i.e. 22% of respondents prefer Heritage tourism and 19% of respondents prefer traditional tourism, 18% of respondents prefer cultural tourism, 17% of respondents prefer eco-tourism, 9% of respondents prefer adventure tourism, 8% of respondents prefer rural tourism and remaining 7% of respondents prefer wildlife tourism.

Table 10: Statement regarding Benefits provided by Punjab as Tourist Destination

Sr. No.	Statements	SA	A	N	D	SD	Mean score
i)	Warm hospitality	92	5	2	1	0	1.88
ii)	More religious Gurudwaras and Temples	80	7	8	5	0	1.62
iii)	Rich culture & tradition	69	20	7	3	1	1.53
iv)	Fair & festivals of Punjab	54	17	20	7	2	1.14
v)	Rich Punjabi Cuisine	22	11	47	9	1	0.44
vi)	Accommodation is economical in Dharamshalas	21	15	52	9	3	0.42
vii)	Transportation at economical rate	28	27	14	19	12	0.40
viii)	Availability of direct airport linkage	11	26	33	21	9	0.09

Interpretation: The above data shows that 1.88 was the highest mean score showing respondent were about the warm hospitality. On the other hand, 0.09 being the lowest mean score depicting that respondent was about availability of direct airport linkage.

Table 11: Problem faced by tourist in Punjab

Sr. No.	Statements	SA	A	N	D	SD	Mean score
i)	Close proximity to Pakistan Boarder	26	23	30	14	7	0.47
ii)	Lack of trained travel guides	11	39	33	12	5	0.39
iii)	Lack of ATM facilities at most of tourism destinations	19	21	39	14	7	0.31
iv)	Lack of natural resources	22	23	26	18	11	0.27
v)	Overpricing at local market	11	16	52	14	7	0.10
vi)	Robbing during train or bus journey	12	19	49	11	9	0.14
vii)	Overpricing at local market	11	16	52	14	7	0.10
viii)	Absence of Hygiene & cleanliness	7	19	48	20	6	0.01
ix)	Close proximity to Pakistan Boarder	26	23	30	14	7	0.47
x)	Tourism infrastructure	6	24	35	27	8	-0.07
xi)	Lack of basic amenities	4	20	44	23	9	-0.13
xii)	Language problem	3	5	17	38	37	-1.01

Interpretation: The above data shows that the majority of the respondent strongly agree by the problem faced by the tourist which is close proximity to Pakistan Border according the mean score 0.47. On the other than the respondent strongly disagrees about the language problem.

Table 12: Suggestion regarding problem faced

Sr. No.	Statements	SA	A	N	D	SD	Mean score
i)	Providing more leisure activities	54	20	17	7	2	1.19
ii)	Improve infrastructure	49	23	17	10	1	1.09
iii)	Developing new tourist places	49	20	7	18	6	0.88
iv)	Creating awareness (sharing information about historical places)	32	21	15	18	14	0.39
v)	Improve transportation	18	21	45	11	5	0.36
vi)	Better communication	21	22	31	19	7	0.31
vii)	Providing proper guidance	29	17	22	15	17	0.26
viii)	Renovation and maintenance of old monuments	19	29	25	7	20	0.26
ix)	Proper advertisement	18	22	29	16	15	0.12
x)	Providing safety and security	18	19	29	22	12	0.09
xi)	More cleanliness & hygiene	11	26	34	15	14	0.05
xii)	Providing proper amenities	12	11	39	33	5	-0.08
xiii)	Employing skilled and trained manpower	7	14	30	23	14	-0.23

Interpretation: The above data shows that the majority of the respondent strongly agreed by the suggestion about providing more leisure activities according to the mean score 1.19, whereas according to the mean score -0.23 respondents strongly disagree about the suggestion of employing skilled and trained manpower.

Conclusion:

Although Punjab is gifted with a wealth of lots of amazing tourist places that can get the attention of foreign tourists. But Punjab Tourism needs more development and high level of infrastructure for gaining the attention of foreign tourists and local tourists as well. Thus, the Punjab government should scrutinize the strengths and weakness of Punjab tourism industry and should search for the upcoming opportunities. Also, Punjab tourism needs more promotion to sell their tourist destinations worldwide. It will supply more revenue to Punjab economy**.**

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AN EMPIRICAL RESEARCH STUDY ON HEALTHCARE SERVICES

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Abstract:

In India, especially in the rural areas, there exist a lot of problems related to the infrastructure and other healthcare service facilities available to the patients. Even the number of sufficient medical staff including doctors, nursing staff etc is not adequate to provide satisfaction to the patients. Patients' satisfaction is, therefore, a major challenge in the medical sector. Our paper is based on a survey on patients' satisfaction. The survey was undertaken in and around Kalyani district, in the state of West Bengal. The responses were based on primary data collection and subsequent analysis and findings were presented in the paper. The researchers strongly believe that the present research will shed new lights on the issue and findings will help to design medical services to provide utmost satisfaction to the patients, for whom the importance of healthcare services cannot be overemphasised.

Keywords: Patients' satisfaction, Healthcare Units, Medical Services, Major Challenge, Private and Public hospitals.

Introduction:

Health care is a basic human need; it is the obligation of the state to offer these services at a low cost and with simple access. Because health care services are people-based, they are heterogeneous in nature, depending on the mood, environment, actions, and circumstances of both the service provider and the service receiver; doctors treat the same disease differently, and patients have different opinions about the same consultant. Public hospital health care services are inadequate in all industrialised and developing nations. Because of a lack of education, unsanitary living circumstances, poor nutrition, and a variety of other factors, a considerable proportion of the population in developing countries lives in rural regions, where they are more vulnerable to illness. Public sector hospitals are often perceived as inadequate service providers, mismanaged, and political entities.

Because of poor infrastructural facilities, lack of response, low reliability, and lack of empathy, obsolescent equipment, and limited drug supply, there is a lack of public trust and faith in government hospitals in terms of quality services given at their end. This causes overpopulation and, as a result, a severe drop in service quality. Private hospitals, on the other hand, offer superior care. Private hospitals are completely focused on generating money and have no slogan of serving humanity; it is the fastest-developing industry in our nation. Those who can afford it have access, but the impoverished are barred. This is the societal imbalance that may be corrected if the government performs its part with honesty, devotion, and sincerity in providing public hospitals with the funding and resources to make them more competent and progressive. This is a significant task to manage, and it is the obligation of the state to offer these services at a low cost and with easy access to the average person to rescue them from suffering and disease.

Today's increased competition in all fields affects the healthcare industry as well. Healthcare quality is becoming a global issue, prompting the healthcare industry to undergo rapid transformation to meet the ever-increasing needs and demands of its patient population. Traditionally, the quality of health services was based on professional practice norms. However, during the last decade, patients' perception of health care has primarily become an essential indicator for assessing the quality of health care. The increased concern about health, as well as the enhanced income levels of contemporary civilization, have significantly improved healthcare demands and moved demographic patterns toward a healthier lifestyle. As a result, improving patient care has appeared as a top concern for all health-care practitioners, with the goal of reaching elevated levels of patient satisfaction. At the same time, effective healthcare service delivery, when compared to their competitors, allows enterprises or public trusts to distinguish their facilities in a competitive industry.

Patient satisfaction refers to the joy or contentment that patients feel when utilising a health service. Currently, the opinions of patients are used to assess a hospital's effectiveness, with the efficiency of a hospital being related to service delivery and quality treatment. As a result, the assessment of health service delivery from the perspective of patients has gained increased attention and has become a key element of any health system, serving as a vital indicator to quantify the performance of a service supply, particularly in public sector hospitals. The public sector hospitals run under government rules since the government exclusively pays public sector hospitals, while private sector organisations are founded as businesses that can supply more effective treatment and services to their patients.

Private hospital patients must spend more money to receive the desired service quality. Clear and comprehensive facts are now necessary for the patient's requests before employing any type of service provided by a certain health care institution. Because they are spending more money for treatments, patients have grown more inquisitive and expect supplemental services to obtain the quality of services beyond their expectations, and simply any incidence of discontent tends to push them to transfer to other rivals. However, the quality of service delivery is seen as an important aspect in ensuring general patient satisfaction with hospitals. A physician's behaviour is also a crucial factor in patient satisfaction. There are many patients at public sector hospitals, enormous workloads for employees, and a work environment in which doctors and nurses can be harsh

To some extent, the patient's repeated foolish queries require merely common sense to respond rather than medical understanding. When presented with such situations, doctors have a habit of responding rudely. On the other hand, a physician's medical knowledge is critical for patient care, and distinct clinical best practices of specialties would be a crucial influence on the patient's medical care. Many studies have shown that patients expect to have a comfortable and friendly encounter with a physician who looks to be technically competent and supplies proper information about the procedure. Patient happiness is a state of mind, and service quality is an ethereal term that is difficult to quantify. It may be assessed by the difference between patients' expectations and their actual experience after obtaining health care services; the greater the experience than expectations, the greater the likelihood of patient satisfaction; otherwise, the outcome is the opposite.

Objectives of the study:

The primary goal of the study is to assess patients' overall satisfaction with various aspects of healthcare facilities in and around Kalyani, such as:

- To assess the patients' satisfaction with regard to medical facilities in healthcare units.
- To find out the quality of Doctors and nursing staff available in the healthcare units.
- To assess the infrastructure facilities available in the healthcare units.
- To find out the quality of food served to the patients.

The data obtained from this study can be used to design effective strategies to improve efficiency of care given to the patients. The feedback given by the patients will help to improve the work of the physician, place, and the system.

Limitations:

- This study included the survey, conducted on hospital patients surveyed in and around Kolyani District, West Bengal.
- No comparisons were made among the public and private hospitals.

Research methodology:

In the modern complex world, every society today is faced with serious social, economic & political problems. These problems need systematic, intelligent and Practical solutions. Problem solving is technical process. It requires the accumulation of new knowledge. Research provides the means for accumulating knowledge & wisdom.

In other words, research is a systematic effort of gathering analysis & interpretation of problems confronted by humanity.

It is a thinking process and scientific method of studying a problem and finding solution. It is an in-depth analysis based on reflective thinking.

Research methodology is a way to systematically solve the research problem. It may be understood as a science of studying how research is done scientifically.

Abraham Kaplan defines research methodology in this way. Research methodology is "the description, explanation & Justification of various methods of conducting research".

Research design:

This study is qualitative research dealing descriptive words that can be examined for patterns or meaning, sometimes through the use of coding. Coding allows the researcher to categorize qualitative data to identify themes that correspond with the research questions and to perform quantitative analysis. The purpose of this research is to study the relationship between the service quality of hospital and patient satisfaction. It is also a cross-sectional study that the research is carried out at one period of time. A self-administered questionnaire is used for data collection purpose.

Types of data sources:

Primary data is used in this study. Primary data is the first hand data collected by the researcher for the purpose of a study. In this study, the data is collected by using questionnaire method. The questionnaire is distributed to the respondents to answer the survey. The 3-point Likert scale was used to measure the response.

Sampling:

The population in this study is a patient who received treatment at a medical centre. According to the Central Limit Theorem (CLT), the general rule states that a sample size of 30 or larger is sufficient. The size shows that it is a big sample size, and the distribution of the sample mean is deemed normally distributed. The population mean will be the average of a sample mean. However, knowing the total number of patients and calculating the sample size from that number is difficult. As a result, about 40 patients were surveyed. The simple random sampling approach is utilised to choose the sample since the patient population is not clearly characterised. Respondents to the questionnaire are picked at random as long as they have received hospital services.

Descriptive analysis tools:

Descriptive analysis describes the data in several ways. It might be expressed as a percentage, ratio, mean, median, and so on. The data format makes it easy for readers to grasp the results, especially those who are not experts in the topic.

A graphical presentation is another sort of descriptive analysis. Histograms, bar charts, and even pie charts are used to display the data. Visual representation is a much superior approach to display data since readers can readily comprehend or compare it.

Sample design and data collection:

The study uses collection of primary data from a sample of 509 buyers of television. The responses were collected using Mall intercept survey in the city of Kolkata and nearby districts of Kolkata, India.

Data analysis and interpretation:

Manual inspection is carried out once the surveyed questionnaires have been gathered. Any incomplete surveys are eliminated since each piece of data is critical for analysis. To execute the analysis, the remaining data is coded in an MS Excel database. The data was subjected to descriptive statistics in order to investigate the link between patient satisfaction with health services, the availability of doctors and nurses, the quality of food, infrastructure, and cleanliness with some demographic information, such as:

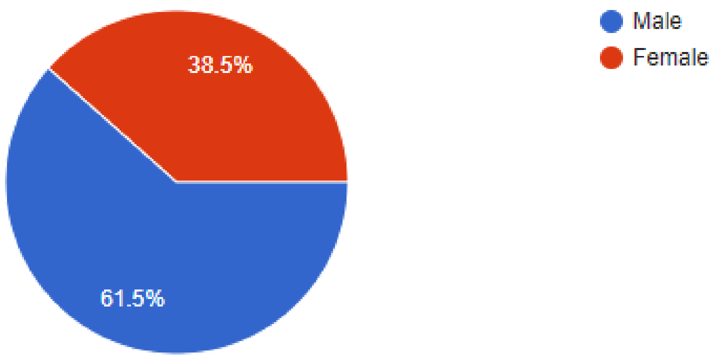

Figure 1: Gender analysis of the respondents

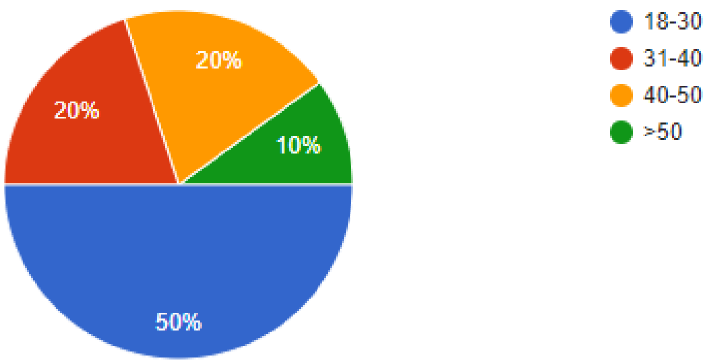

Figure 2: Age classification of the respondents

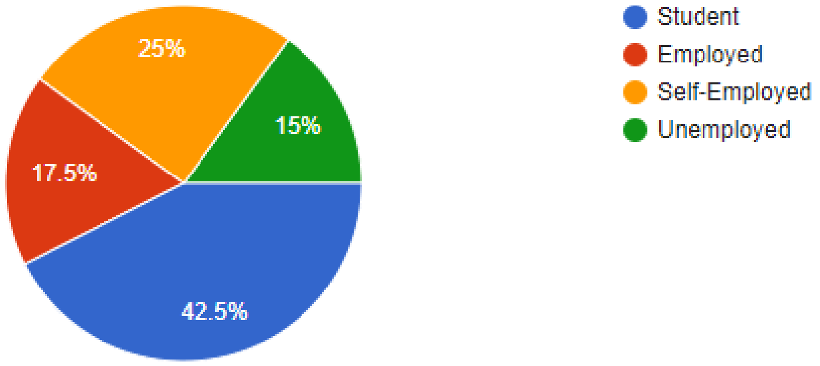

Figure 3: Occupation profile of the respondents

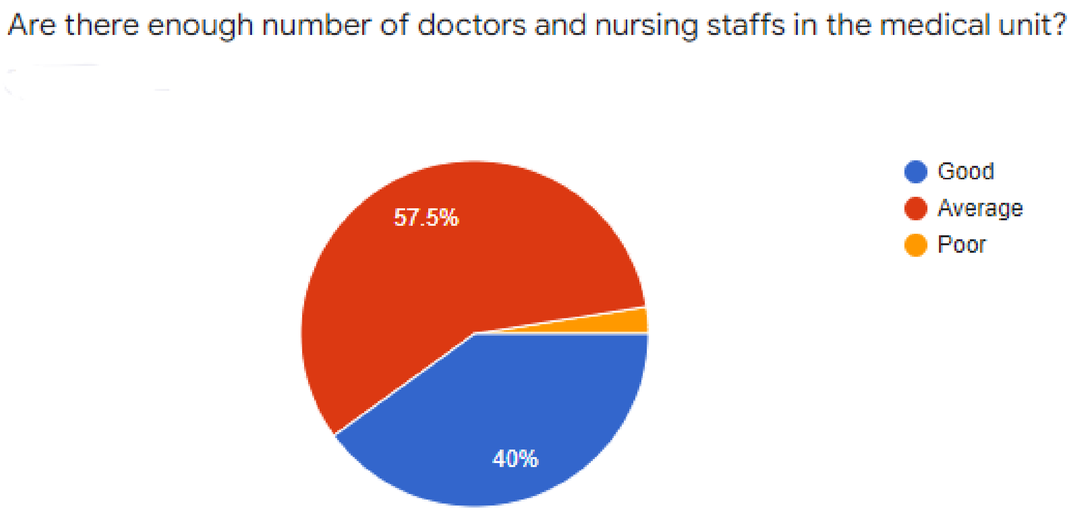

Figure 4: Feedback on Doctors and Nursing Staff

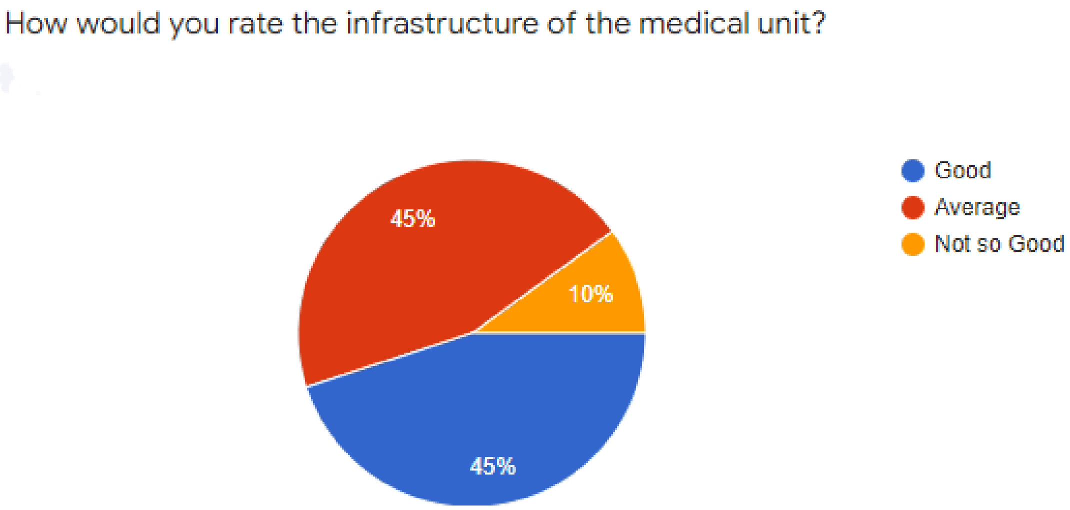

Figure 5: Feedback on Infrastructure of Medical Unit

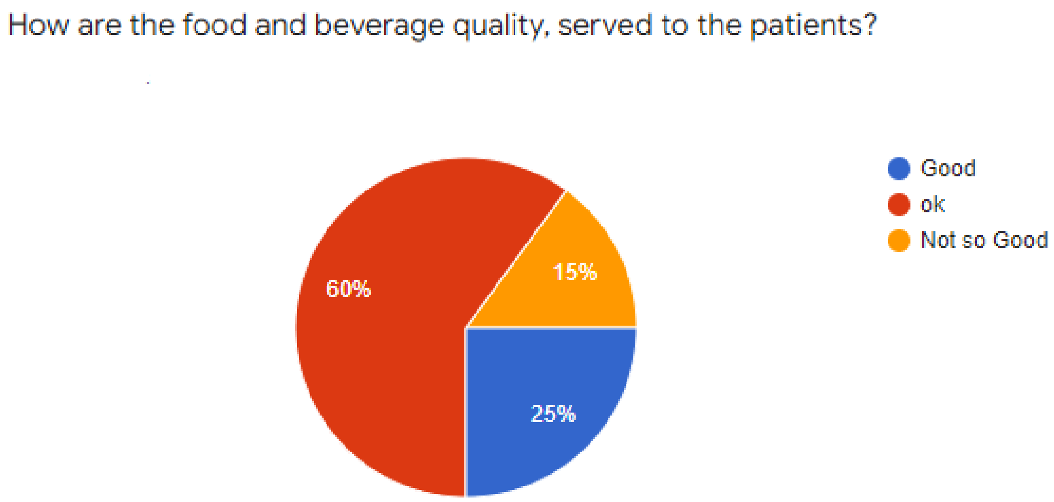

Figure 6: Feedback on Food Quality served to patients

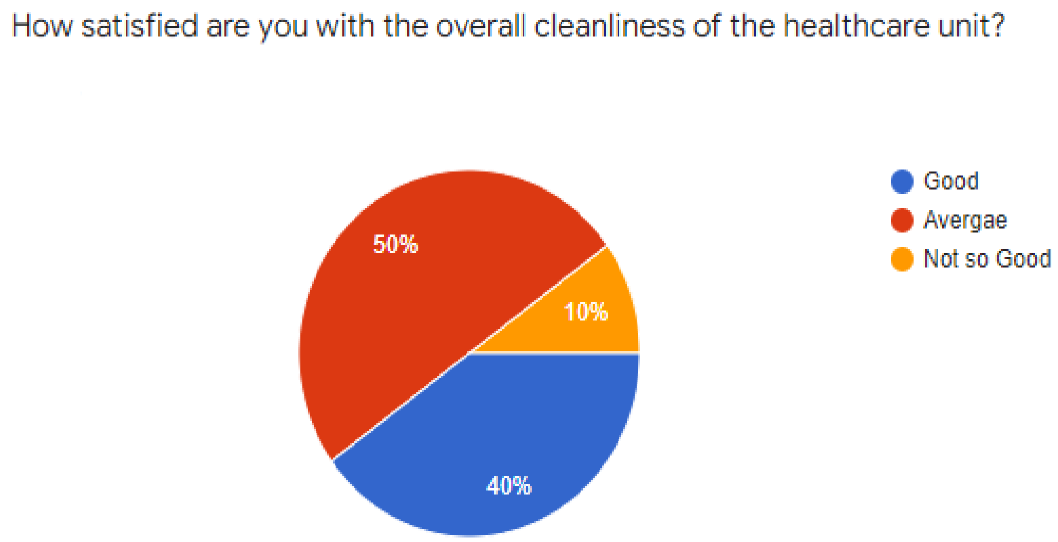

Figure 7: Feedback on cleanliness of the medical unit

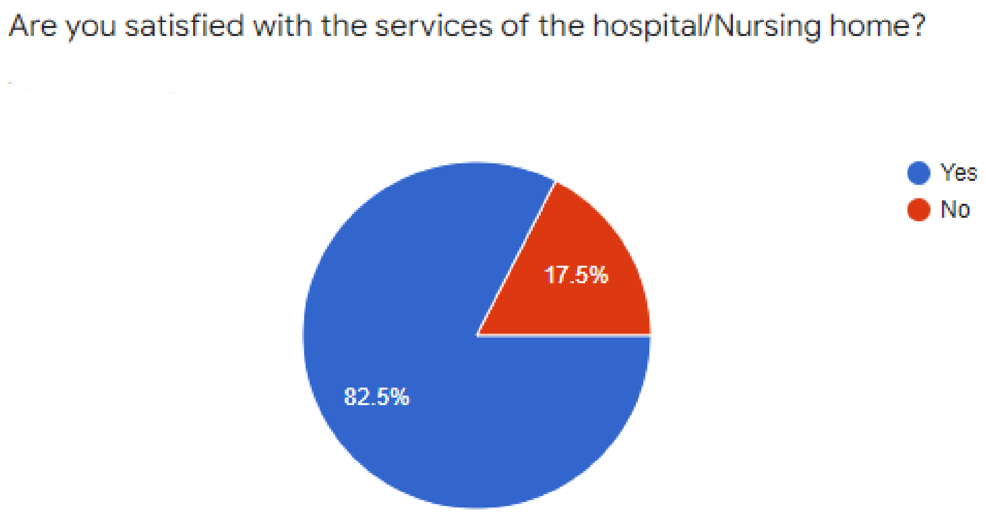

Figure 8: Feedback on the overall satisfaction on the medical unit

Summary of findings, suggestions and conclusion:

Findings:

- Out of total, 61.5% of the study population comprised of males and 38.5% comprised of females.
- Based on the pie chart, majority of the respondents consists of age range from 18 to 3 years old with 20 respondents (50%). Next are respondents with an age group of 31 to 40 years old with 8 people (20%). It was followed by the respondents of 40 to 50 years old with also 8 in total (20%). Finally, there are 4 respondents (10%) were above 50 years old.
- Majority of the respondents (42.5%) were student while the rest were self-employed (25%), employed (17.5%), or unemployed (15%). When asked about availability of doctors, 40% of the respondents did not report any problem related to it but 57.5% of them were dissatisfied.
- Concerning the infrastructure at the hospital, it was observed that the overall adequacy of these facilities was 45%. Most of the respondents (45%) were satisfied while ony 10% complained.
- When assessing the patients' satisfaction with the quality of food and beverage served to them yielded statistically significant results. 60% of the participants identified food and beverage quality of the hospital as the commonest problem. This was preventing patients from using this facility.
- On asking the respondents about the cleanliness of the hospital it was seen that 40% were satisfied and more (60%) were dissatisfied.
- The degree of overall satisfaction and dissatisfaction of the hospital services was also assessed. Majority of the respondents showed a higher level of satisfaction (82.5 %) in contrast to the level of dissatisfaction (17.5 %).

Suggestions:

As the service quality studied in this research is based on general environment, more research may be undertaken on specific departments such as the emergency department, intensive care unit (ICU), or imaging department. This is to investigate the service quality in various care units and make necessary improvements. Different geographic locations may result in varying levels of patient satisfaction.

The findings in this study indicate a relationship between hospital services and patients satisfaction. It is crucial that there is enough medical staff to respond to patients' needs effectively. Medical attention must be given promptly to ensure that the patients feel less uncomfortable or even save their lives. Infrastructure and cleanliness should be improved.

Patients are so worried about their health condition when they are not feeling well. Thus, hospitals need to create a safe environment to provide professional medical services to patients. As a service provider, medical staff should always pay attention to the needs of customers, which are patients in this case. From the result obtained, the quality of food and beverage served to the patients affects the patients' satisfaction the most. Thus, it is suggested that the management should put more effort into improving the quality of food and beverage. In a healthcare institution, hygiene is very important to prevent any infection and worsen the patients' condition. The management must monitor the service quality continuously to ensure that the patients are satisfied and willing to revisit again.

Conclusion:

Overall, the study found that patients were generally satisfied with the services provided by this tertiary care centre. We uncovered a variety of possible barriers and facilitators that may have an impact on patient satisfaction in and around Kalyani's healthcare units.

Cleanliness should be prioritised, and locations with drinking water facilities should be adequately maintained. Certain modifications, such as making the waiting room more informative and pleasant, are also required.

The hospital management should guarantee that all equipment is in good working order and that it is carefully maintained.

The fact that some patients were dissatisfied with the services implies that health care providers must do more to enhance service windows in order to increase efficiency, reduce patient wait times, and offer patient comfort.

A regular patient satisfaction survey should be implemented to offer input for continual quality improvement.

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MAHASWETA DEVI'S *DROUPADI*: A SAGA OF EMPOWERED WOMAN

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Abstract:

Women have been assigned a secondary position in the society. They have been portrayed as the 'other' in the society. but Mahasweta Devi in her short story *Draupadi* has presented her female protagonist Dopdi as completely opposite of what a typical patriarchal society portrays. Mahasweta Devi is probably the most widely translated Indian writer while writing in an indigenous language i.e. Bengali. A socio- political activist to the core took up the issue of tribal people, especially women of West Bengal and gave voice to their pangs through her writing. Position of women in society particularly the marginalized tribal ones are beyond imagination as they have to endure various layers of oppression and marginalization. They are subject to class and caste discrimination apart from gender discrimination. But through her writings Mahasweta Devi not only describes the sufferings of marginalized tribal women but also equips them to resist against their oppressor. Beyond the social identities of wife, lover, daughter and mother, women are human beings inhabiting and struggling for their rights in society far removed from the purview of the urban middle class. The paper also studies how the notion of shame associated with rape is deconstructed by the author through her bold female protagonist Dopdi.

Introduction:

Jnanpith laureate Mahasweta Devi is probably the most widely translated Indian writer while writing in an indigenous language i.e. Bengali. A socio- political activist to the core took up the issue of tribal people, especially women of West Bengal and gave voice to their pangs through her writing. Most of her writings are based on the plight of the tribal's living on the fringe. In her later works, Mahasweta Devi becomes more and more involved with the lives of underprivileged tribal women and the atrocities inflicted on them. She has been one of those writers who wrote about the beleaguered and harassed women in the feudal as well as in the capitalistic system which still preserves the essence of feudal abusive and manipulative modes. She has not merely written about them but also worked for them. According to Gayatri Spivak:

> Mahasweta Devi is as unusual within the Bengali literary tradition as Foucault or Derrida is unusual in the philosophical or political mainstream in France. (46)

The world of Mahasweta's women is not limited to cooking, eating or sleeping. Their struggle for life and existence and for justice and identity continues alongside their men and alongside thousands of others in same position. Beyond their social identities of wife, lover, daughter and mother, these women are human beings inhabiting and struggling for their rights in society far removed from the purview of the urban middle class.

In her stories, the women's body is an agent of commoditization, available in the market, and not necessarily to the highest bidder. Feminist theory has been extremely critical of the blatant commoditization of the women that has been one of the root causes for her marginalization and exploitation in society. In a world, where gender oppression has been a historical truth, such blatant misuse of the women is depicted and critiqued by Mahasweta Devi.

Position of women in society particularly the marginalized tribal ones are beyond imagination as they have to endure various layers of oppression and marginalization. They are subject to class and caste discrimination apart from gender discrimination. But through her writings Mahasweta Devi not only describes the sufferings of marginalized tribal women but also equips them to resist against their oppressor. *Draupadi* is translated by Gayatri Spivak. It opens with what appears to be an ironic counterpointing of different modes of official discourse through which the central character, a tribal woman called Dopdi Mejhen, is named, constructed, displaced and silenced. *Draupadi* encompasses the space and time of post-independent India and presents the history of the eastern states in the 1960s and 1970s when the peasants of Naxalbari in West Bengal staged a successful rebellion against the landlords.

In her short story *Draupadi,* the female protagonist Draupadi also known as Dopdi Mejhan exemplifies just the opposite of the role assigned to her by the patriarchal society. Dopdi was a twenty-seven-year-old lady who was named by her mistress and she was in the list of wanted persons who had killed the mistress' husband, Surja Sahu a land-owning money lender, because he refused to share water with untouchables. A reward of two hundred rupees was announced for her head. Dopdi herself had seen that notice at the Panchayat office. She was actively involved in the Naxalite Movement with her husband Dulna Mejhan. Dopdi and Dulna Mejhan were representatives of her native community, who were forced to serve their masters and get petty wages. As an active Naxalite activist Dopdi and Dulna became threat in the eyes of police authorities. However, Dulna was shot dead by the soldiers and Dopdi still remained a search for the police authorities. At last, Dopdi was also caught and taken to police camp. Interrogation and investigation took place for one hour and after that the process of 'silencing' her began. Dopdi was sexually assaulted by the soldiers. They thought that the aftermath of rape will weaken her spirit as a rebel as well as woman, but she showed no sign of subjugation or submission toward them. She tore her clothes with her teeth and broke the traditional belief of womanhood or womanly behavior and stood against this belief by challenging Senanayak unarmed with her naked body. She was not ashamed of her naked body. She walked naked towards Senanayak in the bright sunlight with her head high. Therefore, Senanayak as well as other soldiers were surprised to face such response of Dopdi which they had never expected. In fact, she turned her victimized and wounded body into a weapon to taunt the male ego. Her nakedness became an affront to the masculinity of the attacker.

> Draupadi pushes Senanayak with her two mangled breasts, and for the first time, Senanayak is afraid to stand before an unarmed target, terribly afraid (196).

Appeared larger than life to the soldiers who tried to subjugate her by raping her. Her empowerment Her behavior was incomprehensible, rather strange. In refusing to obey the command, she froze the General. The story is intensely powerful and shocking. Senanayak felt absolutely powerless and totally shaken to see a woman in such an emancipated form. Gayatri Chakravorty Spivak, the translator and critic write that the illiterate and low-born woman teaches the male officials a shocking lesson. They are unable to face the "Unarmed target". The strong-willed lady indirectly questions their power. Her "Power over" structure makes her dominate the scene. They can rape her, but they cannot stop her from remaining naked after the rape. They cannot exercise their power over her strong will which is giving her the strength to fight against the patriarchal society. Dopdi, in the first two parts of the story, was shoulder to shoulder with her husband. It was in the third part of the story that she was provoked to fight male oppression single handedly, and in the conclusion the use of the white cloth which is associated with purity and innocence, visually contrasted with Dopdi’s black body, is very powerful. So in the end Devi represents Dopdi not as victim but as an equal to men who is capable of fighting for her rights. Through this narrative Devi has portrayed Dopdi as an emancipated character who has the audacity to oppose the male chauvinism and through her portrayal of such a character, she has given the voice to the pangs of marginalized tribal women.

Physical exploitation is not just limited to the rural, uneducated, tribal women; it is an inherent part of the socio-economic order as well as the hegemonic patriarchal order. Rape is sexual violence against women imposed by men. In a male dominated society rape signifies power of men over women. Rape is associated with dishonor and loss of chastity. So, a woman who is raped is supposed to be doomed in shame and guilt. They usually remain mute about their experience and never raise their voice against their predators. But the rapist or the victimizer should be ashamed of their inhuman acts rather than the victim because it is they who should be guilty of their shameful acts. This is an accepted belief in the society that if a woman is raped she is not going to react against it and this is the only way to silence her. This was the way chosen by Senanayak to subjugate Dopdi by allowing his soldiers to do whatever they want to do with her because he knew for sure that she will not utter a word against them. But what happened the next morning was completely unexpected for all of them. The uneducated tribal woman taught a lesson to the educated police officials. The response of Dopdi left no option for Senanayak but to stay quiet and he could not actually take a stand.

> …what's the use of clothes? You can strip me, but how can you clothe me again? Are you a man? She looks around and chooses the front of Senanayak white bush-shirt to spit the bloody gob at and says. There isn't man here that I should be ashamed. I will not let you put my cloth on me. What more can you do? Come on, counter me come on, counter me… (196).

The reaction of Dopdi was very powerful and unexpected for the soldiers. She confronted her predators very courageously. She had not let herself to be weak or submissive even after the act of rape practiced on her. It was a blow on the patriarchal set of thinking. The story very successfully portrays what actually happens to women when they are seen as the objects. In fact, her very body that was victimized becomes an embodiment of power to revolt against her predators. Hence, she derived power from her mutilated female body to protest and invert power against her exploiters. Therefore the body which was actually used by Senanayak to put her to shame became most powerful weapon against Senanayak and put him to shame. And according to Gayatri Spivak, by disciplining power of shame scripted into the act of rape, Dopadi emerged as the most powerful 'subject' who can be described as "a terrifying super object" (Spivak p-388). Historically, there may exist a link between history and the internalization of the female belief of her own subjugation and marginality. History has been a primarily masculine domain, written by men and telling their story. Male superiority and hegemony has been inherent and integral to such history.

Mahasweta Devi in her short story *Draupadi*, wrenches her character out of myth to insert her into reality. This displacement out of myth is accompanied by a displacement out of class, for Mahasweta Devi's Dopdi, is a tribal woman actively engaged in the Naxalite insurgency of the late sixties.

Mahasweta Devi through her short story *Draupadi* has deconstructed the whole notion of shame associated with rape. Dopdi defies the docility of being a subaltern woman by protesting against her predators with her naked body. Thus, Mahasweta Devi, by portraying Dopdi as courageous enough to face the aftermath of rape and raise the voice against her oppressors destroys the connivance of silence surrounding rape and in doing so she enlightens the fact that the victimizer should be guilt-ridden rather than the victim. Thus, Dopdi's female body becomes the symbol of voice and power.

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EMPLOYEES ATTITUDE TOWARDS JOB ROTATION STRATEGY IN BANKING SECTOR IN MALAPPURAM CITY

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Abstract:

This paper attempts to examine the employees attitude towards job rotations strategy and employees' satisfaction in banking sector. It was mainly concerned with assessing, evaluating, and ascertaining the overall impact of job rotation on improvement of skills, talents, and correction of irregularities. The article reveals that; there is a significant and favorable relationship between age and total attitude of employee and also shows significant relation between income and attitude.

Keywords: Job Rotation, Satisfaction, Attitude

Introduction:

Job Rotation is the management technique wherein an employee is shifted from one job role to the other, with the purpose of familiarizing him with all the verticals of an organization. Generally, the management trainees who are a fresher in the business world are shifted to different job positions to make them understand the functions of business more precisely. The purpose of a job rotation is to reduce the monotony of work and letting an employee to acquire multi skills required for performing different tasks in the organization

Job rotation is a well-planned practice to reduce the boredom of doing same type of job everyday and explore the hidden potential of an employee. The process serves the purpose of both the management and the employees. It helps management in discovering the talent of employees and determining what he or she is best at. On the other hand, it gives an individual a chance to explore his or her own interests and gain experience in different fields or operations.

Job rotation strategy as a tool for enhancing their organizational performance is the banking sector. Banks are the institutions which accept deposits and lending loans. Indian banking industry consists of RBI commercial banks, exchange banks, industrial bank, public sector bank, private sector bank etc. The study is conducted to know the employees attitude towards Job-rotation strategy with special reference to banking sector.

Statement of the problem:

In an organization the employees come and work to achieve their economic objective. However it's being observed that in addition to economic objectives the employees also demand certain social objectives. Today's professional climate compel the financial institutions including banking institutions to introduce well designed Job-rotation strategies which allow the employees to learn and adapt new skills and helps them to keep themselves up to date. In order to get the best result from the employees it is necessary to motivate them which are generally done through Job rotation. Hence the employee's in banking sector has been taken up as a case and an analysis was done to know;

i. Effectiveness of the Job rotation strategy in banking sector
ii. Methods to improve the awareness of Job rotation among the employees

Objective of the study:

- To study the employee's attitude towards job rotation strategy in banking sector.
- To study the satisfaction level of employee's from job rotation
- To understand pros and cons of job rotation strategy.

Hypothesis of the study:

- H0: there is no significant difference between age and total attitude.
- H0: there is no significant difference between monthly income and total attitude

Data:

The primary data for this study was collected through a well structured questionnaire distributed to a sample of respondentsSecondary data were collected from various books available in the library. Most of the data's were collected through internet. Data was also collected through the bank records and websites

Sample size:

A sample of 60 bank employee's from 5 banks of malappuram region was selected for the study.

Tools & technique for data analysis & interpretation:

Various statistical tools and techniques were used for data analysis and interpretation. The data's were analyzed through the SPSS software

Statistical tools:

- Percentage analysis
- Kruskal-wallis test

Data analysis and interpretation:

Table 1: Gender of respondents

Gender	Frequency	Percent (%)
Male	42	63.0
Female	18	37.0

Interpretation:

The above graph shows the percentage of gender of the respondents. Out of the total 63% of respondents are male and 37% employees are female

Table 2: Age of respondents

Age	Frequency	Percent (%)
18-25	6	10.0
26-35	35	58.3
36-45	15	25.0
Above 45	4	6.7

Interpretation:

The above graph shows the percentage of gender of the employees. From the collected data it is analyzed that 10% respondents are between the ages of 18-25, 58.3% is between 26-35, 25% is between 36-45, and 6.7% is above 45 age group.

Table 3: Length of service of Employees

Service	Frequency	Percent (%)
Less than 5year	4	6.7
5-10 years	8	13.3
10-15years	16	26.7
Above 15years	32	53.3

Interpretation:

The above graph shows the length of service of the employees. 6.7% has less than 5 year service, 13% have 5-10year service, 27% has 10-15 year service and rest 53% has above 15 year service.

Table 4: Rotation in last 12 month's

Rotation	Frequency	Percent (%)
Once	2	3.3
1-3 times	18	30.0
3-5 times	12	20.0
More than 5 times	28	46.7

Interpretation:

The above graph shows the rotation made by the employees in the last 12 month. 3.3% of employees made rotation once, 30% 1-3 times, 20% 3-5 times and 46.7% more than 5 times.

Table 5: Attitude towards job rotation

Attitude	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Enhancement of knowledge	0	2	25	28	5
Build a strong career	0	2	5	13	40
Increase of skill	2	3	8	35	12
Increase of quality of work	3	6	36	10	5
Reduce mental stress	10	38	2	5	5

Interpretation:

The above graph shows the attitude of employees towards job rotation. 28 people agree that job rotation helps in the enhancement of knowledge.40 people strongly agree that it helps in building a strong career. 35 people agree with increase of skill. 36 people have neutral agreement with increase of quality of work.38 people disagree that job rotation reduce mental stress

Table 6: Opinion towards job rotation

Opinion	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Feeling of stress	1	4	12	36	7
Negative impact on personal life	7	37	8	5	3
Reduce boredom	2	4	8	12	34

Interpretation:

The above graph shows opinion of employees towards job rotation. 36 people agree that job rotation creates stress. 37 people disagree that job rotation creates negative impact on personal life. 34 people strongly agree that job rotation reduce boredom

Table 7: Whether job rotation helps in increasing satisfaction

Opinion	Frequency	Percent
Strongly disagree	2	3.3
Disagree	2	3.3
Neutral	8	13.3
Agree	15	25.0
Strongly agree	33	55.0

Interpretation:

The above table shows whether job rotation helps in increasing job satisfaction. 55% of the respondents strongly agree that rotation helps in increasing job satisfaction and 3.3% strongly disagree with the same.

Hypothesis of the study:

1. **Ho:** There is no significant difference between age and total attitude

Table 8: Kruskal Wallis Test

	Total attitude
Chi-Square	43.101
df	3
Asymp. Sig.	.000

Interpretation:

Table 8 shows the Kruskal Wallis test of the significant difference between the age and total attitude of employees. The significant value obtained is 0.00 which less than 0.005. Hence there is a significant difference between the age and total attitude.

Ho: There is no significant difference between monthly income and Total attitude.

Table 9: Kruskal Wallis test

	Total attitude
Chi-Square	48.679
Df	3
Asymp. Sig.	.000

Interpretation:

Table 9 shows the Kruskal Wallis test of the significant difference between monthly income and total attitude of employees. The significant value obtained is 0.00 which less than 0.005. Hence there is a significant difference between the monthly income and total attitude

Findings:

- When considering the attitude of employees towards job rotation, 28 employees agree that job rotation helps in the enhancement of knowledge.40 employees strongly agree that it helps in building a strong career. 35 employees agree with increase of skill. 36 people have neutral agreement with increase of quality of work. 38 people disagree that job rotation reduce mental stress
- When considering opinion towards job rotation, 36 people agree that job rotation creates stress. 37 people disagree that job rotation creates negative impact on personal life. 34 people strongly agree that job rotation reduce boredom.
- It was able to understand that 39 respondents have the opinion that they are able to come out of monotonous work and 3 people disagree about the same.
- 75% of the employees have an opinion that rotation does not create any negative impact between superior and subordinates and only 8.3% opposes the same.

Conclusion:

The job rotation program adopted in most of the banks was a great success and had enabled the employees to work efficiently in all departments of the organization. So job rotation strategy can be regarded as an efficient tool that can used in any organizations including the banking sector for increasing the performance of the employees.

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CLOUD ACCOUNTING – A PARADIGM SHIFT IN ACCOUNTING

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Abstract:

Accounting function has been an integral part of every business activity since the beginning of trade that began with the objective of keeping a record of finances acquired and utilized in different areas. The scope of Accounting has expanded over the years requiring a large volume of information to be processed and analyzed thus making it infeasible to record manually. With the development of the Internet and the Information Technology systems, task automation through Accounting Softwares made the accounting function easier. However, there has been a further enhancement in this through the introduction of Cloud Accounting. The new-age cloud services, which were limited to smart mobile devices, have now spread to the accounting function as well which provides numerous benefits like real-time data presentation with access to view, edit, and update the information by its users at any time through the use of the Internet. The present study focuses on the benefits offered and possible risks associated with the adoption of these services in the business along with its impact in the entire business area.

Keywords: Cloud Computing, Software as a Service, Cloud Accounting, Real-time Information sharing, Automatic backup

Introduction:

The world is changing rapidly and the widespread advancements in technology have impelled the need for economic innovation in every field to sustain and grow. There has been a tremendous change in how the trade is being carried out these days. With the advancements in the IT sector, many of the functions performed by the businesses have become automated thus saving a lot of energy as well as reduction in costs for the businesses.

Accounting is the tool of measuring business performance which has been continuously adapting to the economic context. During the late 1950s, automation entered the accounting field and various updations have been done since then. The emergence of accounting software has significantly improved the practice of accounting. Accounting software has become a highly valuable tool for accountants to accomplish their jobs faster and more efficiently, given the vast volume of information and the time required to process it. Accounting software has been around for decades, but it has continued to expand its potential throughout time, becoming more sophisticated as time goes on.

Now, there has been a further enhancement in this through the introduction of Cloud Accounting. The new-age cloud services, which were limited to smart mobile devices, has now spread to the accounting function as well.

Although some might perceive cloud accounting as a destructive substitute for the established accounting practices, an informational revolution cannot be observed without accelerating change or the drive to persevere with a goal. A mentality shift is necessary to evolve and expand, even in the accounting domain.

In order to fully understand the concept of Cloud Accounting, it is important to first understand the idea of Cloud Computing introduced in the business landscape. Cloud Computing is no longer a new concept and refers to carrying out business activities over the Internet without the use of Computer hardware & Software licenses.

Today, accounting in the cloud is a new business reality, powered by cloud computing technology. This software, also referred to as cloud accounting or online accounting, performs the same functions as accounting programme installed on users' computers, but it does so on servers that provide online services, which users can access through web browsers. In this manner, accountants or business owners can access their financial affairs over the Internet from any location.

In order for the accounting profession to accept these cloud computing technologies, it must first gain understanding of the forces that will transform the future of the organizations they assist. Second, accountants need to examine the effects of these modifications on the entire accounting system, including standards, procedures, and personnel.

Research methodology:

Data is collected from secondary sources, such as books, articles, magazines, and websites.

Research objectives:

- To understand the emerging concept of Cloud Computing in the Accounting field.
- To study the implications of Cloud Accounting in business i.e., the benefits offered and potential risks in the adoption of cloud accounting.

What is cloud accounting?

In 2008, Buyya et al. defined cloud computing as a type of parallel and distributed system consisting of a collection of interconnected and virtualized computers that are dynamically provisioned and presented as one or more unified computing resources based on service-level agreements. Cloud accounting software is identical to traditional, on-premises, or self-install accounting software, except that the accounting software is hosted on remote servers, similar to the SaaS (Software as a Service) business model. It is replacing stand-alone accounting software that would normally be installed on one or on several personal computers. The application is accessed through the web browser, over the Internet. The customer's data is securely stored and processed on the provider's servers — 'in the cloud'. As a result, the CSP is the owner of the intellectual property, and the client is just permitted to use the application; he is not permitted to claim ownership of it. Companies can access their financial data from any device and location with only an Internet connection. The difference is that the traditional accounting software is generally purchased as a product and installed on each user's computer. Cloud accounting is a new business model in the sense that it is provided as a service and not as a product. Companies buy the use of accounting software from a specialised service provider rather than the software itself (with the requisite licence or even infrastructure). Cloud accounting solutions are modernising the company environment by redefining the way accounting apps are used. According to experts in the area, the future belongs to those who accept new technology and embrace its innovative vision. The cloud is a fantastic opportunity for organisations of all sizes to avoid major fees and time-consuming processes. A cloud accounting service provider can even eliminate the necessity for an accountant or bookkeeper. They might therefore focus on innovation and development. The ability to handle numerous and complex demands and operations through an integrated online system is ensured by a cloud-based accounting solution, which lowers the amount of labour needed by the accounting department. It helps in giving real-time information, assisting management in making the right decisions.

The following are some of the tasks performed by cloud accounting services:

- Automatic creation of accounting notes for various transactions and operations;
- Automatic review to ensure that the accounts' financial and management accounting are correlated;
- Preparation of any required periodical statements or synthetic financial reports and dashboards,
- The possibility to use alternative accounting plans for the preparation of accounting reports using different financial reporting standards (international financial reporting standards, us-gaap),
- The possibility to calculate various financial rates and formulas and generate accounting reports and documents whenever they are necessary.

Also, the cloud accounting services can be customized according to the needs and preferences of the clients and thus requiring them to pay only for the services used (pay-as-you-go model). Concerning the security viewpoint, Cloud accounting solutions provide an equally secure (and sometimes even more secure) method of storing financial information than traditional accounting software. For instance, an enterprise's laptop or computer which holds vital financial data could be taken or misplaced, resulting in a data breach. On the other side, cloud accounting erases all traces of financial data from company systems, and data access on the cloud is password-protected and encrypted. Sharing data is also much less of concern. With cloud accounting, two persons merely need distinct passwords to access the same system. Traditional techniques frequently require the use of flash drives for transferring data, which can be lost or stolen. Finally, most cloud services have backup servers in two or more regions. If one server network fails, you can still access your data. Information maintained solely on-premises may be destroyed or damaged in the event of a fire or natural disaster, and may never be recovered.

Associated benefits & potential risks:

Like the provision of cloud services made the use of smartphones easier through storage of all the important data at one place which can be accessed anywhere anytime and at any device, similarly, the use of Cloud Accounting has numerous benefits for the firms enabling the firms to move to paperless storage and thus reducing the mundane task of requiring to maintain large chunks of records for previous years. However, certain issues such as security and protection of client's data from unauthorized access, information theft and hacking are the concerns related to this service offered.

Benefits offered:

Cloud computing gives accounting software a whole new level of functionality. With a specified set of programmes that are made available through an Internet connection, doing accounting in the cloud often means that everyone in the client organisation may access the same financial data, at the same time, from different locations.

- Reduced costs mainly because there is no initial investment required such as hardware costs (hard drives, servers, or external memory to maintain) or software licenses to purchase.
- There are no upgrade fees which are required in the traditional softwares. Automatic updates are performed so that the client can use the latest version of the product right away
- Also, it reduces the cost of transferring the documents in physical form from the companies to the accounting firms back and forth.
- Geographically unlimited access through remote network access – through a Web connection, users worldwide can access and update their financial information from any location, at any time without having to install any other software on their device

- The customer's data is automatically backed up and has unlimited storage and processing power. Additionally, depending on their demands and without incurring additional costs, it enables client organisations to easily add or withdraw capacity.
- Automatic backups at regular intervals, either daily, weekly, or monthly ensures that data is not lost and thus enables business continuity.
- It is User-friendly, thus making accounting language and features, easy to understand and use.
- It also helps accountants to generate real-time financial reports while allowing them to concentrate on analyzing data and ensuring insights on financial aspects.
- Enables companies to share their financial information with their clients in real-time, accordingly helping in improved communication and collaboration.
- It leads to increased productivity because of the fact that cloud is available 24/7 allows users to work when they want to, not restricting them to office hours only.

Therefore, these solutions can become a great opportunity for accounting to expand and move towards a bright future. This new way of doing business can be a step forward into another stage –a technology-based one. In a challenging economic context, companies can either develop or disappear just as rapidly, depending on their potential to evolve and adapt to the most suitable technological framework.

Concerns and risks:

Each organisation is quite cautious when it comes to releasing their financial data because of how complex and intensely competitive the current economic climate is. In reality, having the appropriate knowledge at the appropriate time is a very effective tool in the corporate world. Therefore, whether the data stored and communicated to the cloud will be utilised and transmitted in unanticipated ways is one of the primary concerns that is connected with the use of cloud accounting.

The concern may also result from the fact that we entrust our resources to an unfamiliar company, which admittedly provides the maximum level of security, but against external users. The provider, if he wants, can easily browse our data. However, cloud providers are compelled to follow specific security standards that prove they are trustworthy and entitled to provide these cloud and security related services.

Another barrier to wide popularization of cloud computing is the fight against cybercrime, which usually manifests itself in the form of theft of money, goods, programs, data. Computers are also used in the so-called technological or economic espionage. There must be clear and precise legal provisions allowing the fight against criminals in the network, as in the real world.

The discontinuity of the internet connection could also interrupt the user's activity. However, this is a false issue because all cloud service providers have got precise and rigorous service-level agreements with their own network providers, and the user never has to experience downtime.

The changing outlook:

The fact that cloud accounting is getting more attention as time goes by is not a surprise. Many accounting software companies are promoting cloud solutions to make people aware of the potential benefits ensured by the cloud. Numerous accounting software vendors have already shifted their products to cloud services and provide customized cloud accounting solutions amongst which are large accounting companies such as Deloitte, KPMG, PWC, Ernst & Young. Various other cloud-based accounting solutions are Sage, Zoho Books, Fresh Books, Xero, Quicken, Free Agent, etc.

Locally installed accounting software and cloud accounting solutions will undoubtedly continue to coexist, but it is clear that traditional software has already lost some of its sway. This abrupt change is a result of the demand for increased effectiveness, improved performance, and reduced expenses (which are particularly important for small and medium-sized businesses). Accountants have encouraged this higher level of adoption for cloud accounting apps after realising the value of these solutions.

Naturally, some members of the accounting community are somewhat dubious about these technologies. According to CCH (2013), some accountants view cloud-based software as a clear danger to their future employment.

We ought to highlight that cloud accounting truly optimizes a company's activities rather than removing the human element from its operations. Cloud accounting has developed as a way to make the difficult and repetitive operations that accountants must complete on a daily basis more manageable. These ideas ought to have been viewed as a solution to a problem rather than as a danger.

Conclusion:

In this era of rapid technological advancement and such a dynamic and challenging environment, every business is trying to explore new ways of doing business. Cloud-based services or softwares are being adopted by most companies to increase their efficiency and reduce their operating costs. All business participants (business owners, accountants, auditors, and clients) can work closely together, thanks to the cloud accounting model, by simultaneously accessing the latest financial data online. Cloud computing offers too many advantages to ignore.

However, there are few potential risks associated with it such as security of data and cybersecurity crime concerns but still, it is a better option over the traditional accounting software where the risks of data being lost and the higher costs in the installation and up-gradation prevails.

Simple accounting procedures can be completed by small businesses without the use of pricey software. To assist small business owners in organizing and managing their IT operations, simple accounting software for the cloud have been developed.

The option to test the cloud solution for a limited amount of time before using it is another factor that needs to be taken into account. In this manner, businesses can determine whether cloud accounting is appropriate for them prior to making a long-term commitment.

Moving to the Cloud is inevitable for most businesses – in many cases, the only question that arises is ‘When?’.

This article is addressing the cloud accounting paradigm from a business-oriented view and does not intend to provide an exhaustive or a technical outlook. It does not depict an exhaustive study, nor does it analyze the subject from an empirical point of view.

The purpose is to analyze the concept of the new paradigm in the Accounting field-Cloud Accounting that has reframed the way the accounting function is being carried out in the Industry these days. The article presents in a qualitative manner, the implications of cloud computing in the accounting field. The purpose of the paper is to present the numerous facets of this innovative paradigm.

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JOB SATISFACTION AMONG OVERQUALIFIED EXECUTIVES IN THE TEXTILE INDUSTRY

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Introduction:

With the advent of the COVID-19, the most prominent social concern faced by the Indian labor force was the increased underemployment. Underemployment designates the employment situation in which the workers are underutilized in terms of their time, education, skills, abilities, or income. It deals with the undervaluation and underutilization of the valuable human resource of the economy. In comprehensive arrangement, underemployment is defined as a condition in which employees work less than their full capacity like they might be employed in a

(a) low-paid or low status job
(b) involuntarily part-time job
(c) job where there is a mismatch between their preferences and actual conditions
(d) which underutilizes their skills, education, training or experiences
(e) job outside their field of education and training
(f) job in which employees perceive that it is of low quality (McKee- Ryan and Harvey, 2011).

In UK, over the last 30 years there has been substantial rise in the number of employees who perceive themselves to be overqualified for their job. Around 36% of the graduates are employed in low skilled jobs like bar staff (19%) and security guards (24%) (Moss, 2022**).** Similarly, in India around 10000 unemployed youth applied for 15 low skilled government jobs in Madhya Pradesh. Majority of youth was overqualified, holding post-graduation degrees in different fields (Biswas, 2022). Imranullah (2019) reported that indiscipline and insubordination has become the major issue in case of government service because of over-qualification. Therefore, Madras High Court ordered to fix the maximum qualification for every job as per its duties, responsibilities and profile.

Over-qualification is a form of underemployment which comprises of workers who during the short reference period, want to switch their current employment situation in order to properly utilize their knowledge, skills, abilities, training etc. and are available to do so (ILO, 1998). It can be defined as a situation in which employees perceive that their education, skills, experience or training is more than what is required for their job or not used on their job (Erdogan *et al.*, 2011).

It deals with the situation of qualification and job mismatch and misallocation of resources (Brown and Pintaldi, 2006). It exists in almost all the industrialized countries of the world and, the performance achieved by the overqualified worker is not the maximum which can be obtained when the right person is employed at the right job (ILO, 1998**).** Education-related underemployment and skill-related underemployment is sometimes considered to be the same. But the researchers are of the opinion that evaluation of education-based underemployment alone is not sufficient because it ignores the skills that are obtained through the training or on-the-job experience by workers (McGuiness and Wooden, 2009). Even a highly skilled and well-paid worker can be found to be skill related underemployed if his expertise, skills, abilities and knowledge are not put to proper use (Lacmanovic *et al.,* 2016).

A more comprehensive view was also given by defining the following aspects of over qualification-

Talent use gap: It exists when people does not have access to education because of its high costs and discrimination done on the basis of race, gender or other characteristics. Many people who are intelligent and talented are employed at lower-level jobs as they lack formal education.

Credential gap: The discrepancy between the formal education acquired and education that is needed for the entry in job.

Performance gap: The discrepancy between the education acquired and education that is actually needed to perform the work.

Knowledge gap: It occurs when the education, skills or abilities of employees that are acquired through their job experience are more than what is needed for a specific job.

Relevance gap: It exists when an employee finds that his/her qualification is not as per the theme of the job, for example, dentist may be employed as a clerk.

Subjective gap: It is based on the perceptions of the employees. It occurs when worker perceives that there is a discrepancy between his/her qualification and job requirements (Livingstone, 2004). But the problem arises on how to compute the gaps and quantify the underemployment.

Over-qualification can be measured with both objective measures (i.e. by comparing individual’s level of education with the educational requirement for the job, Madamba and De Jong, 1997) and subjective measures (where employees perceive that they have more education than the required education for the job, Maynard *et al.,* 2006). Therefore, perceived over-qualification is defined as a situation in which employees perceive that they have more knowledge, skills, abilities and experience, relative to the requirements of their job position (Ozdevecioglu *et al.,* 2015). It was revealed that if the educational attainment of worker is at least one standard deviation higher than the mean education requirement within his/her occupation then there will be education mismatch (Madamba and De Jong, 1997). Similarly, it can be applied to other parameters of over-qualification also.

Overqualified employees have low level of job satisfaction and life satisfaction and they are more likely to quit their jobs as compared to those who are employed in jobs as per their qualification. The relationship between over-qualification and job satisfaction is explained on the basis of relative deprivation theory. This theory states that whenever there is a mismatch between the outcome employees want to receive and outcome they actually receive, it led to the feeling of dissatisfaction among them (Crosby, 1976). Alfes *et al.,* (2016) found that there is a negative relationship between perceived over-qualification and job satisfaction but this relationship can be reduced by reducing the feelings of relative deprivation of overqualified employees through maintaining high quality interpersonal relationships.

Employees who perceive that they are overqualified for their job and their knowledge, skills, training are under-valued and underutilized on their job, they may feel dissatisfied with their job and likely to quit their job in order to find a better job (Wu *et al.,* 2015). Many researchers have scrutinized the effect of perceived over-qualification on job satisfaction of employees and reported the adverse relationship between the two (Erdogan and Bauer, 2009; Johnson *et al.,* 2002; Khan and Morrow, 1991; Maynard and Parfvonova, 2013; Peiro *et al.,* 2010; Wu *et al.,* 2015).

Punjab is the hub of Textile based industries contributing to the development of the state through production, export and employment generation (Rajni and Dhami, 2018). But the success of these industries in Punjab depends upon many factors. One of which is how well these industrial units utilize the capabilities, skills, expertise, qualification, time etc. of their human resources and keep them satisfied and stress free. Therefore, in the present study, we examined the extent of perceived over-qualification among employees in Textile Industry and its effect of on the level of job satisfaction level of employees.

Model and hypothesis:

From the literature it is found that perceived over-qualification leads to negative consequences both for employees and organization (Maynard and Parfynova, 2013). The hypothesis of the study that is made on the basis of review of literature, is to determine the effect of perceived over-qualification on job satisfaction level of employees i.e. perceived over-qualification has significant and negative effect on job satisfaction level of employees.

Figure 1: Conceptual Model of the study

Hypothesis: Perceived Over-Qualification will negatively affect the Job satisfaction level of employees.

Method:

To find extent of perceived over-qualification and to analyse its relationship with job satisfaction level of employees, data was collected from 250 respondents. The population for this study comprised of the medium-scale and large-scale Textile Industries in Punjab, a state of India located in the north-western subcontinent. For fulfilling the objective, 10 medium-scale and large-scale Textile units were selected randomly (using lottery method). From each unit, 25 middle-level and lower-level executives were contacted to collect the primary data. Selection of these respondents was on the basis of their willingness to participate in the study. All those who were selected were interviewed in person at their workplace.

Sample:

Participant ranged in age from 18-70 years (M = 40.66, SD = 10.48). Of the total participants, 81.20% (n = 203) identified as male and 18.80% (n = 47) as female. Most of the participants were identified as unmarried (n = 206, 82.40%), followed by married (n = 44, 17.60%). Regarding highest level of education, participants reported having school level education (n = 1, 0.40%), diploma (n = 39, 15.60%), graduation (n = 103, 41.20%), post-graduation (n = 105, 42.00%), and doctorate degree (n = 2, 0.80%). Participants were classified on the basis of designation, middle-level (n = 203, 81.20%) and lower-level (n = 47, 18.80%). Regarding participants job experience, participants reported job experience less than 5 years (n = 56, 22.40%), followed by 5-10 years (n = 74, 29.60%), 11-15 years (n = 35, 14.00%), and more than 15 years (n = 85, 34.00%).

Measures:

Perceived over-qualification:

To measure the perceived over-qualification, the survey modified and adopted a 9-item scale developed by Maynard and colleagues i.e. Scale of Perceived Over qualification (Maynard et al, 2006). A sample item was "I have lot of knowledge that I do not need in order to do my job". Each item was answered on 5-point Likert scale from 1 (strongly disagree) to 5 strongly agree). The scale reported good estimated internal consistency ($\alpha = 0.98$).

Job satisfaction:

To measure the Job satisfaction level among employees, the survey modified and adopted a 5-item scale i.e. Short Job Satisfaction Scale (Judge et al, 1998). A sample item was "I feel fairly satisfied with my present job". Each item was answered on 5-point Likert scale from 1 (strongly disagree) to 5 strongly agree). The scale reported good estimated internal consistency ($\alpha = 0.94$).

Results and Discussion:

Perceived Over-qualification:

To find the number of employees who perceived themselves to be overqualified for their job, were given various statements related to their perception regarding their qualification. Respondents were enquired for their agreement towards these statements The statements were tested against null hypothesis of neutral perception ($H_0 = 3$).

Table 1: Employees perception towards their qualification

S. No.	Statements	Mean (SD)	t value (p value) $H_0 = 3$
1	My job requires less education than I have.	3.44 (1.13)	6.22 (0.01)
2	The work experience that I have is not necessary to be successful on this job.	3.46 (1.13)	6.40 (0.01)
3	I have job skills that are not required for this job	3.43 (1.15)	5.96 (0.01)
4	Someone with less education than me could perform well on my job.	3.46 (1.14)	6.36 (0.01)
5	My previous training is not being fully utilized on this job.	3.33 (1.16)	4.54 (0.01)
6	I have lot of knowledge that I do not need in order to do my job.	3.50 (1.15)	6.92 (0.01)
7	My education level is above the education level required by my job.	3.46 (1.16)	6.24 (0.01)
8	Someone with less work experience than me could do my job just as well.	3.42 (1.11)	6.02 (0.01)
9	I have more abilities than I need in order to do my job	3.47 (1.13)	6.58 (0.01)

From the overall analysis of Table 1 it can be concluded that majority of respondents agreed with the above statements which shows that most of employees feel that they are overqualified for their job. The statement 'I have lot of knowledge that I do not need in order to do my job' had the highest mean score of 3.50 (S.D.= 1.15) and it is found to be significant ($t = 6.92$, $p < 0.05$) which shows most of the employees believe that their knowledge is not properly utilised on their job. The statement 'My previous training is not being fully utilized on this job' had the lowest mean score of 3.33 (S.D.= 1.16) and it is found to be significant ($t = 4.54$, $p < 0.05$).

Extent of perceived over-qualification:

In order to find the extent of perceived over-qualification, mean and standard deviation of qualification related underemployed employees was calculated.

Table 2: Measurement of Extent of Perceived Over-qualification

Variable	Perceived Over-qualification
Mean	4.23
S.D	0.48
Mean-S.D.	3.76
Mean +S.D.	4.72
Marginally underemployed	<3.76
Moderately underemployed	=3.76-4.72
Severely underemployed	>4.72

Qualification-related Underemployed employees were classified into three categories i.e. Marginally underemployed, Moderately underemployed and Severely underemployed. The classification was done on the above basis.

Table 3: Extent of Perceived Over-qualification

Extent of Perceived Over-Qualification	**Number of employees (%)**
Marginally Overqualified	19 (13.10)
Moderately Overqualified	92 (63.45)
Severely Overqualified	34 (23.45)
Total	**145** **(100)**

A perusal of Table 3 revealed that out of 250 employees, 145 (58.00 %) employees were found to be overqualified for their job. Out of which majority of employees were moderately overqualified i.e. 63.45%, followed by employees who were severely overqualified for their job i.e. 23.45%. Only 13.10% percent of employees were marginally overqualified for their job.

Perceived Over-qualification and job satisfaction:

Linear regression model was applied to know the effect of Perceived Over-qualification on Job Satisfaction level of employees.

Linear regression model:

(DV = Job Satisfaction; IDV = Perceived Over-qualification)

Table 4: Regression Coefficients Predicting Perceived Over-qualification and Job satisfaction

Independent Variable / Dependent Variable		**Constant**	**Perceived Over-qualification**	**R^2**	**F**
Job Satisfaction (N = 145)	Coefficients	3.80	-0.29	0.092	25.21**
	Standard Error	0.21	0.06		
	Beta	-	-0.30		

** Significant at 1% level of significance

To investigate if Perceived over-qualification has a significant impact on job satisfaction level of employees, dependent variable job satisfaction was regressed on predicting variable perceived over-qualification. Analysis reported in Table 4 revealed that this model is statistically significant ($F = 25.21$, $p < 0.05$) indicating that there is significant impact of perceived over-qualification on job satisfaction level of employees. Moreover, the value of $R^2 = 0.092$ depicts that 9.20% of variation in job satisfaction is explained by perceived over-qualification.

Therefore, we can conclude that perceived over-qualification significantly impacts the job satisfaction level of employees. With the increase in perceived over-qualification, job satisfaction level of employees decreases.

Conclusion:

The current study examined the impact of perceived over-qualification on job satisfaction level of employees. Overall, the results indicated that perceived over-qualification, resulted in low level of job satisfaction of employees. When employees perceive that they have more qualification for their jobs, it reduces their job satisfaction. These findings are consistent with those of previous studies indicating that there is negative relationship between perceived over-qualification and job satisfaction of employees (Harari *et al.,* 2017; Wassermann *et al.,* 2017; Meyer, 2020; Erdogan and Bauer, 2021), which in turn increases their job search behaviour because they feel they deserve a better job which can properly utilizes their knowledge, skills, experience etc. Therefore, it is important for human resource managers that proper human resource practises are adopted within the organisation. They must try to recruit those employees whose knowledge, skills and abilities are matched with the requirements of the job. Similarly, employees can be psychologically and emotionally empowered which will help in reducing the negative effects of over-qualification (Meyer, 2020). Thus, Overqualified employees can act as an important asset for the organization if proper interventions are adopted by the managers to effectively utilize their knowledge, skills, abilities and experience.

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BLOCKCHAIN TECHNOLOGY IN AGRI-FOOD CONTINUUM

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Abstract:

The food industry has drawn a great deal of attention to blockchain technology, but the lack of successful blockchain initiatives and industry-specific research has resulted in a phased plan for integrating blockchain into the food supply chain (FSC). not yet. The drivers and hurdles to the adoption, application and implementation stages of blockchain within FSC are captured through a systematic review of the literature, including 69 high-quality peer-reviewed studies. Future research prospects are identified for current blockchain issues such as scalability, rules, privacy, and incentives. Using innovation acceptance theory, a three-layer conceptual framework for blockchain implementation at FSC is created. The proposed framework is innovative and designed to help grocery chain managers decide whether blockchain is a good fit for their business and large networks of suppliers. Identified impact factors, case studies and implementation steps

Keywords: Scalability, Innovation Adoption, Food Supply Chain, Framework, Supplier, Implementation, Incorporating, Initiatives.

Introduction:

The set of protocols and sub-procedures referred to as supply chain management (SCM) serves to convert beginning materials into completed products, maximise customer value, and secure a sustainable competitive advantage. It can also be regarded as a network of entities that engage with the system at each step, from production to transactions. There are several multiple stages to the overall supply chain network. These steps occasionally entail long processing periods. If the final product is of poor quality in such a case, it is fairly difficult to figure out the primary cause of the issue. The demand for superior goods and end users' interest in the source of data has been growing fast. Therefore, it is now essential for every supply chain system to maintain records.

The chain of custody authorities has to pass on information accurately and efficiently if th ey are going to win the trust of the final consumers.

Furthermore, it is crucial for supply chain authorities to uphold the quality, credibility, and integrity of every aspect of the supply chain process. Standards are being set to effect by a variety of regulatory agencies in order to improve supply chain traceability systems' quality, transparency, and security. The governments of numerous nations firmly maintain those values. The use of tags and bar codes to identify the provenance of items has been enforced by the Canadian government. The Chinese government likewise enforces comparable rules. The aforementioned regulations aim to bolster the traceability systems' transparency and guarantee excellent standards all supplies. Systems for supply chain management have the task of retaining traceability in addition to functioning as an initial point of admission for product trading. The network architecture grows more complex as the consequence of these systems analysing en ormous amounts of transactional data.

As these networks frequently become organised, there is a peril that information might be displayed in an erroneous or inaccurate fashion. As a result of their concentrated service structure, the supply chains that enable financial transactions on their networks lack credibility and confidence. Furthermore, the consolidated storage solutions used in supply chain networks often prove inadequate for controlling tremendous quantities of data, which ends up in certain bottlenecks and degrades the network's general efficiency.

Better choices for storage, flexibility, processing speed, and fault tolerance are all advantages associated with distributed systems. Several industries all through the world, include finance, electronic medical records (EMRs), the internet of things (IoT), energy, and many more, have come to recognise the development of blockchain as the base technology of Bitcoin. The technique is secure and overcomes the dangers of centralised structures defined previously. For data-driven fields, in especially, the current blockchain network is not a panacea that fits all given its latency, storage, and throughput restrictions.

The writers have outlined a variety of network creates and distributed consensus strategies that guarantee a blockchain's integrity while allowing high throughput and expanded data retention. A successful monitoring of farming products and food items is vital for the supply chain in this area.

Moreover, operations related to supply chains produce an extensive amount of data, something the old consolidated archives are unable to handle and hence bottleneck. Due to this, a variety of localised methods of storage have been suggested in the literature to tackle difficulties like overbearing latency, constrained throughput, and bottlenecks. A blockchain-based system for soy traceability of goods is offered in [9]. The Interplanetary File Storage System (IPFS) and Ethereum smart contracts are employed in the proposed system to achieve complete traceability. Popular distributed peer-to-peer file storage system IPFS is extensively utilized. This renders use of distributed hash table (DHT) and a block exchange using rewards. Since there is no single point of failure here, nodes do not trust one another. However, if the hash is made available, it is simple to get the data prevented in IPFS.

As Agri-Food supply chains proceed towards e-agriculture, there is a need of autonomous automated payment mechanism which ensures that the entities in the entire system adhere to the commitment during transaction. Authors proposed an efficient storage scheme for Agri-Food t, but IPFS nodes also conduct themselves selfishly while backing up data. Additionally, authors do not consider the accountability and auditability of trading and delivery of data.

This investigation intends to add an improvement to the ongoing inquiry into a blockchain-based agricultural products supply chains and presents an exhaustive cure. To the best of our understanding, there doesn't seem an article of literature currently available which provides an exhaustive reply for the agri-food supply chain. This blockchain-based reputation system launched in is, however, developed in the present investigation. The proposed approach takes use of ethereum smart contracts in order in order to offer an efficient, sound, and trustworthy environment for supply chain activities. The ones that follow are the suggested system's primary advantages.

This operates as a throughout its entirety dispersed logistical network that introduces three important elements: a brand recognition system for verifying the entities' credibility, a monitoring plan and trade and delivery techniques and a third independent activity mechanism. Responsibility, authority, accountability liberty, and genuineness are all attained.

Given its capacity to offer an expandable and verifiable system, it provides an excellent alternative to present-day agricultural products supply chain processes. It reveals the smart contract algorithms, tests them for dangers, and calculates the propane and ether costs through the network known as Ethereum. It includes substantial built-in safeguards & was immune to widely recognised violence. We conduct out an extensive sensitivity analysis of our system and explain regarding how it is resilient and protects against hackers. The blockchain layer, which holds the data associated with transactions for the purchase and delivery instances, is the additional layer.

It keeps check on the position of the method's subscribers. The actual data is retained on the third level, which is dubbed the layer for storage, with the objective to expand the amount of space available. The digital ledger tier solely keeps hashing of the data. Strict access control policies are implemented at the blockchain layer to stop illegal reads and writes from reaching the storage layer. The third tier, that is effectively the storage layer, is totally in the position of storing the blockchain's records of actions and occurrences data on IPFS. Because IPFS is a networked storage system, it improves from the suggested architecture by enhancing its ability to scale, reduced latency, and high bandwidth.

Traceability:

Chain of custody solutions embrace an immense number of companies in the manufacture and delivery of agricultural goods items from their place of genesis to the consumer's doorstep. As an outcome, it gets harder to locate and trace the whole procedure. We remain apprised of each sales transaction commencing with the very first one, add the product's distinguishing verification and lot number to each recurrent transaction, record the hashes to keep the hash chain, and ultimately maintain entirety accountability.

An assortment of goods intended for trading in a warehouse is known as a "1 Lot," and the lot number provides its private personality. The transaction-related information is kept in IPFS and is employed to maintain the hash chain. The restriction of IPFS is solved by preserving its information hashes in the Ethereum network's blockchain. Access control near has been employed to guarantee network confidentiality while adding to or reading data from chain. The widespread implementation of authentication the processes makes sure those with authorization have access to carrying out activities. Only users who are registered are allowed to execute out that particular operation. In addition, only a few entities have the ability to carry perform every role in the intelligent contract. Any task which requires authorization by the owner cannot be done out. Numerous supply chain entities that link to each other using intelligent agreements have been identified in the system, and the first algorithm shows the entity registration procedure.

Entity Address and entity Type are input factors used in this operation, which registers the proper entity as a system approved member.

Farmer: The initial actor in the supply chain for agricultural goods and the first person who employs intelligent contracts for business is a farmer. The landowner grows a great deal of crops and has responsibility of guaranteeing and monitoring each aspect of how they grow. He provides the processors such crops for purchase.

Processor: The agricultural products are purchased by processors from producers. He is in the role of processing the agricultural produce into finished goods including eliminating unnecessary material from the crops. Wholesalers acquire this finished product directly from the processor.

Distributor: Someone who is in the role of keeping a storage facility by acquiring the final products from producers and distributing these to consumers.

Retailer: A business that acquires the accomplished, identifiable commodities from wholesale suppliers and delivers them in fewer units to patients. Specific product characteristics which make the ability to comply with history of the item are often referred to as detectable items.

Consumer: The buyer is an ultimate user who gets and utilises goods from businesses. Before acquiring a product, an end-user checks a seller's reputation to check whether it is legitimate.

Logistic company: Logistics Company For a verifiable delivery of the goods from the product proprietors to the clients, the logistics company (LC) is in responsibility.

Arbitrator: An externally the company called an arbitrator is selected to supervise and regulate the entirety of the network. It acts as a conflict settlement tool.

Example:

Let's imagine an imaginary scenario that the end consumer has not yet executed the sale and would be interested in discovering concerning the credibility of the traders in the market before discussing the trading and delivery the approach. This strategy ensures that the company owners are sufficiently reliable. Furthermore, the information is recorded on blockchain to ensure that the entire process of passing on goods from one company to another is able to controlled and identified. It promises transportation to the ultimate buyer is transparent. The end result the proprietor, the wholesaler, and the buyer of the product are the three major players involved in the trading and shipping method. Whilst the client, as the name implies, is someone who is interested in using ethers in order to purchase a good or service, the item's ownership is the person who distributes the goods in the chain of distribution. As already pointed out, the LC is a system-registered entity. In the instance of disagreement during a transaction, referees are in charge of conducting off-chain adjudication.

Repuitation system:

The reputation system is in the position of confirming the veracity of the product owner and the supplied assets. It preserves the immutability and integrity of the system assessments that were recently submitted. In contrast compared to conventional popularity infrastructure, IPFS collects reviews while blockchain keeps hashes among those assessments. The evaluations' inviolability and authenticity have been preserved in this way. Upon the incidence of the exchange events between buyers and sellers alike, the reputation contract is activated. The suggested system is in tasked with triggering intelligent agreements to give sellers service-based scores. The registration technique to reviews is clarified in Algorithm 6. The buyer’s registration reviews are made once the transaction is finished. For the remainder of the trade, a buyer requires seller evaluations and makes the contract on the suggestions made. Additionally, every one of the entities in the recommended solution—aside than the grower and the last consumer—perform the responsibilities of buyer as well as seller.

As an instance, the retailer in the second instance gets the finished product from the distributor after which it sells it to the customers. Similar to this, it's the supplier purchases the crops from the landowners after which it sells the end product to the distributor. The expressions of clients and purchasers, as well as sellers and product owners, are interchangeably utilised throughout the entirety of the piece.

Simulations and Results:

In the following section, we review the system's operational outcomes, simulation methods, and assumptions. The key beliefs are listed below: The organization's panellists are unbiased parties who provide equitable choices while settling disagreements, mediators possess greater processing capacity than the rest of the network participants. Not one network organisation possesses the computing resources required to disable in excess of fifty percent of the networks's nodes, and Items on sale must be bought or sold via authorised enterprises.

Security analyses:

Several attack types emerged as a result of the expanding usage of blockchain technologies across several different industries. As an outcome, this section examines the offered solution's vulnerability, robustness, and security and briefly outlines whether it can be resistant to multiple violence.

Vulnerability and robustness:

Another of the main elements of the blockchian is a contract that is smart. For commercial actions, the technique brought towards in this paper employs smart multiple contracts. An executable piece of code dubbed a "smart contract" is in control of simplifying digital transactions and providing security in terms like integrity, credibilty, and inviolability. A contract that is smart can not be modified once it is officially broadcast on the blockchain and needs to be executed precisely how it is. A blockchain's security suffers significantly if its code is unstable.

As smart contracts are still in their infancy, they still have likely security vulnerabilities. The Decentralised Autonomous Organisation assault which cost 3.6 million ethers, approximately $70 million, during the early stages of the platform's growth, was one of the strongest hacking disasters. It was in control of implementing smart contracts for decentralised financial transactions. A number of other digital contract dangers, including callstack assaults, time connections, concurrency issues, and re-entrancy bugs. Blockchain-based systems incur tremendous losses as a result of these weaknesses. The following categories describe the well-known flaws.

Call stack attack:

Dispatch thickness attack is a substitute for the call layer threat. The calling function cannot be executed if the call range is greater than 1024 pixels and will just do so if its depth is 1023 frames. Furthermore, it has been noticed that the call depth rises up by one any time a call or receive procedure is used to call an additional contract. Consequently, the subsequent direct fails if a call method calls itself 1023 times, surpassing the 1024 call stack limit.

Time dependency attack:

This type of assault is mining-focused, in which the miner alters the timestamp's settings to his favour. The timestamp of a transaction is obtained by the miner while it continues to be processed. A timestamp frequently reflects the physical time and place of the mining.

Concurrency error:

This applies to a wide range of orderings of events and is also a minor side difficulty. Occurs when two programs are running at the same time. This problem usually occurs when customizing relational databases or data structures.

Re-entry vulnerability:

This flaw affects a previously known DAO attack. Path conditions are used to search for re-entry conditions. The current Ethereum activity is waiting for a call to finish when a particular contract calls another contract. This problem can occur in situations where the transaction uses the original data of the caller.

Therefore, it is important to examine the smart contract code if you want the whole thing to be hardened against the above threats. The author of [32] recommended Oyente, a free and open-source vulnerability analyzer for Ether smart contracts. Smart contracts are evaluated based on symbolic execution processes, each with specific criteria. These are the main tasks:

- Analyze all possible courses of action based on fictitious values of factors.
- Observe how the contract behaves on each route.
- A summary of the criteria for each pass.
- We are looking for property crimes of all kinds.

Impact on management:

The practical application of our proposed blockchain-based agriculture and food logistics system will improve traceability records for both agricultural products and food. The following subsections detail all major aspects of a reliable and efficient supply the chains.

Accountability:

The proposed method achieves complete separation by using blockchain. Document analysis ensures accountability for every action. In this sense, the recommended strategy allows referees to infiltrate the system and analyze the logs in competitive situations. The data on the blockchain is open to the regulators, who may get the necessary information to prove their accountability. Additionally, since the nodes are encrypted by a standard signature the system and have no ability to reverse their actions, nefarious nodes cannot succeed in committing an unlawful act.

Credibility:

A level of trust between the system's entities provides the basis on which to assess the system's credibility. As a consequence, the proposed remedy comprises a reputation system that preserves assurance between multiple stakeholders, namely the product owner, buyer, LC, etc. Moreover, the approach suggested can be seen to be dependable and secure through creating employing of the fundamental characteristics of blockchain. As long as they control over fifty percent of all nodes, hackers won't be able to gain entry into the system that was suggested.

Auditability:

Any allowed person of the software has access to review all aspects of it. In order to keep track of the activities and occurrences that took place, it supplies traceable smart contracts. Benefits like openness, permanence, and accountability can be provided by cryptocurrency. It assures that the transactions cannot be falsified.

Autonomy:

The recommended strategy leverages intelligent contracts for all data moves and transactions, avoiding any interference from the outside. As an outcome, it assures autonomy and security in an environment of safety. Furthermore, consensus-based block verification is seen as an independent feature that distinguishes solutions that use blockchain technology.

Authenticity:

Before doing the transaction, the recommended approach confirms all of the individual. The method of authentication ensures sure that only permitted system entities can carry out specific actions. As a consequence, it also provides protection versus man-in-the-middle violence.

Conclusion and future work:

The procurement industry has gained significantly form using blockchain to grow, make move towards centralization, while establishing a trustless environment for every task. Despite blockchain's fundamental insufficient trust, it might be difficult to entirely preserve trust between a product's vendor and customer. This is so that the buyer doesn't doubt the entities' authority and they are unlikely to behave maliciously. In order to achieve transparency, accountability, and security, the supply chain necessitate an assortment of activities and sub-processes that must be carried out in a decentralised way. We provide a complete solution for a blockchain-based agri-food supply chain in this paper. Concerning verification, trade, shipment, and credibility, we offered exhaustive details about the suggested fix. In order to ensure for sure that the suggested fix is successful and accurate, we carefully analysed and assessed the functionality of smart agreements. The reputation system is suggested to uphold the trustworthiness of the Agri-Food supply chain partners and the product quality evaluations. Furthermore, because these exchanges are based on blockchain, it also preserves the transactions' immutability and integrity. We addressed smart contracts in great depth and gave algorithms. Our system needs a particular quantity of gas to deploy and execute forth smart contracts, in accordance with simulation outcomes.

Blockchain-based approaches still have issues when implemented into perform, according to recent studies. We plan on implementing refund and return regulations into the retail sale of agricultural produce products in the future. The reputation system similarly keeps an eye on evaluations left by actual customers, some of which might be skewed or misleading. For the purpose of to help the reputation system identify bogus reviews left by consumers, we want to add a fake review detection system. Research projects that focused on assaults against systems of credibility will also be given account.

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TRUSTWORTHINESS OF QUALITATIVE RESEARCH

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Abstract:

Qualitative research has the advantage of observing participants' behavior in real-world environments, capturing the intricacies of the setting. It is particularly valuable for in-depth analysis of a small sample. However, qualitative research has been criticized for its limited generalizability, dependability, and validity. The complexity of natural environments can make it challenging to interpret qualitative findings. To mitigate these limitations, researchers must acknowledge and address these constraints. The paper provides suggestions to enhance the validity, generalizability, and reliability of qualitative research methods. Triangulation, Reflexivity, Searching for Disconfirming Evidence and Alternative Explanations, peer debriefing, Design checks, Prolonged engagement & Persistent observation, Negative case analysis, Clarifying researcher's bias, Rural explanations, Member checks, Audit Trail or Decision Trail, Rich and thick descriptive presentation, External audits, and Researcher credibility are some of the specific techniques for guaranteeing the reliability of qualitative research that are being discussed in depth. All researchers will need to have the maturity to implement numerous checks and balances to ensure the credibility of their research's findings.

Keywords: Qualitative Research, Trustworthiness, Validity, Generalizability, Reliability, Quality

Introduction:

Qualitative research is a research approach that focuses on understanding and interpreting activities, events, or individuals in their natural settings. It involves observing, describing, and interpreting data without relying on statistical procedures or quantification. It emphasizes participant-researcher interaction and avoids assuming a superior position for the researcher.

Qualitative research acknowledges and embraces the complexity and dynamism of the social world. It is a strategy that seeks to understand and interpret this complexity and dynamics. Researchers adopting this approach aim to empathize with the observed individuals and gain insights into potential trends or patterns through their observations. Qualitative research emphasizes flexibility, sensitivity, and sound judgment in all stages and plans. It employs techniques such as focus group discussions (FGDs), direct observation, content analysis, and unstructured interviews. Qualitative research is particularly valuable when quantitative designs are impractical. Qualitative designs are appropriate for capturing detailed descriptions and analyzing events or social phenomena, especially when they are unfolding or emergent. While qualitative research has notable strengths, it has also faced criticism regarding generalizability, dependability, and validity. Understanding qualitative research can be challenging due to the complexity of natural settings. The usefulness and integrity of qualitative findings rely on the reliability and transparency of the research study.

Trustworthiness: Quality criteria in qualitative research:

Trustworthiness and rigor in a study are crucial and depend on confidence in the data, interpretation, and procedures employed to ensure study quality. Researchers must establish protocols and methods for their studies to be considered by readers. While professionals generally agree on the importance of trustworthiness, there are differing opinions in the literature regarding the specific criteria for determining trustworthiness. Many qualitative researchers adhere to the standards set forth by Lincoln and Guba (1985). Credibility, Dependability, Transferability, Confirmability and Authenticity are some of these characteristics.

Credibility in a study, akin to internal validity in quantitative research, is important. Readers may question whether the study followed standard procedures for the indicated qualitative approach or provided adequate justification for any deviations. For a grounded theory study, it is crucial to adhere to the established practices and conventions of other grounded theory investigations.

Dependability refers to the consistency and stability of data over time and across different study situations. It is similar to reliability in quantitative research, but it takes into account that the stability of settings may vary depending on the type of study being conducted.

Transferability is the extent to which research findings can be applied to different contexts, and it differs from other research elements because readers determine the applicability of the findings to their own situations. In quantitative research, generalization is often compared to transferability, but transferability also encompasses similar circumstances, groups, and events.

Confirmability refers to the extent to which research findings can be confirmed or reproduced by others. It is closely related to neutrality and objectivity in quantitative research. Once dependability, transferability, and credibility have been established, confirmability becomes relevant. In reflective qualitative research, researchers should maintain awareness of the study and its findings and remain open to them. They must adopt a self-critical attitude, acknowledging their biases and considering how these biases might impact the investigation.

Authenticity in research refers to accurately representing various realities and describing participants' lives. Researchers achieve this by carefully selecting participants and providing detailed descriptions. Unlike quantitative research, qualitative research excels in conveying the complex meaning of an occurrence, enhancing readers' understanding.

Quality enhancement strategies in qualitative research:

Despite the challenges and complexities involved in assessing the quality of qualitative research, several strategies have been suggested to improve its overall quality. They are: triangulation, Reflexivity, Searching for Disconfirming Evidence and Alternative Explanations, peer debriefing, Design checks, Prolonged engagement & Persistent observation, Negative case analysis, Clarifying researcher's bias, Rural explanations, Member checks, Audit Trail or Decision Trail, Rich and thick descriptive presentation, External audits, and Researcher credibility.

Triangulation: It is a research method that involves using multiple sources, approaches, and hypotheses to verify data. It helps ensure reliability by correlating information from different sources to gain a comprehensive understanding of a topic. This process involves qualitative methods to compare and cross-check data consistency from various channels and time periods, such as comparing observational data with questionnaire responses. Triangulation aids in providing corroborated data and shedding light on different perspectives or themes. Triangulating data sources in qualitative research, such as (i) comparing observational and interview data, (ii) contrasting public and private statements of participants, (iii) examining consistency of opinions over time, and (iv) comparing participant opinions with others connected to the project, is valuable for understanding discrepancies and enhancing research. While it may not yield a perfectly consistent picture, this triangulation helps uncover insights into the reasons behind such discrepancies.

Reflexivity: Reflexivity refers to the critical self-examination and awareness of one's own biases, preferences, and preconceptions as a researcher. It involves reflecting on the establishment and maintenance of the research relationship, including its impact on participants' responses. Reflexivity is integral to various stages of the research process, including data gathering, analysis, interpretation, and writing. Researchers can foster reflexivity through methods such as conducting self-interviews, practicing "bracketing interviews" with an open mind, and maintaining a reflexive journal to document thoughts on the influence of personal experiences and literature on the investigated phenomenon.

Searching for disconfirming evidence and alternative explanations:

Effective verification requires a systematic examination of evidence to challenge and refine classifications or justifications. It involves exploring alternative options and analyzing data that both support and contradict previous findings. Theoretical or intentional sampling techniques are employed to achieve this. Lincoln and Guba introduced "negative case analysis" to refine emerging categories, hypotheses, and theories until they are applicable universally. Similarly, Patton advocates a methodical search for competing themes and explanations.

Peer view or debriefing: Peers scrutinize the study's subjective methodology. During debriefing sessions, they discuss and provide their opinions. This process helps the researcher reflect on the study in relation to peer feedback on reporting and procedures.

Design checks: Research methods and design influence the interpretation of results. Sampling can lead to three types of errors: distortion in the situations observed, distortion introduced by the time periods of observations, and distortion resulting from selectivity in the people observed or interviewed. Researchers should be cautious to include only relevant circumstances, times, individuals, and content in their study's findings.

Prolonged engagement and persistent observation: Continuous interaction and participatory observation with informants enhance the researcher's confidence in the data. This reduces data ambiguity and encourages reflection on data accuracy, collection of relevant information, and strategic use of evidence during fieldwork.

Negative case analysis: Qualitative research differs from quantitative research in terms of hypothesis development and revision. In qualitative research, hypotheses are continuously revised during the investigation, considering the specific context. Initial assumptions are refined throughout the data gathering and analysis process. The inclusion of negative examples and situations that deviate from the observed patterns helps ensure the verification and validation of the findings.

Clarifying researcher's bias: Researcher acknowledges and addresses their subjectivity, biases, and orientations to ensure transparency in the study's interpretation and methodology.

Rural explanations: After documenting patterns and their explanations through qualitative analysis, it is important to search for competing or opposing themes and explanations. This can be done using both inductive and logical reasoning. Inductively, researchers should explore alternative data organization strategies that may yield different outcomes. Logically, they should consider other plausible alternatives and assess whether the data can support those possibilities. However, it is advisable for researchers to focus on gathering evidence that supports alternative explanations rather than attempting to refute competing hypotheses. This approach involves assigning appropriate weight to supporting evidence and striving for the best alignment between the data and the analysis.

Member checks: The study report presents the participant responses using a technique that includes the primary database, analysis, and interpretations. This allows participants to assess the accuracy and veracity of the story and provide insightful criticism of the research findings.

Audit trail or decision trail:

A researcher's thought process and self-awareness are essential aspects of maintaining an audit trail. It involves documenting and reflecting on various aspects of the research process to provide transparency and accountability. The following description illustrates how a researcher can demonstrate thought process and self-awareness through the four types of documentation in an audit trail:

Contextual documents: The researcher includes excerpts from field notes, interviews, and descriptions of the research situation, participants, and location. By documenting these details, the researcher demonstrates awareness of the research context and acknowledges how it may influence data collection and interpretation. The researcher may also reflect on any biases or assumptions they bring into the research

Methodological documents: The researcher records methodological decisions made throughout the research project and justifies those choices. This demonstrates the researcher's thought process behind selecting specific research methods, tools, or approaches. They may explain the rationale for using certain techniques, considering limitations and ethical considerations. Reflecting on alternative approaches shows self-awareness and critical thinking

Analytic documents: The researcher includes reflections on the data analysis process and the theoretical insights derived from the findings. This documentation showcases the researcher's thought process and awareness of how they interpret and analyze the data. They may discuss challenges encountered during analysis, decisions made to address them, and reflections on the evolving understanding of the research phenomena

Personal response documents: The researcher provides written responses to questions, potentially addressing their subjective reactions, emotions, or biases during the research. By including personal responses, the researcher acknowledges their role in shaping the research process and outcomes. They may reflect on how their own beliefs, values, or experiences influenced data collection, analysis, and interpretation

Overall, through these different types of documentation in the audit trail, the researcher demonstrates their thought process, self-awareness, and reflexivity, highlighting the conscious choices made throughout the research journey and the awareness of potential influences on the research process and outcomes

Rich and thick descriptive presentation: The study thoroughly describes the participants or environment, providing readers with a comprehensive understanding of the scene. This enables them to consider the findings for potential application or transferability to similar contexts.

External audits: The external expert consultant examines both the procedure and the result of the account to evaluate its accuracy.

Researcher Credibility: Researcher's training, experience, and reflexivity are crucial for generating confidence in qualitative investigation findings. Researchers serve as both data collection tools and process designers for analysis. Their training and experience equip them with the necessary skills and knowledge to effectively gather and interpret data. By acknowledging and reflecting on these factors, researchers can enhance the transparency and credibility of their research, thereby increasing confidence in the findings.

Conclusion:

Disagreements impact qualitative research quality. Qualitative researchers must demonstrate the objectivity of their work, maintain consistency in language, concepts, and methodologies, and uphold ethical standards. Trustworthiness and applicability of a study are influenced by recruitment practices and ethical implications. Data analysis methods also affect trustworthiness. Although they may be included in various sections of the study report, these points should be taken into consideration when reading and evaluating an article. The methodologies employed to determine reliability must also match the research design. A phenomenological study's reliability techniques and protocols may be comparable to yet distinct from grounded theory, ethnography, or qualitative descriptive investigations. Readers should consider the reliability or rigour of a research report, as it is crucial for their confidence in the study's conclusions

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MODERNITY AND TRADITION – R. K. NARAYAN

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Abstract:

Born in Madras, now Chennai in October 1906 in British ruled India, R.K. Narayan is an Indian writer in English of twentieth century Indian English fiction called "*Malgudi*" considered as a legendary fiction in creative fiction. His writings collaborate all the pieces of life in themselves. Directors with their intense responsibilities are core of his fictions. Nature is an inseparable part in his fictions which remain an impeccable and strong part. Narayan never thrust his own reasoning and beliefs. This paper is showcasing the same through his famous fiction called *"The Guide",* Which imbibes his social methodologies and personal instincts too. Indo-Anglian writing through this paper also represents these strong Indian writing in English. Adaptive and flexibility of English of Indian English writers is represented through this paper. It also shows the imaginative journalistic instincts of Narayan. The paper also throws light on Narayan's perspective towards inappropriate existence of human which he experienced through his basic exposition around himself. Human is measured in different aspects and perspectives in his novels through different subjects and thoughts.

Keywords: Fiction, R. K. Narayan, Thoughts, Traditions and Conventional Approaches.

Introduction:

R. K. Narayan's famous work is "*Malgudi*", written on his life in South India, which has impact on most of the writings of his life. This research paper showcases how *Malgudi* represents human relationships and Indian daily life through humour, elegancy and simplicity. It also represents that how still the life elaborated in *Malgudi* has actually influenced the present way of living of Hindu society. Marriage, parental love, spouse relationships, father- son relations and also clash between older and younger generations are basic Indian family themes dealt in his novels. Amongst the trial – Raja Rao, Mulk Raj Anand and R.K. Narayan, he could be considered the best to deal with Indian society, morals and traditions which were portrayed through simple and vigorous language excellency. Human relationships, joint family, love, warmth of relationships, setting and structure of stories, detailed explanation of minor characters – their habits works and daily routines, simple plot and themes of writings, development of characters are portrayed stupendously.

Background of these story:

The Guide: Malgudi:

Being a resident of Madras, now Chennai, Narayan wrote *The Guide* in 1958, on his life in South India. This epic shows the main characters Raju's life which shifted from a local guide to outwardly guide and there after the greatest holy man of India. It brought Sahitya Academy Award for English to him in 1960, by the Sahitya Academy, National Academy of letters of India.

Novel: The Guide:

Plot summary:

In spite of being a popular but dishonest guide, *Raju* fell in love with *Rosie*, a wife of archaeologists named *Marco*. She fancied dancing against her husband's desire, fell in love with Raju, on their visit to malgudi. Knowing the fumed relationship, Marco left his wife and went back alone to Madras. Rosie started living with Raju in his house individually which Raju's mother disliked and she also left the home after her disapproval. Soon, with Raju's marketing tactics Rosie became famous dancer. Raju's lust increased for wealth and sooner he forged her signatures for money for which he was jailed for two years. Rosie made efforts to free him from jail but he refused to go back to his own village out of shame and came to a village called *Mangal*, where he played a role of sadhu and people also believed him and his sermons and teachings. Sooner the village was hit by feminine for which he started fasting. He confessed the truth of his originality to *Velan*, the only one character who discovered him first in the village temple but nothing changed between both of them. Raju decided to keep fasting until it rain in the village. On eleventh day, he sags down the water in a same routine which he was following from last ten days,. He saw that it was raining far away on the hills. The end is left to the readers to interpret whether he died or not.

R. K. Narayan: Demography

R K. Narayan (Rashipuram Krishnaswamy Narayanswamilyer, 1906-2001):

R. K. Narayan was born in brahmin family on October 10^{th}, 1906 in Madras, now Chennai in India as the second child of his parents. He studied in his father's school where his father was the principal. Before being a writer, he worked as a teacher for some time. Fourteen novels, over two hundred short stories, a memoir, two travel books, number of essays and two plays are in record of his writings. Narayan's most novels and writings are based on his life in malgudi, South India, which represents the clash between tradition and modernity but through elegancy, simplicity graced with style and humour.

R. K. Narayan: Fiction

"The Guide" a famous Novel of R. K. Narayan, return in 1958 was based on South Indian life, written in universal style.

The major novels of R. K. Narayan:

1.Swami and Friends (1935)

2.The Bachelor of Arts (1936)

3.The Dark Room (1938)

4.The English Teacher (1945)

5.Mr. Sampath (1949)

6.The Financial Expert (1952)

7. Waiting for the Mahatma (1955)

8.The Guide (1958)

9.The Man Eater of Malgudi (1962)

10.The Vendor of Sweets (1967)

11.The Painter of Sign (1976)

12.A Tiger for Malgudi (1977)

13.Talkative Man (1986)

14.The World of Nagaraj (1990)

15.Grand Mother's Tale (1992)

Malgudi - The fiction:

Reasoning and Craftsmanship of Narayan's mind is tactfully depicted through the artistic work of *Malgudi*, where life characters are shown from ordinary life of South India. *Malgudi* is a stupendous work of art just like the arts of other English writers, such as, wordsworth's, Sir Walter Scott's, Arnold Bennett's. Adolescent age through characters present in *Malgudi* seems attached to any Indian and they can identify themselves as the same. Hindu community can be found alive in it and fundamentals of Hindu life, their lifestyle, standard of living and social or moral attributes are well constructed in it. Indian constantly remain under influence of westernization which is well knitted with the characters of his fiction. Customs, cultures, conflict between originality and modernity, family background and relations, religion, thoughts of characteristics, crisp plots are all what collectively make *Malgudi* an epic fiction. *O.P. Mathur* has rightly observed Narayan's fiction as a work which show impact of western on characters.

Authentic modern social phenomenon:

India is a land of varieties of religions, customs, traditions and moralities along with the mixture of modernity, where coordination and patients plays a vital role. Narayan's fictions showcase the reality of life and characters and their thoughts in rhythm and reality. Irony of old and new existences clash portrays the real India of this time. Characters' belief in intensity of religion and conflicts of socio-economic issues present in his works are well elaborated by the use of humour, elegance and genuine style. Overall, Narayan's fiction represents the conflict between the tradition and modernity.

Literature review:

The guide, is famous for the portrayal of its finest characters either bad or good. *Raju, Rosie* and *Marco* are the main characters of the novel. Raju's journey from being a common guide to sadhu and finally as a *greatest holy man of India,* shows the social nature of India. Raju's incessant support to Rosie in enlightening her about her talent in dancing discouraged his friend and mother, who afterwards left him to his fate. *Raju* even supported *Rosie's* husband *Marco* in his researches but failed to be loyal to him because of his love for *Rosie*. *Marco* left forever from there. *Raju* himself claims, "*I would vigorously have kept close to her continuously as such a parasite." (The Guide, 1958:104).*

Rosie ignored obligation towards her married life and her love for Raju and her dance overpowered everything else. The human nature and societal influence is shown here. Raju was equally driven to her. Narayan admits, '*I felt myself in dubious circumstance from Raju, the legend of my guide who was worked up for a favoured individual and started to stand amazed eventually himself in sudden brightness has started to appear all wrapped up.* "Raju's journey also represents India's journey- from independence to present modern world. Real life situations and style of storytelling is praise worthy here. The story represents all the themes of Indian lifestyle. The lover of Indian literature of English must read this at least once for it is a window of the world of Indian lifestyle.

Adaptation of The Guide:

In 1965, stars of Bollywood, Dev Anand as Raju, Waheeda Rahman as Rosie and Lila Chitnis were the lead roles of the film called *GUIDE* directed by Vijay Anand, though the ending was different from novel itself. *Pearl S. buck* wrote the US version of this novel and *Tad Danielewski* directed it. After 42 years of the release of it, it was screened at Cannes Film Festival in 2007. In1968, it was also adapted into a play. "*The season: A candid look of Broadway",* a book by *William Goldman* also portrayed this play in it.

Conclusion:

Hinduism staunchly follow religion and strongly imbibes religion in every single task. Even after acceptance of modernity, it is impossible for Hindu society to come out of religion.

'Marggaya', a character of "*The Painter of signs"* even worshipped the animal to get a life partner of her choice.

Such like activities are continuously followed by Indians in the modern world too. Even if they have adapted science and worked on it but still every single occasion will be enchanted by some religious beliefs and customs. It seems inseparable part of Indian Hindu society. There is a great urgency and need to outlaw and dispose of all these things in modern world. Creative things, affirmations, progress, social qualities, necessities of individuals and mentality are the ideas to be worked upon rather than old auditors. R.K. Narayan as the father of Indian English fiction assesses the Indian society, its customs, traditions, relationships, love, society, economic situations, thought structure of Indians, their dreams, events, western impact on living and minds, conflict between older and new generations, life journey of Indians through characters of novels. Ladies, human behaviour, critical and reasoning abilities, self esteem, self perception, managerial issues, inner emotional or rational battles are equally assessed in his novels, shows the journey of Indian life from its originality to modernism and the struggles on this journey. *The Guide* is the most subtle novel, imbibes moral obligations and also has an autobiographical narrative method. Narayan's genius can be explained as, *"which plays gently over this novel lies in his persuading us that the lives and characters of Malgudi represent substantial human nature, that what happens in India happens in Malgudi and what happens in Malgudi happens everywhere."*

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- Published 20 research papers in various UGC-CARE, peer-reviewed journals, and books.
- Presented 4 papers at International conferences and 23 papers at National conferences and seminars.
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- Participated in 20 international and national-level Faculty Development programs.
- Authored 4 books with a national-level publisher.
- Delivered lectures as a resource person on the topics 'Career Counseling', 'Using Excel for Data Analysis', and 'Google Products'.
- Nominated in the **Sarva Siksha Abhiyan** to deliver a lecture on Classroom management, time management, and stress management.
- Performed research to serve as the basis for academic writing for publication.
- Communicated with students about classroom and study sessions
- Contributed to planning appropriate and engaging lessons for classroom applications.
- Contributed to campus activities to promote a positive university image.
- Mentored students and communicated internship and employment opportunities.
- Evaluated and supervised student activities and performance levels to provide reports on academic progress.
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