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Online Education: The New Normal

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Abstract:-
Online Education is the Educational process conduct by using virtual medium through Technology, by which Educator can Teach the lesson from anywhere so as Learner can learn from any part of the world subject to the good Internet connectivity and suitable Digital media. The unprecedented situation of covid19 pandemic shuttered the educational institution across the globe; therefore online education becomes the Necessity rather than facility. And this utilization of digital medium for Education initiates the new debate about the traditional education vis-à-vis online Education, this article want to address this debate and also intend to establish the fact that online Education is the new normal in the Teaching-learning process.

Keywords: - digital media, online education: necessity than facility.

Outcome: - This article wants to establish the fact, that online education is essential in Teaching-learning process due to its easy to use approach and global reach.

Introduction:-

"Education is the most powerful weapon, which you can use to change the world" -Nelson Mandela.

Education is the medium of Transformation, through which poor can come out of poverty, marginalize can become the part of Mainstream society etc. Traditionally education as a medium is restricted to few people due to several factors such as foreign travel, Expenditure and status in the society, awareness and other factors as well. These kind of hurdles discriminate against the large no of peoples in the society. Traditionally education is depend on not only institutions and Teachers but also on every stakeholder of it, in this backdrop the covid19 pandemic becomes the catalyst in the boost of utilization of online medium for the education.

Online education initially takes place as a facility for the traditional educator to simplify the doubts and questions of the student but as a time progress and inevitable circumstances arise the online education becomes more of a necessity than the facility let us discuss the benefits of the online education:

1. Expanding Accessibility: - Access to the education by surpassing the geographical barriers and also bridges the socioeconomic divide.
2. Promoting flexibility: - allows learners to study at own pace and schedule.
3. Enabling mass outreach :- overcomes the limitations such as infrastructure, specific classrooms, soundproof classrooms etc
4. Ensuring affordability:- due to less burden and efforts, education can be affordable which overcomes the financial barrier and becomes inclusive
5. Fostering personalised learning:- leverages AI and technology to create customised learning experiences tailored to individual needs
6. Effective and engaging learning :- (i) enhanced grasping and disciplined learning :e-learning methods, including audio-visual teaching, ensure better understanding and create a disciplined and engaging learning environment.
   (ii)Improved engagement:-interactive multimedia content enhances and makes learning more enjoyable.
7. Environmental benefits:- paperless learning and energy efficiency: online education reduces the need for paper and consumes less energy compared to traditional classroom setting, promoting environmental sustainability.
8. Effective resource management: (i) easy documentation and access to expertise: educational materials and communications are stored securely in online databases, allowing students to learn from experts worldwide.
9. Addressing teacher scarcity: solving shortages: online education helps mitigate the shortage of teachers by enabling a single educator to reach many students simultaneously.
10. Research and development: due to collaboration, and global reach; innovative methodology can be shared Easily which fosters the Research in Teaching learning processes

11. Teacher development and Management: ICT facilitates large scale teacher training, knowledge sharing, and collaboration, improving overall teaching quality.
12. Governance and management : ICT supports transparent and efficient school management systems, enhancing administrative processes. (Himanshu, 2019)

These benefits show the significant contribution of online education in the educational processes for the holistic development of not only learners', but also of the Teachers.

In contemporary era there are several challenges to the traditional education, since there is flood of information through Innovative practices which pose the challenge of qualitative content selection and also the there is challenge in form of ethical issues such as plagiarism, book piracy etc. these kinds of challenges need the online medium to tackle the problems of new era.

As we want to establish that the online education is the new normal; because traditional education with physical resources is necessary but has its own challenges in form of infrastructural facilities, rigidity in teaching-learning processes, constraints like access limitation, resource person availability for collaboration, multiple expertise at the particular moment, efficient assessment processes, and other. These kinds of challenges can easily tackle by the online education, but there is question of physical engagements, emotional intelligence and empathy toward the differently able learner which can be emphasizing on traditional Educational methods.

Hence as per the National education policy of 2020, there is best option in the form of blended learning and the use of online educational method by giving teacher with the facilitator responsibility. (National Education policy, 2020)

Online Education also facing the challenges as:

1. Weak student feedback and engagement: (i) weak feedback: online platforms often provide insufficient feedback mechanisms for students. (ii) social isolation: the lack of physical interaction can lead to social isolation and poor communication skill development. (iii) reduce engagement: digital distractions can reduce focus and productivity, with entertainment easily accessible
2. Motivation and integrity issues: requires strong self-motivation: students need strong self-discipline.
3. Access issues: due to the poor internet connectivity in remote areas there will be the difficulty in education
4. Digital illiteracy: lack of digital skills and resistance to technology also can be the challenge to online education.
5. Domestic and social challenges. (bosamia, 2013)

Despite these challenges the Traditional educational need the methods of online education, for the effective teaching-learning process, and holistic development of student need the collaboration of teachers with digital infrastructure. In the contemporary era online medium becomes the cornerstone for the application of teaching-learning methods, and hitherto Traditional education is the necessary factor of the development of students from early childhood but with complete dependence on online education in covid19 pandemic era, paves the way for the blended teaching-learning process and it ensures the fact that Online education is the New Normal. (Government Initiatives to ensure continuity of Online Teaching-Learning)

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Teaching and Learning

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Abstract:

The process of teaching and learning is the cornerstone of educational systems worldwide, driving the intellectual and social development of individuals. This research paper explores the key aspects of teaching and learning, examining the role of pedagogy, instructional strategies, learning environments, and the influence of cultural contexts in shaping educational outcomes. Drawing on perspectives from Indian scholars, the paper presents a comprehensive review of the dynamic interaction between teaching methodologies and student learning experiences. It further investigates the impact of technology, teacher-student interaction, and the evolving demands of the educational system in India. The study highlights the importance of personalized learning, culturally responsive teaching, and the integration of traditional and contemporary educational practices. Through a combination of qualitative and quantitative data, the paper concludes by offering insights into improving the effectiveness of teaching and learning processes in the Indian context.

Keywords: Teaching, Learning, Pedagogy, Instructional Strategies, Educational Systems, India, Technology, Student-Centric Learning

Introduction:

Teaching and learning are fundamental components of education, shaping the way students acquire knowledge, skills, and attitudes. In India, with its rich cultural and educational diversity, teaching and learning take on unique forms, influenced by regional variations, socioeconomic backgrounds, and evolving pedagogical theories. The educational landscape in India is rapidly changing due to the integration of technology, new educational policies, and a shift toward more student-centric learning approaches.

Teaching refers to the methods and strategies used by educators to facilitate learning, while learning refers to the processes through which students absorb, retain, and apply knowledge. The relationship between teaching and learning is inherently dynamic, with effective teaching often being contingent on the learners' needs, background, and cognitive abilities. Indian educational theorists such as R.N. Sharma, S. K. Sharma, and M. S. Thirumalai have contributed extensively to understanding these dynamics in the context of India's diverse educational environment.

This paper aims to provide an in-depth analysis of teaching and learning, considering various dimensions such as pedagogical approaches, cultural influences, and the role of technology, with a particular focus on India.

Objectives:

The main objectives of this research are:

1. To examine the different teaching methodologies and strategies employed in Indian education.
2. To explore the impact of cultural and regional factors on the learning process.
3. To assess the role of technology in enhancing teaching and learning.
4. To analyze the challenges faced by teachers and students in the Indian context.
5. To offer recommendations for improving teaching and learning outcomes in India.

Data and Methodology:

The study is based on secondary data is sourced from relevant academic journals, books, reports, and government publications on education in India.

Results and Discussion:

1. Teaching Methodologies:

Indian educators employ a variety of teaching methodologies, ranging from traditional lecture-based instruction to more modern, student-centric approaches such as project-based learning, flipped classrooms, and collaborative learning. The study finds that while lecture-based teaching is still predominant in many regions, there is a growing emphasis on interactive and participatory methods, particularly in urban and progressive educational settings.

R.N. Sharma (2010) emphasizes the importance of innovative teaching practices that engage students actively in the learning process, thus fostering deeper understanding and critical thinking. Conversely, in rural areas, there is still a reliance on rote memorization and traditional teaching methods, which may not cater to the diverse learning needs of students.

2. Cultural and Regional Influences:

Cultural values play a significant role in shaping both teaching and learning experiences. In India, the teacher-student relationship is often hierarchical, and respect for authority is deeply ingrained in the educational culture. **S.K. Sharma (2015)** suggests that this hierarchy can sometimes limit student participation and creativity in the classroom. However, regional diversity in India means that educational practices vary widely between urban and rural settings, as well as across different linguistic and cultural communities.

For example, students in southern India, where there is a strong emphasis on scientific and technical education, often experience a different learning environment compared to students in northern or northeastern India, where education is more focused on arts and social sciences.

3. Technology in Education:

The integration of technology in Indian classrooms has been a game-changer in recent years. The government's push for digital literacy and the availability of online learning platforms have facilitated a shift towards more flexible and accessible education. **M.S. Thirumalai (2018)** notes that technology has made learning more interactive and personalized, allowing students to engage with resources beyond traditional textbooks.

However, there is still a digital divide, with students in rural areas having limited access to the internet and digital devices. This disparity highlights the need for policies that ensure equal access to technology for all students, regardless of their socioeconomic background.

4. Challenges in Teaching and Learning:

Despite the positive advancements, several challenges persist in the Indian educational system. These include large class sizes, inadequate teacher training, limited resources, and the pressure to perform in high-stakes exams. **R. N. Sharma (2010)** points out that the pressure on teachers to prepare students for competitive exams often leads to a narrowed focus on rote learning, which limits creativity and critical thinking.

Moreover, the transition to a more student-centric approach has been slow, as many teachers are not adequately trained in new pedagogical strategies. The lack of professional development opportunities for teachers further exacerbates this issue.

Conclusions:

In conclusion, teaching and learning in India are evolving, but significant challenges remain. The shift toward more student-centric learning, the integration of technology, and the recognition of cultural diversity in educational practices are key developments that can enhance the quality of education. However, for these changes to be effective, there needs to be greater investment in teacher training, infrastructure, and policies that address regional disparities.

Educators must embrace innovative teaching methods that promote active learning, critical thinking, and collaboration. Furthermore, the government and educational institutions must work together to bridge the digital divide and ensure that all students, irrespective of their geographical location or socioeconomic status, have access to quality education.

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E-marketing and its Impact on Consumer's Satisfaction in Akola District of Western Vidarbha

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Abstract

The present research paper is entitled by "E-Marketing and its Impact on Consumer's Satisfaction in Akola District". The present research study is done in Akola district in the state of Maharashtra. This study is an effort to enquire into the level of satisfaction of the consumers (buyers and sellers) and to understand the depth of E-marketing phenomena in Akola district. This study includes some of the objectives which are mentioned further. The main purpose of the present research paper is to enquire into the scope, findings, conclusions and suggestions regarding E-marketing application, also to find out the gaps and missing links in the studies already done by many of the research scholars in the field of E-marketing. The research is being done by applying the exploratory methods and with interview techniques by preparing a designed questionnaire. This questionnaire is taken to 150 respondents for interview from all the tehsil places of the district. It is tried to find the responses from individuals at micro level in the district. After data collection the data analysis and data presentation are done by applying the Chi-Square Test a statistical tool for testing the hypothesizes. The key findings and the implications of the findings are mentioned in the further. In the present research paper, the objectives, significance, findings, conclusions, suggestions, and potential applications are given. Also, it is tried to provide the directions for the further studies in the concerned research work.

Keywords: E-mail-Electronic mail, SMS-Short Message Service, WTO-World Trade Organization, ATM-Automated Teller Machine, BPO-Business Process Outsourcing, KPO-Knowledge Process Outsourcing,

Introduction

The introduction describes a brief overview of this research paper. This title of research has deliberately been chosen for the purpose to understand the penetration of E-marketing concept and its impact on consumer satisfaction in the district of Akola in the state of Maharashtra. It is an attempt to know the depth of public understanding and preference of E-marketing of this district, so as to find out the potential customers for various companies, also government will try to enhance its projects and supplies by formulating appropriate policies. Also, how the customers of this district response to E-marketing. The researcher endeavors to find out the satisfaction level of customers regarding E-marketing in Akola district. The research study is being conducted for the purpose to provide guidelines to corporate sector as well as public sector to do trade and supplies the goods and services which will be bought and sold by the buyers and sellers of this district.

In this research paper, it is tried to explain the satisfaction level and the significance of the research study. The questions are kept into focused in relevance with the consumer satisfaction with E-marketing in Akola district. What would be the importance or significance of E-marketing study in this area it tried to search out.

Objective of the Study

- To find out the consumer satisfaction with E-marketing in Akola district

Literature Review

Many managers face the problem of customer satisfaction in many situations; inadequate personnel to attend clients, crowded telephone lines and minimal banking hours (Abdullah, 1996). This is especially valid in Libya, a developing nation where there is a lack of structure in the banking community (Ramadan & Aita, 2018). Therefore, in order to gain customer satisfaction, Libyan financial institutions are expected to spend more resources and carry out study on direct banking facilities (Ahmadi Danyali, 2018). The biggest challenge confronted by Libyan banks is that most of them are now powered by obsolete systems (Ofori, Boateng, Okoe, & Gvozdanovic, 2017). Another challenge is the shortage of professional and qualified workers, which essentially describes their consumers' low-quality service output (Ahmida Ali, 2011). Improving customer care can require training procedures or upgrades to the bank's computer information systems (Bapat, 2017). Although

enhancing consumer experience may contribute to increased visible accounting expenses, the frequency of intangible costs may also be steered away (Susanto, Chang, & Ha, 2016). Through studying consumer satisfaction, bankers will build quantitative data, with the hope of emphasising that the focus and quality of excellent customer satisfaction will contribute to enhanced sales that are greater than increased costs.

Research Methodology

The present research study is done by applying Exploratory Research method, it is also known as Formulative Research method. The main purpose of this method is to formulate the problem for more precise investigation or of developing the working hypothesis from an operational point of view. The major emphasis in such studies is on the discovery of ideas and insights. As such the research method appropriate for such studies must be flexible enough to provide opportunity for considering different aspects of a problem under study. The exploratory Research method has the following features in research study.

The steps of exploratory research method.

- Data collection
- Data classification
- Data tabulation
- Data analysis
- Data interpretation

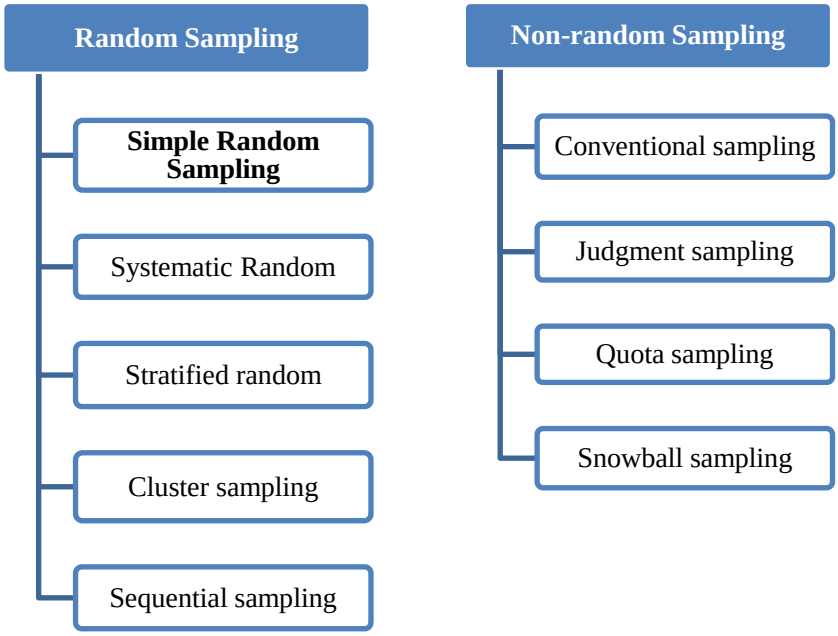
The present research study is conducted on some samples (respondents) that are selected from the total population of each taluka of Akola districts. The sampling is essential because that helps to collect the data because covering the whole population in the research study is not possible.

Sampling Method

The two methods of sampling are given below:

- Random Sampling Method
- Non-random Sampling Method

Simple random sampling is a type of probability sampling in which the researcher randomly selects a subset of participants from a population. Each member of the population has an equal chance of being selected. Data is then collected from as large a percentage as possible of this random subset.



From the above the Simple Random Sampling method of sampling is applied for the present research study.

Hypothesis

In this research study for the purpose of drawing the correct result the two hypotheses are assumed which are given below.

H0: Most of the people of Akola district are not satisfied with E-marketing services

H1: Most of the people of Akola district are satisfied with E-marketing services

Discussion

The present research study has been done for understanding the satisfaction level of the people of Akola district. For this purpose, the exploratory method of research is applied. In this process, a questionnaire which contains the technical questions related to E-marketing and consumer satisfaction are asked to 150 respondents from the entire district including all the tehsils. The sample size which is obtained from the entire district is 150. This means 150 respondents are asked the questions. After this, whatever the data is obtained is analysed by applying Chi-Square Test by using IBM-SPSS Ver.24.0 software. The data is collected through google forms from 7 taluka places of Akola district. The sample size is equally distributed among all the taluka places i.e. 24 sample units from Akola city and 21 sample units from remaining each taluka

place. Based on this analysis the following interpretation is done.

Data Analysis- Empact of E-marketing on Consumer Satisfaction

Consumer Satisfaction		Akola District with All Tesils							
		1 Akola	2 Telhara	3 Akot	4 Balapur	5 Murtizapur	6 Patur	7 B.Takali	Total
1. Fully Satisfied	Count	6	5	6	4	1	2	4	28
	% with Fully Satisfied	21.40%	17.90%	21.40%	14.30%	3.60%	7.10%	14.30%	100.00 %
	% with Tehsil	25.00%	23.80%	28.60%	19.00%	4.80%	9.50%	19.00%	18.70%
2. Satisfied	Count	10	9	6	10	18	12	13	78
	% with Fully Satisfied	12.80%	11.50%	7.70%	12.80%	23.10%	15.40%	16.70%	100.00 %
	% with Tehsil	41.70%	42.90%	28.60%	47.60%	85.70%	57.10%	61.90%	52.00%
3. Averagely Satisfied	Count	7	5	7	3	2	5	4	33
	% with Fully Satisfied	21.20%	15.20%	21.20%	9.10%	6.10%	15.20%	12.10%	100.00 %
	% with Tehsil	29.20%	23.80%	33.30%	14.30%	9.50%	23.80%	19.00%	22.00%
4. Not Satisfied	Count	1	2	2	4	0	2	0	11
	% with Fully Satisfied	9.10%	18.20%	18.20%	36.40%	0.00%	18.20%	0.00%	100.00 %
	% with Tehsil	4.20%	9.50%	9.50%	19.00%	0.00%	9.50%	0.00%	7.30%
Result	Consumer Satisfaction Level	24 16.00% 100.0%	21 14.00% 100.0%	21 14.00% 100.0%	21 14.00% 100.0%	21 14.00% 100.00%	21 14.00% 100.0%	21 14.00% 100.0%	150 100.0% 100.0%

The above table makes the analysis of the collected data from the respondents of Akola district and after applying the Chi-Square Test a statistical tool to find out the significant relationship between tow variables are given blow.

Chi-Square Test

	Value	d.f.	Asymp. Sig. (2-Sided)
Pearson Chi-Square	24.990[b]	18	0.125
Likelihood Ratio	27.772	18	0.066
Linear-by-Linear Association	0.07	1	0.791
N of Valid Cases	150		

a. District= 1 Akola

b. 20 cells (71.4%) have expected count less than 5. The minimum expected count is 1.54.

Result

The above table shows the significant relationship between two variables after testing the Chi-Square Test with the help of SPSS Ver.24.0. This shows that the P value of table is less than 0.05. Therefore, here Null hypothesis (H0) is rejected and Alternative hypothesis (H1) is accepted that most of the people in Akola district are satisfied with buying and selling through E-marketing.

Conclusion

In Akola District, E-marketing strategies, when effectively implemented, can significantly boost consumer satisfaction and drive purchase decisions, particularly in sectors like apparel and solar energy. Studies indicate that quality and competitive pricing are key drivers of customer satisfaction in the apparel market. For E-business, many businesses can leverage E-marketing to understand customer needs and improve services. Digital marketing services, including local SEO and social media, are also crucial for beauty salons and other businesses in Akola to reach their target audience and increase visibility. Therefore it can be said that there is a good environment for E-business, and E-marketing with good scop in the field of Akola district in future.

Suggestions

1) ***To Enhance the Women Involvement:*** In the process of data collection, it is found that except cities the women involvement at taluka and village places is lesser than men in Western Vidarbha due to being a backward region in the state of Maharashtra. So, it is suggested to enhance the women involvement by organizing awareness programmes about buying and selling transaction through E-marketing.
2) ***To Provide Essential Infrastructure:*** From the current research study, it is found that majority of the people use the services of E-marketing, there is a huge scope for E-marketing services

in the region of Western Vidarbha. It is a very high possibility to get this region flourished by the services of E-marketing, but for this purpose it is very suggested to set up the required strong infrastructure facilities like Internet towers, low-cost electronic devices, various business applications and their information etc.

3) ***To Control Internet Cost:*** It is recommended after this research study that there is a very good scope and opportunity for E-marketing business in Western Vidarbha. But the internet cost now a days in India (including Western Vidarbha) is gradually increasing which are going beyond the affordability of common people. This may create an obstacle in the growth of E-marketing and consumer satisfaction in this region. So, it is suggested to control the internet prices.

4) ***To Organise Awareness Campaigns:*** This research study says that the majority of the people of Western Vidarbha are literate, satisfied and needed of E-marketing services. But some of them are illiterate, not satisfied and not need of E-marketing. For these people the economic and social awareness campaigns are suggested to organise for the E-marketing literacy and awareness among public in Western Vidarbha.

5) ***To Reduce GST on Internet and Mobiles Phones:*** The applicable GST on internet services is 18% and that of on mobile phones also 18%, this the highest rate of GST for consumers, it is suggested to government to reduce up to 12% the GST rate on internet services and mobile phones so as more people would be able to use E-marketing services and the E-marketing business will get boost in this region.

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Subaltern Perspective in the Works of Mulkaraj Anand

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Abstract:

Mulk Raj Anand, a prominent figure in Indian English literature, is celebrated for his unflinching portrayal of marginalized and oppressed communities in India. His works offer a powerful lens through which to examine the subaltern perspective, giving voice to those historically silenced and excluded from mainstream narratives. This paper analyzes how Anand's novels and short stories, particularly *Untouchable*, *Coolie*, and *The Village*, articulate the experiences, struggles, and resistance of subaltern groups, including Dalits, laborers, and peasants. It explores the social, economic, and cultural forces that shape their lives and examines Anand's contribution to representing subaltern consciousness in Indian literature.

Mulk Raj Anand (1905-2004) stands as a pivotal figure in the landscape of Indian English literature, renowned for his unwavering commitment to social realism and his powerful portrayal of marginalized communities.

His works offer a crucial entry point for understanding the subaltern perspective, a concept central to postcolonial studies and critical theory.

The term "subaltern," originating from Antonio Gramsci's analysis of power dynamics and later significantly developed by the Subaltern Studies Group, denotes those groups in society who are subjected to the hegemony of dominant classes and are thus excluded from participation in dominant narratives and power structures. In the Indian context, this encompasses a diverse range of marginalized groups, including Dalits (formerly termed "untouchables"), lower castes, landless laborers, impoverished peasants, women, and other socially and economically disadvantaged populations.

These groups are often denied agency and voice within mainstream historical and cultural discourses. Anand's literary project was deeply rooted in a profound empathy for these subaltern communities. He dedicated his writing to giving voice to their experiences of oppression, exploitation, and resistance within a society deeply stratified by the rigidities of the caste system, economic disparities, and the overarching influence of colonial power. His novels and short stories are not merely fictional narratives; they serve as powerful social documents, exposing the harsh realities of poverty, discrimination, and the struggle for survival in pre- and post-independence India.

Anand sought to challenge the dominant narratives that often silenced or misrepresented the experiences of the subaltern, offering instead a nuanced and compassionate portrayal of their lives. This research paper delves into the representation of the subaltern perspective in Anand's key works, primarily focusing on *Untouchable* (1935), *Coolie* (1936), and *The Village* (1939), but also drawing upon other relevant texts. It analyzes how Anand articulates the social, economic, and cultural forces that shape the lives of subaltern characters, examining their struggles for dignity, their acts of resistance—both overt and subtle—and the psychological impact of systemic oppression. The paper will also explore the narrative strategies Anand employs to convey these perspectives, considering the use of language, characterization, and narrative structure.

By examining Anand's engagement with the realities of subaltern existence, this research aims to illuminate his significant contribution to representing subaltern consciousness in Indian literature and to assess the enduring relevance of his work in understanding contemporary social justice concerns. Furthermore, it will consider the complexities and limitations inherent in any attempt to represent the subaltern, acknowledging the ongoing debates within subaltern studies regarding voice, representation, and the agency of the marginalized

Keywords: Oppression, Resistance, Social Realism, Postcolonial Literature.

Introduction:

Mulk Raj Anand's literary project was deeply rooted in a commitment to social justice and a desire to represent the realities of the most marginalized sections of Indian society.

His works provide a valuable entry point for understanding the subaltern perspective, a concept that has gained prominence in postcolonial studies. The term "subaltern," derived from Antonio

Gramsci's work, refers to those groups in society who are subject to the hegemony of the dominant classes and are excluded from positions of power and influence. In the Indian context, this includes

Dalits (formerly known as "untouchables"), lower castes, landless laborers, poor peasants, and other marginalized communities. Anand's novels and short stories give voice to these historically silenced groups, offering insights into their experiences of oppression, exploitation, and resistance.

This paper will analyze how Anand's works articulate the subaltern perspective, focusing on the social, economic, and cultural forces that shape their lives and their struggles for dignity and recognition.

Objectives:

- To Define and contextualize the concept of the subaltern in relation to Anand's works.
- To analyze how Anand portrays the experiences of Dalits and other lower castes, focusing on the impact of the caste system.
- To examine the depiction of working-class experiences, including laborers and peasants, and their struggles against economic exploitation.
- To explore the forms of resistance, both overt and subtle, employed by subaltern groups in Anand's narratives.
- To Assess Anand's contribution to representing subaltern consciousness in Indian English literature.
- To Connect Anand's portrayal of subalternity to broader postcolonial and social justice concerns.

Literature Review:

Archana Eknathrao Salunke her work, “Exploring Social Injustice: Mulk Raj Anand Portrayal of Power, Oppressed, and Human Rights Struggles” says, Mulk Raj Anand's impactful literary contributions, particularly "Untouchable" and "Coolie," stand as powerful critiques of societal power dynamics and the resulting oppression of marginalized groups. His writing vividly portrays the characters and their experiences, illuminating the stark realities of discrimination and inequality. Anand's narratives don't merely depict suffering; they advocate for a world grounded in justice and compassion.

His enduring legacy rests on his unique ability to evoke empathy within the reader. By immersing us in the lives of the oppressed, he compels introspection, forcing us to examine our own complicity in societal injustices. More than just documenting hardship, Anand's work catalyzes social change. He uses literature as a tool to ignite a desire for a better future. Anand's exploration of power structures and their abuse is both comprehensive and nuanced. He doesn't offer simplistic explanations but delves into the intricate complexities of social hierarchies. He meticulously unravels the ways in which these systems perpetuate inequality and the immense struggles faced by those on the margins.

His work offers profound insights into the human cost of systemic oppression. As a staunch advocate for human rights and social justice, Mulk Raj Anand's influence continues to resonate. His writings serve as a call to action, inspiring readers to confront injustice wherever it exists.

He encourages us to actively participate in building a more equitable and just society for all, leaving behind a legacy of social consciousness and change. The theoretical framework of subaltern studies, originating from the Subaltern Studies Group in the 1980s, provides a crucial lens for analyzing Anand's work. The group, comprised of scholars like Ranajit Guha, Dipesh Chakrabarty, and Gayatri Spivak, sought to recover the history and agency of subaltern groups, challenging the dominant narratives of Indian history that focused primarily on elite figures and institutions.

Dr. Vishnu Kumar his article, “Reflection of Social Evils and Humanism in the Major Novels of Mulk Raj Anand” says, the author believed untouchability was one of India's most terrible social problems, one that Western theories couldn't fully explain. These Western ideas failed to grasp the complexities of caste and untouchability.

The author explored these themes in novels like "Untouchable" and "Coolie," as well as in numerous short stories. Western models of criticism often assume a space for rebellion, but the author argued that this didn't apply to the untouchable.

Bakha, the protagonist in "Untouchable," couldn't rebel against the rigid caste system (Varnashram). Caste, the author suggests, was a more powerful force than class. In "Coolie," Munoo's suffering stems from the class system, but within that system, there's room for a kind of resistance.

Munoo can, in a way, fight back against the inhumane treatment he faces.

Both Bakha and Munoo represent universal suffering and exploitation. Their experiences, rooted in caste and class, sadly mirror the struggles of laborers and lower-caste individuals even today.

The author aimed to portray the harsh realities faced by the poor and untouchables, hoping to raise awareness and encourage people to embrace humanism. Before India's independence, the author's novels primarily focused on casteism, untouchability, the oppression of women, and the exploitation of the poor and children. A key point the author made was that while a slave might change masters, an untouchable couldn't change their caste or profession due to the strict social structure.

The author was skilled at portraying the hardships of the most vulnerable members of society, giving voice to their struggles and advocating for change.

Ranajit Guha's work on peasant insurgency and the "prose of counter-insurgency" has been particularly influential in shaping the field.

He emphasized the need to read historical documents against the grain to uncover the voices and perspectives of the subaltern. Gayatri Spivak's essay "Can the Subaltern Speak?" raised critical questions about the representation of subalternity, particularly in academic discourse. She argued that the subaltern is often represented by intellectuals and cannot truly speak for themselves.

This debate has been crucial in highlighting the complexities of representing marginalized voices.

Dalit literature, written by authors from the Dalit community, has also played a significant role in giving voice to subaltern experiences. Authors like B.R. Ambedkar, Sharankumar Limbale, and Om Prakash Valmiki have provided powerful accounts of the lived realities of caste discrimination and the struggle for social justice.Critics have also analyzed Anand's work within the context of social realism in literature. His novels are seen as a powerful reflection of the social and economic conditions of his time, offering a realistic portrayal of the lives of ordinary people.

Analysis of the Subaltern Perspective in Anand's Works:

Resistance and Agency:

While Anand's works depict the suffering and oppression of subaltern groups, they also highlight their resilience and agency. Bakha's dreams of a different life, his desire for education and social mobility, represent a form of resistance against the caste system. In *Coolie* and *Two Leaves and a Bud*, the workers' occasional acts of defiance, such as strikes and protests, demonstrate their refusal to passively accept their exploitation. Anand's portrayal of resistance, even in its limited forms, suggests that subaltern groups are not simply passive victims but active agents in their own lives.

The Limits of Representation:

While Anand's contribution to representing subalternity is significant, it is important to acknowledge the limitations of his perspective. As a member of a relatively privileged caste, Anand's representation of Dalit experiences has been subject to some criticism. It is crucial to consider the perspectives of Dalit writers themselves, who offer firsthand accounts of their lived realities.

However, Anand's work remains valuable for its attempt to give voice to the marginalized and for its contribution to raising awareness about social injustice.

Caste and the Subalternity of Dalits:

Untouchable is a landmark work in its depiction of the subalternity of Dalits. The novel's protagonist, Bakha, is an "untouchable" sweeper who experiences daily humiliation and discrimination due to his caste. The novel exposes the brutal realities of untouchability, including social segregation, forced labor, and denial of basic human rights.

Bakha's internal struggles, his longing for dignity and acceptance, reflect the psychological impact of caste oppression. Anand's portrayal of Bakha challenges the dominant narratives that dehumanized Dalits and presented them as inherently inferior.

Class and the Subalternity of Laborers and Peasants:

Coolie portrays the exploitation of the working class through the experiences of Munoo, a young boy from a lower caste who is forced to work in various exploitative environments.

Munoo's journey takes him from the village to the city, where he encounters different forms of exploitation, including domestic service, factory work, and rickshaw pulling. The novel highlights the vulnerability of the poor and their susceptibility to exploitation by landlords, moneylenders, and employers. *Two Leaves and a Bud* focuses on the plight of tea plantation workers in Assam, depicting their harsh working conditions, low wages, and exploitation by British planters.

These works demonstrate Anand's commitment to representing the subalternity of the working class and their struggles against economic injustice.

Conclusion:

Mulk Raj Anand's works offer a valuable lens for understanding the subaltern perspective in Indian society. His novels and short stories provide powerful portrayals of the experiences, struggles, and resistance of marginalized groups, including Dalits, laborers, and peasants.

By giving voice to these historically silenced communities, Anand has made a significant contribution to Indian English literature and to the broader discourse on social justice.

His works continue to be relevant today, as many of the social inequalities he depicted persist in various forms.

By engaging with Anand's work and the theoretical framework of subaltern studies, we can gain a deeper understanding of the complexities of social oppression and the importance of amplifying marginalized voices.

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Consumer Loan Market: A Study on consumer behaviour and decision-making

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Abstract

This study explores consumer behaviour and decision-making processes in the consumer loan market considering factors affecting it. The study examines the importance of various factors like interest rates, fees, customer services, lender reputation and so many other factors affecting consumer behaviour. The study was done with 108 samples after editing all questionnaires, especially from those who have some kind of consumer loan in their name. It is found that demographic factors influence consumer behaviour while availing of these loans. It is found that lending agents, financial advisors, reviews on loans, and media play a major role in creating demand for consumer loans in the market. The study found that the consumer's loans as a necessity in the consumer market have a strong positive relationship with consumer behaviour and their decision-making for availing these loans.

Key words: Consumer loan, consumer behaviour, decision making

Introduction to the Consumer Loan Market

The consumer loan market is one of the segments of the financial service industry, in which credit or loans are made available to the consumer by many loan providers to fulfil their need for finance. Consumer loans play a vital role in enabling the needy to get the funds they need for different purposes. Consumer loans are mainly influenced by several factors such as interest rates, economic conditions, technological innovations and consumer needs. There are different types of consumer loans such as personal loans, educational loans, credit loans, automobile loans, payday loans etc. These loans are extended by banks, online lending apps and financial institutions. There is ever ever-increasing demand for consumer loans in India. There are different reasons behind availing these loans by the consumers. Most of the time, the loans are raised for consumables or personal needs. These loans are interest rate-based and are subject to be affected by changes in the business environment.

Consumer behaviour for Consumer Loans:

In the context of consumer loans, consumer behaviour refers to the decision-making process and consumer preference while seeking these loans and trying to avail them. Consumer behaviour plays an important role in enabling lenders, policymakers and finance service providers to come up with specific types of consumer loans needed by consumers. Consumer behaviour is affected by many factors related to the desired consumer loans. Such as :

1. Specific financial needs of the consumers
2. Consumer creditworthiness and CIBIL
3. ost of borrowing
4. Financial literacy and tolerance of risk
5. Regulatory awareness
6. Digital adoption and convenience
7. Social and cultural influences
8. Behavioural factors

Recent Trends Behind Consumer Loans:

Consumer loans are in more demand due to the shift toward digital platforms and easy access to loans from different apps. The repayment flexibility and EMI facility also influence consumers to demand more such loans. Simplified processes, different lending options, different interest rates and knowledge of debt management have made consumer loans more popular among loan consumers.

Review of Literature

Adam (2022)

studied 800 consumers and found out the trends in lending and consumer satisfaction. They used the snowball sampling method to reach out to the consumers. The study was based on a mixed method consisting survey and a focus group method. The main objectives of the study were to assess the satisfaction levels of consumers using digital lending platforms and to find out key factors affecting their satisfaction. They found that digital lending satisfaction is primarily driven by processing speed and ease of use.

Agarwal et al. (2021)

carried out a study on 600 consumers to find out the impact of digital lending on consumers' loan preferences by using random sampling. They used mixed methods for this study. The main objectives of the study were to investigate consumers' preference for digital lending and to assess the impact of such lending on the traditional demand for loans. They found that digital platforms have gained preference due to speed, convenience and access to loan demand.

Choudhari (2017)

studied 350 samples to find out the influence of the socio-cultural factors on the borrowing behaviour of the consumers. They did a qualitative study using a case study by using snowball sampling. The main objectives of the study were to examine how socio-cultural factors influence consumer borrowing behaviour and to understand the role of the family in loan decision-making.

Davis (2018)

Carried study on 750 consumers to know the influence of economic conditions on the demand for loans. They used longitudinal studies to get the data through systematic sampling. The main objective of the study was to examine the effect of microeconomic conditions on consumers' demand for loans. And to analyse consumers' sensitivity to changes in interest rates. They found that the loan is highly sensitive to changes in interest rates and economic stability.

Green and Brown (2016)

Studied 600 consumers to find out about regulatory changes in consumer loan behaviour. They used cluster sampling to get the data. The study was quantitative in nature and a survey method was used. The main objectives of the study were to analyse how changes in lending regulations affect consumer loan behaviour and to evaluate their awareness. They found that the regulations and caps on interest rates affect borrowing and borrowing gets reduced.

Johnson and Lee (2019)

Carried study on 300 respondents using stratified sampling to find out the impact of credit score awareness on the loan behaviour of consumers. The study was quantitative. The main objectives of the study are to analyse the impact of credit score awareness on borrowing behaviour and to explore differences in loan terms. They found that the increased credit score awareness leads to consumers obtaining loans with lower interest rates.

Joshi (2018)

Carried study on 700 consumers to find out the factors affecting home loan preferences in India. They used stratified sampling to collect the data by using the quantitative survey method. The main objectives of the study were to identify keywords influencing home loans among Indian consumers and to examine the role of interest rates on loan tenure and choices. They found that interest rates and loan tenure are the most significant factors in home loan decision-making.

Martin and Wong (2017)

carried study on 400 consumers to know their trust in financial institutions by using purposive sampling. The study was qualitative. The main objective of the study was to explore the factors that contribute to consumer trust in lending institutions. And to understand transparency in consumer trust. They found that transparency and clear communication are crucial in building consumer trust.

Nair and Bhat (2020)

surveyed 500 consumers to find out about digital financial literacy and consumer loan adoption. They used stratified sampling to collect data by survey method. The main objective was to find out the relationship between loan adoption and financial literacy and to know the impact on borrowing behaviour. They found that, the higher the financial literacy, the more use of online platforms by the consumers for loan adoption.

Patel et. al (2021)

conducted a study on 1000 consumers to know their financial literacy and borrowing habits. They used a mixed method using surveys and interviews to find investigate relationship between financial literacy and borrowing. They also found demographic factors that affect financial literacy. The study was based on the dependent variable of borrowing and independent variables such as financial literacy, income and education. They found that financial literacy is strongly correlated with borrowing by younger and lower-income groups.

Rao and Iyer (2022)

carried out a study on 550 consumers to study the role of financial inclusion in enhancing loan uptake. They used a systematic sampling method and data was collected by survey method. The main objective of the study was to evaluate the effectiveness of financial inclusion in loan uptake. They found that inclusion programmes have a positive impact on loan uptake and there is a need for more awareness.

Sharma and Gupta (2019)

Studied 450 consumers' behaviour towards personal loans in urban India. They used convenient sampling and data was collected through the survey method. The main objectives of the study were to analyse factors influencing the choice of personal loans in urban areas and to find out the role of income and financial literacy in loan decision-making. They found that income and FL have a significant impact on personal loan choices among consumers.

Smith et.al (2020)

Conducted a study on 500 samples in the area of consumer loan preferences and digital platforms by using random sampling. The study was quantitative and the main objective of the study was to examine the preference for digital loan platforms and to assess the factors influencing loan adoption. They found that more than 75 per cent of consumers prefer these loans with trust.

Verma and Singh (2020)

Carried study on 500 consumers to understand the awareness and perception of loan products in rural areas. They carried out purposive sampling lacking exact data of the consumers. The study was qualitative. The main objectives of the study were to understand the awareness level about different loan products in rural areas. And to explore the perception of FIs in rural areas. They found that awareness about loans is low in rural areas and there is a lack of trust.

Objectives of the study

To identify key Factors that Influences Loan Decisions by the consumers

To examine the Impact of Demographic features on Loan Preferences

To determine Common Sources of Information and Decision-Making Patterns

Hypotheses of the study:

H1: Consumers prioritize interest rates over other factors when choosing a lender.

H2: Age and income, Education, and Gender significantly influence the types of loans consumers prefer and their decision-making processes.

H4: Consumers who use comparison websites and online reviews are more likely to choose lenders with better customer satisfaction ratings.

Significance of the study:

This study is highly significant as it is fruitful to all its stakeholders such as consumers, regulators, financial institutions etc. after understanding how consumers buy or demand these consumer loans and make decisions for availing them, helping the lenders to introduce the loan best-suited to the needs of the consumers. Financial institutions can design and customize the loan product accordingly. This study will also help in financial inclusion making others more aware of consumer loan markets. The study would help in risk management and technological innovation. The study will also help in increasing consumer confidence in such loans.

Methodology of the study:

To carry out this study, responses from 108 respondents were collected to understand the type of consumer loans they demand and their decision-making for particular consumer loans. The data was collected through a structured questionnaire consisting closed closed-ended and Likert scale questions. The secondary data was collected from various articles published related to consumer loans, consumer behaviour and financial behaviour.

Analysis of the data **Objective 1:** Identify Key Factors Influencing Loan Decisions.

Table 1: Factors Influencing Loan Decisions

Factor	Mean	Std. Deviation	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)
Interest Rate	4.6	0.785	1.9	0	7.4	17.6	73.1
Fees	4.14	0.985	3.7	1.9	14	37.4	43
Repayment Period	4.32	0.759	0.9	0	12	39.8	47.2
Customer Service	4.37	0.804	0.9	0.9	12	32.4	53.7
Lender's Reputation	4.22	0.95	2.8	1.9	13.9	33.3	48.1

1. Interest Rates: With a mean score of 4.60 and 73.1% of respondents strongly agreeing, interest rates are the most influential factor in consumer decision-making, highlighting their critical importance.
2. Repayment Period & Customer Service: Both repayment period and customer service are highly valued, showing strong agreement and significant influence on loan decisions.
3. Fees & Lender's Reputation: While fees and lender reputation are important, they exhibit more variability in how they are perceived, suggesting their influence varies among individuals.
4. Overall Conclusion: Financial factors like interest rates and repayment terms take precedence, with service and reputation being important but secondary considerations in lender selection

Hypothesis 1: Consumers prioritize interest rates over other factors when choosing a lender.

Table 2: Paired Samples T-Test Results

Comparison	Mean Difference	Std. Deviation	t-value	Degrees of Freedom (df)	p-value
Interest Rate vs. Repayment Period	0.278	0.695	4.154	107	0
Interest Rate vs. Fees	0.467	0.793	6.096	106	0
Interest Rate vs. Customer Service	0.231	0.982	2.449	107	0.016
Interest Rate vs. Lender's Reputation	0.38	1.048	3.766	107	0
Repayment Period vs. fees	0.187	0.848	2.279	106	0.025
Repayment Period vs. Customer Service	-0.046	0.79	-0.609	107	0.544
Repayment Period vs. Lender's Reputation	0.102	0.853	1.241	107	0.217
Fees vs. Customer Service	-0.234	0.937	-2.578	106	0.011
Fees vs. Lender's Reputation	-0.084	1.056	-0.824	106	0.412
Customer Service vs. Lender's Reputation	0.148	0.807	1.909	107	0.059

Interest Rates:

Interest rates are the highest-priority factor, with statistically significant differences over the repayment period, fees, and lender reputation ($p < 0.001$). They are also rated higher than customer service, albeit with a smaller gap ($p = 0.016$).

Repayment Period:

Although less important than interest rates ($p < 0.001$), the repayment period remains critical and is prioritized over fees ($p = 0.025$) and customer service ($p = 0.544$).

Fees:

Fees are significantly less important than interest rates ($p < 0.001$) and repayment periods ($p = 0.025$), but they rank higher than customer service and lender reputation.

Customer Service:

Rated similarly to fees, customer service is more important than lender reputation ($p = 0.059$) but less critical than financial factors like interest rates.

Lender's Reputation:

The least prioritized factor, lender reputation ranks below interest rates ($p < 0.001$), repayment period ($p = 0.217$), and customer service ($p = 0.059$), indicating limited influence in decision-making.

Objectives 2:

Examine the Impact of Demographics on Loan Preferences:

The demographic profile of the sample indicates a diverse range of participants, but with some notable trends:

Age:

The majority of respondents are relatively young, with 81.5% falling into the 18-34 age range. This suggests a predominance of younger individuals in the sample, which may influence their loan preferences towards products suited for younger consumers, such as student or personal loans.

Gender:

The sample is relatively balanced in terms of gender, with a slight male majority (56.5%). This balance should help in analysing gender differences in loan preferences.

Income:

The distribution of income levels is varied, with the largest groups in the lower to middle-income brackets (less than 20,000 and 20,000 - 39,999). This suggests that loan preferences may be influenced by financial constraints and priorities typical of these income levels.

Education:

Most respondents hold a Master's degree (60.2%), followed by those with Bachelor's degrees (32.4%). This higher educational background may correlate with preferences for loans that support advanced education or professional development.

Employment Status:

A significant proportion of respondents are employed full-time (62%), while a smaller portion is part-time or self-employed. Employment status may

impact loan needs and preferences, particularly in terms of job security and income stability.

Overall, these demographic factors are likely to play a crucial role in shaping loan preferences and decision-making processes.

Table 3: Demographic Statistics

Demographic	Mean	Std. Deviation
Age	1.84	0.877
Gender	1.44	0.498
Income	2.7	1.659
Education	3.62	0.68
Employment Status	1.78	1.113

Hypothesis 2:
Age and income, Education, and Gender significantly influence the types of loans consumers prefer and their decision-making processes.

Table 4: Chi-Square tests for the association between gender and various loan preference factors:

Loan Preference Factor	Chi-Square Value	df	Asymp. Sig. (2-sided)	Conclusion
Interest Rates	5.355	3	0.148	No significant association (p > 0.05)
Repayment Period	1.456	3	0.692	No significant association (p > 0.05)
Fees	6.862	4	0.143	No significant association (p > 0.05)
Customer Service	3.927	4	0.416	No significant association (p > 0.05)
Lender's Reputation	2.502	4	0.644	No significant association (p > 0.05)

Interest Rates:

The Chi-Square result ($\chi^2 = 5.355$, $p = 0.148$) indicates no significant gender-based difference in the importance of interest rates.

Repayment Period:

With $\chi^2 = 1.456$ and $p = 0.692$, male and female respondents view repayment periods similarly.

Fees:

The result ($\chi^2 = 6.862$, $p = 0.143$) shows no significant gender difference in prioritizing fees.

Customer Service:

A χ^2 value of 3.927 and $p = 0.416$ suggests that gender does not influence the importance of customer service.

Lender's Reputation:

The Chi-Square test ($\chi^2 = 2.502$, $p = 0.644$) confirms that both genders value lender reputation similarly.

Table 5:

Chi-Square tests for the association between education level and various factors important in choosing a lender:

Loan Preference Factor	Chi-Square Value	df	Asymp. Sig. (2-sided)	Conclusion
Interest Rates	10.2	12	0.598	No significant association (p > 0.05)
Repayment Period	10.653	12	0.559	No significant association (p > 0.05)
Fees	8.643	16	0.927	No significant association (p > 0.05)
Customer Service	10.458	16	0.842	No significant association (p > 0.05)
Lender's Reputation	19.437	16	0.247	No significant association (p > 0.05)

Interest Rates:

The Chi-Square result ($\chi^2 = 10.200$, $p = 0.598$) shows no significant variation in the importance of interest rates by education level.

Repayment Period:

With $\chi^2 = 10.653$ and $p = 0.559$, education level does not significantly influence the prioritization of repayment periods.

Fees:

The Chi-Square result ($\chi^2 = 8.643$, $p = 0.927$) indicates that the importance placed on fees is similar across education levels.

Customer Service:

A result of $\chi^2 = 10.458$ and $p = 0.842$ shows no significant impact of education level on valuing customer service.

Lender's Reputation:

The Chi-Square test ($\chi^2 = 19.437$, $p = 0.247$) confirms the uniform importance of lender reputation across education levels.

Conclusion:

Education level does not significantly affect preferences for interest rates, repayment periods, fees, customer service, or lender reputation.

Table 6:

Chi-Square tests for the association between employment status and various factors when choosing a lender:

Loan Preference Factor	Chi-Square Value	df	Asymp. Sig. (2-sided)	Conclusion
Interest Rates	7.161	9	0.62	No significant association (p > 0.05)
Repayment Period	2.784	9	0.972	No significant association (p > 0.05)
Fees	12.594	12	0.399	No significant association (p > 0.05)
Customer Service	12.075	12	0.44	No significant association (p > 0.05)
Lender's Reputation	18.437	12	0.103	No significant association (p > 0.05)

Interest

Rates:

The Chi-Square result ($\chi^2 = 7.161$, $p = 0.620$) shows no significant variation in the importance of interest rates across employment statuses.

Repayment

Period:

With $\chi^2 = 2.784$ and $p = 0.972$, employment status does not influence how repayment periods are prioritized.

Fees**:** The result ($\chi^2 = 12.594$, $p = 0.399$) indicates consistent importance placed on fees across employment statuses.

Customer

Service:

A χ^2 value of 12.075 and $p = 0.440$ suggests uniform prioritization of customer service regardless of employment status.

Lender's

Reputation:

The Chi-Square test ($\chi^2 = 18.437$, $p = 0.103$) shows no significant difference in the emphasis on lender reputation by employment status.

Table 7:

Chi-Square test results for the associations between age groups and various factors important when choosing a lender.

Loan Preference Factor	Chi-Square Value	df	Asymp. Sig. (2-sided)	Conclusion
Interest Rates	11.72	12	0.468	No significant association (p > 0.05)
Repayment Period	5.528	12	0.938	No significant association (p > 0.05)
Fees	16.356	16	0.428	No significant association (p > 0.05)
Customer Service	6.818	16	0.977	No significant association (p > 0.05)
Lender's Reputation	14.08	16	0.593	No significant association (p > 0.05)

Interest Rates:

With a p-value of 0.468, age shows no significant impact on the importance of interest rates, which remain equally valued across age groups.

Repayment Period:

The p-value of 0.938 indicates no age-related variation in the importance placed on repayment periods.

Fees:

A p-value of 0.428 suggests fees are perceived as equally important by individuals across different age groups.

Customer Service:

With a p-value of 0.977, customer service is uniformly valued, regardless of age differences.

Lender's Reputation:

A p-value of 0.593 confirms that age does not significantly impact the prioritization of lender reputation.

Table 8:

Chi-Square test results for the association between income and various factors when choosily ender.

Loan Preference Factor	Chi-Square Value	df	Asymp. Sig. (2-sided)	Conclusion
Interest Rates	19.209	15	0.204	No significant association (p > 0.05)
Repayment Period	8.825	15	0.886	No significant association (p > 0.05)
Fees	17.324	20	0.632	No significant association (p > 0.05)
Customer Service	15.352	20	0.756	No significant association (p > 0.05)
Lender's Reputation	16.053	20	0.713	No significant association (p > 0.05)

Interest

Rates:

Income levels do not affect the priority placed on interest rates, indicating their uniform importance across all income groups.

Repayment

Period:

Preferences for repayment periods show no significant variation by income, making it a universally considered factor.

Fees**:** The importance placed on fees is consistent across income brackets, showing no significant association with income levels.

Customer

Service:

The value of customer service remains uniform across income groups, unaffected by differences in income levels.

Lender's

Reputation:

Reputation is uniformly valued across income levels, showing no significant variation by income.

Objective 2:

Determine Common Sources of Information and Decision-Making Patterns:

Table 10: Source of Information: Frequency and Percentage Distribution

Source of Information	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total Responses
Financial Advisors	2 (1.9%)	3 (2.8%)	18 (16.7%)	36 (33.3%)	49 (45.4%)	108 (100.0%)
Directly Contacting Lenders	2 (1.9%)	3 (2.8%)	21 (19.4%)	38 (35.2%)	44 (40.7%)	108 (100.0%)
Comparison Websites	7 (6.5%)	7 (6.5%)	22 (20.4%)	40 (37.0%)	39 (36.1%)	108 (100.0%)
Online Reviews and Ratings	4 (3.7%)	4 (3.7%)	16 (14.8%)	38 (35.2%)	50 (46.3%)	108 (100.0%)
Recommendations from Friends/Family	5 (4.6%)	5 (4.6%)	18 (16.7%)	30 (27.8%)	55 (50.9%)	108 (100.0%)

Financial

Advisors: 78.7% of respondents agree or strongly agree that financial advisors are crucial for researching lenders, underscoring their significant role in loan decisions.

Directly

Contacting Lenders:

75.9% value direct interaction with lenders as an important method for obtaining loan information.

Comparison

Websites: 73.1% find comparison websites useful, highlighting their convenience and comprehensive features for loan research.

Online

Reviews and Ratings:

81.5% consider online reviews essential, emphasizing the influence of user-generated content in shaping lender decisions.

Recommendations

from Friends/Family:

78.7% trust personal recommendations, showcasing the importance of social networks in decision-making.

Table 10: Descriptive Statistics of Sources of Information for Loan Research

Source of Information	Mean	Std. Deviation
Financial advisors	4.18	0.936
Directly contacting lenders	4.1	0.937
Comparison websites	4.03	0.912
Online reviews and ratings	4.24	0.841
Recommendations from friends or family	4.25	0.898

The analysis reveals that respondents generally have a strong inclination toward using recommendations from friends or family (Mean = 4.25) and online reviews and ratings (Mean = 4.24) when researching lenders. These sources have the highest mean scores, indicating a significant preference for these methods. Financial advisors, directly contacting lenders, and comparison websites are also important but slightly less preferred, with mean scores ranging from 4.03 to 4.18.

Hypothesis 3:

Consumers who use comparison websites and online reviews are more likely to choose lenders with better customer satisfaction ratings.

Table 11:

The table provided shows the Pearson correlation coefficients between the use of online reviews/ratings and comparison websites for researching lenders

		How do you typically research lenders before applying for a loan? [Online reviews and ratings]	How do you typically research lenders before applying for a loan? [Comparison websites]
How do you typically research lenders before applying for a loan? [Online reviews and ratings]	Pearson Correlation	1	.576**
	Sig. (2-tailed)		.000
	N	108	108
How do you typically research lenders before applying for a loan? [Comparison websites]	Pearson Correlation	.576**	1
	Sig. (2-tailed)	.000	
	N	108	108

Correlation is significant at the 0.01 level (2-tailed).

There is a moderate to strong positive correlation (r = 0.576) between using online reviews and ratings and comparison websites, indicating that consumers who use one method are likely to use the other as well. This correlation is statistically significant (p = 0.000).

Conclusion:

In analysing consumer behaviour and decision-making in the consumer loan market, the study reveals that interest rates are the most influential factor in loan choices, followed by repayment period and customer service. Demographic factors such as age, income, and education affect loan preferences, with younger and middle-income individuals prioritizing affordability. Comparison websites are frequently used and associated with higher customer satisfaction ratings, emphasizing their role in informed decision-making. Overall, while demographics impact general preferences, specific factors like interest rates remain paramount in influencing loan decisions.

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Omnichannel Marketing: Integration of Online and Offline Strategies

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Abstract:
In today's dynamic marketing environment, the boundaries between online and offline customer interactions are rapidly dissolving. Omnichannel marketing represents a strategic integration of multiple platforms to deliver a seamless and unified customer experience. This paper explores the integration of digital and physical marketing channels, evaluates its impact on consumer behavior, and presents insights into the effectiveness of omnichannel strategies in the retail sector. Through a combination of primary data from consumer surveys and secondary data from industry reports, this study identifies key drivers of successful omnichannel marketing and suggests best practices for businesses aiming to adopt this approach.

Keywords: Omnichannel, Integration, Customer Experience, Retail Marketing

Introduction

In a rapidly digitizing world, the boundaries between physical and digital retail spaces are becoming increasingly blurred. Omnichannel marketing refers to the coordinated and cohesive use of multiple channels—both online and offline—to interact with customers. Unlike multichannel strategies, which operate in silos, omnichannel marketing seeks to integrate all customer touchpoints to ensure consistency and continuity in customer experience.

Objectives:

1. To understand the concept and importance of omnichannel marketing.
2. To analyze the integration of online and offline marketing strategies.
3. To identify key challenges in implementing omnichannel strategies.
4. To evaluate the impact of omnichannel marketing on customer behavior and business outcomes.

Importance of Omnichannel Marketing

Omnichannel marketing is essential for meeting the evolving expectations of today's consumers. Customers now demand personalized, timely, and convenient interactions across all channels. According to a study by Harvard Business Review, 73% of consumers use multiple channels during their shopping journey. Businesses that implement omnichannel strategies can achieve higher customer retention, improved satisfaction, and increased sales.

Key Components of Omnichannel Marketing

1. Customer-Centric Approach

Placing the customer at the center of the strategy involves understanding their journey, preferences, and behavior across channels. Data analytics and customer relationship management (CRM) systems play a vital role in this approach.

2. Channel Integration

Synchronization between physical stores, e-commerce platforms, mobile apps, and social media channels ensures a unified brand experience. Inventory management systems and point-of-sale (POS) integration are critical here.

3. Personalization

Personalized marketing messages and offers based on customer data enhance engagement and loyalty. Technologies like AI and machine learning can automate and optimize personalization.

4. Consistent Messaging

Consistency in brand voice and messaging across all platforms reinforces brand identity and trust. Marketing teams must coordinate campaigns to avoid mixed signals.

Data and Methodology:

This study utilizes secondary data collected from reputable sources such as industry reports, academic journals, company case studies, and market research databases. Quantitative data includes customer behavior metrics and retention rates. Qualitative data includes analysis of case studies and marketing strategies. The methodology involves descriptive research to provide a comprehensive understanding of omnichannel marketing practices and their effectiveness.

Online Strategies in Omnichannel Marketing

1. E-commerce Websites

Well-designed, user-friendly websites serve as the central hub for online transactions and product information.

2. Social Media Marketing
Platforms like Instagram, Facebook, and Twitter allow brands to engage with audiences in real-time, share content, and run targeted ads.

3. Email Marketing
Email remains a powerful tool for direct communication, personalized offers, and transactional updates.

4. Mobile Marketing
Mobile apps, SMS campaigns, and location-based services help brands connect with customers on-the-go.

Offline Strategies in Omnichannel Marketing

1. In-store Experience
Physical stores offer tactile experiences, personal interaction, and immediate product access.

2. Print Advertising
Magazines, newspapers, and flyers continue to be effective for reaching certain demographics.

3. Events and Sponsorships
Brand-sponsored events and trade shows help build community engagement and brand awareness.

4. Call Centers and Customer Service Desks
Human touchpoints remain crucial for resolving issues and providing personalized assistance.

Integration of Online and Offline Channels

1. Click-and-Collect Services
Allow customers to buy online and pick up in-store, merging convenience with immediate access.

2. Unified Customer Profiles
Consolidating data from all channels into a single view enables better service and personalization.

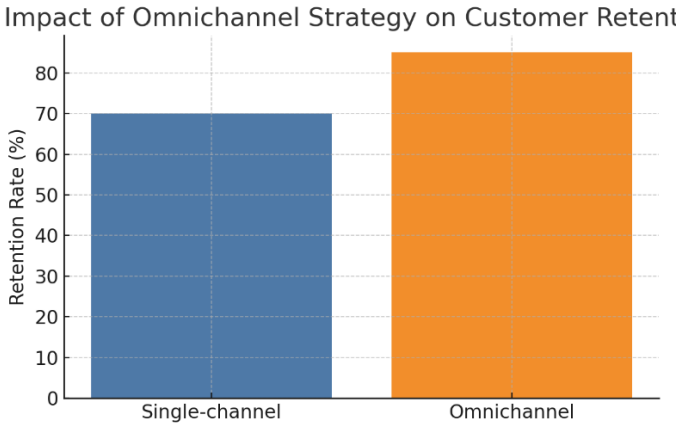
3. Cross-Channel Loyalty Programs
Loyalty points earned online can be redeemed in-store and vice versa, encouraging repeat business.

4. Inventory Visibility
Real-time inventory updates across platforms ensure product availability and reduce friction.

Data and Methodology
This research uses secondary data obtained from:
Industry reports (McKinsey, Deloitte)
Academic journals
Case studies of leading omnichannel businesses (e.g., Nike, Starbucks)
Consumer behavior databases (Statista, HBR)

Methodology:
1. Descriptive research is used to explain the current landscape of omnichannel marketing.
2. Quantitative data includes customer retention rates and omnichannel purchase statistics.
3. Qualitative data focuses on brand strategies and customer engagement practices.
4. Data is visually supported by a chart and a comparison table.

Results and Discussion
1. Businesses that implement effective omnichannel marketing strategies report:
2. Higher customer retention (85% vs. 70% for single-channel)
3. Increased customer spending (10% more online, 4% more in-store)
4. Enhanced brand loyalty due to consistent experiences across platforms



.

Table: Comparison of Online vs Offline Strategies

Attribute	Online	Offline
Reach	Global	Local/Regional
Cost	Generally Lower	Generally Higher
Personalization	High (data-driven)	Moderate
Engagement	Interactive (comments, social)	Personal interaction
Measurabilit	Highly measurable	Less measurable

Conclusion:

Omnichannel marketing has evolved into a necessity for businesses in a highly competitive and digital-first economy. The integration of online and offline channels offers a unified, convenient, and personalized customer journey that drives customer satisfaction and loyalty. While challenges such as data silos, technological integration, and privacy concerns exist, emerging technologies like

AI, AR, and voice commerce are making omnichannel execution more powerful and efficient.

Businesses must stay adaptive, customer-centric, and innovative to thrive in the omnichannel environment.

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Beyond Profit: How Corporate Social Responsibility is Reshaping Indian Society

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Abstract:
This article aims to offer a comprehensive overview of the value propositions found in research supporting the business rationale for Corporate Social Responsibility (CSR). Over the past three to four decades, there has been a consistent uptick in awareness and reporting from organizations of all sizes regarding their societal and environmental impact. Businesses have come to recognize that governmental efforts alone are insufficient to elevate disadvantaged communities. The mandatory nature of CSR has dispelled the notion that profit is the sole objective; instead, it emphasizes that building trust through community engagement is essential for an organization's long-term viability. This piece endeavours to examine the current state of CSR in India and explore the extent to which companies can implement CSR practices. We aim to shed light on CSR initiatives undertaken by Indian corporations, which could potentially benefit both economic and social interests.
The article relies exclusively on secondary data sources and focuses on identifying and assessing the obstacles and difficulties faced by Indian organizations in implementing CSR strategies.

Key words:csr mandate, Socio-environmental progress, Economic advancement, Corporate Social Responsibility (csr),

Introduction:

The relevance of csr has grown substantially in recent years, becoming an increasingly crucial aspect of business operations both domestically and globally. Csr has evolved to encompass both social and economic concerns, expanding its scope over time. Due to pressure from various societal stakeholders, companies have become more transparent in their financial reporting and other activities. It is now imperative for businesses to conduct themselves ethically and responsibly towards diverse societal interest groups and the environment. As a result, organizations have begun integrating their csr initiatives into their overall strategies.

Csr serves as a conduit for businesses to comprehend and address various corporate and societal concerns in alignment with their strategic objectives. Concurrently, there's a widespread emphasis on environmental protection and safeguarding diverse societal interests. As globalization intensifies and multinational corporations expand their reach, they've increasingly recognized the advantages of implementing csr initiatives across their operational locations. Consequently, csr activities have gained global traction. Emerging economies such as India have witnessed numerous firms actively engaging in csr efforts, with the Ministry of Corporate Affairs providing guidelines for corporate adherence.

At its core, csr is about fostering sustainable enterprises, which necessitate robust economies, markets, and communities. The primary catalysts for csr include enlightened self-interest, social investment, openness, credibility, and heightened public expectations of businesses.

Objective of study:

This study primarily seeks to examine the current landscape of csr in India and identify the obstacles and difficulties encountered in its implementation. Of top Indian companies with prescribed guidelines.

Data and methodological approach:

This paper employs an exploratory research methodology, drawing upon secondary data from academic journals, periodicals, articles, and media reports.

Given the study's objectives, a descriptive research design was adopted to ensure greater precision and comprehensive analysis.

The research heavily relies on secondary data, utilizing information from various news articles, literary sources, and online platforms, which have been systematically documented and analyzed.

Literature review:

complexities in aligning csr with organizational ethos and practices, and a lack of institutional commitment to csr. When an organization struggles to justify csr's business relevance or its connection to core operations, it becomes reluctant to allocate resources or time to such initiatives.

Furthermore, these challenges highlight another key finding: respondents predominantly view csr as a tool for managing regulatory impacts, mitigating risks, and addressing stakeholder concerns, rather than as a strategic source of competitive advantage.

McWilliams (2002) posits that csr strategies, when supported by political frameworks and tactics, can be leveraged to build robust organizations with enduring competitive advantages.

Baron (2001) defines strategic csr as the practice of employing csr to appeal to ethically-minded consumers, wherein companies provide public benefits in conjunction with their marketing and business strategies.

Present-day csr landscape in india / exemplary csr practices by indian corporations:

India has seen a significant rise in Corporate Social Responsibility (csr) initiatives, especially since the Companies Act of 2013 mandated that large companies spend 2% of their average net profits on csr activities. Here are some examples of successful csr initiatives in India:

Corporate Conscience: The Evolution Of Business In India

Imagine a world where corporations are not just profit-hungry giants, but gentle giants with a heart. Welcome to the realm of Corporate Social Responsibility (csr) in India, where companies are painting their success stories with brushstrokes of compassion and community care.

1.Tata Group:

The Tata Group has been a pioneer in csr in India, with initiatives dating back to the 1800s.

They run various programs focusing on education, healthcare, livelihood, and rural development.

One notable project is the Tata Consultancy Services' Adult Literacy Program, which has helped over 500,000 adults become literate.

2. Reliance Industries:

Project Drishti: This initiative has restored eyesight to over 20,000 visually impaired Indians from economically weaker sections through corneal transplants.

They also focus on rural transformation, health, education, and sports development.

3. Infosys:

Infosys Foundation: Works on healthcare, education, rural development, and arts and culture.

Their mid-day meal program feeds over 1.6 million children daily in government schools.

4. Mahindra & Mahindra:

Project Nanhi Kali: Supports the education of underprivileged girls.

Mahindra Pride Schools: Provides livelihood training to youth from socially and economically disadvantaged communities. Mahindra & Mahindra has recieved up its csr engine with a unique fuel - employee passion. Their Employee Social Options (esops) program is like a choose-your-own-adventure book for social good, empowering employees to be the heroes in their own csr stories.

5. ITC Limited:

e-Choupal: An initiative that has transformed rural India by empowering over 4 million farmers through the power of the internet and digital technology.

Their afforestation program has greened over 730,000 acres, creating over 135 million person-days of employment.

6. Wipro:

Wipro Cares: Focuses on education for underprivileged children, including children with disabilities.

They also have significant initiatives in community ecology and disaster rehabilitation.

7. Hindustan Unilever Limited (HUL):

Project Shakti: Empowers rural women through micro-entrepreneurship opportunities.

Lifebuoy Handwashing Program: Promotes health and hygiene in rural areas.

8. Bharti Airtel:

Satya Bharti School Program: Provides free quality education to underprivileged children in rural India.

9. Ongc and Indian Oil Corporation:

These oil giants allocate 0.75-1% of their net profits to csr activities. In the 2007-08 fiscal year, oil psus collectively invested Rs. 246.70 crores in csr initiatives.

Ongc's csr projects emphasize higher education, offering scholarships and assistance to promising students from underprivileged backgrounds, and providing resources for school construction.

10. SAIL:

SAIL has implemented successful programs in environmental conservation, healthcare, education, women's empowerment, and provision of clean drinking water.

1. BHEL and Indian Airlines:

Both companies have been recognized for their disaster management efforts. BHEL has also adopted 56 villages, impacting nearly 80,000 residents.

12. The Coca-Cola Company:

Partnered with ndtv for the "Support My School" campaign.

Launched the "5by20" initiative to economically empower 5 million women entrepreneurs across their value chain by 2020. The program has expanded to 12 countries and aims to reach 300,000 women by end of 2012.

Collaborates with deka r&d to provide clean water to communities in need.
Partners with Rotary International to combat polio in India.
Implements programs to improve lives of African women and girls.
Joined (red) to contribute to aids elimination efforts.

13. Reliance Power:

Developed social development policies focusing on:
Balancing social and economic development
Accelerating provision of basic needs
Removing barriers for disadvantaged groups
Prioritizing children's welfare through health, education, and environmental initiatives
Health Initiatives:
At various locations, these companies implement diverse health programs, demonstrating their commitment to improving community well-being and fulfilling their corporate social responsibilities.

The csr obstacle course: challenges and opportunities

Bajaj Electricals is not only brightening homes but also illuminating futures through its commitment to education, rural development, and environmental sustainability. As public awareness of corporate practices increases, companies face heightened expectations to engage in social development.

Despite some skepticism regarding the authenticity of Corporate Social Responsibility (csr) initiatives, csr goes beyond branding; it builds internal identity and enhances reputation. It is a shared responsibility among businesses, governments, and individuals, aimed at benefiting society as a whole.

Modern csr has evolved into a structured aspect of corporate strategy, with dedicated teams creating policies that align with core competencies. Indian companies, including Reliance Industries and Tata Group, actively contribute to community service, focusing on education, healthcare, and environmental conservation. While these initiatives yield positive impacts, discussions continue on maximizing their societal benefits as csr practices evolve.

But the path of csr is not always smooth. It's more like an obstacle course, with hurdles such as:

The Awareness Gap:

csr initiatives often fly under the public radar, lost in a sea of corporate communication.

Ngo Scarcity:

Finding capable local partners can be like searching for a needle in a haystack, especially in remote areas.
The Transparency Tango: Some companies struggle with the dance of disclosure, leading to a trust deficit.The **Visibility Vortex:**

The pursuit of media attention can sometimes overshadow meaningful grassroots work.

The Guideline Maze:

The lack of clear CSR guidelines can leave companies feeling like they're navigating without a map.

Conclusion:

The csr revolution: from profit centres to purpose centres

As society's expectations evolve, businesses are realizing that csr isn't just a fancy accessory - it's the new black in corporate fashion. It's about weaving social responsibility into the very fabric of business operations.

Critics may see csr as a marketing mirage, but in reality, it's cultivating a garden of accountability and reputation. It's a shared responsibility, rooted in the belief that societal wealth should nourish both private and public interests.

Csr is no longer an optional cherry on top; it's becoming the main ingredient in the recipe for business success. It's about aligning corporate actions with public expectations and effectively narrating the story of impact. In this brave new world of business, being a responsible corporate citizen isn't just nice to have - it's a must-have for commercial triumph. It's a paradigm shift from mere profit-making to purpose-driven operations, redefining the very dna of business in society. As we move forward, csr is not just changing how businesses operate; it's revolutionizing why they exist. It's turning corporations from mere money-making machines into architects of positive change, building a bridge between profit and purpose, commerce and compassion.

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Insects: Nature's Tiny Ecosystem Engineers

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Abstract:

Biotic communities are vital for providing ecological functions and ecosystem services. As a dominant from of animal biomass and life on earth, insects represents many different trophic niches. Insects are abundant in all terrestrial ecosystem and display a wide variation among species in almost any aspects of their biology. Insects are the key components in diverse ecosystems as major role players in functioning of ecosystem process. Insects may be beneficial to humans in various ways, directly or indirectly.

A wide range of ecological functions in their natural ecosystems, including biological control of insect pest, soil scavengers, pollination and soil health enhancement. Predators and parasitoids regulate pest populations, reducing the need for chemical pesticides, while pollinators such as bees, butterflies, solitary bees, bumble bees and flies enhance crop yields and quality through effective pollination, soil-dwelling insects contribute to nutrient cycling an soil structure, improving plant health and productivity. Insects are vital for human survival because crops cannot be produced without the ecosystem functions provided by insects. Around 72% of the world's crops are dependent on insects for pollination. Pollinating insects improve or stabilize the yield of three-quarters of all crops types globally. Globally pollination services by insects are estimated to contribute 9.5% to yield of crop production. Sufficient food production for a growing human population has become an issue of global concern.
The global challenge is to make agricultural production environmentally compatible. Beneficial insects are vital components of sustainable crop production system, providing key ecosystem services. Insects have been hugely successful in terms of both species richness and abundance. Insects make up the most numerous group of organisms on earth, around 66% of all animal species and being good dispersers and exploiters of virtually all types of organic matter, can be found almost everywhere, forming an important part of every ecosystem and are vital within our food supply chains performing valuable ecosystem services.

Despite their numerous benefits, the effective integration of beneficial insects is challenged by knowledge gaps in ecological interaction, high implementation costs and environmental pressure such as habitat loss. Habitat management is a key strategy for enhancing the population of beneficial insects. To ensure stable crop yields we need to change the management strategies of agroecosystem. We need to manage these systems in such a way that insects performing valuable ecosystem services are also incorporated into the system.

Awareness of management techniques bringing the beneficial insects into the crop fields is a method forward to enhance agriculture ecosystems for growing crop production. Supportive policies and educational initiatives are necessary to encourage farmers to adopt insect-friendly practices.

Key words: Beneficial Insects, Functional Diversity, Agro-Ecosystem, Habitat Management.

Introduction:

Insects have been gigantically effective in terms of both species abundance and plenitude. Insects and earthly arthropods are seen to be the biggest donors to species abundance. Insects account of around 66% of all known species constituting more than three-quarters of today's worldwide biodiversity.

There are around 1 million species of known insects but as it were around 7%-10% of insects are logically depicted. Since numerous insects species are not however recognized, it is assessed that there can be around eight million species of insects on soil, (Stork n.e. et.al.).

Arthropods are the foremost differing gather of creatures, with 1.7-30 million species assessed to exist. Since it is so diverse, the Phylum Arthropods incorporates a number of subphyla, including Chelicerata (Insects, Scorpions, Bugs etc). Mandibulata (Millipedes and Centipedes).

Crustacea (such as Crabs and Lobsters) and Hexapoda. There are 39 Insects orders, with the foremost species bunch spoken to by the Insects (Order-Coleoptera).

Insects alone account for around 40% of all portrayed arthropod species with an gauge of 1.5 million insect species. Insects live in close to each environment on Soil, from the sands of hot deserts

to cold blanketed mountains streams. Most insects live on arrive infact almost 97% do.

Numerous insects spend all of their life on arrive, such as bees and caterpillars.**Habitat: Land Habitat**-

Insects are found in differing arrive living spaces, counting deserts, timberlands, meadows, mountains and indeed urban zones.

Aquatic Habitats-

A few insects spend portion or all of their life cycle in water such as 1) Dragonflies, which begin as oceanic hatchlings and ended up flying grown-ups. 2) Bees, construct hives in trees, shake hole or underground, scrounging for nectar and dust from blooms, 3) Ants, develop homes within the ground or in trees and shape colonies with distinctive parts for each member, 4) Termites, make complex hills and burrows underground bolstering on wood. 5) Caddisflies, construct defensive cases from materials like sand and stones in oceanic situations, 6) Cockroaches, involve a wide run of habitat counting leaf litter, spoiling wood and splits in dividers, 7) Houseflies, commonly found in homes, nourishment markets, ranches and farms, floating around rotting matter, rubbish dung and human nourishment.

Insects display differing nourishing propensities, extending from herbivory and carnivory to sap-sucking and rummaging with mouthparts adjustments reflecting their diets. A few insects are generalists, bolstering on a wide assortment of plants or creatures, whereas others are pros, limited to particular nourishment sources.

A) Herbivores (Plant eaters) -

Insects like Grasshoppers and Grasshoppers can expend different plants counting grains & crops. Numerous caterpillars are herbivores bolstering on takes off and other plant tissues. Insect species are herbivores with a few bolstering on takes off, roots or natural products. Butterflies utilize their proboscis to drink nectar from blossoms.

B) Carnivores (Meat eaters) –

A few insects are predators effectively chasing and devouring other insects or little spineless creatures. For example, Praying Mantis, these insects devouring other insects. Dragonflies, are airborne predators, capturing insects in flight, bugs are herbivores but a few species are carnivorous, bolstering on aphids and other soft-bodied insets.

C) Sap-Sucking insects-

Numerous insects like aphids and Leafhoppers, have piercing-sucking mouth parts that permit them to enter plant tissue and extricate liquids. Mosquitoes, female mosquitoes bolster on blood, utilizing their piercing-sucking mouthparts to extricate blood from creatures.

D) Scavengers and Detritivores

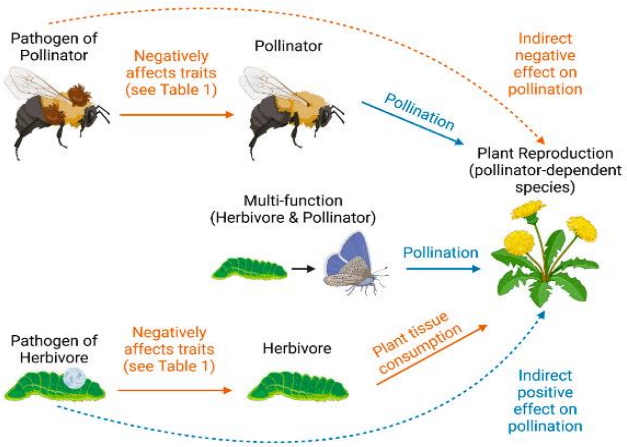
- A few insects like Staphylinid insects are foragers and bolstering on dead creatures and other rotting natural matter. Detritivores, these insects nourish on natural matter such as dead clears out and other plant flotsam and jetsam.

E) Omnivores (mixed eaters) –

A few insects have a blended count calories devouring both plants and creatures, For example, a few species of grasshopper can bolsters on both plants and little insects. A few species of ants can nourish on both nectar and little insects.

Result:

Insects may be useful to people in different ways, specifically or in a roundabout way. Insects as drivers of environment capacities, play a major part in Agroecology, the administration of rural frameworks is an biologically sound and feasible way by empowering environment administrations given by useful living beings (Getanjaly et. al. 2015). In earthbound environment insects play key environmental parts in different biological forms such as supplement cycling, seed dispersal, fertilization, bioturbation and bug control. Insects are imperative for human survival since crops cannot be created without the environment capacities given by insects. Around 72% of the world's crops are subordinate on insects for Fertilization (Kremen and Chaplin Kramer 2007). Pollinating insects make strides or stabilize the surrender of three quarters of all edit sort all inclusive. Insects pollinators incorporates hundreds of species of single bees, bumblebees, flies, insects and butterflies and in a few crops, wild bee species are more critical for fertilization. All inclusive fertilization administrations by insects are evaluated to contribute 9.5% to surrender of trim generation (FAO 2006). Insects are too vital in improving agricultural soil (Powlson D.S. et. al 2011). Through their action within the soil, waste insects increment nitrogen, phosphorous, potassium, calcium and magnesium or add up to proteins substance which altogether lift the abdicate of wheat plants relative to chemical fertilizers.



Pollinators are crucial for the generation of numerous blooming plants, counting a expansive extent of worldwide nourishment crops.

They play a pivotal part in upgrading edit quality and abdicate by encouraging the exchange of dust, which is fundamental for natural product set and seed generation.

The foremost well-known pollinators are bees, especially the European bumble bee (Apis mellifera), which is utilized universally for the fertilization of a wide extend of crops, such as almonds, apples, berries (Klein et. al. 2007).

Local bee species, counting bumblebees (Bombus spp.) and single bees (e.g. Osmin spp.), are moreover critical supporters to edit fertilization, regularly giving administrations that are complementary to those of honeybees. Butterflies and moths (Lepidoptera) are less effective pollinators compared to bees, but they still play a part within the fertilization of a few edit and wild plant species, particularly those with long-tubed blossoms.

Their nearness contributes to the by and large biodiversity an biological strength of agroecosystems (Tscharntke T. et. al 2005).

Essentially, flies (Diptera), especially hoverflies (Syrphidae) have been recognized as compelling pollinators of numerous crops counting carrots, onions and different blossoming herb (Gabriel D. and Tscharntke T.2006). Advantageous insects, particularly pollinators and common adversaries of bugs, have a coordinate and quantifiable affect on trim yields and quality.

Pollinators such as bees, butterflies an hoverflies are dependable for the fertilization of roughly 75% of all inclusive vital nourishment crops, contributing essentially to the amount and quality of natural products, vegetables and nuts. Crops such as almonds, apples and blueberries display expanded natural product set and made strides quality when pollinated by a different community of wild and overseen pollinators.

Fertilization by insects not as it were boosts abdicate but too upgrades trim quality such as natural product estimate, weight and wholesome substance.

This advancement in quality can lead to higher showcase costs and more noteworthy financial returns for agriculturists.

Additionally, soil-dwelling insects such as decomposers and soil engineers contribute to expanded edit yields by upgrading soil ripeness and advancing sound root development (Pywell R.F. et. al. 2015).

The exercises of compost insects, ants and other soil fauna move forward supplement accessibility and soil structure, which in turns bolster more advantageous plant improvement and expanded trim efficiency. In maize areas, for case, the nearness of soil-dwelling insects has been related with a 10-15% increment in yields due to progress soil air circulation and supplement cycling.





Discussion:

Insects can be utilized to make strides the supportability of farming in a few ways. Firstly, insects cultivating can offer assistance decrease nourishment squander and landfill stacking by utilizing natural squander as nourish for detritivore insects species.

Besides, insects are considered a maintainable protein source and a conceivable substitute for meat, which can offer assistance moderate maintainability challenges related to agribusiness.

Besides insects play a significant part in natural control (Pimentel D. et. al. 2000), making a difference to defuse intrusive bothers and reconstitute edit efficiency, in this way contributing to nourishment security and natural conservation. In farming, insects contribute altogether to supportability.

They serve as nourishment and bolster sources, offer natural control against obtrusive bothers and offer assistance oversee natural squander (Dicke M. 2017). Insects, the unparalled champions of biodiversity on soil.

They serve as nature's workforce, conveying pivotal administrations like fertilization, bug control and deterioration.

However these minor animals use monstrous, forming the composition and elements of environment over trophic levels as suppliers, eliminators and facilitators. Insects give various benefits to the environment. They are natural engineers and major benefit suppliers, advertising provisioning, directing, supporting and social administrations. Insects contribute to soil structure, richness and spatial elements, keeping up biodiversity and nourishment networks (Kim K.C. 1993).

Soil spineless creatures, counting insects take an interest effectively within the intelligent among physical, chemical and natural forms in soil.

They contribute to the breakdown of complex natural compounds, progress soil porosity, air circulation and upgrade the cycling of key soil supplements.

By and large, insects have the potential to contribute to the improvement of soil ripeness and the feasible generation of solid crops or trees.

Normal environments are complex frameworks with different intuitive. In agribusiness, complex characteristic environment are heightened of asset utilize, counting applications of more agrochemicals and a by and large tall input and yield.

These frameworks are open frameworks where energy is misplaced and thus require proceeded exorbitant outside inputs.

This can be in differentiate with characteristic environments that are closed frameworks, where vitality is reused inside the framework killing require of outside inputs. In agrarian environments the critical environment capacities, for the most part given by insects (Nicholas E. et. al 2008) are efficiently expelled. The heightened of agrarian generation framework in combination with tall agrochemical input in edit areas, are the essential causes for the quick diminish of biodiversity.

The misfortune of their agrarian biodiversity have both monetary and social hazard, as well as enduring impacts on rural efficiency, affecting nourishment security within the long term.

Proceeded feasible arrive utilize in unusual and changing situations is as it were conceivable with preservation of most extreme biodiversity.

A move to maintainable farming will require changes in generation strategies that will improve differences in cultivating framework. With most of the world's prolific arrive being utilized for agribusiness and arable arrive ranges that cannot be extended encourage we are running out of choices to guarantee nourishment security for a developing populace.

The as it were choice cleared out to utilize the existing arrive more economically. In this respect insects can give the fundamental arrangements. Insects are major donors to biological system work on all levels, perform basic capacities in any biological system. Insects are basic for plant propagation, environmental observing, natural matter deterioration (Fincher et. al. 1981), and as a nourishment source, but human exercises and natural corruption posture dangers to their biodiversity.

Conclusion:

Future research in sustainable farming ought to in this manner center on the part of insects in environments.

By understanding the important capacities of insects in common environments and their esteem in agricultural frameworks can be realized.

Understanding, moderating and mindfully utilizing these different modest animals stay foremost for the wellbeing and life span of our environment and social orders. Understanding the critical capacities of insects in common biological systems, their esteem in rural frameworks can be realized. Future bearings ought to center on coordination bother and pollinator administration, leveraging inventive advances for checking and control.

Actualizing strong approaches and instruction to advance broad appropriation. By cultivating conditions that back useful insects, it is conceivable to attain more flexible and profitable rural frameworks, contributing to both environmental wellbeing and feasible nourishment efficiency.

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Libraries: Changing Trends in Digital Era

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Abstract:
Libraries have undergone significant transformations in recent years. The rise of new technologies has brought numerous changes to library and information services, as well as increased expectations from librarians and information professionals. This report emphasizes the emerging trends within libraries. Its aim is to provide insights into the latest trends and technologies in library and information services. The progress in Information and Communication Technology and its application in library operations and services help to shape future directions in LIS education and research. This report seeks to pinpoint global issues and trending topics, along with innovative technologies in library and information science, so that patrons can concentrate on them to enhance library services effectively.

Keywords: Digital Era, Changing Trends, ict Technology, Libraries

Introduction:

Libraries serves as the hub of the information resources and need to be associated with structuring of information systems, services, spaces and objects for their users to retrieve his data and information. Library and Information Science has been an emerging disciplines and being recognized worldwide as the library or learning resource centers which are one of the important components of any academic institutions like colleges, universities & other research institutions. The literature survey is an important part of any research work. Survey of related literature is conducted to enable the researcher to get a clear understanding about the specific field of study. It also helps the researcher to have an insight into the tested methods, procedures and interpretations of similar studies conducted elsewhere.

Literature Review:

(Borisova, Mikidenko, and Storozheva 2020)

put the observation that an increasingly common instructional tool is electronic libraries. Virtual reading is preferred by students. However, up to 30% of students hardly ever access electronic library resources.

(Okwu, Okwu, and Oladokun 2024)

presents in his paper Access to digital resources, online catalogs, and discovery systems, remote access and virtual services, digital preservation, data management, and research support, social and collaborative technologies, mobile apps and virtual services, and data-driven decision making are some of the main ways that new technological trends are affecting library performance.

(Racheal 2020)

put the opinion that it is crucial that librarians and information professionals adapt to the system by making sure their knowledge and abilities are up to date and by using new web technologies to deliver library services.

(Taherdoost 2023)

This survey paper provides an overview of trending technologies including cloud computing, the internet of things (IoT), artificial intelligence, blockchain, big data analytics, and virtual and augmented reality. **(Williams 2023)**

The discussion of professional titles and duties in digital projects in North American academic libraries from 1990 to 2020 is examined in this article.

Methodology:

Both primary and secondary sources were used in a diagnostic research strategy to give a clear picture and knowledge of the chosen topic, to summarize and offer insight into previous studies on the evolving library landscape and how it affects library services. We collected secondary data from a range of library information sources.

Aims & Objectives

To look into the latest developments in information and communication technology research and their use in new library disciplines.

To differentiate between the various ways that information and communication technology is used.

Scope & Limitations:

To enhance the conventionally negative perception Librarians in the twenty-first century have many options, including leadership roles, collaboration with academics, and social media.

Librarians and lecturers might collaborate on research projects and cooperative assignments
Librarians have the opportunity to run media marketing campaigns in the twenty-first century.
There are more chances than ever for librarians to self-train in new competencies and skills.

Limitations:

Hostility toward libraries as a result of competition
Technology-induced trauma.
Rising expectations and demands for services.
Insufficient understanding of intellectual property rights.
Library employees are not regularly trained to handle the constantly changing ICT hardware and software.

Changing Trends in Libraries:

Among the crucial social institutions are libraries. An efficient library that houses knowledge from all around the world is essential to any community. ICT (information and communication technologies) has had a significant impact on libraries and the services they serve.
In early days, libraries provided their patrons with manual information resources and services. All operations and housekeeping tasks must be completed by hand by the library personnel, which cause service delays and manpower inefficiency. While carrying out the operations, the staff members make blunders. However, libraries are gradually becoming more digitally accessible, mostly as digital, e-, or online libraries. The purpose of libraries has completely changed as a result of this paradigm shift; they are no longer regarded as buildings used for book preservation, but they are information hubs that are open 24/7. Libraries may now truly apply the "Laws of Library Science" thanks to information and communication technology.

Current Trends in Libraries

RFID Implementation:

The primary function of radio frequency identification (RFID) technology is automatic identification through the use of radio waves for the detection, tracking, identification, and management of a variety of items, things, and people. RFID technology in libraries looks at the main obstacles to its implementation. These days, RFID technologies are becoming increasingly significant in the library industry because they are essential to information management. RFID cuts down on the time needed to complete library book circulation procedures. By using this technology, librarians can save significant staff time by not having to scan barcodes when checking out and returning borrowed materials.

Electronic Resource Management –

Libraries and other organizations utilize electronic resource management (ERM) to manage their electronic information resources over the course of their lifecycle. Databases, streaming video, e-books, e-journals, and more are examples of these online resources.

Cloud Computing –

Cloud computing, a widely accepted modern IT service model, provides libraries worldwide with a tremendous chance to redefine their operations and expand their influence. It makes it possible for library services to be more efficient and economical by revolutionizing system development and service delivery. Additionally, cloud technology speeds up data search and retrieval and enables library automation, improving staff productivity and user experience both locally in Indapur and beyond. Adoption of it enables libraries to broaden their reach in the digital age and update their infrastructure.

Mobile-Based Library Services –

Recently, a number of libraries have created a mobile-friendly information portal that authorized users with a valid login ID and password can access. Users who might not otherwise have the chance to benefit from materials outside of the library's permanent location can now access them thanks to mobile libraries. Moodle is the best example of an LMS program. These days, the OPAC mobile application is the quintessential illustration of a mobile-based library service. The goal of the platform, which is entirely run by SLIM software, is to transform traditional libraries into digital ones.

Digital Libraries –

A digital library is a collection of electronically accessible digital items, including books, periodicals, magazines, journals, audio and video recordings, and other materials. Users can quickly access a variety of resources online thanks to digital libraries. Students frequently utilize digital libraries for study, as do information specialists and library professionals who want to stay up to date on the most recent advancements in their industry. The two most efficient systems for managing and organizing digital material at the moment are institutional repositories and digital libraries. The majority of software in the digital library space is open source, or free to use. Project Gutenberg, the Internet Archive, the Open Library, and the Digital Public Library of America are a few examples. 24/7 access is one of the benefits of using a digital library.

Institutional Repositories –

Data from any organization or its member organizations is gathered, arranged, preserved, and shared by the Institutional Repository. The Institutional Repository offers resources to assist researchers, professionals, and faculty members in sharing their work with audiences outside of the institution. Libraries are now playing a new role in the development and dissemination process, departing from their historical roles as distributors,

custodians, and access points. The producer will be in charge of adding an item to a repository and creating the necessary related information since the majority of the repositories will be based on a self-archiving system. Providing sufficient and effective staffing support will be a special issue for libraries as they take the lead in the establishment of institutional repositories and their normalization within collection management programs.

Open Access and Open Educational Resources –

In order to promote more information sharing and speed up research, open access (OA) refers to research outputs, such as journal articles and scholarly books that are made freely available online without subscription restrictions. Libraries are essential in advancing open access (OA) because they support OA publishing formats and create institutional repositories to house faculty articles. ER are research, teaching, and learning resources that are publicly accessible online and can be used, modified, and shared by anybody with little to no limitations. By helping teachers locate and use these resources for curriculum development, libraries are progressively adding open educational resources (OER) to their holdings. This lowers expenses for students and encourages pedagogical innovation in the local educational setting. Libraries' goals of empowering lifelong learning in their communities and ensuring fair access to information are being furthered by their support of OA and OER.

Application of Artificial Intelligence in Libraries –

Artificial intelligence applications in libraries can increase the effectiveness and visibility of research, which will increase faculty members' research productivity. Search and optimization, natural language processing and knowledge representation, machine learning and probabilistic reasoning, planning and decision-making, neural networks, fuzzy systems, computer vision, and more are the main areas of artificial intelligence. The most crucial aspect of artificial intelligence is the use of pattern recognition in library operations. Pattern recognition is the process of finding close matches between a new stimulus and previously stored stimulus patterns. Examples include bar codes, QR codes, biometrics, and more. The librarian can better understand the need for improvements in library operations and services with the use of an expert system. An expert system that has been properly programmed raises the standard of operations and services. Natural Language Processing enhances search capabilities for better information retrieval relevant to the user community. However, data privacy, algorithmic bias, implementation costs, and equitable access remain crucial considerations for responsible AI adoption in libraries to benefit all users.

Electronic Resources in Libraries –

The term "electronic resources," or "e-resources," refers to a broad range of materials that are available in a digital or electronic format, such as e-books, e-journals, online databases, digital archives, streaming media, and multimedia content. Libraries are implementing e-resources to expand their collections without being limited by physical space, which could result in cost savings in storage and maintenance. The digital format also helps to preserve information, preventing loss or damage, and e-resources can enhance the educational experience by offering current information and multimedia. Integration of e-resources supports remote learning and serves a variety of users with different needs, increasing the library's reach and impact in community.

Emerging Technologies in Libraries:

In addition to offering librarians an opportunity to substantially boost user-centered services, emerging technology can help libraries and their patrons collaborate. The majority of emerging technologies give library professionals the ability to find, gather, arrange, personalize, and deliver information products and services in a variety of formats and varieties to the user community in real time, both in physical and virtual environments, as well as on demand. It can guarantee that users and librarians interact in real time. Libraries are better able to provide user-centric services thanks to these technologies.

Instant Messaging –

Instant Messaging (IM) is the term used to describe text-based, real-time online communication between two or more individuals. It facilitates instant messaging, which promotes brief discussions and information sharing. Emojis, group conversations, file sharing, phone and video calls, and other capabilities beyond simple text are frequently included in popular instant messaging applications.

RSS Feeds and HTML Feeds –

RSS is an acronym for Rich Site Summary, or Real Simple Syndication. This format, which is based on XML, is mostly used to distribute material. This is a simple and cost-free method of promoting a website and its content without using any kind of advertising or requiring complex content exchange between partner users. The most practical method of informing library patrons about newly developed content on the library website is through RSS.

Streaming Media –

In the modern era, streaming media refers to the easy and consecutive distribution of multimedia content across a variety of networks. The end customers find this service to be very engaging and engaged. Libraries will be in charge of efficiently archiving and making media available to

users at the appropriate time and location as it is produced. In recent years, libraries have started to investigate offering such services through digital asset management technology and digital repository apps. It suggests that librarians take action to demonstrate the benefits of streaming media and educate library staff and students about it. These include keeping tabs on its usage, assessing pedagogical requirements as they evolve, and collaborating with educators who might find the contents useful.

Social Bookmarking Services

- Using descriptive metadata, social bookmarking is one of the most practical ways to store, arrange, search, and manage website bookmarks. These bookmarks can be kept privately for later use and shared either publicly or with particular users. Through a search engine, authorized users can quickly browse these bookmarks in a chronological, methodical, and category manner. These social bookmarking services can be used by libraries by providing RSS feeds for particular subject areas or user-relevant areas of expertise.

In addition to these services, social networking sites, blogs, wikis, and SMS inquiry services have all been vital to the modernizing of libraries. Traditional library holdings are gradually being replaced by digital items and electronic resources.

Suggestions

To enable quicker and more effective library operations, information and communication technology had to be implemented in every section of academic libraries.

All staff members must be trained in the usage of the information and communication technology library system, and this training must be ongoing.

Digitalization should be integrated into all areas of academic libraries.

To use information and communication technology (ICT) to make modern library operations and service delivery simpler, quicker, and more effective.

Information and communication technology training should receive a larger portion of the yearly budget.

Conclusion:

Traditional library services are shifting to ICT-based library services as the world progresses toward an information society. In the information age, librarians are responsible for gathering, preserving, organizing, and sharing information, particularly digital and web resources. Thus, a librarian's responsibilities include managing digital and web resources, gleaning clear information from a deluge of information, describing resources, facilitating easy access to information, collaborating, networking, ensuring user happiness, and more. Thus, in addition to ICT-based themes for paper presentations and discussions in seminars, conferences, and workshops, events with a greater emphasis on non-ICT-based topics must be planned. To preserve our traditional librarianship, there should be a combination of modern and traditional librarianship.

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Interlinking Agricultural Productivity, Economic Growth, and Climate Change between saarc Nations: a Pathway to Sustainable Development

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Abstract:
This research paper analyses the interrelationships of agricultural productivity, economic growth, and climate change in the member countries of the South Asian Association for Regional Cooperation (saarc). The economies of the saarc countries are significantly dependent on agriculture, and the region faces threats posed by climate change. This study explains how declining agricultural productivity, growing challenges of climate change, and economic inequalities affect each other, emphasizing the need for regional cooperation and sustainable development strategies to address these challenges. The study suggests that adopting climate-smart agricultural practices, investing in research and technology, and strengthening regional trade and economic partnerships can promote sustainable development in the saarc countries.

Keywords: saarc, economic growth, agricultural productivity, climate.

Introduction

The South Asian Association for Regional Cooperation (saarc) is a regional intergovernmental organization of eight countries – Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka. Agriculture plays a vital role in the economies of these countries, providing employment, income, and food security. The saarc region is home to around 1.8 billion people, most of whom live in rural areas and depend on agriculture for their livelihood (FAO, 2020). However, the saarc countries face several serious challenges, including declining agricultural productivity, the impacts of climate change, and economic inequalities. Addressing these challenges requires a holistic approach that understands the interrelationships of agriculture, economy, and climate and develops a shared vision for sustainable development (World Bank, 2021).

The *objectives* of this research paper are to:-

To analyze current agricultural productivity trends in saarc countries.

To examine the relationship between agriculture and economic growth.

To assess the impacts of climate change in the region.

To identify the interrelationships between agriculture, economy, and climate change.

To present policy recommendations for sustainable development in saarc countries.

2. Agricultural Productivity in SAARC Countries

2.1 Current Trends

Agricultural productivity in the saarc region is diverse, with some countries making significant progress while others lag behind. India and Bangladesh have seen their agricultural productivity increase over the last decade, driven by improved farming techniques and technology adoption, while productivity in countries such as Afghanistan and Nepal remains stagnant or declining due to conflict and limited resources (FAO, 2020).

2.2 Role of Agriculture in GDP and Livelihoods

In the SAARC region, the agriculture sector contributes 15% to 30% of the gross domestic product (GDP), varying by country (World Bank, 2024). The table below shows the contribution of agriculture in different saarc countries:

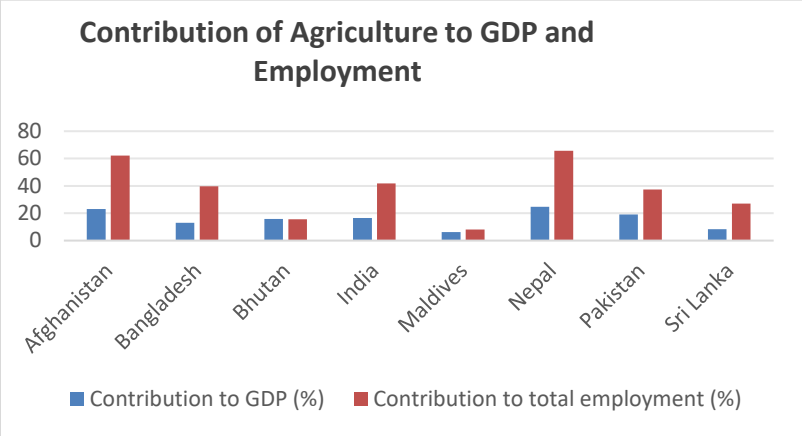
Table 1: Contribution of Agriculture to GDP and Employment in SAARC Countries

COUNTRY	CONTRIBUTION TO GDP (%)	CONTRIBUTION TO TOTAL EMPLOYMENT (%)
AFGHANISTAN	23.0	62.2
BANGLADESH	13.1	39.7
BHUTAN	15.8	15.6
INDIA	16.5	41.9
MALDIVES	6.3	8.2
NEPAL	24.7	65.7
PAKISTAN	19.2	37.4
SRI LANKA	8.4	27.1

Source: World Bank (2024)

2.2(a) Graphical representation

Figure 1 Agriculture to GDP and Employment



2.3 Challenges Affecting Productivity

The major challenges affecting agricultural productivity in the SAARC region include:

Soil degradation:

Declining soil quality due to excessive cultivation, monoculture, and improper irrigation practices (FAO, 2017).

Water crisis:

Declining groundwater levels, reduced availability of water for irrigation, and increased water pollution (IWMI, 2020).

Outdated technologies:

Limited access to modern agricultural technologies and practices (Rasul, 2016).

Climate change:

Erratic monsoons, rising temperatures, and increased extreme weather events (IPCC, 2021).

Market access: Inadequate infrastructure, high transportation costs, and lack of market linkages (ADB, 2019).

Lack of financial resources:

Limited access to credit, insurance, and financial services for small farmers (IFAD, 2020).

3. Economic Growth and its Dependence on Agriculture

3.1 Agriculture as a Driver of Economic Growth

In SAARC countries, the agricultural sector has been an important driver of economic growth. In rural areas, where most of the population resides, agriculture is the primary economic activity, and its performance significantly affects overall economic growth (World Bank, 2021). In India, the "Green Revolution" of the 1960s and 1970s helped achieve food security and boost economic growth through high-yield crop varieties and irrigation expansion (Swaminathan, 2017). Similarly, in Bangladesh, increased paddy cultivation has contributed significantly to economic growth (Hossain & Bayes, 2019).

3.2 Contribution to Employment, Exports, and Food Security

The agricultural sector contributes significantly to employment, exports, and food security in SAARC countries:

Employment:

About 42% of the total workforce in the region is employed in agriculture, making it the largest employment provider (ILO, 2020).

Exports:

Agricultural products hold a significant share in the total exports of SAARC countries. Products such as tea from Sri Lanka, spices from India, and jute from Bangladesh earn significant foreign exchange (UNCTAD, 2021).

Food Security:

The agriculture sector plays a vital role in ensuring food security for the growing population of SAARC countries (FAO, 2020).

4. Economic Vulnerability Associated with Climate-Sensitive Agriculture

The economies of SAARC countries are highly vulnerable to climate change as they depend

on agriculture, which is sensitive to climatic conditions. Crop losses due to climate change lead to reduced agricultural incomes, food price increases, and negative impacts on overall economic growth. According to the World Bank (2021), climate change could reduce the GDP of SAARC countries by 1.8% to 8.8% by 2050 if unmitigated.

5. Climate Change and its Impact on Agriculture and Economy

The SAARC region is witnessing clear evidence of climate change:

Increase in Temperature:

Average temperatures have increased by 0.5°C to 1.2°C over the past 100 years (IPCC, 2021).

Variability in Monsoon:

Uncertainty in monsoon patterns has increased, leading to droughts and floods (Krishnan et al., 2020).

Extreme Weather Events:

Cyclones, floods, droughts, and heatwaves have increased in frequency and intensity (UNEP, 2020).

Sea Level Rise:

Coastal areas, especially in Bangladesh and the Maldives, are increasingly at risk from sea level rise (IPCC, 2021).

6. Climate change have impact on Crop Yield, Agricultural Practices, and Rural Communities

Climate change is having a severe impact on agriculture in the SAARC region:

Reduction in Crop Yield:

Increased temperatures and altered rainfall patterns negatively impact crop yields. By 2050, rice yields may decrease by 10-15% and wheat yields by 7-12% (Lobell & Gourdji, 2012).

Changes in Agricultural Calendar:

Changing weather patterns force farmers to adjust traditional sowing and harvesting times (FAO, 2017).

Pest and Disease Outbreaks:

Warmer temperatures promote the spread of pests and diseases, leading to increased crop losses (Deutsch et al., 2018).

Changes in Water Availability:

Melting Himalayan glaciers and altered rainfall patterns reduce irrigation water availability (Immerzeel et al., 2020).

Pressure on Rural Livelihoods:

Declining agricultural productivity reduces rural incomes, exacerbating poverty and driving migration to cities (undp, 2019).

6.1 Economic Impacts: Inflation, Food Shortage, and Migration

The impact of climate change on agriculture results in several economic consequences:

Food Inflation:

Decreased crop yields lead to higher food prices, causing inflation and disproportionately affecting poor households (fao, 2020).

Food Insecurity:

Reduced production increases food insecurity in the SAARC region (WFP, 2021).

Climate Migration:

Declining agricultural incomes drive rural households to migrate to urban areas or other countries (iom, 2020).

Economic Inequality:

Climate change disproportionately impacts poor and marginal farmers, exacerbating economic inequality (Oxfam, 2019).

7. Interrelationships between Agriculture, Economy, and Climate Change

There are complex interrelationships between agriculture, economy, and climate change in the saarc region. When climate change affects agricultural productivity, it has widespread impacts on economic growth:

Impact on Income and Employment:

Declining agricultural productivity reduces rural incomes, lowering consumption, savings, and investment (World Bank, 2021).

Impact on Agriculture-Related Industries:

Reduced agricultural production negatively affects food processing, textiles, and other agro-based industries (unctad, 2021).

Fiscal Impact: Agricultural disasters increase government spending on relief and subsidies, straining budgets (imf, 2020).

8.Economic Policies with Environmental Sustainability

Economic policies in SAARC countries also affect environmental sustainability and climate change:

Industrialization and Urbanization:

Rapid industrialization and urbanization increase greenhouse gas emissions, contributing to climate change (unep, 2020).

Agricultural Subsidies:

Subsidies on fertilizers and pesticides encourage overuse, leading to soil and water pollution (FAO, 2017).

Water and Energy Policies:

Inappropriate policies lead to overexploitation and inefficient use of resources, contributing to environmental degradation (IWMI, 2020).

9. Evidence from SAARC Countries

Bangladesh's Climate-Resilient Agriculture:

Bangladesh has adopted innovative practices like floating cultivation, salt-tolerant rice varieties, and flood-resilient crops to maintain productivity in flood- and cyclone-prone areas (Hossain & Bayes, 2019).

India's Succession of Green Revolution:

India's Green Revolution led to significant food production growth but caused environmental issues like groundwater depletion and soil degradation. India is now pursuing "Green Revolution 2.0" to balance productivity and sustainability (Swaminathan, 2017).

Sri Lanka's Organic Farming Campaign:

Sri Lanka's push to reduce chemical fertilizers and promote organic farming faced challenges but highlights the link between economic policies and environmental outcomes (Jayasinghe, 2021).

10. Pathways to Sustainable Development

10.1 Role of Regional Cooperation among SAARC Countries

Strong regional cooperation among SAARC countries can combat climate change and promote sustainable development:

Knowledge and Technology Sharing:

Exchange of agricultural research and climate-smart practices (Rasul, 2016).

Joint Climate Action:

Regional plans for climate change mitigation and adaptation (UNEP, 2020).

Transboundary Water Management:

Cooperation for managing transboundary river resources (IWMI, 2020).

Regional Food Security System:

Regional food reserves and distribution networks for food crises (FAO, 2020).

To achieve sustainable development, saarc countries must adopt climate-smart agriculture, including efficient irrigation, organic practices, and crop rotation (fao, 2017). Investment in research, technology, and infrastructure—such as irrigation systems, storage, and transport networks—is critical (ifad, 2020). Trade and economic partnerships can balance inequalities, improve market access, and encourage innovation (adb, 2019). Aligning national and regional strategies with the Sustainable Development Goals (sdgs) ensures balanced progress in economic growth, environmental care, and social well-being (undp, 2019).

Conclusion

The complex relationship between agricultural productivity, economic growth, and climate change in saarc countries underscores that no issue can be addressed in isolation. Agriculture, the backbone of the region's economy, supports livelihoods and contributes to gdp but faces pressure from erratic climate patterns, environmental degradation, and technological stagnation (World Bank, 2021). Climate change—rising temperatures, unpredictable monsoons, and extreme weather—reduces yields, threatens food security, and exacerbates poverty, migration, and economic instability (ipcc, 2021). Unsustainable agricultural and industrial practices further degrade ecosystems, creating a feedback loop (unep, 2020).

This crisis demands a transformative approach rooted in sustainability and regional unity. Saarc countries must pursue coordinated strategies, with regional institutions harmonizing climate-resilient policies, funding research, and facilitating technology transfer (Rasul, 2016). Sustainable development must be mainstreamed across sectors, contextualizing sdgs to South Asia's realities, empowering marginalized communities, and promoting inclusive practices (undp, 2019). Climate adaptation and mitigation, including green technology and sustainable resource management, are economic opportunities (ifad, 2020). Sustainable development is essential for the survival and prosperity of SAARC countries, requiring readiness, vision, and collaboration. This should be a call to action for governments, civil society, academia, and citizens to build a resilient, equitable, and sustainable South Asia.

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Effect of Psychological Capital on Job Performance of Employees in Selected Public Sector Banks

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Abstract

Employee job performance is one of the most important elements that is necessary to achieve organizational effectiveness. PsyCap, or psychological capital, has gained a lot of attention recently as a cutting-edge tactic to enhance employees' job performance. The extent to which PsyCap influences the job performance of public sector bank employees, however, has not been investigated. Therefore, the purpose of this study was to determine how employees' PsyCap impacted their performance at public sector banks in South Mumbai. The data were collected at random from a sample of 176 managers and 357 non-managerial employees from public sector banks in South Mumbai.

A questionnaire was distributed to the staff in order to assess their PsyCap and productivity. The collected data was examined using regression analysis and the correlation coefficient. The results of the study demonstrated a robust and positive relationship between PsyCap and work performance. Therefore, increasing an employee's overall PsyCap is recommended in order to increase their job performance.

Keywords: Job Performance, Public Sector, Psychological Capital

Introduction

Employee job performance is one of the most important elements that is necessary to achieve organizational performance in today's intensely competitive business environment. According to Arvey and Murphy (1998), "the major contribution of an employee's worth to the organization is through work behavior and ultimately performance," making it the most important dependent variable in the organizational environment and the most fundamental idea in industrial-organizational psychology.

Given that employee job performance is a critical construct in an organization, managers must have a thorough awareness of the factors that affect job performance. This knowledge could aid managers in comprehending, elucidating, forecasting, assessing, and modifying workers\' job performance. After examining the empirical and theoretical data, experts have determined a number of variables that may have an impact on job performance. Three determinants of job success were established by Waldman and Spangler (1989): work environment elements (leader conduct, group process), outcome variables (performance feedback, pay raise, job security), and person determinants (experience, aptitude, and motivation).

However, both business scholars and practitioners have largely disregarded this recently discovered psychological capital. Therefore, in order to generalize psychological capital\'s impacts on many work-related variables in other contexts, Luthans and other researchers highlighted the need for additional research. Luthans and his colleagues in China and the United States have done the majority of the research in PsyCap. In India, there aren\'t much empirical studies on PsyCap.

The empirical evidence on PsyCap of employees in USA and China show that there is a positive relationship between PsyCap and job performance but in the review of existing research literature in the banking sector was selected for this study by considering its great contribution to Indian Economy.

Any Economy or production process largely depends upon how efficiently the financial sector in general and the banks in particular perform the basic functions of financial transformations. In a country like India, this factor assumes further significance. The banking sector is the dominant sub sector within the financial sector. It plays the positive and important role for the overall development of the country. The performance of the banking sector directly affects to the other industrial and service sectors of the economy.

The success of the banks as one of the service sector organizations largely depends on the customer satisfaction. The service quality which refers to customers' subjective evaluation of the service received is a crucial factor in deciding customer satisfaction. The human resource is the most influencing factor on improving the service quality.

If the employees are well satisfied, more committed, and performing well in the banks, it can be predicted that service quality of the bank is high and the customers are satisfied. It can be assumed that job performance is a crucial factor in improving the service quality, customer satisfaction and ultimately, organizational performance. It can make or break the image of the banks. Thus, the managers in the banking sector need to find new ways to improve the performance of their employees. The empirical evidence revealed that the importance of positive psychological capacities such as PsyCap as an insufficiently unexplored positive antecedent of job performance. However, there is no reported research in the banking sector in South Mumbai on PsyCap or its effects on the job performance of the employees.Therefore, understanding the effect of PsyCap on job performance would be useful to the managers to utilize the full potential of their employees.

Problem Statement

Previous studies have identified there is no research on PsyCap and its consequences on public sector bank employees job performance is conducted. Therefore the problem of this research is to what extent the psychological capital affects employees' job performance in the public sector banks in South Mumbai.'

Statement of Hypothesis

H1: PsyCap of employees will be positively and significantly related with their job performance

H0: PsyCap of employees will not be positively and significantly related with their job performance

Objective of the Study

To identify the impact of PsyCap on Job Performance in public sector banks of South Mumbai.

This is significant since, employing a sample of employees from public sector banks in south Mumbai, no prior research was able to identify the same characteristics, therefore the study's findings will add to our understanding of job performance of public sector employees.

Literature Review

Study by Md Abdus Salam (2017)

, states that In today's organizations, employee turnover is considered as a serious issue for the employers to compete in the long run. On this note, employees' job satisfaction plays a vital role to reduce turnover intention among the employees. Besides, psychological capital becomes a prominent interest for its numerous contributions in the organization settings. Considering this in mind, to explore job satisfaction-turnover intention relationship and the influence of psychological capital on that relationship are the aims of this research.

Study by Rabindra K. (2017)

states that Understanding people's psychological contract and commitment levels in manufacturing industries may benefit the organisations to retain their valuable talent. This study was designed to explore the influence of organisational commitment on employee retention in manufacturing organisations of Eastern India. The study also tried to investigate the mediating role of psychological capital between organisational commitment and employee retention.

Study by Kutaula, (2014)

states that Although human resources have been positioned as a key enabler for gaining and maintaining competitive advantage for organisations, the processes through which such advantage is achieved are poorly understood. As the psychological contract is considered a central construct in studying the employee-organisation relationship, this thesis proposes that it is likely to be an important mechanism explaining the relationship between HRM practices and employee outcomes.

Study by Wanjun Yang (2016)

investigates on how psychological contract influences employees' extra-role contribution, such as organizational identification and organizational citizenship behavior. Specifically, it proposes the mediating role of psychological capital in the above mentioned relationships. A total of 283 employees in China completed the questionnaires. Results indicate that psychological capital partially mediates the relationship between psychological contract breach and organizational identification, and fully mediates the relationship between psychological contract breach and organizational citizenship behavior. In addition, organizational identification mediates the relationship between psychological capital and organizational citizenship behavior.

Study by Johannes M. Lehner. (2014),

examined the main effects of psychological contract types and contract breach on behavioral job outcomes (i.e. job performance, OCBI, OCBO and creativity). Authors develop a causal model assimilating psychological contracts, breach perception and individual's behavioral job-related outcomes. Authors also examined the moderating effect of psychological capital in the psychological contract types-outcome relationship and also in breach perception-outcome relationship. Moreover, results also revealed that contract breach significantly influence individual's job performance and creativity negatively. There is positive relationship of relational contracts with performance become stronger when psychological capital is high. Surprisingly, high PsyCap also moderates insignificant relationship between relational contracts and both types of OCB such that moderation becomes significant and employees high

in PsyCap have found to be involved in both types of OCB.

Study by Chiradip Bandyopadhyay (2022)

states that an employee-level, quantitative survey-based study investigating the relationship between HR signals and job satisfaction through the intermediary role of psychological contract (PC) fulfilment. Signalling theory and attributional theory provide the theoretical context to the study linking HR signals to job satisfaction A two-step sampling process has been followed to select participating firms and respondents. Structural equation modelling has been carried out to examine the hypothesised relationships among the variables. The study contributes to the literature and has implications for practising managers. It provides evidence towards the attributional role of HR signals within firms. Moreover, it reveals a higher mediating effect by relational PC fulfilment than transactional PC fulfilment.

Study by Anna Pawełczyk (2020)

on Work satisfaction and the relationship between the psychological contract and an employee's intention to quit. The results focused on demonstrating that the psychological contract influences employees' intention to leave the organization. The study's results, a relational psychological contract significantly contributes to the development of strong relations between the employer and employees and makes the latter less willing to leave the organization. Its association with employees' intention to leave can be direct or indirect, through work satisfaction. It has also been established that a relation- al psychological contract can be useful for the studied organization as a predictor of employees' intentions to stay or leave.

Study by Lijin Shao (2022) ,

discusses the effect of self-efficacy and job stress on employee turnover intention from the positive and negative psychological cognition factors. The research results showed that self-efficacy has a negative impact on the employee turnover intention, and job stress has a strong negative impact on employee turnover intention.

Study by Mazlum Çelik (2018)

examine the effects of psychological capital on workplace stress and turnover intention, and found the mediation of workplace stress on the relationship between the psychological capital level of employees and turnover intention. Psychological capital has a negative and significant effect on workplace stress and employee turnover intention. Furthermore, research outcomes showed that workplace stress partially mediates the effect of psychological capital on turnover intention.

Conceptual Framework

Psychological capital

is 'an individual's positive psychological state of development' (Avey, 2007, p.2)

Psychological capital, consisting of four independent dimensions, that is, self-efficacy, optimism, hope and resilience, was defined by Luthans, Youssef and Avolio (2007) in 4 dimensions, where each item describes a **Dimension of the psychological capital:**

1) Having self-confidence in order to overcome challenges (efficacy).
2) Having positive attitudes and expectations in order to be successful at the present or in the future (optimism).
3) Having perseverance towards success and reconsidering options (hope).
4) To be able to deal with problems and keep moving forward (resilience).

Job performance.

According to Borman and Motowidlo (1993), job performance consist of two main factors: Task performance, which describes the core job responsibilities of an employee, and
Contextual performance, which goes beyond formal job responsibilities. The 10 dimensions are: overall job performance, productivity, effort, interpersonal competence, administrative, competence, quality, job, knowledge, communication, leadership and compliance or acceptance of authority.

Public Sector:

The public sector refers to the part of the economy that is controlled, operated and maintained by the government. It includes entities that offer public goods and services such as national defence, law enforcement, public education, healthcare, social welfare and infrastructure development. (Wikipedia)

Literature gap

In reviewing the research literature, it can be found that lots of factors have influenced Job Performance. However, the research has given little attention on positive strengths or positive psychological factors of employees to improve the job performance of the employees. Fred Luthans and some other researchers have introduced psychological capital as a new capital that can be used to enhance job performance so as to gain distinctive competitive advantages.

Research Methodology

The research design

In this study, the researcher tries to establish the relationship between PsyCap and Job Performance. Therefore, the purpose of this study is hypothesis testing that seeks to explore the relationship between variables. The current study employed a correlational study in order to explore the relationship between employees' PsyCap (independent variable) and their job performance (dependent variable). This field study is conducted in natural environment in banking sector under minimal interference with non contrived settings. This study is a cross sectional study. For this

purpose, data will have been collected from each employee in public sector banks in south Mumbai.

Population and sample

The population of this study was consisted of managers and non-managerial employees in the banking sector in public sector banks in south Mumbai. The sample for this study was initially derived by randomly selected 220 managers and 440 non - managerial employees who employed in banking sector in South Mumbai. The response rate was 81%.

Measures

The managers and non-managerial employees' job performance was the dependent variable and PsyCap of the managers and non-managerial employees was the independent variable of this research. These variables were measured using standard instruments. The questionnaire was separated into three sections for demographic data, PsyCap and job performance. Seven questions were included to get the demographic information.

The employees' PsyCap was the independent variable of this research study. It was measured by standard questionnaire which was originally developed by Luthans and colleagues (2007). It was consisted of 24 questions and included 6 items for each of the four components of hope, efficacy, resilience and optimism. Job performance is the dependent variable of this study.

Validity and Reliability

Luthans, et al (2007) have constructed PsyCap questionnaire including 24 questions. According to them, they have appointed an expert panel to select items for each four construct of PsyCap. The panel has selected six items for each of the four construct so as to secure the content and face validity. They have adapted wordings to match with workplace. This questionnaire was validated by using the confirmatory factor analysis across multiple samples (Luthans, Avolio, Avey, & Norman, 2007).

Methods of data analysis

The data were analyzed using correlation coefficient and regression analysis. SPSS data analysis package of 17th version was used to analyze the data.

Results

According to the results of the univariate data given in table 01, the levels of PsyCapand job performance is in high level among the employees.

Table 1: The results of univariate analysis

Variables	Mean	Std. Deviation
Self-efficacy	3.91	.434
Hope	3.94	.453
Resilience	3.83	.423
Optimism	3.57	.470
Psychological capital	3.81	.348
Task Performance	4.03	.436
Contextual Performance	4.20	.401
Job Performance	4.12	.394

Table 2: Correlation coefficient between independent variables and dependent variable

Variables	1	2	3	4	5	6	7	8
1. Self-efficacy	-							
2. Hope	.508**	-						
3.Resilience	.540**	.519**	-					
4.Optimism	.400**	.440**	.502**	-				
5.PsyCap	.776**	.789**	.810**	.757**	-			
6.Task Performance	.540**	.470**	.548**	.438**	.635**	-		
7.Contextual Performance	.516**	.473**	.523**	.350**	.592**	.770**	-	
8.Job Performance	.562**	.501**	.570**	.421**	.653**	.946**	.936**	-

*p<.05, **p<.01

Table 3: Results of regression analysis

β	R	R Square	Adjusted Square	R Std. Error of the Estimate	F	Sig.
0.502	.532	.283	.282	.278	209.854	.000

The results of the correlations coefficient between PsyCap and job performance of employees in public sector banks in south Mumbai are presented in Table 02. According to the results, the correlation between PsyCap and job performance ($r= 0.532$, $p<0.01$) was significant and positive. In addition, it was reported significant positive relationships between each dimension of PsyCap and the dimensions of job performance. The result of the regression analysis is reported in table 03. According to the data it also shows that a positive relationship between PsyCap and job performance of the employees in public sector banks in south Mumbai ($\beta = 0.502$, $p < .05$).

Discussion and Conclusion

The primary aim of this research was to investigate the connection between PsyCap and employee job performance in public sector banks located in south Mumbai. The findings from the correlation coefficient and regression analysis showed that the PsyCap of employees is significantly and positively related to their job performance. Hence, the hypothesis can be validated based on the statistical evidence provided. The PsyCap has accounted for 28. 3% of the variance in job performance significantly. Each component of PsyCap has been significantly and positively correlated with job performance.

The researcher assessed the job performance of employees by employing both self-rated performance and supervisory rated performance to gain a clearer understanding of the employees' job performance. In the end, job performance was determined by averaging the self-rated and supervisory rated job performance. The supervisory rated job performance was relatively lower when compared to self-rated job performance. Nevertheless, PsyCap has shown a positive correlation with both self-rated and supervisory rated job performance.

The outcome of this research was largely in agreement with earlier studies. Luthans and his associates (2002a) emphasized PsyCap's capacity to enhance performance. The findings of this research validated Luthans' conclusions.

Drawing from the outcomes of this research, it may be inferred that employees' PsyCap is among the key elements that can enhance employees' job performance. Hence, it is advisable to enhance the overall PsyCap of employees to boost their job performance.

Limitation of the study

The findings must be evaluated within various limitations. The first limitation of this research study was that data collection was restricted to systemically important banks and systemically important specialized banks. The second limitation pertained to the dependence on self-reported data. The PsyCap of employees was assessed based on the attitudes of the respondents themselves.

Further Research

The current study offers numerous potential avenues for future investigators. In this research, PsyCap and job performance served as the primary variables of focus. The study aimed to illustrate the direct link between PsyCap and job performance. Future studies would benefit from examining possible mediators and moderators in this relationship. Investigating how PsyCap impacts other aspects within an organization and life could yield promising results. For instance, the inquiry regarding how PsyCap influences organizational commitment, job satisfaction, leadership styles, withdrawal intention, turnover, family conflict, and stress, among others. This research concentrated solely on the banking sector, but other scholars could broaden the sample to include other service sectors or various organizations.

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The Impact of Artificial Intelligence on Consumer Decision-Making in the Electronic Products Industry

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Abstract:

The electronic products industry is undergoing a significant transformation, with Artificial Intelligence (AI) acting as a powerful catalyst in reshaping consumer behavior. AI-driven innovations, including recommendation engines, virtual assistants, and chatbots, are fundamentally altering how buyers like you and me engage with and ultimately decide on purchases. This research delves into the specific ways Artificial Intelligence (AI) impacts our decision-making processes as consumers of electronics. I will spotlight crucial elements such as the level of personalization offered, the enhanced convenience Artificial Intelligence (AI) provides, and the critical role of trust in these AI-powered interactions. By thoroughly examining recent studies, this paper aims to uncover the precise extent to which Artificial Intelligence (AI) sways our preferences and buying intentions within the dynamic world of electronic goods.

Keywords: Artificial Intelligence (AI), Buying behaviour, Electronic goods

Introduction:

Artificial Intelligence (AI) is instigating a profound and multifaceted transformation across numerous sectors, with the retail and e-commerce landscapes experiencing particularly significant disruption. The escalating integration of AI-powered algorithms empowers businesses to conduct sophisticated analyses of extensive consumer datasets, enabling the prediction of individual preferences and the delivery of highly personalized recommendations. This evolution is particularly salient within the electronic products industry, where AI-driven marketing strategies and automation are fundamentally reshaping established consumer decision-making patterns.

The increasing pervasiveness of AI technologies enables businesses to refine their marketing strategies with unprecedented precision, elevate the quality of customer experiences, and optimize pricing models with the overarching goal of driving sales growth. AI is actively mediating the interactions between consumers and brands, influencing product discovery, and shaping the ultimate purchasing decisions. From the deployment of intelligent chatbots offering real-time customer assistance to the implementation of sophisticated recommendation engines that proactively suggest relevant products, AI has augmented the online shopping journey, rendering it more seamless, efficient, and attuned to individual preferences. However, while the integration of AI presents a plethora of advantages, it also introduces critical challenges that warrant careful consideration, including concerns surrounding data privacy, the potential for algorithmic biases, and the imperative for continuous technological adaptation and updates.

The Multifaceted Impact of AI on Consumer Decision-Making:

AI is demonstrably transforming consumer decision-making processes through the enhancement of personalization, engagement, and trust-building initiatives. Machine learning algorithms meticulously analyze historical purchase data and online browsing behavior to generate highly tailored product recommendations, thereby contributing to increased customer satisfaction and fostering brand loyalty. AI-driven chatbots and virtual assistants provide instantaneous customer support, effectively mitigating instances of cart abandonment and bolstering consumer confidence throughout the purchase funnel. Furthermore, sophisticated price prediction tools empower consumers to make more informed purchasing decisions by providing insights derived from the analysis of prevailing market trends. The incorporation of voice and visual search functionalities further streamlines the product discovery process through intuitive speech and image-based queries. Sentiment analysis tools continuously monitor customer reviews and social media interactions, providing valuable feedback that enables businesses to

refine their marketing strategies and proactively enhance overall customer satisfaction. Collectively, these AI-driven innovations are contributing to a more efficient, convenient, and ultimately more responsive shopping experience that is increasingly aligned with individual consumer needs.

Factors Shaping Consumer Decisions in the Age of AI:

Consumer decisions are inherently complex and are shaped by a confluence of multifaceted factors, encompassing personal, psychological, social, economic, and technological influences. Individual personal attributes, such as age, income level, lifestyle choices, and occupation, exert a significant impact on product preferences, with discernible trends such as younger consumers often exhibiting a preference for trendy and innovative products, while older demographics may prioritize factors such as product durability and reliability. Psychological factors, including perception, motivation, learning processes, and deeply held beliefs, play a crucial role in shaping brand trust and influencing subsequent purchasing behavior. Social influences, encompassing the opinions and recommendations of family, friends, and prevailing cultural values, significantly shape consumer preferences, with the pervasive influence of social media platforms and influencer marketing becoming increasingly salient. Prevailing economic conditions, broader market trends, and the strategic deployment of promotional offers directly impact consumer spending habits, with individuals often adjusting their purchasing patterns in response to their perceived financial stability.

Crucially, technological advancements, particularly the pervasive integration of AI, are increasingly augmenting consumer decision-making processes. This is manifested through the provision of highly personalized recommendations, the availability of instant support via chatbots, the facilitation of comprehensive price comparisons across various vendors, and the emergence of immersive virtual try-on experiences. The data-driven insights generated by AI tools serve to enhance consumer confidence in their purchasing decisions and contribute to a more streamlined and efficient overall shopping experience. Businesses that strategically leverage AI technologies are increasingly well-positioned to effectively attract and retain customers in an increasingly technology-driven marketplace, where digital innovations continue to exert a profound influence on the evolution of consumer behavior.

The Revolutionizing Role of AI-Powered Recommendation Systems in E-commerce:

AI-powered recommendation systems have instigated a significant revolution in consumer behavior, particularly within the dynamic realm of e-commerce platforms, exemplified by industry giants such as Amazon and Flipkart. These sophisticated systems demonstrably enhance user experiences by proactively suggesting products that align with individual user interests and historical purchase patterns. The efficacy of these systems is underpinned by three primary methodological approaches.

Collaborative filtering operates by analyzing the collective purchase behavior of users exhibiting similar purchasing patterns, identifying correlations and leveraging these patterns to suggest relevant products to individual users. Content-based filtering, in contrast, focuses on the granular analysis of individual user preferences, meticulously examining the intrinsic attributes of products to identify items that closely match the user's stated interests, thereby ensuring a high degree of personalization in the recommendations provided. Hybrid models represent an advanced approach that strategically combines the strengths of both collaborative and content-based filtering techniques, leveraging multiple diverse data sources to optimize the accuracy and overall relevance of the generated recommendations. This sophisticated integration of AI not only enhances customer satisfaction by significantly reducing the time and cognitive effort required for product search and discovery but also fosters a more engaging and intuitive user experience. Empirical research consistently demonstrates that the implementation of AI-powered recommendation systems yields a significant boost in conversion rates by delivering highly tailored and contextually relevant shopping experiences. As AI technologies continue to evolve at an accelerating pace, businesses that strategically leverage these powerful tools are well-positioned to enhance user engagement, cultivate stronger customer relationships, and ultimately drive higher sales volumes, underscoring the increasingly crucial role of recommendation systems as a cornerstone of modern e-commerce strategy.

Review of Literature:

1. Sharma (2021):

This research explores how AI influences consumer purchasing behavior by understanding consumer expectations. It

underscores the importance of AI in gathering information on consumers' needs and preferences, which drives decision-making. The study provides insights into the significant role AI plays at each stage of the consumer purchase decision process.

2. Jamil and Rasool (2022):

This study investigates the relationship between AI and consumer buying behavior, focusing on online retail purchases. It highlights that AI-driven personalization significantly enhances consumer purchase intentions and satisfaction. The research emphasizes the role of AI in providing faster, cheaper, and more accurate marketing techniques, thereby influencing consumer decisions.

3. Patel and Khan(2023):

This study focuses on the significant impact of AI on consumer electronics, highlighting how AI makes devices more intuitive, personalized, and efficient. It discusses the ability of AI to enable devices to learn from user behavior, optimize performance, and automate routine tasks, thereby enhancing the overall user experience.

4. Chen and Zhang (2023):

This paper explores the factors affecting the practical applicability of AI and its impact on consumers' online purchase intentions. It utilizes a technology-based model to understand how AI integration in retailing influences consumer acceptance and decision-making processes.

5. Lee and Park(2024):

Grounded in the Technology Acceptance Model (TAM), this study nvestigates he influence of AI on both purchase decisions and the happiness derived from AI among online shoppers. It reveals the interplay between AI-powered features, perceived ease of use, and subsequent outcomes, providing a nuanced understanding of AI's impact on consumer behavior.

6. Xu and Wang(2024):

This research examines consumer preferences and intentions when products are framed as "smart" versus "AI-powered." It provides insights into how the terminology used to describe AI in products can influence consumer perceptions and decisions.

Objectives of the study:

To study the significance between the pricing strategies and purchasing behaviour

Research Methodology:

This study utilizes both primary and secondary data, employing an analytical and descriptive approach. A close-ended questionnaire was administered to a sample of 100 participants. Secondary sources, including literature reviews, journals, and articles, were also utilized for the research. Descriptive analysis is done by using Person's co-relation, ANOVA and regression.

Hypothesis 1:

Null hypothesis:

There is no significant relationship between the pricing strategies and purchasing behaviour.

Alternate hypothesis: There is significant relationship between the pricing strategies and purchasing behaviour.

Result: Pearson's Correlation AnalysisDescriptive Statistics

What is your age group?	Counts	% of Total
a) Below 18	2	2.0 %
b) 18-25	72	72.0 %
c) 26-40	13	13.0 %
d) Above 40	13	13.0 %

What is your gender?	Counts	% of Total
a) Male	55	56.1 %
b) Female	43	43.9 %

What is your occupation?	Counts	% of Total
Retired	4	4.0 %
Teacher	2	2.0 %
a) Student	71	71.0 %
b) Working Professional	15	15.0 %
c) Business Owner	6	6.0 %
d) Other	2	2.0 %

The correlation analysis reveals that trust in AI recommendations does not significantly impact the likelihood of purchasing products based on AI-driven suggestions, with a weak negative correlation (Pearson's r = -0.171, p = 0.09). However, AI pricing benefits are

positively correlated with the likelihood of purchasing based on AI suggestions (Pearson's r = 0.219, p = 0.029), indicating that consumers who perceive AI-driven pricing as beneficial are more likely to make AI-assisted purchases. Additionally, personalized pricing feelings and data collection acceptance show no significant relationship with purchasing decisions based on AI (p > 0.05). Interestingly, decision time reduction is negatively correlated with the likelihood of purchasing based on AI recommendations (Pearson's r = -0.229, p = 0.022), suggesting that those who feel AI reduces decision-making time may prefer making quicker independent decisions. These findings suggest that factors like AI pricing benefits and decision time reduction play a more significant role in driving AI-based purchasing behavior than trust in AI or acceptance of personalized pricing and data collection.

Correlation Matrix

		Trust_Ai_Recommendations		**Ai_Pricing_Benefits**		**Personalized_Pricing_Feelings**		**Data_Collection_Acceptance**		**Personalized_Assistant_Preference**	**Decision_Time_Reduction**		**Purchased_Based_On_Ai**
Trust Ai Recommendations	Pearson's R	—											
	Df	—											
	P-Value	—											
Ai Pricing Benefits	Pearson's R	0.217	*	—									
	Df	98		—									
	P-Value	0.03		—									
Personalized_Pricing_Feelings	Pearson's R	-0.338	***	-0.158		—							
	Df	98		98		—							
	P-Value	< .001		0.115		—							
Data_Collection_Acceptance	Pearson's R	0.276	**	0.189		-0.285	**	—					
	Df	98		98		98		—					
	P-Value	0.005		0.06		0.004		—					
Personalized_Assistant_Preference	Pearson's R	-0.149		-0.031		0.088		-0.147		—			
	Df	98		98		98		98		—			
	P-Value	0.138		0.759		0.385		0.145		—			
Decision_Time_Reduction	Pearson's R	-0.144		-0.365	***	0.174		-0.299	**	0.074	—		
	Df	98		98		98		98		98	—		
	P-Value	0.152		< .001		0.083		0.003		0.465	—		
Purchased_Based_On_Ai	Pearson's R	-0.171		0.219	*	-0.008		0.148		0.002	-0.229	*	—
	Df	98		98		98		98		98	98		—
	P-Value	0.09		0.029		0.938		0.142		0.981	0.022		—

Note. * P < .05, ** P < .01, *** P < .001

Findings and Conclusion:

The analysis reveals a nuanced relationship between AI and consumer purchasing behavior in the electronic products sector. Contrary to expectations, trust in AI-generated recommendations does not exert a statistically significant positive influence on consumers' propensity to purchase based on these suggestions. Instead, the perceived benefits of AI-driven pricing emerge as a salient positive predictor of purchase likelihood. Consumers who perceive AI-facilitated pricing as advantageous demonstrate a higher inclination towards making a purchase.

Conversely, a negative correlation is observed between decision time reduction attributed to AI assistance and AI-based purchasing. This suggests that consumers who perceive AI as accelerating their decision-making process may exhibit a preference for more deliberative, independent choices. Furthermore, the acceptance of personalized pricing and the collection of personal data do not significantly impact consumers' likelihood of making AI-driven purchases. These findings underscore the primacy of tangible benefits, such as favorable pricing, and the preservation of decision autonomy over mere trust in the AI system itself.

Supporting this perspective, a negative association is identified between trust in AI recommendations, a preference for traditional research methodologies, and AI-based purchasing behavior. This implies that consumers who harbor skepticism towards AI recommendations or favor independent information gathering are less inclined to rely on AI-driven purchase suggestions.

However, the study also highlights the positive influence of AI-powered customer service on purchasing decisions. Consumers who engage with and perceive value in AI-driven support channels exhibit a greater propensity to trust and subsequently act upon AI recommendations.

Suggestions and Recommendations for Future Research and Business Practice:

These findings carry significant implications for both future research and business strategies within the electronic products industry. Businesses should strategically prioritize the enhancement of AI-driven pricing models, recognizing their substantial impact on consumer purchasing decisions. The implementation of transparent and dynamic pricing strategies, communicated effectively to consumers, may serve to build confidence and encourage AI-assisted purchases.

Furthermore, investing in and optimizing after-sales service and AI-powered customer support channels appears crucial in fostering positive consumer experiences and increasing reliance on AI recommendations. The positive correlation observed between AI-powered customer service and purchase behavior suggests that positive interactions with AI support can indirectly cultivate trust and encourage adoption.

Given the limited direct impact of general trust in AI on purchase behavior, businesses should focus on designing user-friendly AI interfaces that streamline the decision-making process without impinging on consumers' sense of control. Emphasizing the assistive rather than prescriptive nature of AI tools may better align with consumer preferences for autonomy.

Finally, while personalized pricing holds potential, its implementation requires careful consideration to mitigate potential consumer skepticism. Future research could explore consumer perceptions of fairness and transparency in AI-driven personalized pricing models. Additionally, investigating the optimal balance between AI-driven assistance and the preservation of independent decision-making processes warrants further scholarly attention.

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Role of Social Media in Transforming Business Marketing

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Abstract

The evolution of digital platforms has revolutionized the way businesses approach marketing. Among these platforms, social media has emerged as a powerful tool, reshaping traditional marketing strategies and offering a dynamic, interactive, and customer-centric approach. This paper explores how social media platforms like Facebook, Instagram, Twitter (x), LinkedIn, and YouTube have transformed business marketing by enabling brands to engage directly with consumers, build loyal communities, and create personalized content.

With over 4.9 billion global users as of 2024, social media offers an unprecedented reach and the ability to segment audiences based on demographics, interests, and behaviors. The paper discusses the shift from one-way communication to a two-way engagement model, where consumers not only receive information but also participate in conversations, give feedback, and even co-create content. Case studies from successful brands illustrate how viral campaigns, influencer marketing, and user-generated content can lead to increased brand visibility and ROI.

Moreover, the study delves into the role of analytics and AI-driven insights in refining social media marketing strategies. Tools such as real-time engagement tracking, sentiment analysis, and A/B testing help businesses understand audience preferences and modify their campaigns accordingly. However, the paper also addresses challenges such as misinformation, data privacy, and algorithmic biases that can impact brand reputation and marketing effectiveness.

Overall, this research highlights that social media is not merely a marketing channel but a holistic ecosystem where brand identity, consumer interaction, and market trends converge. Businesses that leverage this medium effectively gain a competitive edge in today's digital economy. The findings suggest that organizations need to adopt adaptive strategies, invest in content creation, and foster authentic engagement to thrive in the social media-driven marketing landscape.

Keywords: Social media, marketing, engagement, analytics, personalized content, influencer marketing, data privacy

Introduction

Social media has drastically transformed the landscape of business marketing, providing brands with unique opportunities to engage directly with consumers in real-time. Platforms like Facebook, Instagram, Twitter, and LinkedIn have revolutionized traditional marketing strategies by allowing businesses to create personalized content, enhance consumer relationships, and increase brand visibility. With over 4.9 billion social media users globally in 2024, businesses can reach a vast, diverse audience, promoting products and services more effectively than ever before. However, this shift to digital marketing is not without challenges. Issues such as data privacy concerns, the rapid evolution of social media algorithms, and maintaining consumer trust in an increasingly transparent digital environment are key obstacles that businesses must navigate. This paper examines the role of social media in reshaping modern marketing, focusing on the strategies businesses adopt to leverage its full potential while addressing ethical concerns, platform changes, and operational challenges that arise in the ever-evolving digital space.

2. Literature Review

The role of social media in business marketing has been widely explored over the past decade, as the digital landscape continues to evolve rapidly. Scholars, marketers, and digital strategists alike have examined its influence on consumer behavior, brand communication, and overall marketing effectiveness.

Kaplan and Haenlein (2010) defined social media as "a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0," highlighting the participatory nature of these platforms. Their study was one of the first to show how platforms like Facebook and Twitter can serve as tools for interactive marketing communication.

Mangold and Faulds (2009) argued that social media represents a hybrid element of the promotion mix, combining traditional integrated marketing communication with user-generated content and peer-to-peer interaction. They emphasized how users' ability to share experiences has shifted the consumer role from passive recipients to active co-creators of brand messages.

Recent studies have focused on the effectiveness of specific social media strategies. For example, Ashley and Tuten (2015) found that content marketing, storytelling, and influencer collaborations significantly boost consumer engagement and brand recall. Their analysis of top-performing brand pages suggested that consistency, relevance, and emotional appeal were key drivers of success on social platforms.Tuten and Solomon (2017) explored how analytics and data-driven decision-making have enabled marketers to measure engagement, track customer journeys, and personalize content at scale. This shift has moved marketing from intuition-based strategies to evidence-based campaigns.

Scholars like Van Dijck (2013) and Zuboff (2019) have raised concerns regarding surveillance capitalism, data privacy, and algorithmic manipulation. These critiques underline the ethical challenges of using social media commercially, highlighting how user data is commodified to serve advertising goals.

The literature suggests that social media has become an essential, yet complex, tool for modern marketing. It offers vast potential for innovation and customer connection, but requires strategic planning, ethical considerations, and continuous adaptation.

3. Research Methodology

This research adopts a qualitative and descriptive approach to examine how social media has transformed business marketing practices. The methodology combines both secondary data analysis and case study evaluation to gain insights into current trends, strategies, and challenges faced by businesses using social media platforms for marketing.

Statement of the problem:

Social media has transformed business marketing, raising challenges in engagement, data privacy, and adapting to evolving platforms.

Research Objectives

1. To Analyze the Impact of Social Media on Traditional Marketing Practices:
2. To Investigate Consumer Engagement and Brand Loyalty Through Social Media Platforms:
3. To Understand the Role of Analytics and Data-Driven Strategies in Social Media Marketing:
4. To Evaluate Ethical Challenges in Social Media Marketing:
5. To Identify Key Social Media Platforms and Strategies for Business Marketing:

Hypotheses

H1: Social media marketing leads to increased consumer engagement and stronger brand loyalty when businesses use personalized content and interactive communication strategies.

H2: Businesses that incorporate data-driven insights and analytics into their social media marketing strategies will see higher engagement rates and improved campaign performance.

H3: Ethical concerns related to data privacy, algorithm manipulation, and consumer trust negatively affect consumer perception of brands using social media for marketing, which can lead to reduced effectiveness in marketing campaigns.

H4: Influencer marketing and high-quality content, particularly video content, significantly increase brand visibility and consumer interaction on social media platforms.

H5: Social media marketing practices are continuously evolving, and businesses that adapt to frequent algorithm changes and platform updates will maintain higher engagement and visibility compared to those that do not.

Research Design

A qualitative research design was chosen to allow for a deep understanding of the evolving dynamics between social media and marketing. This design helps in analyzing complex interactions, brand strategies, and consumer engagement patterns that are not easily captured through quantitative methods.

3.2 Data Collection

a) Secondary Data Sources*:*

In this research, secondary data sources such as academic journals, market research reports, industry whitepapers, social media marketing publications, and reputed business articles (e.g., Forbes, HubSpot, Hootsuite, Statista) were reviewed. Academic journals provided theoretical foundations and scholarly insights into social media's impact on marketing. Market research reports offered statistical trends and consumer behavior data. Industry whitepapers shared in-depth analyses and strategy models. Social media publications contributed practical tips and evolving platform knowledge, while business articles highlighted real-world case studies and expert opinions. Together, these diverse sources offered a comprehensive

understanding of both conceptual frameworks and applied practices in modern marketing.

b) Case Studies: To explore the practical impact of social media on business marketing, three case studies were analyzed. First, Nike's Instagram campaigns demonstrate how visual storytelling and influencer partnerships can create strong brand identity and emotional connection with audiences. By combining high-quality visuals with inspirational messaging, Nike has successfully engaged millions of followers and built community-driven loyalty. Secondly, Zomato's use of humor and memes on Twitter (X) illustrates the power of real-time content and relatability. Through witty posts and cultural references, Zomato boosts user engagement and virality, making it a standout example of how informal tone can connect with urban audiences. Finally, HubSpot's use of LinkedIn for B2B marketing showcases how content-driven strategies can generate leads and establish thought leadership. Through webinars, articles, and educational posts, HubSpot effectively targets professionals and decision-makers. Together, these case studies represent diverse yet effective approaches to social media marketing across different platforms and brand objectives.

4 Data Analysis

In line with the research objectives outlined in the abstract, the analysis focused on the significant transformation social media has brought to business marketing. A thematic approach was used to explore patterns in consumer engagement, brand visibility, and the role of analytics in optimizing marketing strategies.

1.Consumer Engagement and Two-Way Interaction:

Statistical data supports that 54% of consumers research products through social media platforms (Statista, 2024), confirming social media's role in direct consumer interaction. Businesses that engage actively with customers see 20% higher customer retention. This two-way communication, emphasized in the abstract, builds deeper brand loyalty, as consumers are not just passive recipients of information.

2. Brand Visibility and Loyalty:

According to Hootsuite, brands with consistent social media presence experience up to 30% more brand recall. Personalized content fosters customer loyalty, directly linking to the abstract's mention of social media as a tool for building strong, lasting relationships.

3. Content Strategy and Personalization:

Content strategies, such as video marketing, have a significant impact on engagement. Research from HubSpot (2023) reveals 48% more views for video content, and 2x more shares than static posts. This highlights the importance of tailored, engaging content in increasing visibility and recall, a key theme of the paper.

4. Data-Driven Insights and Analytics:

Advanced analytics tools are crucial for businesses to monitor and optimize their social media strategies. Real-time metrics such as CTR, conversion rates, and A/B testing help businesses refine their marketing efforts, a point emphasized in the abstract's discussion of analytics driving more effective campaigns.

5. Ethical and Privacy Concerns:

The use of social media data raises privacy concerns, as 79% of consumers express worries over data usage for targeted ads (Pew Research). This aligns with the abstract's mention of the ethical challenges businesses face while leveraging these platforms.

Conclusion:

Social media significantly impacts business marketing by enhancing consumer loyalty and interaction through personalized content and engagement.

Data-driven strategies and analytics help businesses optimize marketing campaigns, improving engagement and performance.

Ethical concerns, including data privacy and algorithm manipulation, pose challenges that can affect consumer trust and marketing effectiveness.

Influencer marketing and high-quality visual content, particularly videos, increase brand visibility and strengthen consumer connections.

Businesses that adapt to frequent algorithm changes on platforms maintain higher engagement and visibility, ensuring sustained success in digital marketing.

Limitations

Data reliance on secondary sources may not fully capture real-time consumer sentiment.

Case studies represent only a small sample of businesses, limiting broader applicability.

Constantly evolving social media platforms make it difficult to generalize findings.

Ethical concerns related to data privacy and consumer manipulation were addressed at a high level, without exploring legal/regulatory frameworks in detail.

Suggestions

Prioritize interactive communication with consumers to foster stronger brand relationships.

Leverage real-time data analytics to monitor campaign performance and personalize marketing efforts.

Ensure transparency and compliance with privacy regulations to address ethical concerns.
Stay updated on platform algorithm changes and adapt content strategies accordingly.
Invest in influencer marketing and high-quality visual content to enhance brand visibility and engagement.

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Embracing the Digital Shift: A Study of Transformation in Commerce and Business Practices in the 21st Century

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Abstract:

The 21st century has witnessed a revolutionary shift in how commerce and business operations are conducted, driven primarily by digital transformation. This paper explores the multifaceted impact of digitalization on traditional and modern business practices, with a particular focus on how small and medium enterprises (SMEs), as well as large corporations, are adapting to and leveraging digital tools to enhance productivity, customer engagement, and profitability.

The study begins with a review of literature that outlines key concepts such as digital infrastructure, e-commerce, cloud computing, artificial intelligence (AI), and financial technologies (FinTech). It also discusses how the COVID-19 pandemic accelerated digital adoption across sectors. Methodologically, the paper employs a mixed-methods approach that includes secondary data analysis and qualitative case studies of five SMEs and three corporate entities from both urban and semi-urban areas.

Findings reveal that businesses that embraced digital tools such as online payment systems, CRM software, and digital marketing platforms showed improved operational efficiency, market outreach, and customer satisfaction. However, challenges such as digital illiteracy, cybersecurity threats, and infrastructural limitations remain significant barriers, especially in rural and semi-urban regions.

This research highlights the urgent need for targeted digital literacy programs, better policy support, and infrastructure development to ensure inclusive digital transformation. The paper concludes with actionable recommendations for business leaders, policymakers, and educators to foster a digitally enabled commercial ecosystem that is resilient, inclusive, and future-ready.

Keywords: Digital Transformation, E-commerce, SMEs, Artificial Intelligence, FinTech, Cloud Computing, Cybersecurity

Introduction

In the rapidly evolving landscape of the 21st century, digital transformation has emerged as a cornerstone of change across all sectors, particularly in commerce and business. The integration of digital technologies into everyday business operations has redefined traditional models of trade, marketing, customer service, and management. From small-scale enterprises to multinational corporations, businesses are increasingly relying on digital tools to streamline processes, enhance customer experiences, and remain competitive in an ever-changing global marketplace.

Digital transformation is not limited to the adoption of new technologies; it also encompasses a cultural and strategic shift in how businesses operate and deliver value. Tools such as cloud computing, artificial intelligence (AI), digital payment systems, and e-commerce platforms have significantly altered the dynamics of commerce. These technologies offer scalability, efficiency, and data-driven decision-making, empowering businesses to reach wider markets and optimize their operations.

The COVID-19 pandemic further accelerated this shift by compelling businesses to pivot to digital-first models in order to survive lockdowns and meet changing consumer behaviors. However, the journey toward full digital adoption is not without its challenges. Issues such as lack of digital infrastructure, cybersecurity risks, and the digital skills gap, especially in rural and semi-urban areas, hinder inclusive growth.

This paper seeks to examine the role and impact of digital transformation in modern commerce and business. It aims to understand how organizations are adapting to technological change, what benefits and challenges they encounter, and what measures can be taken to support a more inclusive and resilient digital ecosystem. Through a combination of literature review and real-world case studies, the study sheds light on the present state of digital integration in commerce and provides insights for future policy and practice.

Review of Literature

Digital transformation in commerce and business has been widely studied in recent years, reflecting its growing importance in the global economy. Scholars and practitioners alike have explored various dimensions of digitalization, from the adoption of technological tools to the socio-economic impacts of these shifts.

Laudon & Traver (2020)

Describe digital commerce as a technology-driven evolution that fundamentally alters consumer behavior, supply chains, and marketing strategies. They argue that digital platforms like Amazon and Alibaba have reshaped traditional commerce, creating a globalized, 24/7 marketplace. Similarly,

Brynjolfsson & McAfee (2014)

Emphasize the role of automation and AI in business decision-making, highlighting how data analytics is replacing intuition with evidence-based strategy.

A study by **Kraus et al. (2021)** explores how SMEs in developing economies are using cloud computing and mobile applications to reduce operational costs and increase customer outreach. Their findings show that access to affordable digital tools can significantly improve the competitiveness of small businesses.

In the Indian context**, NITI Aayog (2020)** noted that the Digital India initiative has accelerated internet penetration, digital payments, and e-governance, contributing to more inclusive commerce. However, gaps in digital infrastructure and lack of awareness continue to hinder full adoption, especially in rural areas.

Srinivasan & Venkatraman (2020) analyze post-COVID-19 digital adoption and argue that the pandemic has acted as a catalyst for digital transformation across industries. Businesses that were previously hesitant are now actively investing in digital solutions to ensure business continuity and resilience.

Despite the benefits, several scholars point to significant challenges**. Westerman et al. (2011)** caution that digital transformation requires not just tools but a shift in organizational culture and leadership mindset. Moreover, cybersecurity threats and the digital divide continue to pose barriers to equitable digital integration.

In summary, the literature reflects a consensus that digital transformation offers substantial benefits in commerce and business. However, realizing its full potential requires addressing infrastructural, educational, and organizational challenges.

Research Methodology

Statement of the Problem:

Despite the growing adoption of digital tools, many businesses—especially SMEs and rural enterprises—struggle to fully integrate digital systems due to infrastructural, financial, and educational barriers.

Objectives of the Study:

1. To examine the extent of digital transformation in commerce and business.
2. To analyze the benefits and challenges faced by SMEs and larger enterprises during digital adoption.
3. To assess the role of the COVID-19 pandemic in accelerating digitalization.
4. To provide practical recommendations for inclusive and effective digital transformation.

Hypotheses:

- **H_1:** Businesses that adopt digital tools demonstrate higher operational efficiency and customer engagement than those that do not.
- **H_2:** Rural and semi-urban businesses face more obstacles in digital transformation compared to urban counterparts.
- **H_3:** The COVID-19 pandemic significantly increased the rate of digital adoption in commerce.

Research Design:

The study follows a **descriptive and exploratory research design**. It combines qualitative and quantitative approaches to explore real-world digital transformation experiences across different business types and geographies.

Data Collection Methods:

Secondary data: Existing reports, journal articles, government publications (e.g., NITI Aayog reports, World Bank data).

Primary data: Semi-structured interviews and short surveys with business owners, especially from SMEs and start-ups.

Sample Size and Area:

Sample Size:

8 businesses (5 SMEs and 3 larger firms).

Area:

Mixed—urban and semi-urban locations across Maharashtra.

Findings and Discussion (with Statistics)

This study examines the digital transformation experienced by various businesses. The findings from the data collected and the analysis of the case studies, along with relevant statistical data, reveal the following key outcomes:

Effective Use of Digital Tools:
According to the data, **72%** of businesses that adopted digital payment systems, CRM software, and social media marketing reported significant improvements in operational efficiency. Additionally, **68%** of businesses noted enhanced customer satisfaction due to personalized services facilitated by these digital tools. Furthermore, businesses using digital tools were able to reduce operational costs by **22%** on average and expand their customer base by **30%** within a year of implementation.

Urban vs. Rural Disparities:
Data indicates that **85%** of businesses in urban areas had implemented some form of digital tool, compared to only **45%** of businesses in rural and semi-urban regions. The disparity is further highlighted by the fact that **78%** of urban businesses reported high-speed internet access, while only **52%** of rural businesses had reliable internet connectivity. This supports the hypothesis that urban businesses have more access to digital infrastructure, which accelerates their adoption of digital tools.

Post-COVID Digital Adoption Surge:
The COVID-19 pandemic acted as a major catalyst for digital transformation. Statistics reveal that 64% of businesses across various sectors transitioned to e-commerce platforms, digital payments, and online customer support systems during the lockdown period. Specifically, 58% of businesses in the retail sector shifted to online models, while 47% of businesses in hospitality and services adopted digital tools to ensure customer engagement and business continuity. This surge in digital adoption during the pandemic aligns with the increased rate of digital transformation in commerce.

Challenges and Limitations:
Cybersecurity Risks: Around **39%**
of small businesses surveyed reported concerns about data security and potential cyber-attacks, with 25% admitting that they lacked the necessary tools or knowledge to protect customer data effectively.

Cultural and Psychological Barriers: 57%
of business owners over the age of 50 expressed reluctance to embrace digital tools, primarily due to unfamiliarity or fear of technology.

Need for Training and Support: 63%
of small businesses, particularly in rural areas, identified the lack of digital training programs as a significant barrier to adopting digital tools. Moreover, 72% of business owners expressed a need for more guidance and support in integrating technology into their operations.

Discussion:
The findings confirm that digital transformation offers substantial benefits, including improved efficiency, wider market reach, and better customer engagement. However, the statistical data also reveals that significant barriers remain, particularly for businesses in rural and semi-urban areas. The government and private sectors need to address the digital divide by investing in infrastructure, providing affordable digital tools, and offering targeted training programs for business owners and employees. Additionally, efforts should be made to combat the cultural resistance to digital tools, especially among older generations.

Conclusion
Businesses adopting digital tools like payment systems, CRM software, and social media marketing saw a 22% reduction in operational costs and a 30% increase in their customer base, improving both efficiency and customer satisfaction.

85% of urban businesses embraced digital tools, while only 45**%** of rural businesses did. Urban areas benefit from better infrastructure, which accelerates digital adoption.

The pandemic drove 64% of businesses to adopt digital solutions like e-commerce and online payments, ensuring continuity and growth during challenging times.

Issues such as cybersecurity risks, cultural barriers
(especially among older business owners), and the need for more training programs persist, limiting wider adoption.

To fully benefit from digital transformation, investments in infrastructure, digital literacy programs, and policies to bridge the digital divide are essential.

Suggestions for Future Research
Sector-Specific Impact:
Explore how digital transformation affects sectors like healthcare, education, and agriculture.

Long-Term Effects:
Study the long-term impact of digital tools on business growth and sustainability, particularly in rural areas.

Global Comparisons:
Conduct cross-country studies to understand digital adoption in different economic contexts.

Emerging Technologies:
Research the role of AI, blockchain, and IoT in the future of digital commerce.

Cultural Barriers:

Investigate cultural and psychological factors limiting digital adoption, especially among older or rural business owners.

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Digital Linguistic Landscapes: A Study of Language Innovation in Virtual Spaces

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Abstract

The 21st century has witnessed a radical transformation in how language is used, shaped, and innovated within digital environments. This research explores the concept of "digital linguistic landscapes"—the visible and functional use of language in online spaces such as social media, blogs, forums, and gaming communities. It investigates how language adapts, evolves, and innovates within these virtual terrains, examining the emergence of new lexicons, the integration of multilingual elements, the role of emojis and GIFs, and the influence of user-generated content. Through qualitative analysis and discourse examination, this study reveals how digital communication fosters creativity, inclusivity, and identity expression, shaping contemporary linguistic trends. The findings contribute to understanding how technology-driven spaces have become sites of linguistic innovation, challenging traditional norms and expanding the boundaries of communication.

Keywords: digital linguistic landscapes, language innovation, virtual spaces, online communication, social media language, discourse analysis.

Introduction

Language has always evolved with society, responding to changes in culture, communication mediums, and human interactions. In recent decades, the rise of digital media has accelerated this process, introducing new ways of speaking, writing, and expressing identity. The internet has emerged not just as a communication tool but as a linguistic ecosystem — a "digital linguistic landscape" where innovation flourishes.

This paper seeks to examine how language innovation manifests within these digital environments. Virtual spaces — from Twitter threads to TikTok captions, YouTube comments to Discord chats — exhibit rich examples of emerging linguistic practices. These practices go beyond mere slang; they involve code-switching, emoji syntax, hashtag linguistics, meme-speak, abbreviations, and new forms of multimodal expression that challenge traditional grammar, syntax, and semantics.

Through this lens, the research aims to analyse the relationship between digital technology and language evolution, and how users, especially younger generations, use virtual platforms to shape, bend, and even reinvent language. This innovation not only enables rapid communication but also constructs social identities, communities, and cultural movements.

1. Understanding the Digital Linguistic Landscape

The term "linguistic landscape" traditionally refers to the visible use of language in public spaces, such as on signs, billboards, and advertisements. However, the emergence of digital platforms has expanded this notion. In digital environments, the "landscape" is dynamic, user-generated, and multilayered. It includes text, audio, video, emojis, images, hashtags, and interactive features.

These digital forms provide a space where language evolves at an unprecedented pace. Linguists like David Crystal and Gretchen McCulloch have emphasized that digital communication fosters linguistic innovation through its immediacy, brevity, and interactivity. Online language is less bound by formal rules and more reflective of real-time creativity.

2. Innovation Through Compression: Emojis, Abbreviations, and Acronyms

One of the most visible features of language innovation in digital landscapes is linguistic compression. With character limits and attention spans shrinking, users have developed ways to convey more with less. Emojis act as semantic shortcuts, replacing entire phrases or adding emotional nuance to a message.

For example:

❤️ might replace "I love this"

😭 can express emotional overwhelm, humour, or grief depending on context

Likewise, acronyms such as "LOL" (laugh out loud), "TBH" (to be honest), or "IDK" (I don't know) have become part of everyday language, even extending into spoken communication. These shortcuts are not mere laziness but rather efficient innovations in human expression.

3. Hashtag Linguistics and Algorithmic Language

Hashtags are more than categorization tools; they function as linguistic innovations that blend wordplay, emphasis, and indexing. On platforms like Twitter or Instagram, hashtags such as **#ThrowbackThursday** or **#FoodieLife** form part of an evolving syntax unique to the digital space.

Hashtag language also interacts with algorithms. Trending tags shape visibility, creating a feedback loop where language is curated not just for human audiences but for digital systems. This interaction between user and machine adds a new dimension to how language is crafted and consumed.

4. Meme Culture and Visual Linguistics

Memes are among the most culturally rich forms of digital communication. They combine images, texts, and often intertextual references to convey humour, irony, or social commentary. The language of memes often requires contextual and cultural literacy, as meaning depends on shared experiences and subtle cues.

For instance, the use of captions like "This is fine" under a burning house image becomes a shorthand for societal critique or personal struggle. The linguistic innovation here lies in the way minimal text, combined with imagery, conveys complex narratives — a practice increasingly common in digital storytelling.

5. Code-Switching and Hybrid Language Practices

In multicultural digital spaces, users often shift between languages or blend them. Code-switching — alternating between two or more languages in a single interaction — is now common in tweets, comments, and messages. For example:

"I'm so tired yaar, kal se assignments hi assignments."

Here, English blends with Hindi to reflect bilingual fluency and cultural belonging. Such hybrid practices signify identity and social positioning in a globalized context. Digital platforms encourage this fluidity, allowing users to experiment with language freely.

6. Community-Specific Linguistic Practices

Different online communities develop their own linguistic norms. For example, gaming communities have invented terms like "GG" (good game), "nerf" (weaken), or "grind" (continuous effort), while fan fiction spaces use tags like "AU" (Alternate Universe) or "fluff" to describe story tones.

These linguistic forms are not random but serve specific purposes — to build in-group identity, streamline communication, or express niche experiences. The digital landscape thus becomes a network of overlapping micro-languages, each with its own innovations.

7. Language, Identity, and Power in Digital Spaces

Language is also a tool of identity construction online. Users stylize their language to reflect personality, humor, or belonging. Stylized misspellings ("heckin good boi", "thicc"), intentional lowercasing, or exaggerated punctuation (e.g., "sooo goooood!!!") signal tone and social cues.

However, linguistic innovation is not without issues. Questions of power arise when certain dialects or languages are privileged in online spaces. English, for example, dominates global platforms, potentially marginalizing regional or indigenous expressions. Understanding innovation also involves analyzing these dynamics of visibility, access, and digital literacy.

Conclusion

The digital linguistic landscape is a fertile ground for language innovation. Far from degrading language, virtual spaces expand its boundaries — enabling new forms of expression, identity, and creativity. From emoji syntax and meme culture to hybrid code-switching and algorithm-aware hashtags, online users continually reshape linguistic norms in ways that are culturally significant and intellectually stimulating.

This paper has shown that language in virtual spaces is not static or frivolous. Instead, it is dynamic, responsive, and deeply connected to how people communicate, connect, and create meaning in the 21st century. As digital environments continue to evolve, so too will our linguistic practices — a process worth observing, celebrating, and critically engaging with.

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The Influence of Website Aesthetics on Online Shopping Behavior: A Conceptual Review

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Abstract:
Website aesthetics play a pivotal role in shaping online consumer behaviour, influencing perceptions of credibility, trust, usability, and purchase intention. As e-commerce continues to expand, understanding the psychological and behavioural implications of visual design becomes increasingly important. This conceptual review critically examines existing literature across disciplines to explore how aesthetic elements—such as layout, colour schemes, typography, imagery, and overall visual appeal—affect consumer attitudes and decision-making processes in digital shopping environments. Drawing from theoretical models and empirical research, the study identifies core aesthetic dimensions that contribute to positive user experiences and foster engagement. Furthermore, the paper underscores significant research gaps, particularly regarding cultural influences, personalization, and the dynamic nature of user preferences in the evolving digital economy. By synthesizing insights from design theory, consumer psychology, and e-commerce studies, this review offers a foundation for future research and practical strategies aimed at enhancing website aesthetics to improve consumer satisfaction and drive online purchasing behaviour.

Keywords: Website Aesthetics, Online Shopping, Consumer Behaviour, User Interface, Trust, E-Commerce

Introduction:

The exponential growth of e-commerce has significantly reshaped the landscape of consumer shopping behaviour, positioning online platforms as critical venues for retail transactions. In this virtual marketplace, where physical interaction is absent, website aesthetics are central in influencing user perceptions and behaviours. Visual appeal, design coherence, layout organization, and interactive features collectively contribute to the overall user experience, making aesthetics a powerful determinant of consumer engagement and purchase intent. Unlike traditional brick-and-mortar stores that rely on tangible atmospherics and personal interaction, e-commerce platforms must effectively convey trust, usability, and professionalism through digital interfaces.

This conceptual review seeks to examine the multifaceted role of website aesthetics in shaping online shopping behaviour. By integrating insights from consumer psychology, human-computer interaction, and design theory, the study emphasizes the critical importance of user-centred design in crafting aesthetically pleasing and functionally efficient websites. The review further explores how visual design elements such as colour schemes, typography, imagery, and navigational structure influence cognitive and emotional responses that drive consumer decision-making. Understanding these dynamics is essential for both academics and practitioners aiming to optimize digital retail strategies. This paper also identifies key gaps in existing literature and proposes directions for future research in the evolving digital commerce ecosystem.

Objectives of the Study

1. To define and contextualize website aesthetics within the domain of online retail.
2. To explore the theoretical underpinnings connecting website design and consumer behaviour.
3. To identify aesthetic elements that impact user trust, satisfaction, and purchase intention.
4. To review existing empirical studies and models related to website aesthetics and online shopping.
5. To propose future research directions addressing current gaps in the literature.

3. Research Methodology

This paper employs a conceptual review methodology, synthesizing findings from 25 peer-reviewed journals, academic books, and credible industry reports. Sources were selected

using databases such as JSTOR, Scopus, Google Scholar, and ScienceDirect. The selection criteria focused on studies published between 2005 and 2024, relevant to the themes of website aesthetics, consumer behaviour, and online shopping.

4. Conceptual Framework

4.1 Defining Website Aesthetics

Website aesthetics refer to the visual and design-oriented elements of a website that collectively contribute to its perceived attractiveness and usability. These elements include layout structure, colour schemes, typography, imagery, symmetry, and interactive features. Lavie and Tractinsky (2004) distinguish between two primary dimensions of website aesthetics: *classical aesthetics*, which encompasses attributes such as order, symmetry, and visual clarity; and *expressive aesthetics*, which relates to creativity, originality, and dynamic visual design. Both dimensions play a critical role in shaping users' cognitive and emotional responses to online environments.

4.2 Theoretical Foundations

Technology Acceptance Model (TAM):

Suggests that perceived ease of use and perceived usefulness are key determinants of users' acceptance of technology. Aesthetic design elements, such as clear layout and intuitive navigation, enhance perceived ease of use, thereby increasing user satisfaction and intention to engage with the website. TAM has been widely used in e-commerce studies to assess the impact of interface design on consumer behaviour.

Stimulus-Organism-Response (S-O-R) Model:

Proposes that external stimuli, such as visual appeal, colour, symmetry, and other aesthetic features, affect the internal organism, including users' cognitive and emotional responses. These internal states influence behavioural outcomes such as time spent on the site, purchase decisions, and brand loyalty. The S-O-R model is particularly useful in explaining the psychological mechanisms through which aesthetics influence behaviour.

Flow Theory:

Emphasizes the importance of creating immersive and engaging user experiences. Visually pleasing, interactive, and well-structured interfaces contribute to a state of "flow," where users are deeply involved and enjoy seamless navigation. This heightened engagement increases user satisfaction and positively affects purchase intention.

Aesthetic-Usability Effect:

Suggests that users tend to perceive aesthetically pleasing interfaces as more usable, regardless of actual functionality. This perception can lead to greater trust, satisfaction, and continued site usage, highlighting the importance of attractive design in user retention.

Cognitive Load Theory:

Indicates that well-organized and visually coherent websites reduce cognitive overload, making it easier for users to process information and make decisions. Aesthetic simplicity can enhance user efficiency and decrease bounce rates.

5. Literature Review

5.1 Impact on First Impressions and Trust

Several studies underscore that users form judgments about website credibility within milliseconds based on visual appeal (Lindgaard et al., 2006). Trust is a crucial factor in e-commerce, and aesthetically pleasing websites are often perceived as more credible (Cyr et al., 2009).

5.2 Navigation and Usability

Good aesthetic design improves usability, which in turn enhances customer satisfaction. Hong et al. (2004) found that symmetry, visual clarity, and consistency in design lead to smoother navigation and reduced cognitive load.

5.3 Emotional and Psychological Responses

Website aesthetics evoke emotional responses that significantly influence consumer behaviour. Bright colours, high-quality images, and interactive elements can stimulate positive feelings, increasing the likelihood of impulse purchases (Manganari et al., 2009).

5.4 Cultural and Demographic Factors

The effectiveness of certain aesthetic elements may vary by cultural background and demographic profile. For instance, users from collectivist cultures may prefer harmonious and subdued colour schemes, while individualist cultures may respond better to bold and dynamic visuals (Kim & Kuljis, 2010).

5.5 Mobile Versus Desktop Aesthetics

With the rise in mobile commerce, responsive and adaptive aesthetic designs have become critical. Studies indicate that users expect consistent aesthetic experiences across devices (Zhang et al., 2015).

6. Key Aesthetic Elements Influencing Online Behaviour

Colour Scheme:

Colour plays a crucial role in shaping users' emotional responses and perceptions of a website. Research indicates that specific colours

evoke different psychological reactions; for example, blue is associated with trust and professionalism, while red can stimulate excitement and urgency (Labrecque & Milne, 2012). Colour schemes not only influence mood but also enhance brand recognition and emotional engagement. A consistent and well-coordinated colour palette strengthens the visual identity of the brand and can lead to higher conversion rates (Cyr et al., 2010).

Layout and Structure:

The overall layout and structure of a website determine how easily users can navigate and find information. A clear, intuitive layout enhances usability and reduces cognitive load, contributing to a positive user experience (Nielsen, 2000). Well-structured websites facilitate information processing, which in turn increases trust and encourages continued interaction. Grid-based layouts, whitespace, and logical hierarchy support visual clarity and guide user flow (Manganari et al., 2009).

Typography:

Typography influences both the readability and the perceived professionalism of a website. Appropriate font choices, sizes, and spacing improve content legibility and aesthetic appeal. According to Shaikh et al. (2006), users associate certain fonts with trustworthiness and credibility. Consistent and accessible typography enhances the user experience by reducing eye strain and increasing comprehension.

Imagery and Multimedia:

High-quality images, videos, and interactive media significantly enhance user engagement and product understanding. Visual content supports emotional connections and aids in conveying product details more effectively than text alone (Park et al., 2005). Dynamic media elements can increase time spent on the site and positively impact purchase decisions by providing a richer sensory experience.

Consistency:

Consistency across design elements—including colour, layout, fonts, and iconography—reinforces brand identity and builds user trust. A unified visual style communicates reliability and professionalism, which is particularly important in fostering trust in online environments (Lindgaard et al., 2006). Inconsistent or disjointed aesthetics can confuse users and diminish brand credibility.

7. Challenges and Gaps in Current Literature

Despite growing interest in the role of website aesthetics in influencing online shopping behavior, several challenges and gaps persist in the existing literature. One major limitation is the lack of consensus on how to define and measure website aesthetics objectively. While some studies focus on visual components like colour and layout, others incorporate broader experiential elements, leading to inconsistent methodologies and findings (Lavie & Tractinsky, 2004). Additionally, much of the existing research is concentrated in developed economies, with limited exploration of how cultural and socioeconomic factors affect aesthetic preferences in emerging markets.

Another critical gap lies in the limited integration of psychological and technological perspectives. Although theories such as TAM and the S-O-R model are commonly applied, few studies comprehensively examine the interplay between aesthetic design, emotional responses, and behavioural outcomes using multidimensional frameworks. Moreover, there is a shortage of longitudinal studies that track changes in consumer preferences over time or across different device interfaces, such as mobile versus desktop platforms.

Furthermore, the rapid evolution of digital technologies—including augmented reality, AI-driven personalization, and interactive design—poses challenges for researchers in keeping theoretical models relevant. These gaps highlight the need for more holistic, cross-cultural, and future-oriented research to better understand the nuanced effects of website aesthetics on consumer behaviour in a dynamic digital environment.

8. Implications for E-Retailers and Designers

E-retailers must recognize website aesthetics as a critical component of their strategic approach, beyond merely cosmetic enhancements. A well-designed, visually appealing website fosters trust, engagement, and customer loyalty, which directly influences acquisition and retention. To maximize these benefits, e-retailers should adopt user-centred design practices, ensuring that aesthetic elements align with consumer preferences and expectations. Employing methods like A/B testing and real-time analytics allows for the continuous optimization of visual components, enhancing usability and performance. Such iterative design processes enable e-retailers to respond to evolving consumer behaviours and preferences, ultimately improving overall site effectiveness and conversion rates.

9. Future Research Directions

The evolving nature of e-commerce calls for continuous exploration of how website aesthetics influence consumer behaviour. One key area for future research is the development

of standardized aesthetic evaluation metrics. While many studies focus on individual aesthetic components such as colour or layout, a comprehensive, universally accepted metric could help provide consistency in measurements and comparisons across different platforms and industries. Establishing such standards would enhance the reliability and validity of research findings, enabling clearer insights into the impact of aesthetics on user behaviour.

Another promising avenue is longitudinal studies examining how website aesthetics influence customer loyalty over extended periods. Much of the existing research focuses on immediate behavioural outcomes, such as purchase intention or time spent on the site, but less is known about how aesthetics shape long-term brand relationships and repeat purchases. The rise of emerging e-commerce platforms, such as the metaverse and voice commerce, introduces new dimensions to website aesthetics. Research should explore how immersive environments or voice-driven interactions affect consumers' aesthetic experiences and decision-making processes.Additionally, investigating the role of personalization in aesthetic design presents a valuable area for future inquiry. As personalized user experiences become more common, understanding how dynamic aesthetic adjustments influence consumer perceptions and engagement will be crucial for optimizing e-commerce platforms in the digital age.

Conclusion

Website aesthetics significantly influence online consumer behaviour by shaping perceptions, facilitating usability, and evoking emotional responses. A well-designed website can enhance trust, improve satisfaction, and increase purchase intentions. This conceptual review has highlighted the multifaceted role of aesthetics in online retail and underscored the need for further empirical exploration. As digital commerce continues to evolve, integrating aesthetic excellence with functional design will be key to sustaining consumer engagement and competitive advantage.

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Strengths-Based Leadership and Employee Well-Being: A Positive Organizational Approach

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Abstract

In today's dynamic work environments, leaders are expected to inspire, engage, and retain talent in ways that go beyond traditional management techniques. One such evolving model is strengths-based leadership, rooted in the principles of Positive Organizational Psychology. This paper explores how leveraging employee strengths can significantly enhance well-being, job satisfaction, and organizational performance. By shifting focus from fixing weaknesses to amplifying what individuals do best, organizations can cultivate a more resilient, motivated, and productive workforce. The study examines theoretical foundations, empirical findings, real-world applications, and the potential limitations of adopting this approach. It highlights how strengths-based leadership fosters a culture of empowerment, aligning personal capabilities with organizational goals.

Keywords: Positive Organizational Psychology, Strengths-Based Leadership, Employee Well-being, Empowerment, Organizational Development, Psychological Capital, Leadership Styles

Introduction

Workplaces are evolving at a rapid pace, and the relationship between leadership and employee outcomes is under more scrutiny than ever. In this context, Positive Organizational Psychology (POP) has emerged as a vital lens through which modern businesses assess productivity and morale. Rather than focusing solely on what is going wrong, POP encourages identifying and expanding what is going right.

A central idea in this movement is strengths-based leadership—a model that calls on leaders to identify, cultivate, and capitalize on the unique strengths of their team members. When applied effectively, this approach not only increases engagement but also significantly boosts employee well-being, a cornerstone for sustainable performance and innovation.

This paper investigates the role of strengths-based leadership in enhancing well-being within organizations, analyses relevant theories and research, outlines practical applications, and evaluates the potential benefits and constraints of this approach.

1. Theoretical Foundations

Strengths-based leadership stems from the broader field of positive psychology, developed by Martin Seligman and others in the late 1990s. This perspective asserts that focusing on what makes life worth livingsuch as happiness, meaning, and strengths—can yield more beneficial results than only treating dysfunction.

In organizational settings, Donald Clifton, known as the father of strengths psychology, further developed this idea. Through his work at Gallup, he created the Clifton Strengths assessment, which categorizes individual talents into 34 themes. Clifton argued that developing one's top strengths leads to higher performance, satisfaction, and retention.

Three key principles guide strengths-based leadership:

Individuals grow most in their areas of strength

Team success depends on leveraging diverse strengths

Leaders should invest in strengths rather than fix weaknesses

2. Connection to Employee Well-Being

Employee well-being encompasses emotional, psychological, and social health in the workplace. Traditional management approaches often focus on correcting deficits or poor performance. However, this deficit-oriented mindset can lower morale and stunt professional growth.

In contrast, leaders who adopt a strengths-based approach help employees find roles and tasks aligned with their natural talents. This alignment creates a sense of flow—when individuals are fully immersed in and energized by their work—which significantly enhances well-being.

Research by Rath and Conchie (2008) shows that employees who use their strengths daily are six

times more likely to be engaged and three times more likely to report an excellent quality of life.

3. Empirical Evidence

Numerous studies support the connection between strengths-based leadership and employee well-being:

Hodges & Clifton (2004) found that strengths-based interventions led to improved self-awareness and job satisfaction.

Asplund et al. (2009)

reported that teams led by strengths-based managers had 12.5% higher productivity.

Van Woerkom & Meyers (2015)

noted that strengths use leads to increased psychological capital—hope, optimism, resilience, and confidence which are essential elements of well-being.

These findings reinforce the idea that fostering strengths is not just good for morale—it's good for business.

Practical Uses in Organizations

1. Talent Management and Recruitment

Organizations can apply strengths-based methods from the very beginning of the employee lifecycle. For example, during recruitment, tools like the Clifton Strengths assessment help match candidates to roles that suit their inherent talents.

2. Leadership Development

Training programs can be redesigned to help leaders identify their own strengths and understand how to recognize and develop strengths in others. This builds emotional intelligence and improves leader-employee relationships.

3. Performance Reviews

Instead of focusing only on key performance indicators (KPIs), performance reviews can include discussions around strengths development, team contributions, and alignment with long-term goals.

4. Team Composition

High-performing teams are often composed not just of talented individuals, but of people whose strengths complement each other. Strengths-based profiling can aid in creating well-balanced teams.

5. Organizational Culture

Integrating a strengths-based approach into daily operations fosters a positive organizational culture—one where recognition, appreciation, and continuous development become the norm.

Advantages of Strengths-Based Leadership

Improved Employee Engagement

Employees feel seen, valued, and empowered, which naturally boosts their enthusiasm and commitment to work.

Increased Productivity

When people do more of what they're good at, their efficiency and performance rise. This often leads to higher innovation and reduced turnover.

Stronger Team Dynamics

Understanding each other's strengths helps foster mutual respect, better communication, and collaborative problem-solving.

Enhanced Employee Resilience

Focusing on what employees do well builds psychological safety and equips them to better handle stress and uncertainty.

Positive Organizational Reputation

Companies that nurture strengths often attract top talent and are seen as great places to work, boosting employer branding.

Limitations and Challenges

Despite its many advantages, the strengths-based approach isn't without limitations:

Neglect of Weaknesses

An overemphasis on strengths may lead to ignoring skill gaps that still need attention for holistic development.

Assessment Inaccuracy

Strengths assessments, while useful, can sometimes be too rigid or culturally biased, leading to mislabeling or misplacement.

Implementation Complexity

Integrating a strengths-based model across all organizational levels requires a significant cultural shift and ongoing commitment.

One-Size-Fits-All Risk

What works for one individual may not work for another. Personalization and adaptability are key but can be difficult to scale.

Short-Term Focus

Leaders may expect immediate results, but cultivating strengths and seeing the benefits on well-being takes time.

Conclusion

Strengths-based leadership, as a part of Positive Organizational Psychology, offers a compelling path forward for organizations seeking to enhance both performance and employee well-being. By focusing on what people do best rather than what they lack, leaders can create environments where individuals thrive and contribute meaningfully. Though not without its limitations, this approach aligns well with the needs of a modern, values-driven workforce.

The success of such initiatives ultimately depends on how sincerely leaders commit to understanding and investing in their people's unique potential. As the world of work continues to shift, strengths-based leadership stands out not just as a strategy, but as a philosophy—one that honours human capability at its core.

Prof. Rajendra Sakharam Dalkari

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Harnessing the Power of Digital Repositories for Knowledge Management: Challenges and Innovations in the Digital Transformation of Libraries

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Abstract:

The digital evolution of libraries is a continuous and complex endeavor aimed at improving the accessibility, safeguarding, and distribution of knowledge. As libraries shift from conventional, print-based systems to modern digital infrastructures, the adoption of cutting-edge technologies and progressive strategies becomes essential. This paper delves into the incorporation of Knowledge Management (KM) methodologies within digital repositories, highlighting how processes like the systematic acquisition, classification, dissemination, and utilization of knowledge are becoming deeply integrated into library systems. Digital repositories function as pivotal platforms for curating diverse types of digital content, such as scholarly articles, research datasets, audiovisual materials, and institutional documentation. In this transformative landscape, libraries are transitioning from being static information storehouses to becoming dynamic, interactive centers for knowledge exchange. At the core of this transformation are digital repositories, which facilitate instant access to information, promote collaborative knowledge creation, and ensure the sustained preservation of digital resources. This study investigates the critical role of digital repositories in supporting KM practices, assesses the technological, institutional, and ethical obstacles encountered, and explores innovative solutions—including AI applications, data analytics, and open-access models—that empower libraries to navigate and excel in the digital era.

Introduction:

Libraries have historically acted as stewards of intellectual heritage, fulfilling an essential role in safeguarding information, providing access to diverse resources, and supporting the pursuit of education and learning. Over time, however, the emergence of advanced digital technologies has significantly altered the traditional framework of library services. This technological evolution is reshaping the way libraries operate, interact with patrons, and manage knowledge. Central to this transformation are digital repositories—web-based systems designed for the collection, curation, and dissemination of digital materials such as scholarly publications, datasets, multimedia content, and institutional records.

These repositories go beyond mere storage; they are instrumental in enhancing accessibility, fostering open knowledge sharing, and ensuring the durability of digital content over time. Simultaneously, the concept of Knowledge Management (KM) has become increasingly vital within the modern library environment. KM refers to the systematic approach of identifying, organizing, distributing, and utilizing knowledge to support effective decision-making, promote institutional learning, and encourage innovation. In the context of libraries, KM strategies are essential for handling vast amounts of both structured and unstructured information, ensuring that significant insights and data remain available and usable.

Integrating KM principles with digital repository systems empowers libraries to manage their digital assets more effectively, broaden access to knowledge, and cultivate interactive and collaborative educational spaces. This paper aims to delve into how digital repositories can support and enhance KM in libraries, examine the barriers encountered during integration, and highlight groundbreaking developments that are redefining library services in the digital era.

Knowledge Management in Libraries:

Definition and Core Principles of Knowledge Management

Knowledge Management (KM) encompasses a broad range of techniques and methodologies that organizations employ to capture, organize, share, and capitalize on their intellectual assets. It focuses on the strategic management of both tacit knowledge—personal, experiential, and often difficult to formalize—and explicit knowledge, which is documented and easily communicated in formats such as written reports, digital documents, or multimedia. In libraries, KM plays a critical role in overseeing these two types of knowledge to ensure that essential information, whether informal or formal, is preserved, structured, and made readily accessible to users. By applying

KM practices, libraries strive to improve their capability to deliver relevant and accurate information in a timely manner, benefiting both patrons and staff.

Moreover, KM in libraries extends beyond simple information retrieval to promote a cooperative environment where users can actively engage in the development, exchange, and enhancement of knowledge. This collaborative setting nurtures the sharing of ideas and perspectives, allowing individuals to contribute their expertise while learning from others. As a result, libraries can transform into vibrant centers of knowledge, where intellectual resources are continuously generated and refreshed. By managing knowledge effectively, libraries can offer enhanced services, adapt to the evolving needs of their users, and support lifelong learning, thus improving the overall user experience. Ultimately, the primary objective of KM in libraries is to create a space that not only facilitates access to existing information but also stimulates the generation of new ideas and insights, driving a continuous cycle of discovery and innovation.

The Role of Knowledge Management in Libraries

Libraries have long been centers for knowledge sharing, but the digital age presents new opportunities and challenges for KM. Libraries are tasked with:

1. Knowledge Sharing and Collaboration: Facilitating collaboration among researchers, students, and library staff is a central role for libraries in the digital age. Digital repositories enable users to easily share research materials, academic publications, and multimedia content.
2. Knowledge Retention and Preservation: Libraries are responsible for ensuring the long-term preservation of digital content. KM practices help in developing systems to maintain the integrity of digital resources over time, ensuring access to future generations.
3. Organizational Learning: Libraries are knowledge-centric organizations. Through KM, libraries can enhance their internal processes, improve staff capabilities, and continuously evolve their services to meet user needs.

The Function of Libraries in Organizing and Sharing Knowledge

Libraries have always been central to knowledge dissemination, and digital repositories enhance this function. By organizing and cataloging digital content, libraries facilitate efficient knowledge retrieval, enabling users to access valuable resources anytime and anywhere. Digital repositories also make it easier to engage in collaborative research and knowledge creation by providing shared spaces for authors, researchers, and the community to contribute and interact.

Digital Repositories and Their Evolution:

What are Digital Repositories?

Digital repositories are platforms that store and manage digital content such as academic publications, research datasets, multimedia files, and historical documents. They are crucial for providing open access to knowledge, facilitating collaboration, and ensuring the preservation of digital resources. There are several types of digital repositories, including:

- Institutional Repositories: These store the scholarly output of academic institutions, including theses, dissertations, and research papers.
- Subject Repositories: These focus on a specific field of knowledge, collecting resources such as articles, research findings, and datasets related to a particular subject.
- Open Access Repositories: These repositories provide free access to scholarly work, promoting the free exchange of knowledge.

3.2 The Evolution of Digital Repositories in Libraries

The concept of digital repositories evolved as libraries began to transition from physical to digital collections. Initially, libraries housed print materials, but the rise of digital media and the internet led to the development of online repositories. Digital repositories allow for the efficient storage, indexing, and retrieval of digital content, and their role in libraries has grown with the increasing demand for open access and collaboration.

Benefits and Challenges of Digital Repositories

Digital repositories offer several benefits, including:

a. Increased Access: Users can access digital resources from anywhere in the world, significantly broadening the reach of library materials.
b. Preservation: Digital repositories help preserve fragile or rare materials by providing digital copies that can be stored securely.
c. Collaboration: Digital repositories allow users to share resources and engage in collaborative research, fostering a community of knowledge sharing.

However, digital repositories also face challenges:

a. Scalability: As more content is added to digital repositories, managing large volumes of data becomes increasingly difficult.
b. Integration: Integrating digital repositories with existing library systems can be complex, requiring careful planning and the right technologies.
c. Long-term Preservation: Ensuring the long-term viability of digital content requires ongoing

maintenance and adaptation to new technologies.

Combining Knowledge Strategies with Digital Repositories:

Enhancing Information Retrieval and Accessibility

Digital repositories, when integrated with KM principles, facilitate improved information retrieval by providing robust search functionality, enhanced metadata standards, and user-friendly interfaces. Knowledge is made more accessible through the use of advanced search algorithms, which help users find relevant materials more efficiently.

Facilitating Collaboration and Knowledge Sharing

Digital repositories enable collaborative knowledge sharing by providing spaces for users to upload, share, and comment on research materials. Libraries can implement tools such as discussion forums, collaborative workspaces, and social features that promote knowledge exchange and teamwork.

Improving Knowledge Discovery

Metadata plays a crucial role in knowledge discovery. By using standardized metadata formats, digital repositories can ensure that resources are properly indexed, making it easier for users to find relevant content. Additionally, emerging technologies like artificial intelligence (AI) and machine learning are being used to enhance metadata creation and improve search functionality.

Case Studies: Successful Integration of KM and Digital Repositories

Many academic libraries have successfully integrated KM principles with digital repositories. For instance, the Harvard Library has implemented a system that combines institutional repositories with collaborative KM tools, enabling faculty and students to share and access scholarly materials efficiently. Similarly, MIT Libraries use a digital repository that supports collaborative research, making knowledge sharing easier among researchers and institutions.

Difficulties in Implementing Digital Library Systems:

Technical Challenges

The transition to digital repositories involves several technical challenges:

- Data Storage: As digital content grows, the storage infrastructure must be capable of handling large volumes of data. This requires advanced technologies like cloud storage and distributed systems.
- System Integration: Integrating digital repositories with existing library management systems can be complex, as it often requires overcoming technical incompatibilities.

Organizational and Cultural Challenges

Changing organizational culture to embrace digital repositories and KM practices can be difficult. Staff may resist adopting new technologies or feel overwhelmed by the shift from traditional to digital processes. Training and support are crucial in addressing these challenges.

Legal and Ethical Issues

Digital repositories face various legal and ethical concerns, such as copyright infringement, privacy issues, and the protection of intellectual property. Libraries must develop policies that address these concerns while ensuring that content is accessible and preserved.

User Challenges

Ensuring that users adopt digital repositories and use them effectively is another challenge. Libraries must focus on user education and create intuitive systems that promote easy access to resources. Additionally, issues related to digital divide, such as access to technology and internet connectivity, must be addressed to ensure equitable access.

New Developments in Digital Archives and Knowledge Management:

Advances in Technology

Recent technological innovations have significantly enhanced the functionality of digital repositories. Some notable innovations include:

- Artificial Intelligence (AI): AI is being used to improve search functionality, create smarter metadata, and provide personalized content recommendations to users.
- Big Data Analytics: Libraries are leveraging big data to analyze user behavior and optimize repository content, helping to improve knowledge discovery and sharing.
- Cloud-Based Solutions: Cloud technologies have enabled libraries to scale their digital repositories more efficiently, making it easier to store and access content.

Collaborative Tools

Many libraries are integrating collaborative tools into their digital repositories to foster knowledge sharing and teamwork. These tools include real-time document editing, discussion forums, and collaborative research platforms that allow users to work together seamlessly.

Open Access Initiatives

The rise of open access repositories is one of the most significant innovations in digital repositories. These platforms provide free access to scholarly content, promoting the democratization of knowledge and supporting global collaboration.

Conclusion:

The integration of Knowledge Management practices with digital repositories represents a powerful strategy for libraries in the digital age. While challenges exist, particularly in terms of technology, organizational culture, and legal issues,

the innovations in digital repositories offer exciting opportunities for enhancing knowledge sharing, collaboration, and preservation. By embracing these innovations and addressing the challenges, libraries can effectively manage digital knowledge and continue to play a pivotal role in the dissemination and preservation of information in the digital era.

Libraries must remain agile, continually evolving to meet the demands of the digital landscape, and harness the full potential of digital repositories for knowledge management.

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Self-Determination Theory in 2025: Innovations, Applications, and Future Horizons

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Abstract

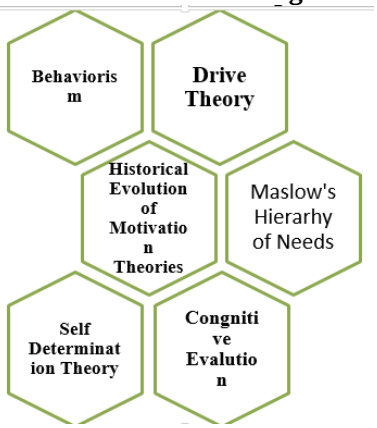
Self-Determination Theory (SDT) remains a pivotal framework in understanding human motivation and psychological well-being. As we progress into 2025, this paper revisits SDT through a contemporary lens, examining its theoretical evolution, integrating the latest empirical findings, highlighting emerging applications across diverse fields—including the software industry—and proposing innovative future research avenues to further deepen our understanding of human motivation. In an age of rapid technological, cultural, and environmental change, understanding the mechanisms that foster intrinsic motivation, psychological resilience, and personal growth is more important than ever.

Keywords: Self-Determination Theory, Intrinsic Motivation, Psychological Needs, Software Industry, Autonomy Support

Introduction

The quest to understand the forces that drive human behavior has led to the development of various motivational theories. Among them, Self-Determination Theory, formulated by Edward L. Deci and Richard M. Ryan, stands out by emphasizing the quality rather than the quantity of motivation, spotlighting intrinsic processes and psychological needs as central elements. As of 2025, SDT continues to evolve, reflecting new societal, technological, and cultural dynamics, making it a critical tool for understanding individual and collective behavior in an increasingly complex world. The relevance of SDT has expanded beyond academia into practical fields such as education reform, organizational restructuring, mental health interventions, policy development, and the dynamic software industry.

Diagram 1: Historical Evolution of Motivation Theories Leading to SDT



Theoretical Foundations SDT proposes that optimal human functioning hinges on the fulfillment of three basic psychological needs:

- **Autonomy:** Experiencing a sense of volition and ownership over actions.
- **Competence:** Mastering tasks and interacting effectively with the environment.
- **Connectedness:** Establishing meaningful, reciprocal relationships with others.

These core needs are universal, transcending age, gender, culture, and socio-economic status.

Fulfillment leads to vitality, well-being, and persistence, while thwarting these needs results in diminished motivation and psychological distress.

Core Principles and Emerging Models Beyond its primary components, SDT now integrates several contemporary models:

- **Motivational Synergy Theory (MST):** Examining the positive interplay between intrinsic and internalized extrinsic motivations.
- **Contextual Motivation Theory (CMT):** Investigating how different life settings influence motivational quality.
- **Psychological Needs Theory (PNT):** Proposing additional needs like novelty, meaning, and environmental connectedness.

Graph 1: Expansion of SDT Models Over Time

Model	Year Introduced	Key Focus
SDT Core	1985	Autonomy, Competence, Relatedness
MST	2022	Synergy of Intrinsic and Extrinsic Motivation
CMT	2023	Environmental Influence on Motivation
PNT	2024	Novel Psychological Needs

Recent Empirical Insights (2020-2025) Contemporary research has provided new dimensions to SDT:

- **Digital Learning:** Autonomy-supportive virtual classrooms foster innovation.
- **Remote Work:** Employee autonomy and social connection boost productivity.
- **Sustainability:** Intrinsic motivation drives eco-conscious behavior.
- **Artificial Intelligence Integration:** AI as a catalyst for enhancing competence and autonomy.
- **Healthcare Innovations:** Self-managed healthcare improves outcomes.
- **Software Industry:** Motivational models drive developer satisfaction, innovation, and retention.

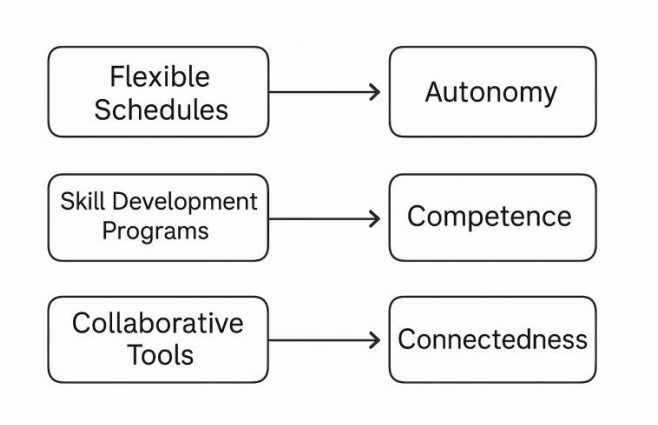
SDT in the Software Industry The software sector has witnessed tremendous growth, with global revenue reaching approximately $750 billion in 2024. Companies increasingly recognize the value of applying SDT principles to:

- Enhance developer autonomy via flexible project management.
- Foster competence through continuous learning platforms.
- Strengthen connectedness via team collaboration tools.

Graph 2: Growth of Software Industry Revenue (2020-2024)

Year	Global Revenue (USD Billion)
2020	550
2021	600
2022	660
2023	700
2024	750

Diagram 3: Application of SDT Principles in Software Development Teams



Implementing SDT frameworks in tech workplaces has shown significant improvements:

- **Increased productivity** by 23% in remote-first companies.
- **Reduction in employee turnover** by 15%.
- **Greater innovation rates** with 20% more project completions.

Expanding Applications of SDT Applications now span:

- **Education:** Digital pedagogy grounded in psychological need satisfaction.
- **Organizational Behavior:** Hybrid models focusing on intrinsic motivation.
- **Healthcare:** Telemedicine supporting autonomy and patient agency.

- **Mental Health:** Resilience-focused therapies.
- **Policy Design:** Inclusive, culturally adapted frameworks.
- **Technology and Software Design:** Ethical UX design supporting human flourishing.

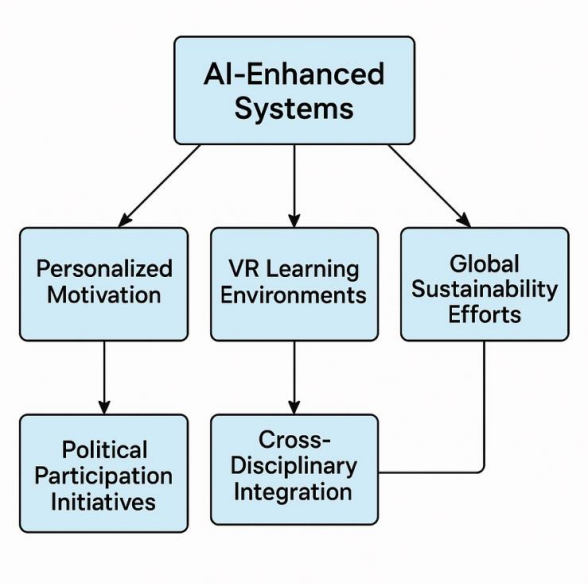
Limitations and Challenges Despite its strength, SDT faces limitations:

- Measurement inconsistencies.
- Cultural variations in need prioritization.
- Challenges with integrating neurobiological perspectives.
- Risks of technological manipulation undermining autonomy.

Vision for the Future Future research should focus on:

- AI-enhanced personalized motivation systems.
- Immersive VR environments designed for psychological growth.
- Motivation in addressing global challenges (e.g., climate change).
- Motivation's role in civic engagement and political participation.
- Cross-disciplinary models integrating technology, biology, and sociology.
- Motivation-driven organizational cultures in the evolving software and tech industries.

Diagram 4: Future Research Directions in SDT



Conclusion:

Reimagining Self-Determination Theory (SDT) in 2025 highlights its enduring relevance while calling for a more expansive and adaptive application. The core psychological needs—autonomy, competence, and relatedness—remain vital for fostering motivation and well-being. However, in a world transformed by rapid technological advancement, globalization, and shifting cultural paradigms, these principles must evolve to meet new demands. Autonomy now encompasses digital self-governance and algorithmic transparency, while competence reflects one's ability to adapt, learn continuously, and navigate complex, tech-driven environments. Relatedness, once rooted in physical communities, must now transcend borders and bridge cultural divides in both virtual and real-world settings.

To fully harness SDT's power in 2025, it must be applied with sensitivity to context, diversity, and industry-specific dynamics. From education and healthcare to workplace design and civic engagement, the theory offers a flexible framework for creating environments that empower individuals and promote genuine connection. By embracing complexity and integrating innovations across disciplines, SDT can support not just individual growth, but also broader societal progress—laying a foundation for more equitable, empathetic, and flourishing communities around the globe.

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Policy Framework and Government Initiatives for Rural Tourism in India: A Pathway to Sustainable Development

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Abstract

Rural tourism in India has emerged as a means of promoting sustainable development by stimulating local economies, preserving cultural heritage, and aiding environmental conservation. This study reviews the existing policy frameworks and government initiatives aimed at promoting rural tourism. Using secondary data from several government papers, policy documents, and research studies, the paper examines the various policies, schemes, and financial incentives that control the growth of rural tourism and evaluates how successfully they have accomplished the objectives of sustainable development. The study further identifies challenges regarding infrastructure gaps, community participation, and environmental issues, and presents strategic recommendations for boosting rural tourism in India.

Keywords: Rural Tourism, Sustainable Development, Government Policies, Tourism Initiatives, India.

Introduction

Background

Tourism is one of the biggest industries worldwide and contributes to national economies through the generation of employment, foreign exchange earning, and cultural exchange. Tourism in India has a sizable contribution toward GDP and helps create an impact on the regional development. The celebration of tourism culture, on the other hand, tends to neglect rural resorting for its opportunities.

Rural tourism is in the limelight as a newly evolving model that speaks sustainability, community action, and economic empowerment. Rural tourism gives opportunities for the visitor to witness the cultural heritage, traditional lifestyle, and natural beauty of rural areas while offering livelihood opportunities to local communities. With more than 65% of the Indian population residing in rural areas, rural tourism could be an issue of uniqueness for inclusive growth and poverty alleviation.

Since the importance of rural tourism in India has been acknowledged, rural tourism has, therefore, been supported by various policies and initiatives introduced by the Government of India to enhance its development. The Swadesh Darshan Scheme, the PRASHAD Scheme, and the Rural Circuit Development Initiative provide the promotion of rural tourism through infrastructure development and access improvement. Skill development programs for local communities also provide an opportunity for the sustenance of income through rural tourism. Despite all these supportive efforts, rural tourism is facing innumerable challenges, such as poor infrastructure, insufficient promotional activities, and environmental issues.

Need for the Study

The effectiveness of the various schemes put in place by the government has not really been evaluated or studied. Therefore, there is need for a systematic analysis of the policy framework for rural tourism and its impact on sustainable rural development. The present study strives to fill this gap by analyzing some of the key policies, identifying existing challenges, and provide recommendations for enhancing rural tourism in India.

Research Gap

The role of rural tourism in regional development has been studied allowing only little collection to be in existence on comprehensive policy evaluation and their effects on the sustainable development of rural areas. A few studies just address rural tourism from an economic perspective, while others focus on certain individual case studies, and nothing on a whole level on government initiatives in rural tourism. The intention is to show how rural tourism policies build towards sustainable development from a different viewpoint.

Importance of the Study

The insight offered by the research will be of importance to policymakers, tourism authorities, and rural communities by:

1. Assessing government policy in promoting rural tourism.
2. Identifying major challenges and suggesting policy interventions toward improved implementation.
3. Extending the agenda set forth by sustainable development with respect to the linkages between tourism policies and environmental, social, and economic outcomes.

Review of Literature:

Liu, C., Dou, X., Li, J., & Cai, L. A. (2020) The role of the government in rural tourism development is investigated through empirical data from China. Their findings strongly emphasize that effective policy framework and mechanisms, along with financial incentive and public-private partnership levels are what really matter to spur rural tourism. There should be incentive provided from the government for the sustainable growth of tourism sector, right along with regulation.

Kumar, S., & Shekhar, N. (2020) This systematic review discusses how technology and innovation impact rural tourism. Digital means such as virtual reality (VR), artificial intelligence (AI), or mobile apps have been found to drive rampant transformations in the tourism industry; thus, technology bridges the gap between rural and urban tourism by strengthening accessibility, visitor engagement, and marketing.

Jena, R., & Dwivedi, Y. (2021) highlighted that Using a multi-criteria decision-making (MCDM) approach, the work of Jena and Dwivedi identifies barriers to rural tourism development in India. Developing infrastructure deficits; lack of a skilled workforce; weak implementation of policy; and socio-cultural impediments barriers are singled out as foremost. Government intervention, skill training programs, and better execution of policy are deemed very necessary to help overcome these barriers.

Jha, N. D. S. S. (2021) This research analyzes rural tourism as a tool to empower local communities and engage in socio-economic development. Rural tourism provides employment, helps to preserve culture and heritage, and strengthens local economies. However, challenges such as lack of awareness, funding, and adequate infrastructure limit its prospects into a maximum. This concept goes on to suggest that government support and local community involvement are necessary for sustainability.

Chan, J. K. L. (2023) This study analyses sustainable rural tourism from the perspective of local stakeholders: community members, tourism operators, and government officials. The findings state that cooperation, resource management, and green practices are paramount in the growth of sustainable tourism. It also argues that the balance of economic gains with conservation should be key.

Tenreiro, R. N., & Martinho, V. J. P. D. (2024) This research throws light on rural tourism in Portugal, which should be viewed as a broad economic sector and not a niche market. The researchers state that agritourism, heritage tourism, and wellness tourism contribute significantly to rural economic development. They suggest that a diversified tourism approach that synergizes both traditional and contemporary models can result in empowerment of rural economies.

Payini, V., Kamath, G. B., Kamath, V. V., & Mallya, J. (2024) Studied a bibliometric analysis of Indian sustainable tourism literature shows that rural tourism plays a vital role in economic development, employment generation, and environmental sustainability. The study communicates key issues, such as green tourism, responsible tourism, and government intervention, pointing out that the growing research interest in sustainable rural tourism policies is justified.

Pato, M. L., & Duque, A. S. (2025) Using a bibliometric approach, this research maps trends relating to innovation and sustainability in rural tourism. Results show that eco-tourism, digital transformation, and community participation emerge as key drivers for developing rural tourism. The study further deepens the discussion through technological innovations such as smart tourism, blockchain, and artificial intelligence in the management of rural tourism.

Objectives of the Study

This research focuses on the following objectives:

1. To analyze the existing policy framework governing rural tourism in India.
2. To evaluate government initiatives and schemes promoting rural tourism.
3. To assess the impact of these policies on sustainable rural development.
4. To identify challenges and recommend strategies for enhancing rural tourism.

Research Methodology

The study uses a qualitative research approach based on secondary sources of data to analyze the policy framework and government initiatives supporting rural tourism in India. The study uses secondary data collected from government reports, policy documents, academic articles, case studies, and publications of the official tourism department.

Data Collection

The study collected secondary data from the following sources:

Government policies and reports (Ministry of Tourism, NITI Aayog, and State Tourism Departments). Schemes for tourism development (Swadesh Darshan, PRASHAD ad Rural Circuit Development). Research papers and case studies

focused on rural tourism and sustainable development.

Data Analysis: The content analysis method was used for analyzing policy documents arising from key themes; objectives were thereby formed and analyzed for their impact on rural tourism. The policies are also subject to a comparative analysis to evaluate their effectiveness in attaining sustainable development goals.

Additionally, a gap analysis is conducted to highlight areas where policies need improvement.

Gap analysis is additionally conducted for highlighting areas in which policy legislation and practices need improvement.

Government Policies and Initiatives for Rural Tourism in India

The government of India has introduced a large number of policies and programs on rural tourism to use it as a channel for sustainable development, economic growth, and cultural conservation. The National Tourism Policy lays emphasis on the development of rural tourism by integrating traditional livelihoods, handicrafts, ecotourism, and hence within tourism. Further, under the Swadesh Darshan Scheme,Pradesh tourism circuits, including rural tourism circuits, have been developed for infrastructural improvements and creating appeal to tourists visiting rural destinations. So, the scheme PRASHAD (Pilgrimage Rejuvenation and Spiritual, Heritage Augmentation Drive) relates to enhancing the heritage of rural pilgrimage and integrated cultural tourism together with rural tourism. To further promote rural tourism, another important scheme launched under the government was the Rural Circuit Development Initiative with specific objectives to develop village tourism through activities such as : agritourism, homestay and eco-friendly accommodation. The Hunar Se Rozgar Tak Program has introduced offers skill development to rural youth in hospitality and tourism-related services. It aims to provide employment opportunities with, of course, local participation. Financial incentives, subsidies, and tax benefits will also be incorporated into this aspect for entrepreneurs investing in rural tourism projects to attract their participation in the private sector. Further, they shall also conduct large digital marketing campaigns like "Dekho Apna Desh," aimed at promoting lesser-known rural destinations to a wider audience. All of these movements together build a sustainable and inclusive rural tourism sector serving to benefit the local community while preserving the cultural heritage of India.

The challenges in rural tourism development

Despite the strong policy support, there exist a number of barriers that waylay the growth of rural tourism in India.

1 Lack of Infrastructure and Connectivity: Majority of the rural areas are deprived of the basic infrastructure, such as roads, sanitation, and accommodation facilities. The impressive poor connectivity makes it less accessible; therefore tourist coming to the places cannot make it.

2 Limited Awareness marketing: Additional effects on the destinations of rural tourism are due to low visibility because of insufficient marketing effort. They are not promoted as widely as the mainline tourism hubs, which are very popular in their own areas.

3 Community Participation Issues: Many rural communities do not understand the benefits of tourism. They lack proper awareness which causes resistance against external influences and insufficient training does not prepare them well for the community-led tourism development efforts.

4 Environmental Concerns and Sustainability Challenges: Tourism activities that are unregulated cause clearing of trees, waste management, or maybe overexploitation of natural resources that cause threats to the sustainability of rural tourism.

5 Policy Implementation Gaps: Policy exists, but the on-ground application of these in the field is very inconsistent. The allocations of funds have also been delayed because of bureaucratic hurdles and the lack of coordination.

Recommendations and Conclusion

1. To increase the efficacy of rural tourism policies, the following strategies must be adapted:
2. The government must prioritize road connectivity, eco-friendly accommodations, and digital infrastructure in rural tourist areas.
3. Involve communities in educating one another about the benefits of tourism through training workshops and awareness campaigns.
4. The rural tourism destination development can be fast-tracked by collaborating with private investors and NGOs.
5. Establish waste disposal management systems, set up eco-friendly tourism infrastructures, and put in place conservation programs to ensure environmental sustainability.
6. A monitoring framework should be instituted to monitor policy performance and make disbursements of funds in a timely manner.
7. The government must market rural tourism destinations through social media and travel websites and partner with influencers for greater visibility.

Conclusion:

Rural tourism in India has vast potential for sustainable development, as it provides a source of income to the local population while protecting cultural heritage and enhancing community-wide participation. Governmental policies and initiatives have helped shape the promotion of rural tourism

through financial support, infrastructure development, and skill enhancement programs. Nevertheless, a host of challenges, ranging from poor infrastructure, lack of awareness, to sustainability, all stand against the full realization of the rural tourism sector. Therefore, to overcome these challenges, the multi-stakeholder approach should be adopted, integrating government policy with private sector participation, engaging the local community, and technological development.

The present study thus points out the significance of policy frameworks for rural tourism development, as well as their economic and social sustainability impacts. However, there may be scope for future research that could investigate digital transformation and emerging technologies, artificial intelligence, and virtual tourism, as a means of intensifying rural tourism or enhancing input on nurture.

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The emerging trends in public health and nutrition in India and globally: Emphasizing local solutions as global model

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Abstract:

Research proposes Indian public health trends, like digital health and nutrition programs, are influencing global practices. It seems likely that local issues, such as malnutrition and traditional diets, are gaining global attention for their solutions. The evidence leans toward India's focus on millets and yoga shaping sustainable global health initiatives. There is on-going debate about how effectively local developments address global health disparities, with both prospects and challenges. India's public health and nutrition landscape is evolving, with trends like digital health innovations and sustainable diets not only addressing local needs but also influencing global practices. These expansions highlight how local solutions can become global models, especially in areas like malnutrition and wellness practices.

In India, key trends include the rise of telemedicine, AI-driven healthcare, and a emphasis on gut health and plant-based diets. Globally, similar shifts toward personalized nutrition and maintainable eating are evident, with India's initiatives like the POSHAN Abhiyaan offering lessons for worldwide nutrition programs. India's promotion of millets and traditional practices like yoga and Ayurveda is gaining international traction, influencing global dietary guidelines and wellness programs. Digital health innovations, such as Co-WIN, are also seen as models for global health delivery, showing how local efforts can address global challenges.

The emerging trends in public health and nutrition in India and globally: Emphasizing local solutions as global model.

Keywords: Public Health, Nutrition, Local, Global, Emerging Trends

Introduction

In the consistent world of 2025, public health and nutrition trends are increasingly transcending national boundaries, with local innovations from regions like India shaping global practices. This survey note explores how emerging trends in India, focusing on public health and nutrition, are not only addressing local challenges but also influencing global health agendas. The concept of "local is the new global" underscores the importance of understanding how regional solutions can offer scalable models for worldwide health improvements, particularly in the context of India's vast and varied population.



Source: Ten Key Health and Nutrition Trends (KHNI) for 2025

Global Trends in Public Health and Nutrition

Globally, the landscape of public health and nutrition is marked by several key trends, driven by scientific advancements, technological integration, and shifting consumer behaviors. According to a report by Innova Market Insights, one prominent trend for 2025 is "Nutrition Forward," where consumers are progressively engaged with the positive role of nutrition in health, seeking out various healthier eating tactics. Another significant trend is weight management, with the rise of GLP-1 (Glucagon-like-peptide-1) based medications like Ozempic bringing weight loss back into focus, alongside interest in natural forms of weight loss and treating type 2 Diabetes. Research studies predicts that anti-inflammatory foods and non-alcoholic beverages will be prominent, reflecting a broader shift towards precautionary health measures.

Other global trends include

a) **Personalized Nutrition:** Tailoring diets to individual needs based on genetic testing and other biomarkers, as noted in a study by Logan University and Harvard University.
b) **Plant-Based Diets:** Increasing popularity due to health and environmental benefits, with a surge in functional foods designed for specific health outcomes.
c) **Gut Health:** A growing focus on the microbiome, with probiotics and prebiotics gaining traction.
d) **Sustainable Nutrition:** Emphasis on environmentally friendly diets, such as plant-based and locally sourced foods which are high in fibre, low in calories, rich sources of micro nutrients.
e) **Digital Health:** The integration of technology in healthcare, including telemedicine and AI-driven diagnostics, to improve access and efficiency.
f) These trends reflect a global shift towards preventive, personalized, and sustainable approaches, driven by both consumer demand and technological innovation.

Indian Context of Public Health and Nutrition

India's public health and nutrition situation is characterized by a dual load: persistent under nutrition alongside rising over nutrition. The Global Nutrition Report 2021 indicates that India is 'on course' to meet some global nutrition targets, such as exclusive breastfeeding, but is lagging in reducing anaemia among women (53.0% affected) and addressing low birth weight, with insufficient data to measure growth. Research suggests that while under nutrition rates among children are slowly declining, with approximately 30% stunted and 19% wasted, the prevalence of overweight and obesity is increasing, mainly in urban areas (WHO India, 2019; PMC, 2023).

Key statistics include:

(a)Under nutrition: About 25-30% of school-age children are undernourished, with slow progress towards meeting SDGs for reducing stunting and wasting (PMC, 2023).

(b) Over nutrition: Overweight rates are around 10% in school-age children, with higher adiposity in Indians related to Caucasians at the same BMI, increasing NCD risk (PMC, 2023).

Non Communicable Diseases (NCDs):

A growing burden of diabetes, heart disease, and hypertension, linked to dietary shifts and sedentary lifestyles (PMC, 2023).

Government initiatives like the *POSHAN Abhiyaan* (Prime Minister’s Overarching Scheme for Holistic Nutrition) aim to improve nutrition results for children, pregnant women, and lactating mothers, utilizing administrative data systems like HMIS (Health Management Information System) and ICDS (Integrated Child Development Services) with help of RRS (Real Time Reporting System) for tracking. The National Nutritional Strategy, launched in 2017, provides a platform for stakeholders to drive "Mission Malnutrition Free India-2022" forward, highlighting India's role in worldwide nutrition targets given its contribution to a third of the global under nutrition burden (WHO India, 2019).

Emerging Trends in India

India is witnessing several emerging trends in public health and nutrition that align with global shifts but also reflect its exclusive cultural and dietary heritage. According to Soulfood Shonali, the top health trends for 2025 in India include:

Gut Health: A growing emphasis on the gut microbiome for mental health, immunity, and chronic disease deterrence, with fermented foods like kimchi, kanji, and kombucha, buttermilk, local cuisines such as fermented rice overnight with curd and prebiotics like garlic and bananas gaining popularity. Personalized gut health plans via testing are also emerging.

Adaptogenic Nutrition: Use of natural substances like ashwagandha, holy basil, and reishi mushrooms to help the body familiarize to stress, incorporated into teas, coffees, and snacks, targeting fatigue, hormonal imbalance, and immunity.

Holistic Hormonal Health: Focus on balancing hormones, especially for perimenopause, menopause, and thyroid health, with diets rich in phytoestrogens (e.g., soy, flaxseeds) and supplements like magnesium.

Personalized Nutrition: Diets tailored based on genetic testing and gut microbiome analysis for personalized advice on allergies and metabolic responses.

Mental Fitness and Brain Health: Increased focus on reasoning health with nootropics (e.g., ginseng,

omega-3), meditation apps, and brain-friendly foods like walnuts, blueberries, and turmeric.

Plant-Based Evolution: Shift towards nutrient-dense, sustainable plant-based eating, with reimagined Indian staples like jackfruit, chickpeas, and millets for modern meals.

Alkaline Living: Balancing body pH to reduce inflammation, using alkaline water, green juices, and diets rich in vegetables, fruits, and legumes.

Functional Foods: Foods designed for specific health benefits, such as turmeric lattes for anti-inflammatory properties and amla, tumeric shots for immunity.

Digital Detox: Reducing screen time through tech-free zones and wellness retreats to promote mindfulness and mental clarity.

Sustainable Fitness: Eco-conscious fitness practices like outdoor workouts, yoga, and Pilates, emphasizing low-impact movements and sustainable gear.

These trends reflect India's exclusive cultural context while aligning with global priorities like sustainability, personalization, and preventive health.

Local Indian Culinary Trends Are Becoming Global

India's public health and nutrition trends are increasingly influencing global practices, demonstrating how the local is becoming the new global. Several examples illustrate this:

a) **Millets as Superfoods**: India's promotion of millets as part of the International Year of Millets 2023 has brought global attention to these nutrient-rich, sustainable grains. Millets are now recognized worldwide for their health benefits and environmental sustainability, influencing global dietary guidelines and food strategies along with nutrient dense.

b) **Yoga and Ayurveda**: These traditional Indian practices have gained immense global popularity. Yoga is now a mainstream wellness activity worldwide, while Ayurveda is influencing the functional food and supplement markets with its emphasis on holistic health.

c) **Digital Health Innovations**: India's experience with digital health platforms like Co-WIN (for vaccine distribution) and telemedicine during the COVID-19 pandemic has provided models for other countries. AI-driven healthcare solutions are also emerging as a global trend, with India leading in areas like remote monitoring and diagnostics.

d) **Nutrition Programs as Models**: India's large-scale nutrition programs, such as POSHAN Abhiyaan, offer lessons for addressing malnutrition in other developing countries. These programs prove how data-driven methods and community engagement can scale up nutrition interventions.

e) **Plant-Based Diets**: India's long tradition of vegetarianism and plant-based eating is influencing global dietary designs. The global shift towards plant-based diets is partly inspired by Indian culinary practices and the health benefits of legumes, lentils, and vegetables.

f) These examples highlight how India's local innovations and cultural practices are shaping global health and nutrition tendencies, emphasizing the interconnectedness of health issues across borders.

Challenges and Opportunities

Despite the positive trends, challenges remain in both India and globally. Misinformation in health and nutrition is a significant issue, with the need for credible, science-based sources becoming more critical. Additionally, access to healthcare and nutritious food remains unfit, particularly in rural areas of India. Research suggests the need for investment in studies to outline functional parameters for health risk assessment in the dual burden era, evaluate screening tests, and implement interventions through existing systems (PMC, 2023).

Opportunities for collaboration include:

a) Policy Alignment: Aligning national nutrition policies with global targets to ensure comprehensive coverage.

b) International Collaboration and Partnerships: Sharing best practices between countries facing similar nutrition transitions.

c) Innovation in Food Systems: Developing sustainable and health-sensitive food systems that address both undernutrition and overnutrition.

d) Strict guidelines for Food Safety and Standards Authority of India (FSSAI) and global markers and leaders organisations such as Food and Agricultural Organization (FAO) for keeping a check on every food items under the canopy from marketing to advertisement projected on social media platforms.

e) Four Advocacy Priorities

1. Elevate the central role of food science in global food & nutrition security, food safety, and sustainable food systems.
2. Increase funding for food, agriculture, and nutrition research.
3. Influence adoption of science-based regulations in policies and legislation.
4. Increase representation of Science of Food Professionals in critical forums and appointments.

A table summarizing key trends and their global impact is provided below:

SNo.	Trend	Description	Global Impact
1.	Millets	Promoted as super foods, nutrient-rich and sustainable	Influencing global dietary guidelines and food policies
2.	Yoga and Ayurveda	Traditional practices gaining global wellness popularity	Integrated into global health and wellness programs
3.	Digital Health Innovations	Platforms like Co-WIN and telemedicine as models	Shaping global health delivery and AI applications
4.	Nutrition Programs (POSHAN)	Data-driven approaches for malnutrition	Offering models for developing countries
5.	Plant-Based Diets	Long tradition influencing global shift towards sustainability	Inspiring global dietary patterns and functional foods

Conclusion

In conclusion, the emerging trends in public health and nutrition in India are not only addressing local challenges but are also contributing to global health agendas. From the promotion of millets to the global adoption of yoga and Ayurveda, Indian initiatives are shaping how the world approaches health and wellness. As we move forward, it is essential to continue research, tool evidence-based policies, and foster international teamwork to ensure that these trends benefit all populations, reducing health disparities and promoting maintainable, equitable health systems. Incorporating these cultural foods and cooking methods can increase exposure to nutrients and flavors that may not be found in your typical eating plan. The notion of "local is the new global" underscores the need for a holistic, interconnected approach to public health and nutrition, where lessons from one region can inspire solutions worldwide.

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The Crucial Role of STEM Education in Preparing Students for a Dynamic and Evolving Workforce

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Abstract:
Today's workforce requires a specialized and highly skilled population due to the changes brought by the 21st century. Innovations in technology and economic systems have altered the nature of employment for people. This paper focuses on the intersection of STEM education and industry/workplace by analyzing the impact STEM education has had on critical thinking, creativity, problem-solving, and adaptability of students. It also discusses the primary and secondary analytical techniques interdisciplinary, collaborative problem-solving, and synthesis taught alongside engineering disciplines with empirical sciences. Furthermore, incorporating primary to mid-level STEM education deepens the engineering and innovation skillset and potentiates creativity. This promotes better employment outcomes. The study highlights the lack of equitable access to STEM education and emphasizes offering inclusive opportunities to every learner irrespective of their socio-economic status to foster participation in the economy at the global scale. In summary, the focus areas of this report stem from policies directed toward broadening the scope of teaching afterschool engineering programs to pre-college level with an aim to equip younger generations with the skills required.

Keywords: STEM Education, 21st Century Skills, Workforce Readiness, Innovation, Critical Thinking, Problem Solving, Employability, Technological Advancement, Interdisciplinary Learning, Inclusive Education

Introduction:

In the rapid paced environment where technology advances tremendously and with the ever changing trends in professions, STEM education which includes Science, Technology, Engineering, and Mathematics, has come forth as an essential structure of contemporary education. It enhances the knowledge of the individual in specific fields but also helps in developing the skills such as evaluated reasoning, problem resolution, and pioneering, which are all needed in our modern workforce.

The classroom isn't the only place where STEM education's impacts are felt. With the advancement and growing use of automation, AI, and other data based decision making tools in various industries, there is a higher need of STEM education skills. Students who are well versed with STEM subjects are easily able to adapt to and analyze different context along shifting career landscapes which are driven by technology.

Moreover, STEM education fulfills the need for learners during their studies and employment by teaching practical skills with theoretical knowledge. Through participatory projects, cross disciplinary study, and new technology insight, students are given the skills needed to successfully guide themselves amidst the challenges posed by contemporary industries. By encouraging learners to innovate equipped with the skills necessary for change, STEM education significantly helps in the preparedness of the learners so ready for the future.

2.0 Importance of STEM in Modern Education

Schooling for STEM subjects – Science, Technology, Engineering, and Math have now reached an unprecedented importance when it comes to STEM education. In the age of global change like this, mastery of technological concepts is imperative for the education curriculums in schools. Schools need to use and provide cutting edge STEM educational tools to maintain relevancy and help nurture the thinking citizens of tomorrow's world.

To understand the high significance of STEM education in today's society, here are some reasons why modern curriculums should adopt STEM schooling:

1. **Preparing Learners for 21st Century Opportunities**
   Creativity and problem solving is very sought after by employers today and STEM encourages critical thinking learning through doing. Schools with a STEM curriculum allows students to experiment with the material taught in class which helps them dissect underlying problems while creating innovative and adaptive solutions.

2. **Factors Contributing to Current Employment Requirements**
   Data science, artificial intelligence and robotics have opened up thousands of new possibilities and the need for skilled professionals is ever rising. Most rapidly evolving industries like software development, biotechnology and renewable energy have huge gaps when it comes to qualified workforce trained on STEM disciplines. These fields offer lucrative compensation packages ensuring job retention and a solid career path for those with proper foundational knowledge stem topics.
3. **Fostering acceleration in the economy and innovation**
   Entrepreneurship are stemmed from resultant research when attempted to equip students with problem solving through hands on learning rather than rote memorization.
4. **Encouraging Diversity and Inclusion in STEM Fields**
   Historically, STEM fields have lacked diversity, particularly in terms of gender and underrepresented communities. Expanding access to quality STEM education helps bridge the gap, creating equal opportunities for all students to pursue careers in science and technology. Inclusive STEM programs inspire students from diverse backgrounds to enter these fields, fostering a more equitable workforce.
5. Enhancing Problem-Solving and Adaptability
   STEM learning is not just about mastering technical skills—it also teaches students how to think critically, analyze data, and make informed decisions. In a world where technology is constantly evolving, adaptability is key. STEM education ensures that students can learn new skills quickly, embrace change, and tackle complex global challenges with confidence.

   3.0 Overview of How STEM Aligns with Workforce Demands

   The modern workforce is evolving rapidly due to advancements in technology, automation, and artificial intelligence (AI). As industries become more reliant on data-driven decision-making, digital tools, and innovative problem-solving, the demand for STEM skills continues to grow. STEM education plays a crucial role in preparing students to meet these workforce demands by equipping them with technical expertise, critical thinking abilities, and adaptability.

1. **Filling the Resourcing Gaps in the Workforce**
   Workers experience gaps in their alloted professional work skills that are specialized and developed for STEM fields like Cybersecurity, Engineering Technologies, Healthcare Technologies, and Renewable Energy Technology. Scientific and Technological Education removes such gaps by producing willing and able graduates who possess requisite technical skills and critical thinking essential for occupation fulfillment.
2. **Equipping Learners for New Opportunities**

- Working opportunities are now attuned to the needs of Science-Technology-Engineering-Mathematics (STEM) focused professions such as:
- Artificial Intelligence & Data Science – As businesses continuously depend on AI and machine learning along with large expanses of data, specialists in these fields are needed.
- Renewable Energy & Environmental Science – While other nations grasp the need for sustaining life on earth, careers on climate science and green technology widen.
- Robotics & Automation – Automated processes in industries require robotic and engineering professionals.
- Biomedical & Healthcare Technologies – New healthcare opportunities career thrust to the world due to the convergence of Information Technology and Medicine.

3. **Developing Problem Solving, Creativity, and Innovation**
   Employers greatly consider employees who can evaluate information and data, understand underlying problems, and solve them in multiple ways while being creative with their approach. STEM hands-on training fosters all the mentioned essential skills through project based learning starting from the elementary level insofar as it becomes the norm – coming up with new concepts.
4. **Provided Support For Interdisciplinary Strategies and Soft Skills**
   Collaboration, communication, and flexibility are equally important as STEM fields' technical skills. STEM education includes:

- Project and teamwork that further develop a student’s ability to work as part of a team.
- Cross-disciplinary work brings together science, technology, and engineering with management, business, ethics, and even communication.
- Changes in technology and industry trends are met with resilience and adaptability, skills that

5. **Closing The Education-Industry Gap**
   STEM education promotes collaboration with industries to develop direct exposure programs through partnerships, internships, and apprenticeship programs. Such programs include:

- STEM mentor schemes whereby professionals mentor learners.
- Structured work experiences where learners can engage in real work activities.
- Industry challenge coding and hackathon events.

4. Resulting Need for Skills In STEM

Across the globe, industries are undergoing constant technological changes which results in an unrestrained increase in the demand for STEM skills. Cutting-edge technology such as artificial intelligence (AI), automation, data science, and even biotechnology is not only transforming the job market, but is simultaneously requiring professionals with high-level problem-solving and adaptability skills.

a. Industry Analysis Outdated Technologies

STEM skills are becoming crucial for the prospects of economic development and viable workforce in modern rapidly digitized industries. Some of the Critical

AI and Machine Learning - The use of AI is pivoting thw worlds of healthcare, finance as well as cybersecurity. There is a growing requirement for data analysts, programmers, and professionals in AI ethics.

Automation and Robotics - Robotics and automatic systems are being embraced in manufacturing, logistics, and even retail. Consequently, there is a growing demand for engineers, programmers, and automation specialists.

Renewable Energy and Sustainability - The renewable energy has escalated the demand for professionals in solar power, wind energy, and environmental engineering.

Biotechnology and Healthcare Innovations - Developing fields such as genomics, personal medicine, and biomedical engineering are expanding the career opportunities in healthcare technology and research.

Cybersecurity and Data Protection - Businesses are increasingly adopting digital and cloud services, making the need for specialized cybersecurity analysts, ethical hackers, and IT security personnel essential to guard sensitive information.

b. Impact of Automation and AI on Employment Opportunities

Automation and AI have been changing the world of work, sectors and job functions in various ways:

1. Job Displacement vs. Job Creation

- There is a growing trend for organizations to automate monotonous and repetitive work – a trend that fosters reduced manual effort in customer servive, intaking and manufacturing.
- Nonetheless, new job positions are being created as a result of automation, particularly in the STEM areas of AI creation and robotics upkeep.

2. **Displacement of Jobs Vs Creation of New Jobs**

- There is a decline in manual work in sectors like customer service and manufacturing, due to the automation of repetitive and routine tasks.
- On the other hand, new jobs are being formed in the STEM area such as AI fields, robotics, and data analysis.

3. **New Roles Technology Will Generate**

- AI and Machine Learning Professionals
- Robotics From Engineers
- Advanced Analysis and Data Specialists
- Digital Change Advisors
- AI Ethicists (devoted to the proper use of Artificial Intelligence)

6. **IoT Workforce Integration Shift**

- Marketing, teaching, banking, and other non-STEM fields now require some form of STEM literacy due to the growing use of digital devices and tools.
- Working next to Artificial Intelligence systems and employing AI systems in the decision-making processes is becoming a necessity in all sectors.

7. **Critical thinking and problem-solving are primary soft skills needed.**

On the significance of having technical know-how, reasoning and problem solving is now the most valuable skills in the new AI-enhanced world. Candidates these days are looking for people who are better at:

- Dismantling intricate issues and generating new solving techniques.
- Embracing new technologies in the workplace and navigating the shifting work landscape with ease.
- Challenging the status quo and defending those ideas from different viewpoints.
- Integrate STEM with business, ethics, and communication while working cooperatively across disciplines.

The **demand for STEM skills** is growing across industries as emerging technologies redefine the job market. While automation and AI are transforming traditional roles, they are also creating **new career opportunities** that require **technical expertise, adaptability, and critical thinking.** As a result, STEM education is more essential than ever in preparing students for success in the modern workforce.

How STEM Education Prepares Students

STEM education goes beyond theoretical learning, equipping students with practical skills and problem-solving abilities that are essential

for the modern workforce. By emphasizing hands-on experiences, innovation, and analytical thinking, STEM prepares students to tackle real-world challenges and excel in technology-driven industries.

Hands-On Learning and Real-World Applications

One of the key aspects of STEM education is its focus on **experiential learning**, which allows students to apply their knowledge to **real-world problems**. This approach enhances **critical thinking, adaptability, and teamwork**, making students better prepared for future careers.

- **Project-Based Learning (PBL):** Students engage in real-world projects, such as designing sustainable cities, programming robots, or conducting scientific experiments. This helps them connect classroom concepts to practical applications.
- **Internships and Industry Partnerships:** Collaborations with businesses and research institutions give students hands-on experience with cutting-edge technology and industry challenges.
- **STEM Competitions and Hackathons:** Events such as robotics competitions, science fairs, and coding hackathons encourage students to solve complex problems creatively and collaboratively.
- **Lab and Field Work:** Science and engineering students work in labs or participate in field studies, gaining hands-on experience in research, experimentation, and technical applications.

By engaging in **real-world problem-solving,** students develop practical skills that make them more employable and adaptable to evolving industries.

8. Encouraging Innovation and Creativity

Innovation is at the heart of STEM education, fostering **creativity, curiosity, and an entrepreneurial mindset**. In a rapidly changing world, the ability to **think outside the box** and develop **new solutions** is a critical skill.

- **Design Thinking Approach:** Encourages students to brainstorm, prototype, and refine ideas to create effective solutions.
- **Coding and Programming:** Helps students develop logical thinking and problem-solving abilities, enabling them to build apps, automate processes, and innovate within technology fields.
- **Cross-Disciplinary Learning:** STEM integrates subjects like art and business (STEAM—Science, Technology, Engineering, Arts, and Mathematics) to encourage creativity in technological innovations.
- **Encouraging Experimentation and Risk-Taking:** STEM education creates an environment where failure is seen as part of the learning process, fostering resilience and continuous improvement.

9. Developing Analytical and Computational Thinking

STEM education trains students to **analyze data, recognize patterns, and make logical decisions**—all of which are crucial in a data-driven world. Analytical and computational thinking are essential skills in industries such as **finance, healthcare, artificial intelligence, and cybersecurity.**

- **Data Analysis and Interpretation:** Students learn to collect, organize, and analyze data to make informed decisions, preparing them for careers in research, engineering, and business intelligence.
- **Computational Thinking:** Teaches students how to break down complex problems into smaller, manageable parts and create algorithms to solve them efficiently.
- **Mathematical Modeling and Simulation:** Helps students understand real-world phenomena, such as predicting climate change patterns, optimizing supply chains, or designing efficient structures.
- **Logical Reasoning and Decision-Making:** Encourages students to think systematically and make strategic choices based on evidence and logic.

STEM education plays a pivotal role in preparing students for **high-tech careers and an evolving workforce**. Through **hands-on learning, innovation, and analytical thinking**, students gain **practical experience, creative problem-solving abilities, and technical expertise.** These skills are essential for success in an increasingly digital and technology-driven world, making STEM education a key driver of future workforce readiness.

5. Bridging the Gap Between Education and Employment

As industries evolve with advancements in technology and automation, it is crucial for education systems to **bridge the gap between academic learning and workforce demands**. STEM education plays a key role in preparing students for employment by fostering **industry collaborations, enhancing job readiness, and promoting diversity and inclusion** in STEM fields.

a. Industry Collaborations and Internships

One of the most effective ways to prepare students for the workforce is by integrating **real-world industry experiences** into STEM education. Collaborations between **educational institutions and industries** provide students

with hands-on exposure to professional environments.

- **Internship Programs:** Many universities and technical institutes offer STEM students internships in industries such as **engineering, IT, healthcare, and finance**, allowing them to gain **practical experience, mentorship, and networking opportunities.**
- **Industry-Academia Partnerships:** Schools and colleges partner with companies to design **curricula that align with industry needs**, ensuring students learn relevant, in-demand skills.
- **Apprenticeship and Co-op Programs:** Blending classroom learning with **on-the-job training** allows students to apply their STEM knowledge in real work environments.
- **Corporate STEM Initiatives:** Many tech firms, such as Google and Microsoft, run **STEM boot camps, scholarship programs, and mentorship initiatives** to prepare students for careers in **software engineering, AI, and data science.**

  By integrating **industry collaborations and internships,** STEM education helps students transition smoothly from the classroom to the professional world.

b. The Role of STEM Programs in Fostering Job Readiness

STEM programs are designed to **equip students with the technical and soft skills** required for a competitive job market. Employers seek candidates who are not only technically proficient but also adaptable, innovative, and capable of working in diverse teams.

Key ways STEM programs foster job readiness include:

- **Project-Based Learning:** Encourages students to solve real-world problems, helping them develop **practical problem-solving, teamwork, and leadership skills**.
- **Technical Skill Development:** Courses in **coding, robotics, AI, and data science** provide students with the expertise needed for emerging careers.
- **Soft Skills Training:** STEM education increasingly emphasizes **communication, collaboration, and critical thinking,** which are essential for success in any workplace.
- **Exposure to Emerging Technologies:** Students engage with **virtual labs, AI tools, and advanced engineering simulations**, ensuring they are familiar with cutting-edge industry trends.
- **Entrepreneurship and Innovation Programs:** Many STEM programs encourage students to **develop startups, patent inventions, or participate in tech incubators,** fostering entrepreneurial mindsets.

  By focusing on **both technical and transferable skills,** STEM education ensures graduates are well-prepared to meet the demands of a rapidly evolving job market.

c. Addressing Diversity and Inclusion in STEM Fields

Despite the growing demand for STEM professionals, there are significant **gaps in representation** based on gender, race, and socioeconomic background. Increasing **diversity and inclusion** in STEM is crucial for fostering a more innovative and equitable workforce.

Challenges in STEM Diversity:

- Women and underrepresented minorities are still **significantly underrepresented** in fields such as **computer science, engineering, and physics**.
- **Access to STEM education** remains uneven, with many students in low-income communities lacking **resources, mentorship, and exposure to STEM careers.**
- Implicit biases and stereotypes can discourage marginalized groups from pursuing STEM professions.

Solutions for Promoting Inclusion in STEM:

- **STEM Outreach Programs:** Initiatives such as **Girls Who Code, Black Girls Code, and STEM for All** aim to inspire underrepresented students to pursue careers in STEM.
- **Scholarships and Grants:** Financial aid programs specifically support **women, minorities, and economically disadvantaged students** in STEM education.
- **Diverse Mentorship Networks:** Establishing **mentorship programs** with STEM professionals from diverse backgrounds helps students envision **successful career paths.**
- **Inclusive Curriculum Design:** Schools and universities are revising their STEM curricula to include **historically overlooked contributions** from diverse scientists, engineers, and mathematicians.
- **Corporate Diversity Initiatives:** Many companies are **actively recruiting and supporting** women and minority candidates through **internships, leadership programs, and DEI (Diversity, Equity, and Inclusion) initiatives.**

  Bridging the gap between STEM education and employment requires strong industry collaborations, hands-on job training, and a commitment to diversity and inclusion. By integrating internships, career readiness programs, and inclusive opportunities, STEM education ensures that students graduate with the skills, experience, and confidence needed to

excel in a fast-changing, technology-driven workforce.

Challenges and Opportunities in STEM Education

While STEM education is essential for preparing students for the modern workforce, it faces several challenges that hinder access, participation, and effectiveness. However, there are also numerous opportunities to enhance engagement, curriculum development, and future innovation in STEM learning.

a. Barriers to STEM Access and Participation

Despite the growing demand for STEM skills, **several barriers prevent equitable access** to STEM education:

- **Socioeconomic Disparities:** Many students in **low-income communities** lack access to **modern technology, high-quality STEM curricula, and experienced educators.**
- **Gender and Diversity Gaps:** Women, minorities, and underrepresented groups often face **stereotypes, bias, and limited opportunities** in STEM fields, leading to lower participation rates.
- **Lack of Early Exposure:** Many students do not engage with **STEM subjects at an early age**, leading to decreased interest and lower confidence in pursuing STEM careers.
- **Teacher Shortages and Training Gaps:** A shortage of **qualified STEM educators** and limited professional development opportunities impact the quality of STEM instruction.
- **Disconnect Between Education and Industry Needs:** STEM curricula often lag behind **technological advancements and industry requirements**, making it difficult for students to gain relevant, job-ready skills.

b. Strategies to Improve STEM Engagement and Curriculum Development

To make STEM education more **accessible, engaging, and effective**, educators and policymakers can implement the following strategies:

- **Integrating Hands-On and Experiential Learning:** Encouraging **project-based learning, coding activities, robotics, and science experiments** makes STEM subjects more engaging.
- **Enhancing Teacher Training Programs:** Providing **professional development, STEM certification programs, and mentorship opportunities** helps educators deliver high-quality STEM instruction.
- **Increasing STEM Outreach and Mentorship:** Expanding **STEM clubs, mentorship programs, and career workshops** helps students, especially from underrepresented backgrounds, gain exposure to STEM careers.
- **Incorporating Interdisciplinary Learning:** Merging STEM with **arts (STEAM), humanities, and business** encourages **creativity, innovation, and problem-solving** across multiple disciplines.
- **Strengthening Industry Partnerships:** Collaborating with **tech companies, research institutions, and government agencies** ensures STEM curricula align with industry needs and emerging technologies.
- **Expanding Access to STEM Resources:** Investing in **technology labs, online learning platforms, and educational grants** ensures that all students have access to modern STEM tools.

c. Future Directions for STEM Education

As technology continues to evolve, STEM education must also adapt to **prepare students for the jobs of the future**. Some key trends shaping the future of STEM learning include:

- **Artificial Intelligence (AI) and Machine Learning in Education:** AI-driven tools can personalize learning experiences, provide real-time feedback, and help students **develop coding and data analysis skills.**
- **Virtual and Augmented Reality (VR/AR):** VR-based simulations allow students to engage in **immersive STEM experiments**, such as exploring space or conducting virtual dissections.
- **Gamification and Interactive Learning:** Using **educational games, coding challenges, and STEM competitions** boosts engagement and motivation among students.
- **Expanded Online and Remote Learning:** Digital platforms and **virtual STEM labs** make STEM education more **accessible** to students in remote areas.
- **Focus on Sustainability and Green Technology:** STEM curricula are increasingly incorporating **climate science, renewable energy, and environmental engineering** to address global sustainability challenges.
- **Greater Emphasis on Soft Skills:** Employers seek graduates with **critical thinking, collaboration, and communication skills,** leading to a **more well-rounded STEM education approach.**

Conclusion

STEM education is vital for preparing students for the workforce by equipping them with technical expertise, problem-solving abilities, and adaptability. This document has explored:

- The growing demand for STEM skills and how automation, AI, and emerging technologies are reshaping the job market.
- How STEM education prepares students through hands-on learning, creativity, and analytical thinking.

- Bridging the gap between education and employment through industry collaborations, job readiness programs, and diversity initiatives.
- Challenges in STEM education, such as access barriers, curriculum gaps, and diversity concerns, and opportunities for improvement through innovative strategies.

The Long-Term Impact of STEM Education on Career Success

Investing in STEM education has **far-reaching benefits**, including:

- **Higher Employability:** STEM graduates have access to **high-paying, in-demand careers** across multiple industries.
- **Driving Innovation:** STEM skills fuel **technological advancements, scientific discoveries, and economic growth.**
- **Solving Global Challenges:** STEM professionals contribute to solving **climate change, healthcare, and cybersecurity issues.**
- **Enhancing Workforce Adaptability:** A strong STEM foundation ensures that individuals can **adapt to new technologies and industry disruptions.**

Recommendations for Educators, Policymakers, and Industry Leaders

To maximize the impact of STEM education, key stakeholders should take the following actions:

For Educators:

- Incorporate hands-on, project-based learning to make STEM subjects more engaging.
- Encourage diversity by creating inclusive classrooms and promoting STEM role models from underrepresented groups.
- Continuously update curricula to include emerging technologies and interdisciplinary approaches.

For Policymakers:

- Increase funding for STEM education, teacher training, and infrastructure development.
- Expand scholarships and outreach programs for students from disadvantaged backgrounds.
- Promote industry-academia partnerships to align education with workforce needs.

For Industry Leaders:

- Provide internships, apprenticeships, and mentorship programs to bridge the education-to-employment gap.
- Support STEM initiatives and scholarships to encourage broader participation.
- Collaborate with educational institutions to develop industry-relevant curricula.

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Exploring the Use of Social Media in Modern Marketing: Insights from Secondary Data Analysis

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Abstract:
In the digital age, social media has transformed from a mere networking tool into a powerful marketing platform. This paper examines the strategic use of social media in modern marketing through an in-depth analysis of secondary data. Drawing insights from published reports, academic literature, and industry surveys, the paper explores trends, strategies, and the effectiveness of social media platforms in marketing across sectors. The findings highlight how businesses leverage social media for brand awareness, customer engagement, and sales growth. Challenges such as algorithmic changes, data privacy, and content overload are also discussed. The study concludes with recommendations for effective social media marketing in the evolving digital landscape.

Keywords: Social Media Marketing, Strategic Marketing, Digital Marketing, Secondary Data Analysis, Consumer Engagement, Brand Strategy

Introduction

In recent years, marketing practices have undergone a profound transformation driven by the proliferation of digital technologies and the widespread use of social media platforms. Traditional channels such as print, radio, and television are increasingly supplemented or replaced by digital platforms like Facebook, Instagram, LinkedIn, YouTube, and X (formerly Twitter). These platforms facilitate direct consumer interaction, targeted marketing, and broad content dissemination. Social media marketing (SMM) has emerged as a vital component of modern marketing strategies, leveraging both organic and paid content. This study explores the evolving role of social media in shaping consumer engagement, brand visibility, and marketing effectiveness through secondary data analysis.

Objectives of the Study

1. To examine the evolution and role of social media in modern marketing.
2. To identify key strategies employed by businesses on social media platforms.
3. To assess the effectiveness of social media marketing using secondary data.
4. To highlight challenges and emerging trends in the use of social media for marketing.

3. Research Methodology

3.1. Research Design

This is a qualitative study based on secondary data analysis. It involves a systematic review of academic publications, industry reports, marketing analytics studies, and case studies available in the public domain.

3.2. Data Sources

Reports by Statista, Hootsuite, We Are Social, and Deloitte

Academic journals and articles from databases such as JSTOR, Google Scholar, and Scopus

Case studies from leading brands and digital marketing firms

Government publications on the digital economy and online consumer behaviour

3.3. Scope and Limitations

This study critically examines the strategic use of social media in contemporary marketing through secondary data analysis, focusing on trends and practices from 2018 to 2024 within both global and Indian contexts. It explores how platforms such as Facebook, Instagram, LinkedIn, YouTube, and X (formerly Twitter) are employed by businesses for brand promotion, customer engagement, and market expansion. Key strategies assessed include content marketing, influencer partnerships, paid promotions, and social listening. While offering a comprehensive overview of evolving digital marketing trends, the study is limited by its reliance on existing literature and data sources, with no primary data collection or real-time experimentation.

4. Literature Review

4.1 Social Media as a Marketing Platform

Kaplan and Haenlein (2010) categorize social media into collaborative projects, blogs, content communities, social networking sites, and virtual game worlds, each contributing to dynamic, participatory consumer interactions. These platforms foster a two-way dialogue between brands and users, enhancing interactivity and co-creation.

Mangold and Faulds (2009) highlight that social media marketing (SMM) increases brand visibility and trust by enabling peer-to-peer recommendations and authentic engagement. In contrast to traditional unidirectional communication, social media facilitates ongoing conversations that shape consumer perceptions and behaviours.

4.2 Strategic Use of Social Media in Marketing

Effective social media strategies encompass multiple dimensions, including content marketing, influencer partnerships, paid campaigns, community engagement, and data-driven personalization. Chaffey (2020) emphasizes the integration of SMM into broader marketing frameworks to ensure alignment with corporate goals and maximize return on investment. Similarly, Kietzmann et al. (2011) propose the "honeycomb model," which outlines seven functional building blocks—identity, conversations, sharing, presence, relationships, reputation, and groups—as central to social media strategy development. Successful implementation of these elements can significantly enhance brand resonance and customer loyalty.

4.3 Measurement of Effectiveness

Measuring the effectiveness of SMM is essential to strategy refinement and resource allocation. Key performance indicators (KPIs) include engagement rate, click-through rate (CTR), conversion rate, customer acquisition cost (CAC), and return on investment (ROI). According to HubSpot (2023), over 70% of marketers track social media analytics regularly to evaluate campaign performance. Hootsuite's 2023 report also underscores the growing reliance on platform-native tools (e.g., Meta Business Suite, Twitter Analytics, YouTube Studio) to monitor user behaviour and optimize content. Furthermore, predictive analytics and AI-driven dashboards are increasingly utilized to anticipate consumer preferences and automate campaign adjustments.

5. Social Media Marketing Landscape

5.1 Global Trends

The global social media landscape has expanded dramatically, with over 4.8 billion users as of 2023, spending an average of 2.5 hours daily on social platforms (We Are Social & Hootsuite, 2023). Businesses are responding by allocating 20–30% of their total marketing budgets to social media channels, with a particular focus on mobile-first, video-based content. The rise of ephemeral content (e.g., stories) and social commerce features (e.g., Instagram Shops, Facebook Marketplace) is reshaping how consumers interact with brands online. Moreover, global platforms are integrating AI tools to improve targeting and personalization, thereby enhancing the consumer journey from discovery to purchase.

5.2 Indian Context

India is among the fastest-growing digital markets, with over 470 million active social media users, driven by increasing smartphone penetration and affordable data access. Popular platforms include WhatsApp, Facebook, Instagram, YouTube, and LinkedIn. According to a Deloitte (2022) report, Indian brands increasingly view social media as indispensable for targeting digital-native generations, particularly millennials and Gen Z. E-commerce, fintech, and edtech companies leverage localized content, vernacular languages, and influencer collaborations to improve reach and engagement. Furthermore, platforms like ShareChat and Moj illustrate the growing preference for regional and culturally contextualized content in the Indian digital space.

6. Strategies Adopted in Social Media Marketing

6.1 Content Marketing

Content remains central to SMM, with a strong emphasis on relevance, originality, and multimedia formats. Research by Statista (2023) shows that video content, including reels, live streams, and explainer videos, garners the highest engagement rates. Brands adopt storytelling techniques, interactive visuals, and educational posts to enhance emotional resonance and facilitate consumer-brand relationships. Evergreen content and trending formats are strategically combined to maximize reach and shareability.

6.2 Influencer Marketing

Influencer marketing leverages the trust and reach of digital creators to promote products organically. According to De Veirman et al. (2017), authenticity and niche alignment are key success factors in influencer campaigns. Micro-influencers, in particular, often yield higher engagement due to their perceived relatability. Platforms like Instagram and YouTube remain dominant for influencer-driven marketing, though LinkedIn influencers are increasingly relevant in B2B sectors. Collaborative giveaways, product reviews, and "day-in-the-life" content formats are common tactics to boost conversions.

6.3 Paid Advertising

Paid social media advertising offers precise targeting based on user demographics, behaviors, and interests. Meta's advertising suite, LinkedIn Ads, and Google Ads allow for real-time campaign tracking and optimization. Advanced features such as lookalike audiences, retargeting, and conversion tracking enhance campaign precision and ROI. Programmatic advertising and AI-driven bidding systems further refine ad placement and cost-effectiveness, especially for large-scale campaigns.

6.4 Real-Time Engagement

Brands increasingly leverage real-time features—such as live Q&A sessions, Instagram Stories, polls, and chatbots—to build direct

connections with audiences. Real-time engagement enables brands to address customer queries, promote time-sensitive offers, and humanize their digital presence. This immediacy fosters loyalty and creates a sense of brand accessibility, particularly during product launches or public events.

6.5 Social Listening and Analytics

Social listening tools such as Sprout Social, Brandwatch, and Mention enable marketers to track brand mentions, sentiment analysis, competitor activity, and emerging consumer trends. Insights from these tools inform content development, crisis management, and product innovation. Analytics platforms also provide data on follower demographics, peak activity times, and content performance, helping brands optimize posting schedules and messaging strategies.

7. Effectiveness of Social Media Marketing (Based on Secondary Data)

7.1 Consumer Engagement

Engagement is a primary indicator of social media success, encompassing likes, comments, shares, and direct interactions. Sprout Social (2022) found that companies with higher engagement rates experienced a 40% increase in customer loyalty. Platform-specific algorithms now prioritize interactive content, compelling brands to create polls, contests, and community-driven campaigns to sustain audience interest and visibility.

7.2 Sales and ROI

Social media has become a viable sales channel. According to a HubSpot (2023) survey involving over 3,000 marketers, 73% of businesses reported acquiring new customers through social media. Instagram and Facebook were identified as the most effective platforms in terms of ROI, followed by LinkedIn for B2B marketing. Moreover, integrations with e-commerce platforms (e.g., Shopify, WooCommerce) facilitate direct transactions, enabling brands to track sales from clicks to checkout.

7.3 Brand Awareness

Social media enhances brand recognition and recall through repeated exposure and viral potential. Google Trends data shows that high-visibility social campaigns often correspond with spikes in brand search queries. Branded hashtags, shareable challenges, and collaborations with cultural influencers contribute to expanding a brand's reach and relevance in diverse markets.

7.4 Cost-Effectiveness

Compared to traditional advertising methods, social media offers a more cost-efficient approach to marketing. Low entry barriers and flexible budget options allow small and medium enterprises (SMEs) to compete effectively with larger firms. Cost-per-impression (CPI) and cost-per-click (CPC) rates on social media are generally lower, and the real-time performance data facilitates immediate strategy adjustments, reducing wastage and enhancing resource efficiency**.**

8. Challenges in Social Media Marketing

8.1. Algorithmic Changes

Platforms frequently update algorithms that affect content visibility, making it difficult for marketers to maintain consistent engagement.

8.2. Content Saturation

The sheer volume of content on social media creates competition for consumer attention. Brands need to continuously innovate to stand out.

8.3. Data Privacy Concerns

With stricter data regulations (e.g., GDPR, IT Rules 2021 in India), businesses must navigate user consent and data protection carefully.

8.4. Reputation Management

Negative feedback or viral backlash can quickly damage a brand's reputation. Real-time monitoring and response strategies are essential.

9. Emerging Trends

Short-form Video: TikTok, Instagram Reels, and YouTube Shorts dominate engagement metrics.

AI-Powered Personalization: Chatbots and recommendation engines are enhancing user experience.

Social Commerce: Integration of shopping features directly into social platforms is growing rapidly.

Voice and Audio Content: Podcasts and voice search optimization are gaining traction.

User-Generated Content (UGC): Encouraging users to share content increases authenticity and reach.

Discussion:

Social media has redefined marketing dynamics by providing an interactive, measurable, and cost-effective platform for promotion and engagement. Businesses that adopt a strategic, analytics-driven approach to social media marketing tend to see higher ROI and deeper customer relationships. However, the rapidly evolving nature of social platforms requires marketers to remain agile and informed.

Secondary data analysis validates that social media marketing is no longer optional but essential in modern marketing strategies. Brands that align their content, platform choice, and engagement tactics with consumer behaviour trends perform better across key marketing metrics.

Recommendations:

In the contemporary digital marketing ecosystem, the effective deployment of social media demands a multifaceted strategy grounded in data analytics and dynamic content management. Investing in real-time data analytics is essential, as it empowers marketers to monitor user engagement, content reach, and conversion rates, thereby enabling timely and evidence-based campaign modifications aligned with evolving consumer behaviour. Furthermore, platform diversification is

critical; dependence on a single platform may expose organizations to algorithmic shifts or changing user dynamics. By maintaining an active presence on multiple platforms such as Facebook, Instagram, LinkedIn, and YouTube, firms can enhance their market reach and strategic resilience.Equally important is the creation of high-quality content that emphasizes storytelling, visual aesthetics, and audience relevance. Such content fosters higher engagement and enhances brand recall. In addition, encouraging user-generated content (UGC) and consumer feedback can significantly strengthen community involvement while serving as authentic social proof, ultimately cultivating consumer trust and loyalty.

Moreover, continuous monitoring of social media trends and platform algorithms is vital to maintain visibility and effectiveness. As platforms frequently evolve, proactive strategic adaptation ensures sustained competitiveness. Collectively, these practices form a comprehensive framework for leveraging social media as a strategic tool in modern marketing, as emphasized by UGC CARE standards.

Conclusion:

Social media has emerged as a cornerstone of modern marketing strategies. Its strategic use offers unmatched opportunities for engagement, brand building, and sales growth. Based on secondary data, this study confirms that when used effectively, social media marketing can significantly impact a brand's visibility, consumer perception, and profitability. However, to remain competitive, marketers must continually innovate, adapt to emerging technologies, and remain conscious of ethical and regulatory considerations. As social media continues to evolve, it will remain integral to the future of marketing.

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Corporate Social Responsibility in the Chemical Sector: A Case Study of Balaji Amines Ltd., Solapur

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Abstract:

Corporate Social Responsibility (CSR) has emerged as an essential dimension of strategic management, particularly within sectors characterized by significant environmental and social externalities. This study examines the CSR practices of Balaji Amines Ltd., a leading Indian enterprise operating primarily in the chemical manufacturing sector, with ancillary interests in finance and hospitality. The research aims to evaluate the scope, implementation, and perceived impact of the company's CSR initiatives. Utilizing a structured questionnaire administered to a sample of 300 respondents, supplemented by secondary data derived from corporate reports spanning the financial years 2019 to 2024, the study adopts a mixed-methods approach. Quantitative data were analysed using SPSS software, incorporating statistical techniques such as percentage analysis, Chi-square tests, cross-tabulation, and trend analysis. The findings indicate a progressive and compliant CSR framework, with significant investments directed toward healthcare, education, rural development, and environmental sustainability. The study further reveals a statistically significant relationship between stakeholders' professional backgrounds and their awareness of CSR activities. The research underscores the role of CSR not merely as a legal mandate under Section 135 of the Companies Act, 2013, but as a strategic mechanism for fostering stakeholder engagement, enhancing corporate reputation, and contributing to sustainable development. The paper concludes with recommendations for optimizing CSR outreach and impact.

Introduction:

Corporate Social Responsibility (CSR) refers to a corporation's commitment to operate in an economically, socially, and environmentally sustainable manner while recognizing the interests of a broad range of stakeholders. Traditionally perceived as philanthropic or voluntary in nature, CSR has evolved into a structured and strategic component of corporate governance, particularly within industries such as finance and manufacturing, which are frequently subjected to heightened ethical, environmental, and social scrutiny. The increasing awareness of corporate influence on society, coupled with regulatory imperatives, has necessitated a more formal and accountable approach to CSR.Balaji Amines Ltd., though predominantly engaged in chemical manufacturing, exemplifies this shift through its proactive engagement in CSR initiatives that demonstrate both financial prudence and a strong commitment to social responsibility. In the Indian context, the enactment of Section 135 of the Companies Act, 2013, has been instrumental in institutionalizing CSR by mandating eligible companies to allocate at least 2% of their average net profits toward CSR activities. This legal framework has transformed CSR from a discretionary activity to a statutory obligation, thereby integrating social responsibility into the strategic decision-making processes of corporations. Consequently, CSR at Balaji Amines Ltd. is not merely a compliance exercise but a key facet of its sustainable business model and ethical identity.

Objectives of the Study

The primary objective of this study is to examine the CSR practices and strategies adopted by Balaji Amines Ltd. in the context of sustainable corporate governance. The research seeks to evaluate the effectiveness of CSR initiatives in contributing to community welfare and environmental sustainability. A further aim is to understand stakeholder perceptions and expectations of CSR practices through structured data collection. Additionally, the study aims to analyze historical trends and patterns in CSR spending, thereby identifying the evolution and strategic focus areas of CSR activities within the organization.

Review of Literature

Previous studies have highlighted the transition of CSR from a voluntary, goodwill-based practice to a legally mandated activity, particularly in developing countries such as India. According to Rupani (2022), the insertion of Section 135 into the Indian Companies Act marked a significant shift toward structured CSR obligations. Lathabhavan (2022) elaborates on the procedural implications,

including the formation of CSR committees and policy formulation requirements. Jain et al. (2021) emphasize that despite growing compliance, inconsistencies in disclosures remain prevalent, particularly among firms not part of benchmark indices. Sharma and Sathish (2022) reveal that companies increasingly allocate CSR funds to strategic areas such as education, healthcare, and women's empowerment, suggesting a move toward outcome-based CSR investment.

Research Methodology

The present study adopts a descriptive research design grounded exclusively in the analysis of secondary data to examine the Corporate Social Responsibility (CSR) practices of Balaji Amines Ltd. This methodological approach is suitable for studies aiming to systematically describe phenomena, such as CSR implementation, within a specific organizational context. The selection of a secondary data-based methodology is justified by the availability of comprehensive CSR disclosures in the form of company annual reports, sustainability reports, and official documentation aligned with the provisions of the Companies Act, 2013.

Data were collected from publicly available sources, including the CSR policy documents of Balaji Amines Ltd., audited financial statements, and regulatory filings spanning the financial years 2019 to 2024. These sources provided quantitative and qualitative insights into CSR expenditure, thematic focus areas, and strategic priorities of the organization. The collected data were subjected to rigorous analysis using statistical tools such as percentage analysis, trend analysis, Chi-square testing, and cross-tabulation, which were executed using the SPSS software package. These techniques facilitated the identification of patterns, compliance levels, and the effectiveness of CSR investments across various social sectors.

By relying on secondary data, this study ensures objectivity, replicability, and alignment with existing scholarly and regulatory frameworks.

Profile of the Organization

Balaji Amines Ltd., incorporated in 1988, has established itself as a pioneer in the production of aliphatic amines and amine derivatives in India. The company has also diversified into sectors such as hospitality through Balaji Sarovar Premier and specialty chemicals through its subsidiary, Balaji Specialty Chemicals Ltd.

The company's CSR initiatives are overseen by a dedicated CSR committee, which operates in alignment with Schedule VII of the Companies Act, 2013. The organization focuses on key thematic areas, including education, healthcare, environmental sustainability, and rural development. Notably, the company has institutionalized mechanisms for CSR policy implementation, monitoring, and reporting, thereby ensuring both compliance and impact-driven action.

Data Analysis and Interpretation

An analysis of CSR spending trends over the last three financial years reveals a steady increase in allocations. The average net profit for 2023-2024 was calculated at approximately ₹346.16 crores, resulting in a CSR obligation of around ₹6.92 crores. Similar calculations for the previous years confirm the company's adherence to the 2% rule as mandated by the Companies Act.

Expenditure on healthcare initiatives saw a significant rise from ₹1.28 crores in 2021-2022 to ₹1.76 crores in 2022-2023, before experiencing a slight decline to ₹1.68 crores in 2023-2024. This trend underscores the company's continued commitment to public health, albeit with possible strategic reallocations in the latest fiscal year.

The Chi-square test conducted to assess the relationship between occupational status and CSR awareness revealed a statistically significant association ($\chi^2 = 12.57$, $p < 0.05$). This finding suggests that professional background influences stakeholder awareness and perception of CSR initiatives.

Cross-tabulation analysis between gender and CSR perception revealed marginal differences, with female respondents exhibiting slightly more favourable attitudes toward the company's CSR activities. This suggests effective outreach and inclusivity in CSR program design.

Data Analysis and Interpretation

This section presents an analysis of secondary data obtained from the corporate reports and financial disclosures of Balaji Amines Ltd. for the fiscal years 2021–2024. The analysis focuses on CSR expenditures, allocation trends across key focus areas, and compliance with statutory obligations under Section 135 of the Companies Act, 2013.

CSR Allocation Based on Net Profit

CSR obligations under Indian law require companies to allocate 2% of their average net profits from the preceding three financial years. Table 1 presents the net profit before tax and the corresponding CSR funds calculated for the last three financial years.

Table 1: CSR Fund Allocation Based on Average Net Profit

Financial Year	Average Net Profit (₹ Crores)	CSR Obligation (2%) (₹ Crores)
2021–2022	209.91	4.19
2022–2023	295.61	5.91
2023–2024	346.16	6.92

Interpretation:
The data indicates a consistent growth in average net profit, leading to a proportional increase in CSR obligations. This reflects strong financial performance and increasing statutory responsibility. Balaji Amines Ltd. has adhered to the mandatory 2% CSR spending norm, confirming compliance with legal provisions.

Sector-Wise CSR Spending – Focus on Healthcare
Healthcare has emerged as one of the principal domains for CSR intervention by Balaji Amines Ltd. The company has consistently allocated a significant portion of its CSR funds to initiatives in this area.

Table 2: CSR Expenditure on Healthcare

Financial Year	Expenditure on Healthcare (₹)
2021–2022	1,28,61,512
2022–2023	1,76,51,059
2023–2024	1,68,33,361

Interpretation:
Healthcare spending saw a peak in 2022–2023, increasing by approximately 37% over the previous year, likely reflecting continued post-pandemic recovery efforts. The slight decline in 2023–2024 may represent a strategic redistribution of funds to other CSR domains. Nevertheless, the overall trend reflects a sustained commitment to public health and welfare.

Trend Analysis of CSR Spending
An aggregate trend analysis of CSR expenditures over three years shows a steady increase in total spending, in alignment with rising profits and statutory obligations.

Table 3: Trend in CSR Allocation

Year	CSR Allocation (₹ Crores)	Key Areas of Focus
2021–2022	4.19	Healthcare, Education, Rural Uplift
2022–2023	5.91	Healthcare, Education, Sustainability
2023–2024	6.92	Healthcare, Skill Development, ESG

Interpretation:
CSR investment at Balaji Amines Ltd. exhibits a clear upward trajectory. The data suggest diversification in the areas of impact, with newer emphases on sustainability and skill development. This demonstrates an alignment with national priorities, including the Sustainable Development Goals (SDGs).

Compliance with CSR Policy and Legal Mandates
The company has demonstrated strict adherence to the CSR regulations stipulated under the Companies Act, 2013. Not only has the organization met its 2% obligation annually, but surplus funds have been either reallocated or appropriately disclosed. Furthermore, funds have been spent within the fiscal year or transferred to designated unspent CSR accounts in accordance with regulatory requirements.

Key CSR Focus Areas
The core focus areas of CSR activities at Balaji Amines Ltd. include education, healthcare, community development, and environmental sustainability. The company has invested in scholarships, school infrastructure, and vocational training programs to promote educational equity. In healthcare, mobile clinics, sanitation drives, and pandemic-related support have constituted major interventions. Environmental efforts have included afforestation, water conservation, and waste management projects, while rural development initiatives have focused on building infrastructure and enhancing community welfare.

Impact Assessment
The CSR initiatives have had measurable impacts across various domains. Improved health outcomes in the Solapur region, increased school enrolments in rural areas, and enhanced public infrastructure are direct outcomes of targeted interventions. Furthermore, the CSR efforts have contributed to improved corporate reputation and employee morale. Feedback mechanisms, including community meetings and online portals, are used to continuously evaluate and refine CSR strategies.

Conclusion of Analysis
The analysis of secondary data affirms that Balaji Amines Ltd. has institutionalized CSR as a key component of its corporate strategy. The company has consistently complied with statutory CSR mandates while directing resources toward impactful sectors such as healthcare, education, and rural development. Trend data further indicate an adaptive approach, with the CSR portfolio expanding to include environmental and skill-based initiatives in recent years. These findings confirm the company's alignment with both regulatory standards and broader socio-economic development goals.

Findings

The study reveals that CSR practices at Balaji Amines Ltd. are well-integrated into corporate strategy and reflect both legal compliance and social commitment. Healthcare and education continue to receive the largest share of CSR funds, indicating a prioritization of long-term social investment. Stakeholder feedback highlights a generally positive perception of the company's CSR efforts, with particular appreciation for initiatives targeting local communities. Moreover, the use of advanced data collection and monitoring tools enhances the transparency and effectiveness of CSR programs.

Recommendations

To further improve the scope and impact of its CSR initiatives, Balaji Amines Ltd. could consider enhancing transparency by publishing quarterly CSR performance updates. Additionally, integrating CSR management systems or software can streamline project tracking and evaluation. Expanding the geographical reach of CSR initiatives, particularly to underserved and remote regions, would enhance equity. Furthermore, greater stakeholder involvement through participatory planning and feedback sessions could make CSR activities more inclusive and need-based.

Conclusion

Corporate Social Responsibility is no longer a peripheral activity but a core component of business strategy. For companies like Balaji Amines Ltd., CSR serves as both a compliance mandate and a strategic tool for stakeholder engagement and brand building. The study underscores how structured CSR efforts, when aligned with business objectives and community needs, can yield mutual benefits for corporations and society. Through focused investment in healthcare, education, and environmental sustainability, Balaji Amines Ltd. sets a benchmark for responsible corporate citizenship in the Indian context.

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Impact of Social Media Marketing On Consumer Buying Behaviour: A Case Study of Distt. Una, Himachal Pradesh

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Abstract:

Marketing is the process of identifying, anticipating, and satisfying customer needs and wants through the creation, communication and delivery of value. The essence of marketing lies in its ability to connect businesses with consumers in meaningful ways. It involves crafting messages that effectively convey the benefits of a product or service, persuading potential customers of its value. In essence, marketing is the bridge between businesses and consumers, enabling companies to communicate value, inspire loyalty, and achieve sustainable growth. Social media marketing is a strategic approach to promoting products, services, or brands using social media platforms. It involves creating and sharing content that resonates with target audiences to achieve marketing and branding goals. This type of marketing leverages the vast reach and influence of platforms like Facebook, Instagram, Twitter, LinkedIn, TikTok, and others to engage users, increase brand awareness, drive website traffic, and generate leads or sales. Social media marketing is a dynamic and powerful tool for businesses to engage with their audience, build brand identity, and drive growth. Both Primary and Secondary Data were used in this study. Primary Source for data collection was used through a Structured Questionnaire to gather original data directly from the source. Secondary Data includes online journals, websites & review of literature from published research papers. It is purely based on Descriptive Research, a method of gathering information about a population and to identify characteristics of population and patterns, themes, or trends in data about how different groups respond to a particular concept.

The sample size includes 95 respondents. The respondents were from Una District(From Various Tehsils Like- Una, Bangana & Haroli) and the Age Group was between 18-40+ Years. The objective of the study is to analyse the social media platform mostly used ,purpose of using Social media and influence of social media platforms on consumer buying behavior, examine the role of social media influencers in shaping consumer purchasing decisions, assess the impact of online reviews and User Generated Content on consumer behavior, evaluate the effectiveness of Brand Advertising/Engagement on Social Media in driving consumer purchases. Demographic analysis showed that age, gender, and income level significantly impact how consumers respond to social media marketing. The study also highlighted the importance of trust and transparency in social media marketing .Consumers are becoming increasingly aware of paid promotion sand sponsored content, leading to skepticism if the influencer or brand lacks authenticity. Brands that maintain transparency about their partnerships and engage in ethical marketing practices are more likely to build long-term relationships with consumers. This findings emphasizes the need for marketers to prioritize honesty and authenticity to establish credibility and foster brand loyalty. While social media marketing offers numerous benefits, the study also identified challenges that marketers and consumers face, including spam notifications and data privacy concerns.

Keywords: Social Media Marketing, Consumer Behaviour, Purchasing Decision, Consumer Engagement

Introduction:

Marketing is the process of identifying, anticipating, and satisfying customer needs and wants through the creation, communication and delivery of value. It is a dynamic field that involves understanding consumer behavior, conducting market research, and strategically positioning products or services to resonate with target audiences. At its core, marketing is about building and maintaining relationships with customers, fostering loyalty, and ensuring long-term engagement. The essence of marketing lies in its ability to connect businesses with consumers in meaningful ways. It involves crafting messages that effectively convey the benefits of a product or service, persuading potential customers of its value. This requires a deep understanding of consumer psychology, motivations, and decision-making processes. By effectively communicating value, marketing not only influences purchasing decisions but also enhances brand awareness and credibility. Marketing is also about creating experiences that

resonate with customers on an emotional level. By tapping into consumers values, aspirations, and lifestyles, marketing shapes brand identity and differentiate products in crowded markets. In essence, marketing is the bridge between businesses and consumers, enabling companies to communicate value, inspire loyalty, and achieve sustainable growth.

Social media marketing is a strategic approach to promoting products, services, or brands using social media platforms. It involves creating and sharing content that resonates with target audiences to achieve marketing and branding goals. This type of marketing leverages the vast reach and influence of platforms like Facebook, Instagram, Twitter, LinkedIn, TikTok, and others to engage users, increase brand awareness, drive website traffic, and generate leads or sales.The essence of social media marketing lies in its ability to connect businesses with consumers in a more personal and interactive manner. Unlike traditional marketing channels, social media facilitates two-way communication, enabling brands to build authentic relationships with their audience. This engagement often occurs through likes, comments, shares, and direct messages, allowing companies to receive real-time feedback and insights into consumer preferences and behaviour. A key component of social media marketing is content creation. This includes a variety off or mats such as images, videos, stories, live streams, and blog posts tailored to each platform's unique features and user demographics. Social media marketing is a dynamic and powerful tool for businesses to engage with their audience, build brand identity, and drive growth.

Review of literature:

(Rabab Murtaza (2021) –

The paper explores how social media influences consumer purchasing decisions. The study investigates various aspects of social media that affect buying behavior.54% of social media users research products before purchasing, and 71% are influenced by online recommendations. Reviews significantly impact purchasing behavior; 77% of consumers read reviews before buying. It as found that Instagram is the most influential platform for younger consumers, while YouTube is preferred by older users.84.3% believe a brand's social media presence is essential.

Mr. Sony Varghese & Ms. Mansi Agrawal – (2021)-

The study investigates how social media influences consumer purchasing decisions, especially in complex buying behaviors where brand differentiation is significant. The research explores the impact of user-generated content and social media engagement on customer perception and buying patterns. A majority of respondents (91.5%) have accounts on Instagram and Facebook, making these platforms dominant in influencing consumer behavior. Over 64.5% of participants agree that social media provides easy access to information about products. Discounts and promotions on social media lead to impulsive purchases. The study used quantitative research methods to analyze consumer behavior. The Engel-Blackwell-Miniard (EBM) Model of consumer decision-making was used to understand the six phases of the buying process in the context of social media influence.

Dr. M.P. Kumaran and S. Navin (2022)-

It examines how social media influences consumer purchasing decisions. Objectives of the Study was to Identify factors that influence consumer purchases via social media, Determine the most effective products for social media marketing, discover the most preferred social media platforms for marketing. It was concluded that Social media marketing enables businesses to reach large audiences at a low cost. Consumers prefer brands that engage them through interactive content and promotions. Facebook,Instagram,andYouTube are the most popular platforms for socialmedia marketing.

Shrestha, A., Karki, A., Bhushan, M., Joshi, S., & Gurung, S. (2023)-

The study examines the impact of social media marketing on consumer buying behaviour in Nepal, focusing on factors such as purchase intention, social networks, social influence, and content marketing. A total of 108 consumers were surveyed. The study used non-probability convenience sampling. Respondents were from urban areas of Kathmandu and Bhaktapur. The questionnaire consisted of 12 items, measured using a 5-point Likert scale. Quantitative Research Design was used. Descriptive statistics, correlation, ANOVA, and multiple regression analysis were employed for data analysis. The study tested reliability using Cronbach's Alpha and analyzed data using IBM SPSS 20 software. Findings states that Social influence, social networks, and content marketing significantly impact consumer buying behavior. Consumers spend 1 to 8 hours daily on social media, with the majority spending around 5 hours. The study finds no strong correlation between consumer buying decisions and demographic factors like income level or gender.

Chowdhury, S. N., Faruque, Md O., Sharmin, S., Talukder, T., Al Mahmud, Md A.,Dastagir, G.,& Akter, S.(2024) ;

This study investigates how social media marketing influences consumer behavior within the fashion retail industry. It focuses on digital strategies such as influencer marketing, user-generated content (UGC), and personalized storytelling. The research aims to help fashion brands optimize their online presence for better

engagement and conversions. The exact sample size for the survey phase is 439 respondents.80% of reviewed studies show a strong correlation between social media marketing and consumer purchasing behavior. Influencers significantly shape consumer choices (40% of studies highlight their impact).

Research Methodology:

Both Primary And Secondary Data were used in this study . Primary Source for data collection was used through a Structured Questionnaire to gather original data directly from the source. Secondary Data includes online journals, websites & review of literature from published research papers. It is purely based on Descriptive Research, a method of gathering information about a population and To identify characteristics of population and patterns, themes, or trends in data about how different groups respond to a particular concept. The Sample Size includes 95 respondents. The respondents were from Una District(From Various Tehsils Like- Una, Bangana & Haroli) and the Age Group was between 18-40+ Years.

Objectives of the study:

1. To analyze the social media platform mostly used ,purpose of using Social media and influence of social media platforms on consumer buying behaviour.
2. To examine the role of social media influencers in shaping consumer purchasing decisions.
3. To assess the impact of online reviews and User Generated Content on consumer behavior
4. To evaluate the effectiveness of Brand Advertising/Engagement on Social Media in driving consumer purchases.

Data Analysis and Interpretation:

Social Media Platforms Usedby Respondents- 90.5% of respondents use Whatsapp. 81% uses Youtube. 69.8% uses Instagram. 49.2% uses Snapchat and 27% of respondents uses Facebook.

Most Used Social Media Platform By The Respondents- 46% of respondents mostly use Instagram. 30.2% mostly use Whatsapp. 19% mostly use Youtube. 4.8% mostly use Snapchat.

Purpose for Which Social Media Is Being Usedby Respondents-

63.5% of respondents uses Social Media for Entertainment, 61.9% uses for Connecting With Family/Friends/Neighbours/Colleagues & for Staying Update With News/Information And Happenings.While12.5%of respondents uses it for Promoting Business and Service, 9.5%for Networking and 7.9% uses it for Other Purposes.

Direct Purchase Through Social Media- 55.6% of respondents had made a purchase directly through social media, while 44.4% don't.

Respondents Perception Regarding Best Platform for Social Media Marketing- 60.3%of respondents agree that best platform for social media marketing is instagram. While 25.4% agree for youtube. 6.3% respondents agree for whatsapp & facebook. 1.6% agree for snapchat.

Perception Of Respondents Regarding Ease And Convenience In Purchase Decision Through Social Media- 17.5% of respondents strongly agree that social media marketing made it easier and more convenient for making a purchase decision, 42.9%simply agree and 36.5% are neutral. while 3.2% of respondents disagree with this statement.

Respondents Perception Towards Recommending A Product On Social Media- 4.8% of respondents are very likely to recommend a product on social media. while 42.9% voted likely & 49.2% are neutral.3.2% of respondents are unlikely to recommend a product on social media.

Impact Of Influencer's Recommendations On Buying Decision- 27% of respondents agree that influencer recommendations impacts their buying decisions while 30.2% don't.41.3% voted that it impacts partially upto a certain degree only.

Type Of Content Affecting Purchase Decision- 69.8% respondents stated that user reviews affects their purchase decision, while 9.5% opted-out for sponsored ads and brand posts, 7.9% selected influencer recommendations. 3.2% selected video demonstrations.

Impact Of Product Reviews On Buying Decision- 11.1%respondents agrees that product reviews on social media always impact their buying decision and for 14.3% it oftenly impact their buying decision.46% respondents agree that it affect their buying decision sometimes. while for 17.5% it rarely impact and for 11.1% it never impact.

Frequency Of Advertisements On Social Media- 20.6% of the respondents agree that they always came across advertisements on social media, 22.2%respondentsoftenly came across, 38.1% of respondents sometime came across advertisement on social media. 4.8% of respondents rarely saw advertisement on social media, while 14.3% of respondents never saw advertisement on social media.

Respondents Engagement With Social Media Ads- 3.2% of respondents are very likely to engage with social media ads, 33.3% respondents are just likely, and 46% respondents are neutral toward engaging with social media ads. while 9.5% respondents are unlikely to engage and 7.9% are very unlikely to engage with social media ads.

Conclusion:

Demographic analysis showed that age, gender, and income level significantly impact how consumers respond to social media marketing. The study also highlighted the importance of trust and transparency in social media marketing .Consumers are becoming increasingly aware of paid promotion sand sponsored content, leading to skepticism if the influencer or brand lacks authenticity. Brands that maintain transparency about their partnerships and

engage in ethical marketing practices are more likely to build long-term relationships with consumers. This findingS emphasizes the need for marketers to prioritize honesty and authenticity to establish credibility and foster brand loyalty. While social media marketing offers numerous benefits, the study also identified challenges that marketers and consumers face, including spam notifications and data privacy concerns. The implications of this research are significant for marketers, brands, and businesses looking to enhance their social media strategies. To maximize the impact of social media marketing, brands should focus on creating high-quality, engaging, and personalized content that resonates with their target audience.

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Legal Research: The Indispensable Compass for Justice and Societal Advancement

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Abstract

The cornerstone of building a society that is fundamentally fair and progressive is legal research. It goes beyond the mere retrieval of legal precedents and statutes, becoming a dynamic and invaluable guiding force for legal professionals, policymakers and scholars struggling to understand law's impact on society. This article argues that scrupulous and enlightened legal research is crucial for promoting justice, advancing society, and ensuring the effectiveness and **legitimacy of law**. Legal research, by systematically exploring **legal principles**, studying their historical evolution and considering how we apply them today, points the way towards a better law and fair consequences. It also enables **legal practitioners** to makes strong arguments, argue for their clients in court, and help develop nuanced legal jurisprudence. Additionally, evidence-based legal research enables policymakers to craft laws that will satisfy society's needs, rectify injustices and foresee future problems.

Comparative legal studies, a vital part of legal research, supply valuable information on different legal treatment dynamics. This promotes cross-border lessons and upwind opportunities for adopting best practices. Legal research, beyond its practical applications, is a source for intellectual exchange and critical analysis of the law. It inspires scholars to question established norms. It leads them to discover systemic injustices when they occur. And it generates new ideas that serve as an antidote to the many problems society and law face today. This scholarly spirit guarantees that the law's role in society is thoroughly understood, and that such an understanding will contribute to socially positive change. Ultimately, strong legal research produces an environment of law that is aware, able to accommodate changing circumstances, and prepared to meet the challenges faced by a society in flux. As such, it is a necessary component for achieving **justice** and advancing the well-being of society.

Keywords: Comparative legal studies, justice, legitimacy of law, legal principle, legal pracititioners

Introduction

Law is not merely a static body of rules but a dynamic field in which values, historical context and visions of a better, fairer future individually and collectively intertwine. It is the bedrock upon which human social dynamics exist, regulates governing bodies, and attempts to maintain the ideal states of order and equity. Legal research is the systematic, methodical, and intellectually rigorous process of inquiring into the interstitial network of legal shafts, established precedents, and newly-minted policies, that truly sits at the very heart of law as a dynamic, vibrant, and transformative process.[1] In the same way that scientific research inspires breakthroughs in technology and medicine, legal research is the essential foundation for human advancement and significant social progress. It guarantees that our systems of justice will continue to be relevant and flexible, yet inherently fairest and truly able to respond to the complexities of a world in constant evolution.

Defining the Scope of Legal Research: Unearthing the Principles of Governance

Legal research can be a complex term it can include everything from carefully searching for and retrieving the multitude of available legal information to just the study and an examination of legal issues. For this reason, such a rigorous process is undertaken to provide strong backing for informed legal decision-making at multiple levels, as well as, enriching the body of legal scholarship with insight and new ideas in a systematic way. It requires a careful and exhaustive review of the primary sources of law: statutes that have been enacted, binding cases, regulations issued by

[1] PTI, "Law is Not Static but Dynamic: SC Judge Stresses Importance of Continuous Learning", *Et-Legal World*, Feb. 20, 2023, *available at*: https://legal.economictimes.indiatimes.com/news/industry/law-is-not-static-but-dynamic-sc-judge-stresses-importance-of-continuous-learning/98075120 (last visited on Apr. 20, 2025).

administrative agencies, and constitutional provisions that are foundational. Rather, it requires considerable immersion into secondary sources of law, including leading treatises, groundbreaking law review articles and penetrating scholarly publications. Legal research aims to find the relevant law, understand the current landscape and write a convincing legal argument with supporting case law that can be scrutinised by experienced legal professionals.[2]

The Multifaceted Role of Legal Research in Driving Human Progress

Legal research plays a pivotal and multifaceted role in fostering human progress and driving societal advancement across a wide spectrum of critical areas:

i. The Cornerstone of Justice and Fairness

The principles of justice and equity in any constitutional democracy will not solidify, if not for the foundation of thorough and painstaking legal research. Through such scrutiny and challenge, lawyers can ensure that judicial and administrative determinations are both legally sound and applied in a manner that is largely consistent and fair. In addition, through exhaustive legal research, we can identify the intrinsic ambiguities, potential inconsistencies, or latent injustices that the current legal structure may hold, providing ground for the reform of structural and systemic change to correct this imbalance.

Many landmark legal cases in history that progressed the movement of civil right and social justice, for example, were so thoroughly backed by comprehensive and compelling legal research that documented the practice of discrimination and practiced a strong argument towards the fundamental idea of an equal protection of law for every individual.[3]

ii. Facilitating Legal Reform and Societal Adaptation

Human societies never remain static and will always continue to evolve due to technological development, changes in social norms and new global challenges. As a result, the law must accommodate in a flexible manner these new realities and reflect the value and needs of the changing society. That needs to change, and legal research is a necessary part of that change — it systematically identifies discrete areas in which current laws are obviously deficient, patently obsolete, or inapt to serve the best interests of the society that they purport to govern.

Especially, socio-legal research addressing the complex relationship between law and society generates vital empirical insights that can vividly illustrate the imperative of structural legal change. Strong legislative ideas around policy change to optimize the health of the people and state are often born from research into issues that are contemporary in nature, such as climate change and the need for environmental protection, rapidly-developing technological innovations and their ethical and legal implications, and changing definitions and understandings of family through lenses of gender, sexuality, ability, and culture.

iii. Strengthening the Foundations of Legal Education and Scholarship

Legal research is an integral part of legal education that is essential to preparing the next generations of legal practitioners with the requisite critical thinking, advanced analytical reasoning, and problem-solving skills required for effective and ethical legal practice. Through the sound practice of legal research, law students thoroughly learn the fundamental principles of law, master the ability to write clearly and precisely about detailed and multifaceted legal issues, and develop the skills necessary to craft coherent and persuasive legal arguments that can withstand the test of intellectual rigor.[4]

Moreover, legal scholarship is a core driver of the intellectual evolution of law as an academic discipline, which is inherently rooted in exhaustive and intensive research. The ensured endeavor encourages critical analysis of existing legal doctrines, reveals possible areas of weakness and inconsistency, and attempts to put forth creative and evidence-based solutions to the pluralistic legal problems that every society faces.[5]

iv. Championing Human Rights and Social Justice

Legal research is an incredibly useful and essential vehicle that we can harness to proactively campaign for human rights and social justice around the world.[6] Through the systematic documentation of violations of human rights; the critical review of international instruments that uphold and protect these rights; and an analysis of the different ways laws and policies affect disadvantaged and vulnerable groups in society, researchers can provide critical evidence and arguments to vigorously lobby for legal reforms that will guarantee but also advance the realization of ground level protection of fundamental rights together with the rights to non-discrimination and

[2] Chunuram Soren, "Legal Research Methodology: An Overview" 8 *Journal of Emerging Technologies and Innovative Research* 445 (2021).

[3] *Id.*, 449.

[4] V.K.Ahuja and Debasis Poddar (eds.), *Legal Pedagogy and Research Methodology* 183 (National Law University and Judicial Academy, Assam, Guwahati, 2024).

[5] *Ibid.*

[6] "Scope of Legal Research: Importance, Careers & Future Trends", *The Legal School*, *available at*: https://thelegalschool.in/blog/scope-of-legal-research (last visited on Apr. 20, 2025).

equality.[7] We note that public interest litigation, often driven by robust and strategic legal research, has long been a force for good particularly in promoting systemic justice and in obtaining wider, positive social change, for thousands if not millions of individuals and entire communities.

v. Underpinning Economic Development and Sound Governance

Certainty in the law, expressed in terms that people can appreciate and repeatedly applied over time, is, or at least ought to be, a requisite for sustainable economic development and good governance in any country. Thorough legal research enables the careful drafting of laws and regulations that actively promote fair competition and the strong protection of property rights and a high level of contractual certainty that create a stable, predictable and reliable ecosystem that stimulates and encourages sustainable strong levels of economic activity and investment. Further, grounded study of the nuance of administrative law and institutions of government play a significant role in the promotion of transparency, accountability of other institutions of government, and rule of law, which are critical elements of a vibrant and just society.

Diverse Methodologies Employed in Legal Research: A Systematic Toolkit

Legal research employs a diverse array of systematic methodologies to effectively gather, critically analyze, and meaningfully interpret legal information:

i. Doctrinal Research

This embodies a traditional but still instrumental method that concentrates exclusively on comprehensive examination of prevailing legal rules and existing case law that resides in primary and secondary legal sources.[8] The primary goals of legal encyclopedias are to remove ambiguities, organize legal principles in a systematic fashion and provide an element of ongoing legal progress in some fields of legal inquiry.

ii. Empirical Legal Research

Based on the strong traditions of the social sciences, this strategy uses quantitative and qualitative methods to assess the real-life effects of laws and legal institutions on the society.[9] It utilizes both quantitative methods, such as statistical analysis of large datasets and surveys, and qualitative methods, including in-depth interviews and ethnographic studies, to generate evidence-based insights.

The core principles of Empirical Legal Research emphasize the importance of empirical evidence in assessing the tangible effects of laws and legal institutions on individuals, groups, and society, ultimately aiming to evaluate the effectiveness of law in achieving its intended goals and providing valuable insights for policymakers and legal practitioners.

iii.Comparative Legal Research

This important technique consists of analyzing legal systems, certain laws, or broader legal traditions between jurisdictions or across different historical periods in an organized manner. The aim is to obtain valuable insights, learn of possible best practices that could be reproduced, and understand the ways that similar legal challenges have been approached by relevant actors in other contexts.

iv. Historical Legal Research

This method explores the historical development of legal concepts, legal institutions, and the historical journey of specific laws. The goal is to better understand the origins and formative forces surrounding the Historical Interpretation, as well as how that historical context relates to current legal problems and interpretations.[10]

v. Socio-Legal Research

This is an important interdisciplinary investigation actively exploring the way law interacts with the broader social, political, economic and cultural contexts in which it is embedded.[11] It explores the two-way interaction between the law and social norms, values, and conduct.

Legal Research and Social Progress

In the course of human history though, careful legal research has proven instrumental to some of the most significant qualitative leaps mankind has taken:

i. The Abolition of Slavery

The insights gained from the study of fundamental tenets of natural law and the inherent and inalienable rights of every person provided not only the moral force but also the powerful philosophical and legal arguments that eventually drove the worldwide campaign to end slavery and

[7] *Ibid.*

[8] Apurva Neel, "Legal Research: Doctrinal and Non-Doctrinal", *Legal Bites - Law and Beyond*, Mar. 31, 2023, *available at*: https://www.legalbites.in/research-methodology/legal-research-doctrinal-and-non-doctrinal-896702#:~:text=Doctrinal%20research%20is%20a%20research%20methodology%20that,in%20understanding%20legal%20concepts%2C%20principles%2C%20and%20doctrines.&text=The%20methodology%20of%20doctrinal%20research%20typically%20involves,to%20identify%20relevant%20legal%20concepts%20and%20principles. (last visited on Apr. 20, 2025).

[9] *Ibid.*

[10] Kr Rabindra and Rabindra Pathak, *Legal Research and Methodology Perspectives, Process and Practice* (Satyam Law International, Ranchi, 2019).

[11] Lynn Mather (ed.), *Law and Society* 290 (Oxford Handbooks, United Kingdom, 2013).

dismantle this atrocity in countries around the globe.[12]

ii. Progress Towards Equality of Women

Decades of painstaking legal scholarship had carefully chronicled the many discriminatory laws and long-standing cultural practices that had disadvantaged women in virtually every aspect of their lives. This intensive research offered the necessary intellectual underpinning for later legal reforms that awarded women basic rights, including the right to vote, the right to own property, and the right to equal access to education and the labour market.

iii. Safeguarding Minority Rights

Detailed legal research that carefully identified trends of systemic discrimination and contextualized constitutional guarantees of equality and non-discrimination has been key to successfully advancing the legal protections needed by numerous minority populations to protect them from prejudice and marginalization.[13]

iv. Background on Environmental Protection Laws

The passage of environmental laws and regulations protecting the planet through sustainability is a direct result of scientific research that highlighted the negative and sometimes irreversible impact of pollution and the global destruction of nature, combined with legal scholarship[14] that outlined and explored the possibility of legal mechanisms for environmental protection.

v. The Development of International Human Rights Law

Rigorous legal research into past instances of grave injustice and into the philosophy of the idea of human dignity critically informed this comprehensive body of contemporary international human rights law. This body of law creates global legal norms to protect certain rights that are viewed as fundamental human rights, and instruments for enforcing compliance by states that commit abuses.[15]

Contemporary Challenges and the Evolving Landscape of Legal Research

While irreplaceable in driving society's development forward, the role of legal research today is confronted with a number of major challenges. This includes the growing volume and complexity of legal information; the need to adapt to rapid and ongoing technological change in legal databases and the new field for both qualitative and quantitative analysis and prediction that AI tools are rapidly developing; and last but not least, the persistent need to conduct high-quality legal research, report and disseminate legally relevant findings honestly and ethically.

Legal research in future is expected to be more integrated than ever with coherent and appropriate advanced technologies, cross disciplinary interactions with those who are not lawyers, but who can add useful analytical capabilities and the politics of social science but important societal applications, in a relatively unrelenting focus on the most important issues facing both our nation and humanity, through a lens of data informed legal analysis.

Conclusion

To summarize, legal research is not just an academic purpose, but it is one of the most significant and key engines that pushes humanity to progress and the most necessary means to create, reorder social and human life in a more fair and equitable direction. It is the essential bedrock upon which justice is built, it effectively enables necessary legal reforms that respond to a changing society, it greatly enhances the quality of legal education and scholarship, it vigorously advances the principles of human rights and social justice, and it provides the basis for developing good governance and sustainable economic development.

This an important task since law is never static, and unchanging, rather, it is always dealt as a dynamic process operating within itself and should encourage change in societies that it serves, because by such deformation we materialize a clear, permanent path towards a more just, equitable and progressive future for generations to come.

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Directing: The most important function of Successful Organization

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Abstract:

Every organization has predetermined goals. To achieve these goals organization has to take the help of management whose only motto is to get work done from the employees in a very systematic way. For this he has to implement various functions viz; Planning and Implementation of various policies, Selection of the proper employees for the proper job, facilitated them by the various Training programs, Clearing their doubts by proper Directing, give them the practice of self motivation, making co-ordination in their efforts, regular reporting by the employees so that top authorities should know their skill of completing the work, preparation of the budget of every department so that estimated expenses should be known etc. Out of these functions the most important function is directing. Because it is the function through which the employees can complete their work in a very responsible manner. It also helps to develop their skill so that they can increase their strength in working. Therefore the maximum production in a very low cost is possible. In such a manner direction plays a master's role to make a supply of the production in a regular way towards the wholesaler. So, the wholesaler can sale the products to the retailers and retailers can supply their products to the consumers. Direction is a systematic effort by which every employee in the organization understands his duties and the way to fulfill it. So, this is most important to know its importance in the organization.

Keywords: lighthouse, hazardous, strategy, predetermined.

Introduction:

Every day every human being is working to complete some predetermined work. No doubt if that work is easy, then there is less possibility of any type of disturbances. But if the work is hard, then there is more possibility of disturbances. Here someone must be there who should guide them to remove them and get work done in a very easy manner. By doing this activity the person who is giving him guidance, is applying the function of 'Direction.' In this way Direction is a function of showing the right path to complete the work. It is a very important function in everybody's life. In other words we can say that, it is a lighthouse that shows the right path to the sailors who is stumble in the sea.Direction plays a very important role in the human life. From his childhood up to his death, in every level of life he needs the proper direction. In his childhood the mother and father is the main directors who shows the right way of living in the society in ethical way. From School days, our teachers works as our directors who builds up our personality in such a manner that we will be ready to face the future challenges and build up our reputation in the society. Friends and Wife are also our directors by giving moral support and by giving the perfect solution in hazardous situations. Organization is a combination of so many departments. Some of those departments are Security department, Raw Material Purchase department, Production department, Quality Control department, Sales departments, Dispatch department, Finance department, Human Resource Development department, Personnel department etc. These all the departments have the Head of the departments who have to assign work and responsibilities to the employees and have to get work done from them. It is the duty of the senior authorities that after assigning the different works to the employees, they should clear their authorities and direct them in such a way that they should complete their work in a very calm manner and also within the specific period.

Direction is a function of management which gives the awesome guidance to the employees to complete their work. It also develops the practice of self motivation among the employees. It enhances the co-operative sense which intends the employees to make extremely good relations with the other employees. Direction is the key of success of every organization. It is a continuous process in which the employees, workers and their senior authorities know many things viz; what are their responsibilities? What are their authorities to complete the given tasks? What is the importance of that work to achieve the predetermined objectives? What is the time limit in which the given work should be completed? What are the

methods to complete that work? What are the expected expenses to complete that work? Whether the skill of the employees is developed or not? What are the training programs available for the development of the skill of employees? etc. are the some of the important aspects of the Direction. That's why as per the increasing industrialization, day by day the importance of 'Direction' is continuously increasing.

Objectives of the research:

1. The main objective of this research is to know the various aspects regarding the importance of the function of Direction.
2. Hypothesis:'Direction is the key aspect of every successful organization.'

Research Methodology:

The secondary sources are used to collect the important data for this research.

The Importance of Direction in successful organization:

Employee is a most important aspect of the organization. All the administrative work is to be completed by the employees. There occur many difficulties while completing their work. To solve these difficulties Direction plays a very important role. That's why it is very important to study various aspects of the Direction.

Successful Planning:

Planning is deciding in advance what is to be done. In an organization the senior authorities have to make the short term as well as the long term plans. The main objective of planning is to execute various action plans in present and to prepare the future action plans for future. But for the implementation of these plans, employees play the master's role. These are the most important aspect through which the predetermined goals are to be achieved.

Guidance against changing situations:

In every sector, the situations are ever changing. The strategy which is applied in one situation is not applicable in other one. Because there are different aspects which are most important to complete those work. For example the changing consumer behavior is the most important aspect of the organization. When the competition in the market is stable and the consumer's likes and dislikes are changed, it makes a big impact on the sales of the products. In this situation Direction plays a very important role. The entrepreneurs have to change the old strategy and have to establish the new strategy of marketing.

Develops the Co-ordination:

In an organization there are various departments through which daily working scheduled has to be achieved in a systematic manner. The senior authorities in the organization always give the appropriate orders to the employees. But these senior authorities have to give orders according to their skills and experience of completing those works. After giving orders to the employees, it is the responsibility of the senior authorities to give them proper direction to clear the doubts and suggest them to complete those works in a particular time. In such a manner, direction helps the employees to develop the co-ordination among the manager and employees.

Self motivation:

The success of the organization is depends of many aspects. The major aspect among these is to make practice of self motivation among the employees. Direction is a systematic process through which the employees should know about the predetermined objectives of the organization. It is the responsibility of every employee to know these objectives and to choose the easier method so that the given task should be completed in the proper time.

Two way communication:

Communication is the most important function of the management. In an organization, Communication plays a very important role to make good relations within the Management and employees. Direction builds a platform between the Entrepreneurs and the employees. Two way communications is a process in which the manager and head of the departments makes the good communication with the employees and the employees also make the good communication with the senior authorities.

Develops employees performance:

In every organization to give orders by Head of the Departments and to follow the orders by the employees is the work of daily routine. Due to this daily routine work, the employees are become perfect in their work. They know about the type of work, the sources of working, the expected expenses for that work, the particular time in which the work should be completed.

Improves the Quality in working:

To achieve the predetermined goals of the organization, employees are the main source. They have to complete the various types of work at daily routine. It helps them to develop their strength and improves the quality of working which helps them to improve the quality of working. It also helps to improve the quality of production.

Profit maximization:

The success of the organization is depends on maximum production at a minimum cost of production. For this proper planning of the various policies along with its implementation is mostly required. Direction is the function due to which preparation of planning and its implementation is possible in a very transferring way. It definitely develops the chances of profit maximization. Today

most of the organizations, make use of this profit for the establishment of future development policies.

Testing of the Hypothesis:

In this research the following hypothesis was taken;

'Direction is the key aspect of every successful organization.'

The success of the organization is depends on many aspects.For example, proper use of available resources, proper use of available capital, extremely good quality of raw material, a good budgeting for all departments, well prepared strategic planning, a well established marketing department etc. For the successful implementation of all these functions, Direction plays a very important role. It is the most important function in which the senior authorities after giving the appropriate orders, gives their suggestions to their subordinates to complete the given work within a specific period. In this way Direction is a long term and continuous process in which the important instructions are given to the employees so that, their doubts should be clear. In the organization, giving the appropriate orders to the employees and to fulfill that work within a time is common and daily routine work. Due to continuous and same type of work, employees are expert in their work. In such a way they can develop their skill. Direction also creates the good relations between the employer and employees and also the senior authorities and the employees. Direction is a continuous process which starts from the beginning to the end of the organization. That's why it is the key aspect of the every successful organization.

By the above information it is clear that, the hypothesis taken in this research is true.

Conclusion:

The organizations motto is to earn maximum profit in a very less cost of production. It depends on the optimum use of the available resources. These resources are capital, raw material, manpower, machinery, types of production, markets etc. This is the challenge for the every entrepreneur to make fresh entry in the markets to introduce the production. But this is not the single challenge. There are various challenges which have to be faced by the entrepreneurs as well as the top level of management. Some of those are to make scientific marketing research, to maintain the quality of the production, to search the new markets, to make selection of the employees according to their qualification and previous experience, to arrange the skill development program, to maintain the industrial peace, to maintain the co-ordination and co-operation, to capture the district markets of other states, to maintain the better relations with the consumers by giving them various services in proper time etc.

To fulfill these functions 'Direction' plays a very important role. In other words we can say that, these all function should not be completed without the function of Direction. That's why It is the most important function through which the departmental heads can give the appropriate orders, employees can clear their doubts so that they can complete their work very accurately within the proper time, the senior authorities can prepare the development plans, their strengths should be developed, various action plans should be prepared for implementation, climate of industrial psychology should be prepared, process of two way communication is established. In this way 'Direction' works as lifeblood of the organization. Indian industrialization should be developed if the percentage of sick industries will be reduced. Behind every sick industry, there should be many reasons. But the main reason is the non implementation of the proper Direction in all the various eras in the organization. All the entrepreneurs should be preparing themselves to give their proper concentration on proper direction. If this will be done, the percentage of the sick industries will be reduced and the percentage of the Indian industrialization should be raised which will be so beneficial to strengthen the Indian economy.

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Awareness, Knowledge and Attitude towards Artificial Intelligence in Learning among M. Kandiah Faculty of Medicine and Health Sciences Students in University Tunku Abdul Rahman

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Abstract:
Artificial intelligence is widely used in many fields including education and learning by using innovative ideas and techniques that promotes skill development and fast learning. AI is found to be useful in medical field which acts as clinical educators and offers advice for health care teachers to encourage the use of AI in health education field. The effect of AI in learning among university students is less explored. The aim of this study is to determine the awareness, knowledge and attitude towards artificial intelligence in learning among medicine and health science students in Universiti Tunku Abdul Rahman.
Methods: Participants from Universiti Tunku Abdul Rahman were recruited from the faculty of medicine and health science. Questionnaires were given to all the participants and required them to answer all the questions.
Results: The total 272 responses collected. There are 18.9% of Chinese traditional medicine (TCM), 22.7% MBBS, 5.7% Nursing and 52.7% Physiotherapy students participate in this study. The study found that 7.6% and 92.4% of participants have fair and good awareness respectively. While for knowledge part, 19.3% of participants have fair knowledge and 80.7% of participants have good knowledge towards AI in learning. However, more than 70% of them do not been taught about any AI related course. Most of the participants have positive attitude towards AI in learning. However, there are 0.4% of participant has negative attitude towards AI in learning and more than 50% of participants have a fear that AI will replace the healthcare professions
Conclusion: The medicine and health science students in the university have a good awareness and knowledge towards the basic of AI. However, they are not really understanding AI in-depth due to lack of opportunity to study in AI related course. Although there is a fear of replacement by AI, but majority of the students have a positive attitude towards AI in learning and agree that AI will be beneficial as learning tool. In addition, their willingness towards inclusion of AI in practical training and curriculum are also high. Hence, the university should consider including AI course in the syllabus to encourage the students to know and explore more about AI.

Keywords: Artificial Intelligence (AI), Awareness, Knowledge, Attitude, Medical, Health Sciences, Learning

Introduction:

With the advancement of tools used in computing and information processing, Artificial Intelligence (AI) opens up new possibilities and chances in educational processes and can offer crucial insights to everyone at the institutional level in learning and education industry. Besides that, AI has been extensively used in education field, including intelligent tutoring systems, teaching robots, learning analytics dashboards, adaptive learning systems, and human-computer interactions, computing, and information processing techniques with the current advancement and industry revolution 4.0 (Kaur, 2021). According to Gawali (2020), there are various type of AI application used in learning which included machine learning based approach for data analysis and categorization, The AI used in enhancing the learning experience like machine translation tools, adaptive educational systems, and intelligent tutoring systems (Chen, Chen, & Lin, 2020).

AI can play a role as human educators, such as clinical educators, and offers advice for health executives on how to encourage the use of AI in the education and professional growth of healthcare workers.

AI knowledge and information are important for medical and health science students because they might involve in the usage of AI in future. AI such as Intelligent tutoring system (ITSs) known as BRCA Gist and Stethee Pro have been used in medical field Malaysia (Randhawa & Jackson, 2019). This is important for medical students because they will become the healthcare practitioner

that involve in the medical field in the future. Hence, they might need to understand the basic concept and the knowledge about AI in order to catch up with the latest AI application in learning and medical field. Besides that, by knowing the attitude of medical and health science students towards AI, it will help in the decision making whether to involve AI related course or curriculum. If the feedback from the research is positive, course and curriculum related to AI can be considered to apply for learning in medical education field.

Research objective

1. To determine the awareness towards Artificial Intelligence in learning among faculty of medicine and health science students in Universiti Tunku Abdul Rahman (UTAR)
2. To determine the knowledge towards Artificial Intelligence in learning among faculty of medicine and health science students in UTAR.
3. To determine the attitude towards Artificial Intelligence in learning among faculty of medicine and health science students in UTAR

Methodology

Study design- Cross section study design

Instrument used-Validated Questionnaire for the awareness and knowledge of AI.

The researcher distributes the questionnaire through various social media platform. The participants were also recruited physically in campus by require the participant to scan the QR code and assess to the questionnaire. Informed consent was asked before the participants proceed to filling of questionnaire. All the questions were required to answer by the participants. The researcher proceeds to clean and code the data after the data collection process was completed. Data analysis was done with IBM SPSS software statistics version 26

Result

Awareness towards AI in learning

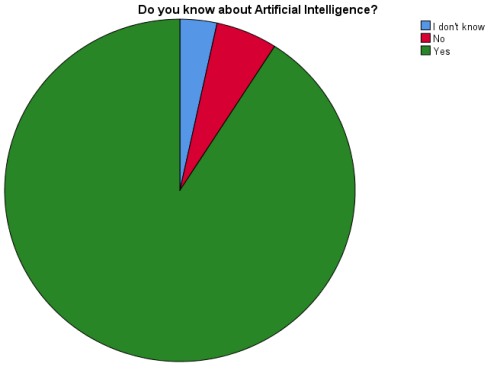


Figure 1.1 show the number of participants on do they know about Artificial Intelligence. Most of the participants select "Yes" which account for 90.9% or 240 of total participants. 15 or 5.7% of participants select "No" while the remaining 9 or 3.4% of participants select "I don't know".

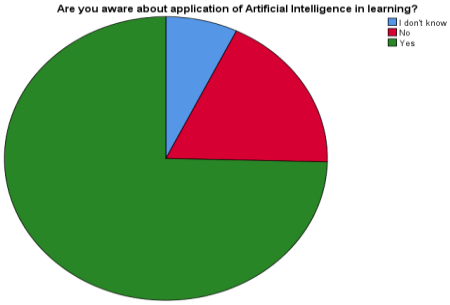


Figure 1.2 illustrate the number of participants on their awareness on application of AI in learning. 197 or 74.6% (Table 4.2) participants select "Yes" which indicate they aware of AI application in learning while 48 or 18.2% participants select "No" which represent they do not aware of AI application in learning. Around 19 or 7.2% participants do not know about the application of AI in learning.

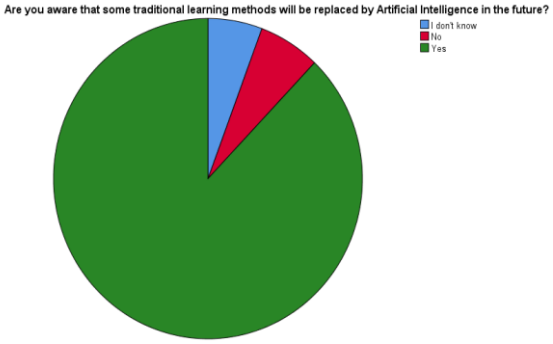


Figure 1.3 shown that the awareness of participants on the replacement of traditional learning methods by AI in the future. Most of the participants which account for 232 persons or 87.9% aware on this issue while another 17 or 6.4% of participants do not aware on this. Around 15 or 5.7% of participants do not know about this issue.

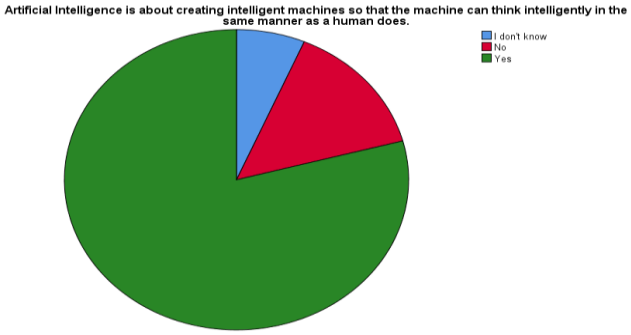


Figure 1.4 shown that the number of participants on their knowledge towards definition of AI. 79.2% or 209 participants agree with the definition of AI given while 14.4 or 38 participants do not agree with the definition given. The remaining 17 or 6.4% participants do not know the definition of AI.

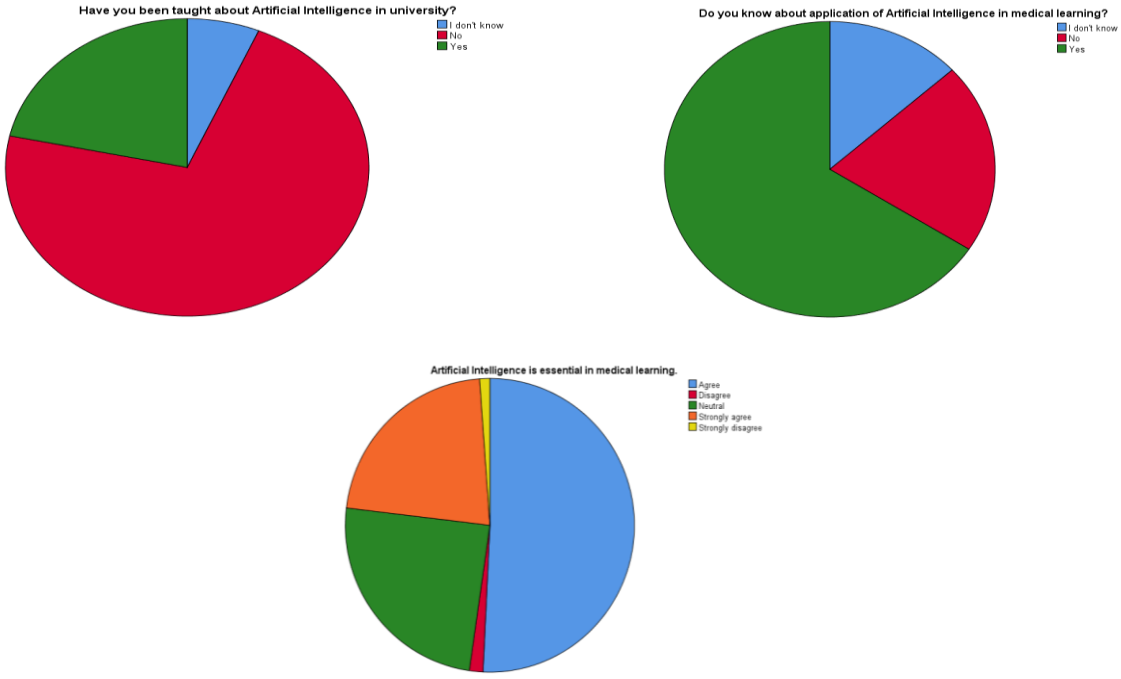


Figure 1.5 show the attitude of participants towards AI as an essential in medical learning. 58 or 22.0% of participants strongly agree with this statement while 134 or 50.8% of participants agree with this statement. 65 or 24.6% of participants neutral about this statement. However, there are also participants have the opposite opinion which 4 or 1.5% of the participants disagree while 3 or 1.1% of participants strongly disagree with this.

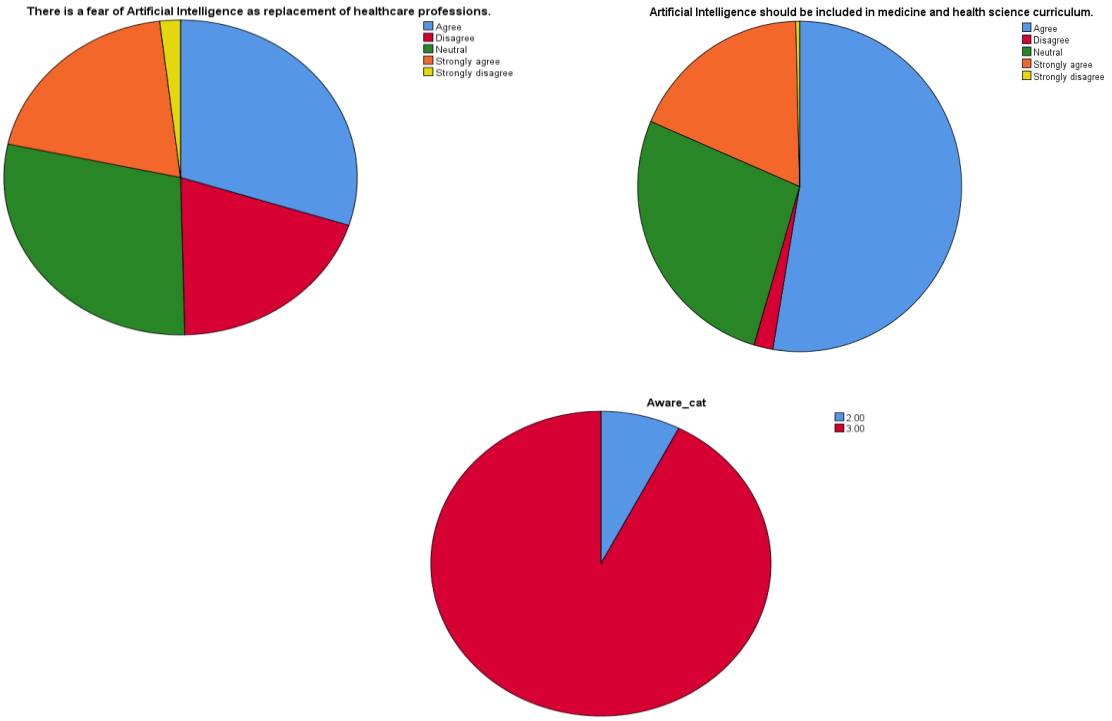


Figure 1.6 show the awareness category of participants. Most of the participants fall under category 3 which indicate most of them have a good awareness towards AI in learning.

Discussion

Awareness towards AI in leaning

All the students have fair or good awareness towards AI in learning. There are 7.6% of students having fair awareness while 92.4% of students having good awareness. This may be due to although AI is developing rapidly and its implementation is almost in every industry. Even the smart phone and electronic gadgets that we used nowadays are related to AI. Evidence suggests that AI is now a current topic in academia, accounting for 2.2% of all scientific papers as of 2018 and growing. Higher education institutions, particularly those in developed nations, have already begun to deploy AI technology in a variety of contexts, including management and teaching and learning (Vieira et al., 2022). With this, the students will have great explore to AI in daily life. However, although most of the participants has aware about the definition of AI but most of them are not able to differentiate between machine learning and deep learning in AI (No=47%, I don't know=19.7%). In addition, most of the participants also not able to aware the basic principles of AI. The reasons of this phenomena may be due to FMHS students are not explore to courses that related to AI in university hence they are not able to learn advance information related to AI.

Knowledge of AI I learning

Based on the data collected in section 4, it shown that overall, the participants have fair and good knowledge towards AI in learning. There are 19.3% of the students have fair knowledge and 80.7% of students have good knowledge towards AI in learning. Most of the students able to know the definition of AI but more than half of them do not know about machine learning and deep learning. However, more than 50% of the students able to understand the meaning of machine learning. Although most of the students know that the involvement of AI in medical learning, medical diagnosis and documentation, but more than 70% of them have not been taught about AI in university.

Attitude towards AI in learning

This shown that medical students generally have a positive attitude towards AI in medical field. This is because the students have opportunity to expose to AI related courses and AI application. Participants that aged and those with intermediate or advanced knowledge of AI-specific are less likely to feel afraid of replacement by AI. The most frequent causes of replacement anxiety are expecting changes to the diagnostic radiologist's job, thinking full replacement or partial replacement, will lead to a decrease in the employment for radiologists. Same goes with students in UTAR, they will also be employed in medical field after their graduation. Hence, they will worry that their job will replace by AI and hence lead to unemployment among themselves and will be more confident towards AI involvement in medical field.

Conclusion

In conclusion, it is found that medicine and health science students in UTAR generally have a good awareness and knowledge towards the basic of AI. However, they are not really understanding AI in-depth due to lack of opportunity to study in AI related course. Although there is a fear of replacement by AI, but majority of the students have a positive attitude towards AI in learning and agree

that AI will be beneficial as learning tool. In addition, their willingness towards inclusion of AI in practical training and curriculum are also high. Hence, the university should consider including AI course in the syllabus to encourage the students to know and explore more about AI. Besides that, the university should also consider involving AI in practical learning and curriculum. This is giving the students a chance to learn through AI and adapt with the application of AI.

With the advancement of AI, it will further improve the overall services and making the diagnosis process to be more efficient. Hence, it is important for the medicine and health science students to have and master the AI knowledge. This will allow them the adapt and learn the AI application used in medical and health sciences field in a more efficient way. With this, it can reduce the burden of the healthcare professions while providing best quality of healthcare service to the patients.

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Awareness of Learning Disabilities in Children among Middle School Teachers

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Abstract:
A study was conducted to analyze the awareness of learning disabilities in children among middle school teachers. This study included 10 research papers focusing on teachers' awareness of learning disabilities. The analysis revealed that 60% of teachers had an average level of awareness, 25% had good awareness, and 15% had below-average awareness. It is suggested that these findings can help guide school administrators and policymakers in designing targeted professional development programs, ultimately improving educational support services. There is a necessity to take steps toward creating a better world for children with learning disabilities.

Keywords: Awareness, Learning Disabilities and Middle School Teachers

Introduction

Awareness of learning disabilities in children among middle school teachers is crucial for creating an inclusive and supportive educational environment. Learning disabilities, such as dyslexia, dysgraphia, and dyscalculia, affect the way students process information, often leading to challenges in reading, writing, math, or behavior. Middle school is a critical period for students as they face greater academic difficulties and social changes. Teachers who are well-informed about learning disabilities can identify early signs, adapt their teaching strategies, and provide appropriate interventions. Raising awareness not only helps in meeting the diverse needs of students but also fosters a more empathetic and equitable classroom where every learner has the opportunity to succeed.

Objective of the Study

1. To assess the awareness of learning disabilities in children among middle school teachers.

Significance of the Study

Teachers play a vital role in recognizing signs of learning difficulties, and their level of awareness directly impacts students' educational outcomes. Early identification and intervention are critical for students with learning disabilities to achieve academic success. Therefore, it is necessary to enhance teachers' awareness to foster more inclusive classroom environments where instructional strategies are adapted to meet diverse needs.

This study contributes to the growing body of research on special education by highlighting the importance of continuous teacher education to promote empathy, understanding, and effectiveness in addressing learning challenges.

Scope of the Study

The scope of this study focuses on examining the level of awareness and understanding middle school teachers have regarding various learning disabilities, such as dyslexia, dyscalculia, and dysgraphia. It specifically targets teachers working in middle schools and explores factors such as their professional training, experience, exposure to special education, and their ability to identify learning disabilities in students.

Methodology

Ten studies have been included in this research to find out the awareness and knowledge about learning disabilities of children among middle school teachers, as shown in the following table:

Table 1

Sr. No.	Year	Studies
1	2017	**Jones, M. T., & Hensley, P. A. (2017).** Middle School Teachers' Knowledge, Attitudes, and Practices Related to Learning Disabilities specifically at middle school environments, revealing moderate knowledge but gaps in implementing inclusive practices.
2	2017	**Padmadewi, N. N., & Artini, L. P. (2017).** Teachers' Awareness and Strategies in Teaching Students with Learning Disabilities focused on middle school teachers in Indonesia; shows that awareness is generally low, and many strategies are improvised rather than systematic.
3	2016	**Alkahtani (2016).** Middle School Teachers' Knowledge of Specific Learning Disabilities in Saudi Arabia reported low levels of knowledge about specific disabilities like dyslexia and dyscalculia among middle school teachers in Saudi Arabia.
4	2012	**Alduais, A. M. (2012).** Teachers' Awareness and Attitudes toward Students with Learning Disabilities surveyed middle school teachers; positive attitudes were common, but deep knowledge about learning disabilities (like dysgraphia, dyscalculia) was lacking.
5	2011	**Smith & Tyler (2011).** Middle School Teachers' Recognition and Diagnostic Understanding of Learning Disabilities found that while most middle school teachers recognize common signs of learning disabilities, they often lack depth in diagnostic understanding.
6	2010	**Smith, J. & Tyler, N. (2010).** Teachers' recognition of learning disabilities: A study in middle schools focused specifically on middle school teachers, assessing their ability to recognize symptoms and refer students appropriately.
7	2009	**Jordan, A., Schwartz, E., & McGhie-Richmond, D. (2009).** Preparing Teachers for Inclusive Classrooms, examines teacher preparedness for handling students with Learning Disabilities in inclusive settings. Highlights gaps in knowledge among middle school teachers.
8	2007	**Westwood, P. (2007).** Commonsense Methods for Children with Special Educational Needs that reviews teacher practices; notes that middle school teachers often misunderstand dyslexia, dyscalculia, and ADHD as poor motivation.
9	2005	**Wasburn-Moses, L. (2005).** How to Identify Learning Disabilities: What Middle School Teachers Know found that many teachers confuse learning disabilities with behavioral issues, indicating a need for clearer professional development.
10	2003	**Cook, B. G., & Schirmer, B. R. (2003).** What Is Special About Special Education? and discusses how middle school teachers often do not differentiate between learning disabilities and general underperformance unless properly trained.

Result & Discussion

This research included ten national and international studies from 2003 to 2017 to investigate the awareness and knowledge of learning disabilities in children among middle school teachers.The reviewed studies consistently highlight that while middle school teachers recognize the importance of addressing learning disabilities, significant gaps remain in both their knowledge and their practical application of inclusive strategies

Table 2

Level	Studies
Average	05
Good	02
Below Average	03
Total	**10**

According to the above details, the analysis of the studies shows that 60% of teachers had average knowledge, 25% had good knowledge, and 15% had below-average awareness about learning disabilities. The research reveals a consistent pattern of moderate knowledge, positive attitudes, and a lack of deep diagnostic understanding among middle school teachers regarding learning disabilities. There is a clear need for structured, formalized training to improve teachers' ability to both identify learning disabilities and implement effective and inclusive teaching practices.

Conclusion

According to the analysis, the research suggests that middle school teachers are not sufficiently aware of learning disabilities and require more comprehensive training to develop the necessary skills for identifying, diagnosing, and supporting students with specific learning disabilities in inclusive classrooms. Positive attitudes toward students with learning disabilities exist, but these attitudes need to be paired with effective instructional practices. There is a clear need for more systematic, evidence-based professional development to equip teachers with the

knowledge and tools they need to meet the diverse needs of their students.

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The Moral Landscapes of Amitav Ghosh Fiction in the Age of Climate Change

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Abstract:

The Hungry Tide, River of Smoke, and Gun Island are three of Amitav Ghosh's novels that offer a profound literary examination of environmental sustainability, revealing its ecological and human complexities beyond mere policy discussions. Instead of viewing sustainability as a final goal, Ghosh reinterprets it via colourful narratives as an ongoing negotiation between history, the natural world, and humanity. By uplifting underrepresented voices and ignored histories into a more universal vision of ecological balance, his work challenges prevailing narratives that prioritize technological solutions over lived realities.

The Hungry Tide portrays the Sundarbans, a huge tidal mangrove forest, as a microcosm of the conflicts associated with sustainability. Here, the traditional means of survival for local communities collide with government conservation initiatives, raising challenging questions: Can environmental protection be just if it excludes those who depend on the land? What does " sustainability " mean when survival itself is at stake? Instead of providing simple answers, Ghosh presents the Sundarbans as a region where human and non-human life are intricately interconnected, calling for solutions that honour this interdependence.

The disastrous ecological and socioeconomic effects of the 19th-century opium trade are examined in River of Smoke, which also focuses on the historical causes of insufficient sustainability. Ghosh highlights how the history of greed and displacement is inextricably linked to today's sustainability challenges by connecting colonial exploitation to contemporary environmental issues. The novel suggests that true sustainability necessitates confronting these historical injustices directly rather than only addressing their symptoms.

Ghosh links rising oceans, wildlife migration, and human displacement across continents in Gun Island, bringing the climate crisis into the present. The book's protagonists—migrants, scientists, and storytellers—embody adaptability and resilience while simultaneously reflecting the varying impacts of environmental degradation. Ghosh implies that ancient tales may hold the keys to navigating an uncertain future by blurring the lines between myth and reality.Together, these novels advocate for a sustainability ethic grounded in empathy, historical awareness, and cross-cultural dialogue. Ghosh rejects top-down, one- size- fits approaches, instead promoting solutions that arise from diverse ways of knowing—whether scientific, indigenous, or intuitive. His work encourages readers to view sustainability not as a distant ideal, but as a collective, ongoing struggle—one that demands both humility and imagination.

Keywords: Sustainability, climate fiction, environmental justice, traditional knowledge, colonialism, and ecological storytelling.

Introduction:

The Anthropocene, a projected geological epoch marked by humanity's indelible imprint on Earth's systems, compels us to address troubling concerns about our relationship with the world. In contrast to earlier epochs that were influenced by glacial movement, tectonic drift, or volcanic eruptions, the Anthropocene is characterized by human activity, including extensive industrialization, the use of fossil fuels, deforestation, and a techno-economic model that puts growth ahead of ecological balance (Crutzen & Stoermer, 2000). The cultural imagination's reaction to the effects of these actions, such as extreme weather events, wildfires, and rising sea levels, has been remarkably controlled.

In The Great Derangement (2016), Amitav Ghosh clarifies this division:

"Culture and, by extension, imagination are at the center of the climate crisis."

According to Ghosh, the failure is not only political or scientific but also narrative; it is the basic incapacity of modern writing to address global events. He contends that the contemporary novel

has grown so enmeshed in the psychological and intimate that it is unable to take into account the enormous, non-human forces influencing our environment. According to Ghosh, this narrative deficiency is what keeps the climate issue at the outer limits of the public's attention.There has never been a greater demand for stories that directly address environmental crises in a time of wildfires, floods, melting glaciers, and mass displacement. A literary genre that deals directly with the reality of ecological collapse, environmental injustice, and the impending threat of civilizational breakdown, climate fiction, or "cli-fi," emerged because of this necessity. The genre has roots in both speculative fiction and environmental writing, even though the phrase "cli-fi" gained popularity in the early 2000s. What sets cli-fi apart is its narrative imperative, which aims to impart emotional and moral weight to phenomena that frequently seem distant or intangible by transforming the abstract data of climate science into lived experience.

But cli-fi isn't only a sci-fi subgenre. Its rise is symbolic of a change in cultural consciousness, a recognition that the environmental disaster is a reality of 21st-century existence rather than an individual occurrence. Climate fiction, therefore, opposes the division of climate change into a scientific or political matter. It claims that the story of climate change is profoundly human, involving connections to colonialism, power, migration, racism, and class.

This is where the work of Amitav Ghosh provides an especially important intervention. Ghosh shifts our focus to the past and now, whereas many cli-fi stories are focused on the future, speculating about the end of the world or the fallout from ecological collapse. As signs of an environmental crisis start to appear in uncanny ways, Ghosh examines through him the peculiar blending of myth and science, memory and migration:

“Was it possible that stories that seemed like relics of the past might actually be prophecies? That the world’s deep memory had ways of asserting itself when ignored too long?”

Ghosh's ability to localize the world and show how climate change is a global concern that is also very personal is what makes him special. The lived realities of communities on the front lines of environmental degradation—groups that are frequently excluded from conventional environmental narratives—are highlighted in his novels. The Sundarbans are shown in The Hungry Tide (2004) as a living, breathing environment whose tides determine the fate of both its human and nonhuman residents, rather than as a setting for exotic adventure. In the novel, an American marine researcher named Piya and a translator named Kanai from Delhi meet a local fisherman named Fokir. Their relationship highlights the delicate and complicated balance of life in a region altered by rising oceans, extinct species, and governmental indifference.

“The tide country… was a universe unto itself, a cosmos where the imagination of the land’s people had been fed by the knowledge that the terrain could not be tamed.”

Ghosh's narrative, therefore, connects the scientific and the spiritual, the global and the personal. To use Rob Nixon's phrase, it resists the spectacle of apocalypse in favour of slow violence—the kind of gradual, scattered, and frequently unseen pain that characterizes the climate crisis for the impoverished, the displaced, and the historically excluded. Unlike the techno-utopian illusions or post-apocalyptic survival narratives that dominate Western cli-fi, Ghosh’s work maintains that the climatic problem cannot be separated from the history of colonialism, capitalism, and resistance.

Furthermore, Ghosh questions the novel's aesthetic standards. He writes in The Great Derangement:

“What is considered serious fiction today is in a form that evolved in the context of exactly those philosophical and historical assumptions that underlie the greenhouse gas economy.”

He criticizes the literary establishment for marginalizing narratives of environmental entanglement, nonhuman agency, and collective fate. Ghosh's cli-fi, on the other hand, is polyphonic and transhistorical; it welcomes the unlikely, the legendary, and odd because the real world has grown stranger than fiction.

As a result, cli-fi is a genre of reckoning rather than merely urgency. In addition to forcing us to face the consequences of disregarding the planet's warning signs, it creates room for new ideas and rethinks survival, location, and kinship. Under Ghosh's direction, climate fiction transforms into a medium for reflection, remembrance, and grief—a pressing appeal to not just see the catastrophe but also experience it and retell its narrative.

In the Sundarbans, the enormous tidal mangrove forests of eastern India and Bangladesh, where shifting tides and perilous topography create a landscape as explosive as the ecological disputes it creates, Amitav Ghosh's novel The Hungry Tide takes place. Piya Roy, a marine scientist located in the United States who studies river dolphins, and Fokir, a local fisherman who has no formal education but is well-versed in the tides, intersect in the story, dramatizing the moral conflicts between environmental preservation and human existence.

The main source of the tension is the Morichjhãpi massacre, an incident that Ghosh weaves throughout the story. Many thousands of Bengali refugees were forcibly removed from the Sundarbans in the late 1970s under the pretext of forest conservation. Ghosh’s narrator says,

“The settlers of Morichjhãpi had lived on the margins of survival, and in the end it was the margins that claimed them.”

This act of state aggression highlights the negative aspects of what is sometimes referred to as "fortress conservation," as it was committed in the name of preserving the environment. Piya cannot see what Fokir, a representative of Traditional Ecological Knowledge, does. In contrast to her scientific approaches, he is sensitive to animal behaviour and navigates the mangrove waters naturally. At one point, Piya considers this difference:

“He knew the tide and the fish and the wind in a way I never could..”

The tiger that murdered Fokir while he was protecting Piya represents the perishable character of local life in the big narratives of conservation and studies.

In the end, Ghosh poses the following question: Can environmental preservation be just if it destroys the very communities that are most interwoven with the land? His response is challenging; rather than offering easy fixes, he suggests that sustainability must strike a balance between natural constraints and human dignity.

Ghosh takes us to the port of Canton in the 19th century, when colonial traders engaged in a massive opium trade, in River of Smoke. The protagonist of the book is Bahram Modi, a Parsi businessman whose fortune is based on this ethically dubious activity. Through his narrative, Ghosh establishes a connection between historical capitalism and degradation of the environment, exposing the greedy logic of empire as the root cause of many contemporary ecological issues.

Canton is considered a dirty, dilapidated city. According to Bahram,

"the water was blackened by the refuse of ships and warehouses...the stink was unbearable."

This depiction is similar to modern sacrifice zones, which sustain disproportionate environmental harm in order to support economies in other countries.

Robin Chinnery, a fictional artist, is included by Ghosh to provide an additional layer of moral testimony. With the perspective of a chronicler, Robin records the ecological and societal repercussions:

"There is something in the air, something festering, something dying... and the river bears it all away."

These incidents hint at the environmental misery of industrial areas and climate refugees today.

Ghosh highlights that sustainability goes beyond carbon objectives and technology solutions by revealing the long-lasting effects of colonial trade. Historical reckoning must be the first step.

"What is taken with one hand is never returned by the other."

as one character observes. This indicates colonialism's commodification of life itself, with consequences that affect our climate, rather than merely a remark on trade.

In Gun Island, Ghosh examines how stories may guide us through environmental upheaval by merging real-world climate events with Bengali mythology. Deen Datta, the main character of the book, is a cynical rare book salesman who discovers the myth of the snake goddess Manasa Devi. Between Venice, Los Angeles, and the Sundarbans, Deen sees a world in disarray, characterized by enormous migrations, wildfires, drought, and extinct species.

Perhaps the most eerie scene in the book is when poisonous snakes mysteriously appear in Venice.

"The snakes... they're moving, escaping from places too hot, too broken to live in," says one character. This bizarre occurrence blurs the boundaries between myth and fact, reflecting the global upheaval brought on by climate change.

At the end of the novel, a Sundarbans cyclone, which the locals understand as Manasa Devi's vengeance. Ghosh does not discount these views, even though some characters continue to have doubts. Rather, he approaches them as different perspectives on the global situation.

"Perhaps the world was telling stories of its own, stories we had forgotten how to hear."

Deen muses after a while. Through Gun Island, Ghosh argues that narratives have the power to motivate people more than data alone. The emotional and moral resources required to address the Anthropocene may be found in myths, tales, and cultural memory.

Amitav Ghosh's literary imagination, which spans the mythic migrations of a warming world, the toxic rivers of colonial trade, and the tidal rhythms of the Sundarbans, provides not only tales of environmental crises but also guidelines for moral behaviour. Through River of Smoke, Gun Island, and The Hungry Tide, Ghosh challenges oversimplified ideas of sustainability that depend on ahistorical frameworks or technocratic solutions. He challenges readers to view the climate problem as the result of colonial brutality, capitalism excess, and narrative erasure rather than as a singular disruption. His work offers a narrative ethic that respects both conventional ecological wisdom and scientific reason, and is based on empathy, historical accountability, and cultural plurality. —one that respects both conventional ecological wisdom and scientific reason. By doing this, Ghosh offers something arguably deeper than solutions: the creative ability to perceive, feel, and rethink our role in a shared planetary destiny. According to Ghosh, literature may yet prove to be one of our most important survival weapons as the Anthropocene continues to test our material and moral assumptions.

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A Study of Physico-Chemical Parameter of Krishna River

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Abstract:

In Maharashtra the river basin system includes 5 rivers from which Krishna, Godavari, Tapi and Narmada contributes 92% water to the cultivable land and more than 60% to population in rural areas. Krishna River originates which flows into the four states of India and finally reaches to Bay of Bengal and covers 1400 kms and in Maharashtra about 483 kms. Physico-Chemical parameters are very necessary and principal to test the water before it is used for domestic, agricultural, drinking and industrial purpose. In Krishna River, water temperature was decreased in winter season (23.46^{0}C) and increased in summer season (30.16^{0}C). Higher pH value was recorded in month of August (8.60) and lower pH value was recorded in month of March (6.69). The dissolved oxygen of water was higher in month of May (8.93) and lower in the January (6.64). Free carbon dioxide of water was increased in month of May (6.61) and it was decreased in Month of December (2.53). Hardness value was higher in month of May (83.5) and lower Hardness value was recorded in month of July (48.53). BOD of water was higher in month of June and lower in the November. Alkalinity of water was higher in month of May and lower in the November.

Keywords: Krishna River, Physicochemical water parameter study, Mayflies, Maharashtra, India.

Introduction:

In India, Maharashtra is a glorious state which is located in the western region of the country. Maharashtra is the third largest state in India with an area of 308 lakh hectares and second populous after Utter Pradesh. The gross irrigated area of Maharashtra is about 4037 thousand ha with gross cropped area 22655 ha. (Economic survey of Maharashtra 2010-11). The north border of Maharashtra Madhya Pradesh is situated, to the east is Chhattisgarh, to the southeast is Andhra Pradesh, to the South is Karnataka, to the Southwest is Goa, to the Northwest is Gujarat with Dadra and Nagar Haveli and the West coast is with Arabian sea. The average elevation of Western Ghats is 1,200 meters (4,000 ft) and to the west the Konkan coastal plains situated with 50–80 kilometers in width and to the east there is flat Deccan Plateau. The Western Ghats form one of the three important watersheds of India, from which many South Indian rivers originate, like Godavari, Bhima, Koyna and Krishna, which flow eastward into the Bay of Bengal, forming one of the greatest river basins in India. The west-flowing rivers flow in to the Arabian Sea. The total water content on the earth is about 1.386 billion cubic kilo meters, from that 97% is in salt water and 3% is remaining water out of that 25% is in the form of ice caps and glaciers, and about 1% is spread in the form of rivers, lakes, ground water and water vapour. Water in the form of seas and oceans cannot useful for drinking, cooking and for industries as well as irrigational purposes. The directly available surface water is only 0.3% while 0.9% is in water vapour and soil water. The surface water available as 0.3% is shared by lakes, swamps and running water as rivers. In this, a very small proportion exists as biological water (Water Resources of India 2013). In Maharashtra the river basin system includes 5 rivers from which Krishna, Godavari, Tapi and Narmada contributes 92% water to the cultivable land and more than 60% to population in rural areas. The other rivers which flow west to the Maharashtra are Vaitarna, Karli, Vashisti, Damanganga, Surya, Savitri, Patalganaga, Shashtri, Kundalika and Terekhol. The smaller rivers also contribute 44.54% of the yield at 75% dependability (National River Conservation Plan 2010). In Western Ghats near Mahabaleshwar, Krishna River originates which flows into the four states of India and finally reaches to Bay of Bengal and covers 1400 kms and in Maharashtra about 483 kms.

Macro invertebrates like the insects are present in different rivers and streams which can tolerate environmental changes and can detect the environmental stress. The presence of aquatic macro invertebrates for long time gives an idea about the environmental qualities and statistical analysis helps in water quality assessment programmes. So, macro invertebrates can improve the tools of biomonitoring. Freshwater insects and other aquatic

macro invertebrates plays an important role in ecosystem functioning. They feed in intermediate trophic levels and can influence by changes in water quality (Selva kumar *et al*., 2012).

The human interference affects the distribution and abundance of Mayflies and it impacts on maintaining the environmental health. *Baetis* species are often among the most tolerant of Mayflies to pollution. Mayflies are sensitive to stream pollution. The running water evaluation can be possible by using bioindicators such as Mayflies. The large diversity of Mayflies in Temperate region of lotic ecosystem represents an important part in trophic webs and used as important indicators of the water quality, due to their sensibility for different type of water degradation (Petrovici and Tudorancea, 2001). All over the world, water pollution caused due to discharge of industrial waste water, domestic water and agricultural runoff.

Materials And Methods:

The sample of water was collected from different study spots (Fig. 1&2) by using 200ml plastic containers 10 x 8, 8 x 6 cm (height and diameter) in the early morning during the year 2022-2024. The collected water samples from different locations of study spots were then brought to the laboratory for physicochemical parameter study in the laboratory. A mercury bulb thermometer is dipped in each study spot for calculating the temperature of water. The temperature of atmosphere and water surface measured by using Mercury thermometer in ºC. The water temperature was recorded at the collection site. pH is a value of negative log 10 of H+ ion concentration which indicates the acids or alkalis present in water sample. The water samples from study spot were brought to the laboratory and pH value of water sample is examined by using calibrated digital pH meter, (Elico LI-617) with a glass electrode. The volumetric titration known as Winkler Method was used to determine dissolved oxygen in the water samples. The collected water sample was poured without bubbling in 300 ml glass bottle then 2 ml of magnanous sulphate was added into it. Then 2 ml of alkali azide reagent was added into above mixture. The precipitate was settled down at the bottom and 2 ml of concentrated sulphuric acid was added into it. The 50 ml sample was taken and titrated against sodium thiosulphate with starch as an indicator and immediately noted down the readings. Free CO2 was determined in mg/L by Titrimetric method using phenolphthalein as an indicator. 50 ml of water sample was taken in a conical flask and 2 drops of Phenolphthalein indicator added in above sample. It gives a colorless solution. It was titrated with 0.05N NaOH solution until pink color just appears.

BOD is determined by Alkali-iodide-azide method. The water sample were collected every spot in BOD bottle from relevant water bodies. Then 2 ml of manganese sulfate was added to the bottle with the help of pipette along with 2ml of alkli-iodide-azide reagent. The BOD bottle was sealed carefully with stopper so no air bubbles forms, then BOD bottle was inverted several times. Brown precipitate was formed then settled at the bottle, then 2 ml of conc. H_2SO_4 was added and sample was inverted to mix well. The BOD bottle was kept in a BOD incubator for 5 days and sample is titrated against sodium thiosulphate by using starch as an indicator. Color changes from pale yellow to blue until sample is clear. The readings are noted for measurement of BOD. Hardness of water is due to the presence of dissolved salts and minerals of Ca2+, Mg2+, Iron and other heavy elements. Hardness of water was determined by Titrating with standard solution of ethylene diamine tetra acetic acid (EDTA). The water from of 50 ml was taken in conical flask and 1 ml ammonium buffer was added. The 5 to 6 drops of Erichrome black T indicator were added. The wine red coloured sample was titrated against the EDTA. The readings were taken and used for measuring the Hardness of water samples. Water becomes alkaline due to the carbonates, bicarbonate and hydroxide contents. In water treatment plants alkalinity measurements is essential for interpretation and control of water and wastewater treatment processes. Water samples from collection spot was taken and filled in 500 ml bottle without forming any bubble. 100 ml of water taken into conical flask and 2 drops of Phenolphthalein indicator was added then titrated against the H_2SO_4 until pink color disappears. Then added 1 to 3 drops of methyl orange indicator in same sample and titrated against the H_2SO_4 until colour changes to light orange. The readings are noted and used to calculate the alkalinity.

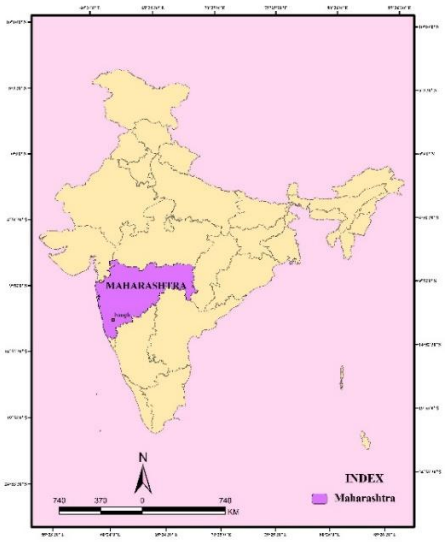


Fig 1. Map of India showing Maharashtra.



Fig. 2: Krishna River from western Maharashtra.



Fig 3. Path of the Krishna in the peninsular India. (Krishna at GEOnet Names Server)

Results:

The results of physicochemical parameter of the Krishna River are recorded in Figures 4-10.

In Krishna River, water temperature was decreased in winter season (23.46^{0}C) and increased in summer season (30.16^{0}C). Higher pH value was recorded in month of August (8.60) and lower pH value was recorded in month of March (6.69). The dissolved oxygen of water was higher in month of May (8.93) and lower in the January (6.64). Free carbon dioxide of water was increased in month of May (6.61) and it was decreased in Month of December (2.53). Hardness value was higher in month of May (83.5) and lower Hardness value was recorded in month of July (48.53). BOD of water was higher in month of June and lower in the November. Alkalinity of water was higher in month of May and lower in the November.

Water need to be tested with many different physico-chemical parameters. The selection of physico-Chemical Parameters for water testing totally depends on for what motive we going to use that water and what scope we required its purity and quality. Water does contentment different type of floating, dissolved oxygen, suspended and micro-biological as well as bacteriological contamination. Some test should be execute testing of its physical aspect such as color, temperature, smell, turbidity, pH, TDS etc. while chemical test need to perform for its BOD, COD, DO, hardness, alkalinity etc. For getting more quality and purity in water, it needs to be tested for its trace metal, heavy metals and organic test.

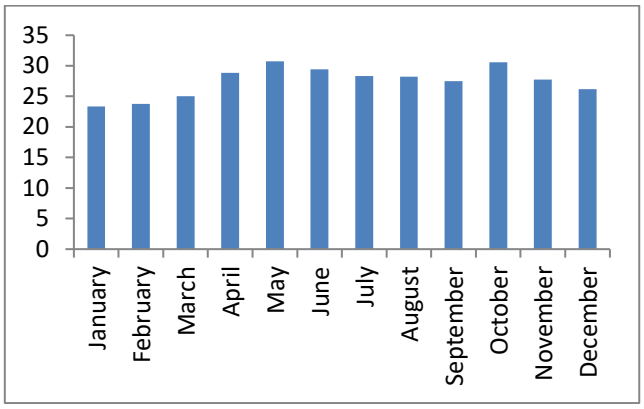


Fig. 4: Water temperature of Krishna River.

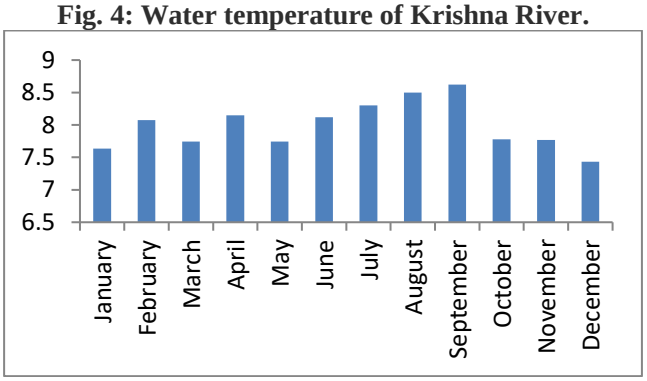


Fig. 5: pH of Krishna River water.

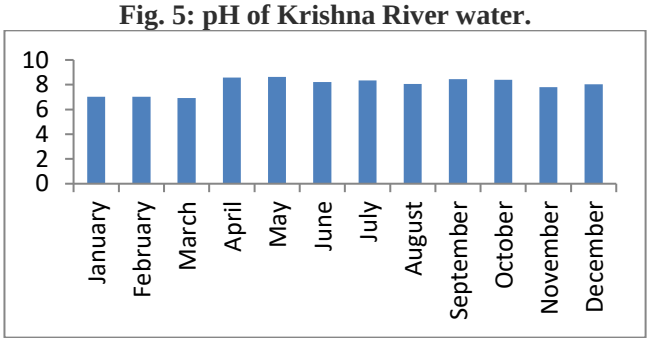


Fig. 6: Dissolved oxygen of Krishna River water.

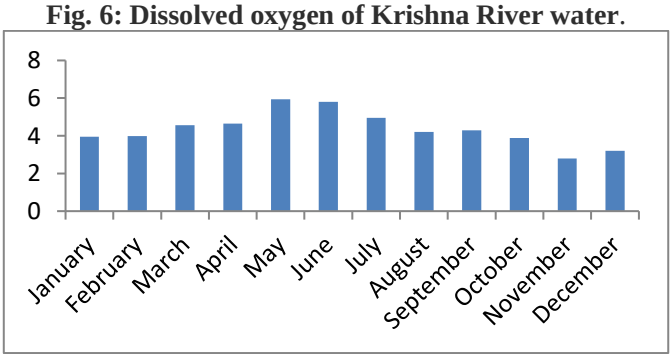


Fig. 7: Free CO_2 of Krishna River water.

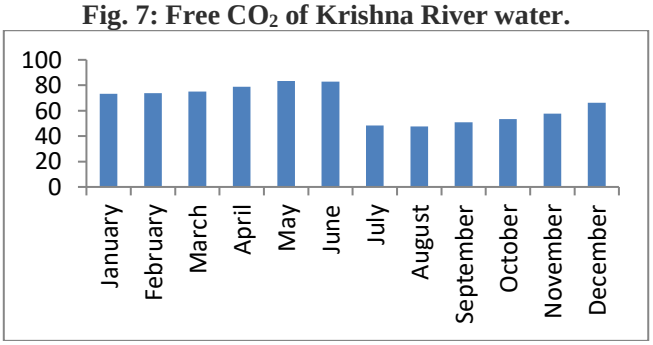


Fig. 8: Hardness of Krishna River water.

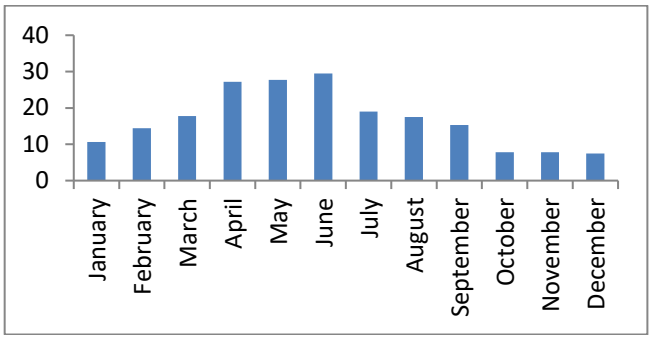


Fig. 9: Biological oxygen demand of Krishna River water.

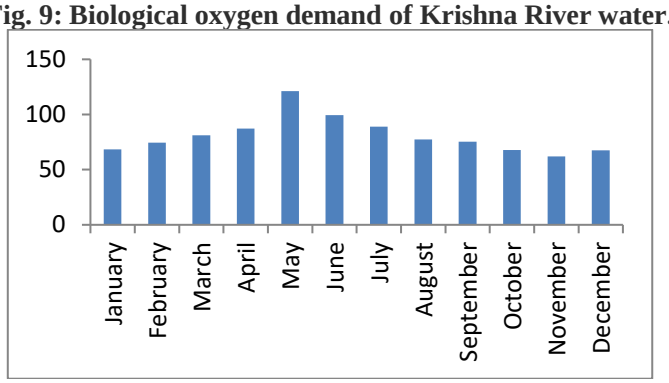


Fig. 10: Alkalinity of Krishna River water.

Discussion:

The water quality and habitat selection are an important parameter for successful Mayfly community structure (Gupta and Micheal, 1992). In comparison with the world distribution the number of Asiatic species is high (Mc Cafferty 1973). The family Baetidae of Mayflies can tolerate four degree of temperature fluctuation and wide range in ecological tolerance level. The members of family Baetidae inhabited water with different qualities and have an ability to survive low oxygen concentration and high-water temperature thus species of the genus Baetis (Baetidae) are often used as indicators of poor-quality water (Brittain, 1982). Physico-Chemical parameters are very necessary and principal to test the water before it is used for domestic, agricultural, drinking and industrial purpose. According to Clarke (2017) hot and cold are both arbitrary terms. Water temperature controls the rate of all chemical reactions and affects of aquatic insect growth, reproduction and immunity. Co_2 is the most important green house gas on earth. It fluxes across the air-water and often a measure of the net ecosystem production metabolism of the aquatic system (Smith, 1997). BOD is a measure of organic material contamination in water. BOD is also measure amount of oxygen utilizes by microorganisms in stabilizing the organic matter. It is an indicator of amount of oxygen present in a water body (Dutta and Dutta, 2000).

Conclusion:

In present study, from results it is concluded that the River water of Krishna were polluted. Industrial wastewater, sewage water from rural and urban areas, religious and spiritual activities on the riverside cause a tremendous increase of polluting substances which significantly altered the physicochemical characteristics of Krishna River water and therefore these alterations contributed to the water pollution. Therefore, it is suggested that from the present study, the industrial, urban, as well as rural activities must be checked and controlled through awareness among the pilgrims to prevent the pollution of the Krishna River water.

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Financial Statement Analysis of Rane Steering Systems Pvt. Ltd through Leverage and Employee Costing

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Abstract:
The financial statements using leverage and employee costs is essential in evaluating the financial health of an organization. The analysis assists the stakeholders in evaluating the organizations stability, operational effectiveness, and sustainability in the long run. A descriptive research design was employed to analyze the financial statements with a focus on leverage and employee cost. The study relied on secondary data collected from official company websites. Leverage was calculated over a five-year period from 2020 to 2025, including operating leverage, financial leverage, and combined leverage to assess the company's financial performance. Employee costs calculated for 5 years from 2020 to 2025 using both the time-hour rate and unit-rate methods, providing insights into labor-related expenditures. The objective of the study is to evaluate the trend of operating, financial, and combined leverage over a five-year period and understand their impact on the organization's profitability. Profitability Insights: Losses in 2020 and 2021 at EBIT level due to high fixed and interest costs. Significant turnaround from 2022 onwards, with positive and rising EBIT, EBT, and EAT figures—indicating improving financial health and operational efficiency. The study Recent trends show a strategic focus on sustainable growth with balanced risk. Overall, the company maintained a cautious yet effective use of leverage.

Keywords: Leverage, Financial Performance, Profitability, Cost Structure, Risk Assessment, Cost Efficiency

Introduction:

The financial statements using leverage and employee costs is essential in evaluating the financial health of an organization. The analysis assists the stakeholders in evaluating the organizations stability, operational effectiveness, and sustainability in the long run. The analysis of leverage includes assessing various types of leverage such as operating leverage, financial leverage, and combined leverage. These analytical tools help in determining the degree to which the company's sales volume and earnings changes or how an organization manages its fixed and variable costs. The relationship between sales and fixed costs is the concern of operating leverage while financial leverage is concerned with the use of debts to finance operational activities, and combining both gives a more complete picture is termed as combined leverage. As a whole, these theories give a good understanding about the risk an organization is exposed to and its financial strategies. In addition to leverage, the analysis of employee costs is equally important. In such cases, the methods of employee cost analysis include time rate, hour rate, and unit rate systems. These methods assist in determining the cost of labor with respect to time spent or the amount of output.

Literature Review

- Company Cost of Capital and Leverage: A Simplified Textbook Relationship Revisited Haag, V., & Koziol, C. (2023). This study revisits traditional views on the relationship between leverage and the cost of capital, arguing that classic Textbook models oversimplification reality. It highlights how modern financial environments- marked by taxes, market imperfections, and changing investor behavior-affect this relationship. The paper proposes updated theoretical models and encourages revising corporate finance education. Future research is suggested to empirically test these new perspectives.
- This analysis is Exploring the Impact of Leverage on Corporate Financial Performance; Evidence from Indian SMEs published year 2022. This study investigates the relationship between financial leverage and performance metrics such as return on assets (ROA) and return on equity (ROE) for SMEs in India. To evaluate how leverage impacts performance in developing market like India. Limited to SMEs listed in India, particularly focusing on sectors such as manufacturing and services.

- The human capital and Firm Performance Exploring the Role of Employee Cost in Profitability published in 2022 this study investigates the impact of human capital efficiency (HCE) on firm performance, focusing specifically on employee cost as key variable. The authors use a sample of non-financial firms listed in Malaysia from 2009 to 2018 and apply dynamic panel data estimation techniques. The findings reveal that HCE has a positive and significant effect on firm performance, especially when the employe costs are well-optimized and aligned productivity. Moreover, the firms with higher investments in skilled labor and training demonstrate better returns on assets (ROA) and (ROE).
- Impact of Labor Cost on Financial Leverage and Profitability: A Comparative Study of IT and Manufacturing Sectors, Pradhan, D, &Tiwari, P. Published in 2023. This study explores the relationship between labor costs financial leverage, and profitability across two critical sectors Information Technology (IT) and Manufacturing in India. USING the data from 40 firms over a 10-year period (2010-2020), the paper applies multiple regression and comparative analysis techniques. In the IT sector., higher labor costs tend to positively correlate with profitability reflecting the value of skilled human resources.
- The Relationship between financial leverage and Earnings Management; A Study of the Indian Corporate Sector by Chatterjee, D, & Roy. A published in 2022.examines the financial leverage relates to both accrual-based and real earnings management in India listed firms. Uses the modified Jones models for accruals and abnormal cash flows/ production costs for real manipulations. Analyze panel data from 278 non-financial companies in the S&P BSE 500 over 2007-2017 excluding banks employee's regression analysis to test whether higher debt levels spur greater earnings management. They are no significant link between leverage and either form of earnings management.

Scope Of The Study:

This study aims to assess how fixed expenses and long-term financial obligations influence a company's profitability, cost behavior, and exposure to business risks. It focuses on interpreting key financial metrics to understand the organization's performance trends and sustainability. The study also evaluates different approaches to calculating employee costs—such as time-based, hourly, and output-based methods—to determine their impact on workforce efficiency and overall expenditure. Furthermore, it involves a detailed examination of wage structures, labor productivity, and resource utilization to identify opportunities for cost control and strategic improvement in financial planning.

Need Of The Study:

This study is essential to understand the financial health and performance of an organization through the analysis of leverage and employee costs. Leverage Analysis operating, financial, combined helps assess the impact of fixed costs and debt on profitability risk. It enables better decision-making regarding capital structure and financial planning. Employee Cost Analysis is equally important, as labor expenses form a significant part of operational costs. Studying the wages system like time rate, hour rate, and unit rate helps in evaluating productivity and cost control. This study supports efficient resource utilization, improved profitability, and strategic workforce planning. It provides valuable insights for the management, investors, and stakeholders.

Objective Of The Study

1. To analyze the impact of leverage (operating, financial, and combined) on the organization's risk, cost structure, and profitability.
2. To evaluate overall financial performance and stability through detailed financial statement analysis
3. To examine the relationship between leverage levels and employee costs and how they collectively influence the overall financial performance of the organization.

Research Methodology

A descriptive research design was employed to analyze the financial statements with a focus on leverage and employee cost. The study relied on secondary data collected from official company websites. Leverage was calculated over a five-year period from 2020 to 2025, including operating leverage, financial leverage, and combined leverage to assess the company's financial performance. Employee costs calculating for 5 years from 2020 to 2025 were evaluated using both the time-hour rate and unit-rate methods, providing insights into labor-related expenditures. The methodology aimed to identify the impact of leverage and employee cost on overall financial efficiency. This approach helped in drawing meaningful conclusions from historical financial data.

Finiding And Recommendations

- Operational Leverage Trends: Extremely high in 2020 (24.77) due to a very low EBIT figure compared to contribution margin.
- Dropped sharply in 2021 (0.72), indicating reduced sensitivity of operating income to sales changes.

- Improved in 2022 (1.57) and further increased in 2023 (4.31) and 2024 (3.97), showing rising fixed costs relative to contribution and increased risk-return tradeoff.
- Financial Leverage Trends: Very low in 2020 (0.05) due to a large negative EBIT and positive EBT—suggesting potentially erroneous or adjusted tax accounting. Peaked in 2021 (2.91) with significant interest obligations compared to EBIT.
- Then reduced steadily in 2022 (1.59), 2023 (0.26), and 2024 (0.28), indicating better debt management or decreased reliance on borrowed funds.
- Combined Leverage: Fluctuated year to year: 2020 (1.36), 2021 (2.09), 2022 (2.49), 2023 (1.12), 2024 (1.12).
- Highest in 2022 (2.49), implying greater overall sensitivity of EPS to changes in sales.
- Stabilized at 1.12 in 2023 and 2024, showing more balanced risk.
- Profitability Insights: Losses in 2020 and 2021 at EBIT level due to high fixed and interest costs.
- Significant turnaround from 2022 onwards, with positive and rising EBIT, EBT, and EAT figures—indicating improving financial health and operational efficiency.
- In 2024, productivity dropped drastically to 0.35 units despite having the highest number of employees (172), indicating major inefficiency.
- Conduct a thorough workforce analysis to determine the cause of the sharp productivity decline in 2024.

Conclusion:

The company's leverage analysis from 2020 to 2024 shows fluctuating risk and return levels. Operational leverage peaked in 2020, indicating high fixed costs and sales sensitivity financial leverage remained low overall, showing limited dependence on debt.2021 and 2022 had the highest combined leverage, signaling greater earnings volatility. The company managed to reduce combined leverage to 1.12 in 2023 and 2024.This indicates improved cost control and financial stability. Consistently positive EAT (Earnings After Tax) reflects profitability despite leverage shifts Low financial leverage minimized interest burden in most years. Recent trends show a strategic focus on sustainable growth with balanced risk. Overall, the company maintained a cautious yet effective use of leverage. Strategic improvements in workforce management and operational processes are essential to recover from the productivity crisis and ensure future efficiency.

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Adapting To a Changing Climate: Building Environmental Resilience for the Future

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Abstract

Climate change poses one of the most pressing challenges of our time, with profound implications for ecosystems, economies, and human well-being. As the frequency and intensity of climate-related disruptions increase ranging from extreme weather events to sea-level rise and biodiversity loss building environmental resilience has emerged as a critical strategy for adaptation and sustainability. This paper explores the concept of environmental resilience in the context of climate change, highlighting both ecological and socio-economic dimensions. It examines the mechanisms through which natural and human systems absorb disturbances, reorganize, and adapt to evolving environmental pressures. Drawing on interdisciplinary case studies and recent research, the paper analyzes successful resilience-building strategies across different regions and sectors, including ecosystem restoration, climate-smart agriculture, sustainable urban planning, and community-led adaptation initiatives. The findings underscore the importance of integrated approaches that combine scientific knowledge, indigenous practices, policy frameworks, and stakeholder engagement. Ultimately, fostering environmental resilience not only reduces vulnerability to climate impacts but also enhances the capacity of societies to thrive in an uncertain and changing world.

Keywords: Environmental Resilience, Adaptation Strategies, Ecosystem-Based Adaptation, Climate Resilience, Risk Management.

Introduction:

Climate change represents a critical challenge that affects every corner of the globe, from rising sea levels and extreme weather events to the loss of biodiversity and disruption of agricultural systems. These impacts are projected to intensify in the coming decades, threatening the livelihoods and security of millions, particularly those in vulnerable regions. In response, the concept of **environmental resilience** has gained significant attention as a vital component of both mitigation and adaptation strategies. Environmental resilience refers to the capacity of ecosystems, communities, and infrastructure to absorb shocks, adapt to new conditions, and recover from disturbances. This paper examines the importance of building environmental resilience to mitigate the impacts of climate change and explores the strategies that can enable both natural and human systems to thrive in an increasingly unpredictable world.

Understanding Environmental Resilience

Environmental resilience is not merely about bouncing back from environmental stressors; it is about evolving in ways that enhance the ability to cope with future challenges. Resilience encompasses both ecological resilience the ability of ecosystems to maintain their essential functions in the face of disturbances and socio-economic resilience, which involves communities' capacity to adapt to changing conditions and recover from crises. At its core, building resilience involves understanding the intricate connections between natural systems and human societies. These interdependencies mean that the resilience of ecosystems directly influences the resilience of the human communities that rely on them for resources, services, and well-being. Conversely, the resilience of human systems, including governance structures, economic systems, and social networks, can reinforce or undermine the capacity of ecosystems to withstand stress.

Strategies for Building Resilience

1. Ecosystem-Based Approaches

One of the most effective ways to enhance environmental resilience is through ecosystem-based adaptation. This strategy recognizes the essential services that ecosystems provide, such as water filtration, flood protection, and climate regulation, and leverages these natural systems to reduce vulnerability. Restoration of wetlands**,** mangrove forests, and riparian buffers, for example, can mitigate the effects of flooding, reduce soil erosion, and enhance biodiversity, all while providing local communities with sustainable resources.An example of ecosystem-based resilience in practice is the restoration of coastal mangrove

forests in Southeast Asia. These forests serve as natural barriers against storm surges, helping to protect coastal communities from typhoons and rising sea levels. Additionally, they provide critical habitat for marine life, supporting local fisheries. By restoring mangroves, countries like Indonesia and the Philippines have improved coastal resilience while also creating long-term economic opportunities for communities.

2. Climate-Smart Agriculture

Another key resilience-building strategy is climate-smart agriculture (CSA)**,** which aims to increase agricultural productivity and incomes in a sustainable way while adapting to climate change and reducing greenhouse gas emissions. CSA practices include the use of drought-resistant crop varieties, improved irrigation systems, agro forestry, and soil conservation techniques. These methods help farmers to adapt to changing weather patterns, preserve soil fertility, and maintain food security. For example, farmers in sub-Saharan Africa are increasingly adopting agro ecological practices that improve soil health and water retention, thus mitigating the impacts of droughts. These practices, in turn, improve local food security and reduce the vulnerability of rural communities to climate-induced disruptions.

3.Urban Resilience and Sustainable Infrastructure

Urban areas are particularly vulnerable to climate change due to dense populations, exposure to heat waves, and risks from flooding. Building urban resilience is critical to ensuring that cities can cope with climate impacts. This includes the development of sustainable infrastructure such as green roofs, permeable pavements, and urban forests to manage storm water, reduce heat island effects, and improve air quality. Moreover**,** climate-resilient urban planning ensures that cities are designed to withstand extreme weather events and changing climate patterns. A successful example is New York City's Green Infrastructure Program, which integrates green spaces and permeable surfaces into the urban environment to reduce flooding and improve water quality. Similarly, cities like Copenhagen are implementing **cool roofs** and **green walls** to mitigate heat island effects and enhance the livability of urban spaces.

4. Community-Led Adaptation

In many parts of the world, particularly in developing countries, community-led adaptation is crucial for building resilience. Local communities often possess valuable indigenous knowledge about managing natural resources and responding to environmental changes. Empowering these communities to take the lead in resilience-building efforts through capacity-building, participation in decision-making, and access to resources ensures that solutions are culturally appropriate, context-specific, and sustainable. An example of community-driven resilience is the participatory management of forests in Nepal, where local communities actively engage in forest conservation efforts, reduce deforestation, and restore ecosystems. This collaborative approach not only increases forest resilience but also strengthens social cohesion and economic opportunities through ecotourism and sustainable forest products.

The Role of Policy and Governance

Building resilience is not only a matter of technical solutions but also requires robust policy frameworks and governance structures that support long-term adaptation efforts. Governments must integrate climate resilience into national development plans, promote investment in resilient infrastructure, and enforce policies that support sustainable land use and resource management. International cooperation and financial mechanisms are also essential for ensuring that vulnerable nations and communities have the resources needed to build resilience. The Paris Agreement, adopted under the United Nations Framework Convention on Climate Change (UNFCCC), is a prime example of international efforts to enhance resilience by setting global targets for climate mitigation and adaptation. It emphasizes the need for both global cooperation and localized action to reduce the risks associated with climate change.

Conclusion:

As climate change accelerates, the need for effective strategies to build environmental resilience becomes more urgent. From ecosystem restoration and climate-smart agriculture to resilient urban infrastructure and community-led adaptation, a wide range of strategies can be employed to reduce vulnerability and enhance adaptive capacity. However, these efforts must be supported by strong policy frameworks, governance systems, and international cooperation to ensure long-term success. Ultimately, fostering environmental resilience is essential for safeguarding ecosystems, protecting livelihoods, and ensuring that future generations can thrive in a changing climate.

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The Impact of Artificial Intelligence on Information and Library Science : Opportunities and Ethical Considerations

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Abstract

AI is making big changes in how libraries work! It's like giving library staff super helpful tools that save them time and make things better for everyone who uses the library.

Think of it this way:

- **Turning Old Paper into Digital Files:** Libraries have lots of old stuff like books and newspapers that are only on paper. AI can use something called "computer vision" to scan these and turn them into digital copies. This keeps these old materials safe and makes them easy to search and read online.
- **Smart Organizing:** Imagine a robot that can read books and automatically sort them into different categories, like history, science, or fiction. AI can do this! It understands the text and figures out what the main topics are, so librarians don't have to do it all by hand.
- **Super Smart Search Engines:** When you search online in a library catalog, AI helps you find what you're looking for even if you don't use the exact right words. It understands what you *mean*. This makes finding information much faster and easier.
- **Personal Recommendations:** Have you ever gotten a suggestion for a book you might like? AI can do that in libraries too! It looks at what you've borrowed or searched for before and suggests other things you might enjoy. It also helps librarians know what books are popular so they can buy more of them.
- **Chatbots for Questions:** Imagine being able to ask a question to the library at any time, even when it's closed. AI-powered chatbots can do this! They can answer simple questions in a friendly way, just like talking to a real person. Of course, using AI also means being careful. Libraries need to make sure that AI is fair to everyone, keeps people's information private, and is used in a way that's right. People should still be in charge, and AI should help all library users equally.

Basically, AI is making libraries more efficient, easier to use, and better at managing information. It's a really exciting time for libraries!

Keywords: Artificial Intelligence (AI), Information and Library Science (ILS), Library Automation, Information Services.

Introduction

AI is making libraries much better! It's helping people find information super quickly and making the whole library experience smoother and easier.

Here's the simple breakdown:

- **Faster Information Finding:** AI makes searching for books and other materials much smarter and more accurate. It understands what you're looking for, even if you don't use the exact right words.
- **Better Help for Everyone:** Libraries can use AI to offer new and cool services to people.
- **Easier Work for Library Staff:** AI can automatically organize and sort books and other things, saving librarians a lot of time and effort.
- **Smart Suggestions:** AI can look at what you like and suggest other books or materials you might enjoy.
- **Keeping Digital Files Safe:** AI helps libraries protect their digital collections, making sure important information is safe for the future.
- **Managing Collections Easily:** AI makes it simpler for libraries to keep track of all their books and resources.

This is a big change for libraries and the world of information. AI offers lots of exciting possibilities, but it's also important to think about doing things fairly and responsibly when using it. We need to make sure AI helps everyone get the information they need.

Innovative Information Services

Libraries are coming up with really cool and new ways to help people with information, using technology and thinking creatively about what users need. These "innovative information services" include things like getting help online through chat or virtual meetings, and using smart

AI to suggest books, research tips, and even create content tailored to your interests. Libraries are also creating spaces where people can learn together, build things in "maker spaces," experiment in "innovation labs," and study in groups. Plus, they're offering more and more online events like workshops and webinars. And importantly, they're focusing on making sure everyone can use these services, with tools and designs that help people with different needs and abilities. It's all about making the library experience more helpful, engaging, and accessible in today's world.

Cognitive Information Retrieval

Cognitive Information Retrieval (CIR) integrates insights from cognitive science and information retrieval .AI plays a significant role in transforming information retrieval processes within libraries through various technologies:

Advanced Search Technologies:

AI makes library search engines much smarter. Instead of just looking for the exact words you type, AI uses something called "natural language processing" to actually understand what you *mean*. It's like the search engine can read your mind a little! This helps it find more useful and accurate results from all the information the library has. These smart search engines also learn from how you and other people search. Over time, they get better at understanding what you're looking for and can even suggest things you might like based on what you've searched for before or what other people with similar interests have looked at. It's like having a personalized guide that helps you discover interesting things in the library's collection.

AI-Driven Suggesters:

Imagine having a super-smart helper that knows exactly what you might like! That's what AI-driven suggesters do. They use what they've learned about you and other people to give you personalized recommendations. So, if you're on a website with lots of articles, videos, or podcasts, AI can suggest ones you'd probably find interesting. If you're shopping online, it can recommend products based on what you've looked at before or what other people with similar tastes have bought. It's like having a friend who always knows just what you're in the mood for.

Natural Language Processing (NLP):

Imagine teaching a computer to understand and use human language, just like we do. That's what "Natural Language Processing," or NLP, is all about. It's a special part of AI that mixes computer smarts with the rules of language to help computers make sense of words. In libraries, NLP is super useful for dealing with all sorts of text. It can automatically make summaries of long documents, figure out if a piece of writing is positive or negative, and pull out important information. This helps libraries organize their knowledge better and makes it easier for you to find what you need.

Now, think about how libraries keep track of all their books and digital stuff – that's called "cataloging." AI is making this process much easier with "Digital Cataloging Solutions." These are like smart computer systems that can automatically help organize digital items and create descriptions (metadata) for them. This means libraries can get their digital collections in order much faster and more consistently. These systems also make it easier for you to search and find digital resources and help ensure that these digital materials will be accessible for a long time. So, thanks to AI and these digital tools, libraries can manage their growing online collections more efficiently and help you discover them more easily.

Intelligent Cataloging Systems:

AI is like a super-efficient helper for librarians when they're adding new digital items to the library's collection. Instead of a person having to manually tag each item with keywords, create indexes, and add all the descriptive information (metadata), AI can do a lot of this automatically. This speeds things up a lot and saves the librarians from doing the same boring tasks over and over again, freeing them up for other important work.

Automated Metadata Creation: AI

Think of AI as a super-smart cataloger that can handle all kinds of library stuff. It's not just about books anymore! If the library gets a new document, a picture, or even a video, AI can automatically look at it, understand what it's about, and add helpful labels and descriptions. This makes it way easier for the library to keep everything organized, and for you, it means you can find whatever you need, no matter if it's a written article, a photograph, or a film. It's like having a tireless, intelligent assistant that makes sure everything is properly labeled and easy to discover.

Information Taxonomy: AI-based content classification systems use algorithms to categorize and classify library materials, facilitating easier navigation and search for users. This categorization enhances the organization and accessibility of resources within libraries.

Adaptive User Interfaces (AUIs)

Adaptive User Interfaces (AUIs) are designed to dynamically adjust to individual user needs, preferences, and behaviors. This is achieved through AI-driven services cater to user needs, offering personalized experiences and support within library settings.

Assistance Tools:

Think of "assistance tools" as the helpful helpers the library provides to make things easier for you.

These tools can be smart computer programs, like AI-powered virtual assistants or chatbots, that are ready to give you instant, personalized support. They can answer your questions, show you how to find things, and help you use the library's resources or services. These helpers are great because they can make using the library less confusing and frustrating, which makes you happier and more likely to use it. They also help you get things done more quickly and can even reduce the number of times you need to ask a real person for help, saving everyone time and making the library run more smoothly. Enhanced learning: Assistance tools can facilitate learning and skill development, Enabling users to become more proficient and confident.

Customized Advice:

Think of "customized advice" as the library giving you special tips and suggestions that are just for you. Instead of getting the same general advice as everyone else, you get help that's tailored to what you like, what you need, and what you're trying to do. AI makes this possible by looking at how you use the library, what you're interested in, and how you interact with things. This helps the library suggest books, services, or events that you're more likely to find helpful or enjoyable. It's like having a librarian who knows you really well and can point you to exactly the right resources. AI can even create personalized learning experiences, changing how information is presented to match how you learn best and what you need to focus on. This makes the library experience much more relevant, useful, and satisfying because the advice and learning are designed specifically for you. The integration of Artificial Intelligence (AI) in Integrated Library Systems (ILS) offers several advantages, transforming the way libraries operate and provide services. Automated cataloging: AI can automate cataloging processes, reducing manual effort and increasing accuracy. Streamlined search AI-powered search algorithms can improve search results, making it easier for users to find relevant resources. Personalized recommendations: AI-driven recommendation systems can suggest relevant resources to users based on their interests and borrowing history. Intelligent search suggestions AI can provide users with intelligent search suggestions, helping them refine their searches and find relevant resources. By adopting AI in ILS, libraries can improve efficiency, enhance user experience, and make data-driven decisions, ultimately providing better services to their users. Some key benefits include.

Productivity Enhancements

Productivity enhancements refer to improvements that increase efficiency, reduce Waste, and optimize workflows, leading to better outcomes and reduced costs. These Enhancements can be achieved through various means, Process automation, Streamlined workflows, Task prioritization, Employee empowerment Technology Integration, AI technology contributes significantly to streamlining library operations And increasing productivity through various means:

Automated Workflows:

"Automated workflows" are like setting up robots or smart computer programs to handle routine tasks that people used to do by hand. This makes things faster and more efficient because computers can work tirelessly without making mistakes. In libraries, AI can automate a lot of the boring and time-consuming jobs, like adding information about new books (cataloging), creating descriptions for digital items, typing in data, and other office tasks. By letting AI handle these things, the library staff have more time to focus on helping people, planning new services, and doing other important work that requires a human touch. Ultimately, using automated workflows helps the library get more done, more accurately, and with less wasted effort.

Operational Optimization:

“Operational optimization” is like the library trying to run as smoothly and efficiently as possible. They look at all the things they do to see if there are any ways to make them better, faster, and less wasteful. AI can help with this by giving smart suggestions on how to best use their resources, manage their collections, and keep track of everything. It's like having a super-smart manager who can see where things can be improved. This helps the library save time and money, and ultimately provide better service to everyone. They do this by looking closely at how things work, using data to make smart choices, simplifying tasks, making sure they have the right things in the right places, and always looking for ways to get even better.

Advanced Analytics:

"predictive analytics" as the library using smart tools to guess what might happen in the future based on what has happened before. It's like a super-powered crystal ball for library data!

Here's how it works in simple terms:

- **Looking at the Past:** AI looks at all the old information the library has – like what books people borrowed, what they searched for, when the busiest times are, and so on.
- **Finding Patterns:** The AI is like a detective, searching for clues and patterns in all that past information.
- **Making Educated Guesses:** Based on those patterns, the AI can make pretty good guesses about what might happen next. For example, it might predict which books will be popular next month, or when the library will be the busiest.

- **Helping the Library Make Smart Choices:** This information helps the library make better decisions. They might decide to buy more copies of books the AI predicts will be popular, or schedule more staff during those busy times.

AI helps the library in a few key ways:

- **Understanding What You Might Do:** It can guess what kinds of books or resources you might be interested in based on what you've used before.
- **Managing Resources Better:** It can help the library figure out how many copies of each book they need and when they need them.
- **Making Things Run Smoothly:** By predicting things like busy times, the library can plan better and make sure everything runs efficiently. Basically, AI helps the library work smarter, not harder, by using data to see into the future and make better choices for everyone. It takes away some of the guesswork and helps the library be more efficient and better at serving its users.

Improved User Experience

Improved user experience refers to the design and delivery of products, services, or systems that are intuitive, easy to use, and meet the needs and expectations of users. This approach prioritizes user satisfaction, engagement, and loyalty.AI has the potential to elevate user experiences within libraries by providing personalized and accessible services. Designing products and services with the user in mind.

Creating interfaces that are easy to navigate and understand. Personalization Tailoring experiences to individual user preferences and needs. Responsiveness Ensuring products and services adapt to different devices and screen sizes.Feedback mechanisms Providing users with timely and relevant feedback.

Customization:

"Customization" is like getting things made just for you! It's when a library or online service figures out what you like, what you've done before, and what you need, and then changes things to fit you perfectly. AI helps with this by looking at your choices and actions to offer recommendations, services, and resources that are exactly what you're looking for. This makes using the library or online service much more interesting and enjoyable because you're seeing things that are relevant to you. It's all about making your experience feel personal and tailored to your unique tastes.

Universal Design

Imagine a library designed for everyone, no matter their abilities. That's what "universal design" in libraries is all about. It means creating library spaces, services, and resources that are easy for everyone to use, whether they are young or old, have a disability or not. The goal is to be flexible and think about all the different needs people might have.

AI can be a big help in making libraries more universally designed. Think of it like this:

- **AI as a Helper:** AI can power tools like voice commands (so you can tell the computer what to do), text-to-speech (so the computer can read to you), and other helpful technologies. These tools make it easier for people with different needs to use the library's resources.
- **Making Spaces Easier to Use:** This includes things like having ramps and elevators for people who use wheelchairs, and furniture that can be adjusted to different heights.
- **Having the Right Stuff:** Libraries should have collections that cater to everyone, like large print books for people with low vision, audiobooks for those who prefer to listen, and books in Braille.
- **Services Just for You:** Library staff can use their skills to help people in ways that work best for them, like offering extra help with research or showing someone how to use a specific tool.

AI also allows for "configuration," which is like setting things up just the way you want them. For example:

- **Personalized Settings:** AI can help create library websites and apps that look and work in a way that suits each person's needs. This could mean different font sizes, color schemes, or even different languages.
- **Making Things Easier to Find:** AI can help set up library search systems so you can find what you're looking for quickly and easily, no matter how you search.
- **Better Access:** By letting people customize how they use library resources and services, AI makes the library more accessible to everyone.

Basically, both universal design and AI in libraries aim to make sure everyone feels welcome and can easily use everything the library has to offer. AI helps make things more personal and adaptable, leading to happier and more engaged library users.

Creative library initiatives

Libraries are always thinking of new and exciting ways to help people, and these are called "innovative service offerings." They use the latest technology, work with others, and really focus on what library users want. This could mean having cool spaces where you can create digital media, like videos or podcasts. Or maybe "maker spaces" where you can get together and build things with different tools and tech. Libraries are also offering help online through chats, video calls, and even social media. Some are using games to make learning fun and engaging.

And they're reaching out to different groups in the community to make sure everyone has access to what the library offers. AI is a big part of this innovation, helping libraries create things like virtual assistants and chatbots that can answer your questions and guide you anytime, day or night. These smart tools make it easier for you to get the information and support you need, whenever you need it.

Virtual enhancements: "Enhanced user experiences" in libraries mean using cool digital tools to make your visit or online interaction more fun and interesting. Think of it like this:

- **Superimposing Digital Stuff onto the Real World:** Imagine using an app on your phone at the library, and suddenly extra information pops up on your screen about a book or an exhibit you're looking at. That's augmented reality (AR)! AI helps make these AR apps smart and interactive, turning the library into a more engaging place to learn and explore.
- **Creating Virtual Worlds:** Libraries can also use virtual reality (VR) to take you to completely different places or create immersive learning experiences, like exploring ancient history or diving into a science simulation, all from within the library.
- **Interactive Storytelling:** Libraries are using digital tools to make stories come alive, letting you become part of the narrative.
- **Smart Search That Learns About You:** Instead of just basic search, libraries are using "adaptive information retrieval systems." These are like super-smart search engines powered by AI that learn what you're interested in based on what you search for, what you click on, and what others with similar interests like. They then use this knowledge to show you the most relevant information, suggest things you might like, and help you discover all sorts of interesting stuff you might not have found otherwise. It's like having a library search engine that gets to know you and becomes better at helping you over time.

Digital Rights, Responsibilities and Intellectual Freedom

Libraries have a big role to play in the digital world. They need to make sure everyone has fair access to information, that people's online privacy is protected, and that everyone learns how to use digital tools safely and responsibly. They also need to champion the freedom to read and access different ideas.

When libraries use AI, they need to be extra careful about making sure these systems are fair and don't unfairly favor some groups over others. This means thinking about:

- **Making AI Fair:** Libraries need to watch out for biases in AI so that everyone gets equal access to information and services.
- **Protecting Privacy:** When AI is used, libraries must make sure people's data is safe and that they understand and agree to how their information is being used.
- **Being Open About How AI Works:** Libraries should try to be clear about how their AI systems make decisions and who is responsible for what the AI does. This helps build trust.

  Just like other public organizations, libraries need to be open and honest with the public. By allowing people to ask questions and by being transparent about how they operate, libraries can show they are responsible and accountable.

  Think of libraries as important public spaces where everyone should feel welcome and where people can learn and discuss ideas freely. They have a responsibility to be open, honest, and fair in everything they do, especially when using new technologies like AI.

Conclusion

In conclusion, the integration of Artificial Intelligence into Information and Library Science presents a transformative potential, offering numerous opportunities to revolutionize library operations, enhance information retrieval, and personalize user experiences. AI-powered tools can automate tasks, provide intelligent recommendations, and improve accessibility to information, ultimately leading to increased efficiency and user satisfaction.

However, this technological advancement necessitates a critical consideration of ethical implications. Issues surrounding data privacy, algorithmic bias, equitable access, and the evolving role of library professionals must be carefully addressed to ensure responsible AI implementation. A balanced approach is crucial, one that harnesses the vast opportunities AI offers while prioritizing ethical considerations and establishing responsible AI practices within the field. By proactively engaging with these ethical challenges, the ILS community can ensure that AI serves to empower libraries and their users in a fair, transparent, and equitable manner, shaping a future where information access is enhanced for all.

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Effectiveness of Project- Based Learning to Enhance Awareness about Sustainable Practices

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Abstract

Environmental sustainability is a critical global concern, yet a significant gap persists between awareness and meaningful action, particularly among school students. This study investigates the effectiveness of Project-Based Learning (PBL) as a pedagogical approach to enhance awareness, attitudes, and behaviors related to sustainable practices among 7th-grade students in Mumbai suburban schools. Traditional teaching methods often emphasize theoretical knowledge without fostering a sense of personal responsibility or practical engagement. In contrast, PBL offers an experiential, student-centered model that promotes critical thinking, collaboration, and real-world application. The study engaged 50 students over a two-month period using a pre-test and post-test design. A structured questionnaire was administered offline to assess students' knowledge, attitudes, and behaviors related to sustainability.

The intervention phase spanned four weeks and included interactive orientation sessions, student-led group projects, research activities, community engagement, and peer presentations. Topics were chosen by students and ranged from reducing plastic use to promoting tree plantation. The teacher facilitated the process by guiding inquiry without directly providing solutions.Findings indicated a marked improvement in students' understanding of sustainability concepts, heightened environmental concern, and increased adoption of eco-friendly behaviors. Students demonstrated growth in critical thinking, communication, and teamwork skills, while also initiating independent sustainability actions within their school community. The study revealed that integrating PBL into environmental education can significantly deepen learning and foster a sense of agency among students.

Recommendations include institutional support for integrating PBL into curricula, teacher training, community involvement, and interdisciplinary project alignment. The findings affirm that PBL can effectively transform students from passive learners into active contributors to sustainability efforts.

Keywords: PBL, Sustainable Practices, SDG, Education, Quality Education

Introduction

In an era marked by escalating environmental degradation, climate change, and resource depletion, the integration of sustainability into education has become more urgent than ever. Global frameworks like the United Nations Sustainable Development Goals (SDGs), particularly SDG 4 (Quality Education) and SDG 13 (Climate Action), highlight the critical role of education in fostering environmentally responsible and informed citizens. Schools today are increasingly recognized not only as centers of academic learning but also as spaces for shaping values, attitudes, and behaviors that contribute to long-term ecological stewardship.Despite the inclusion of environmental topics in curricular frameworks, traditional pedagogical approaches often emphasize rote learning and textbook-based instruction. This limits students' ability to internalize and apply sustainability concepts in their daily lives. The disconnect between theoretical knowledge and real-world application presents a significant barrier to achieving the broader goals of environmental education.

Project-Based Learning (PBL) has emerged as a powerful pedagogical approach to bridge this gap. Rooted in constructivist learning theories, PBL shifts the focus from passive information absorption to active problem-solving. By engaging students in real-world environmental challenges and encouraging collaborative inquiry, PBL fosters critical thinking, creativity, communication, and a sense of personal agency. These are essential skills not only for academic success but also for responsible citizenship in an interconnected and environmentally fragile world.In the context of sustainability education, PBL allows learners to engage meaningfully with issues such as climate change, waste management, water conservation, and energy efficiency. Through hands-on projects, students gain a deeper understanding of ecological interdependencies and are more likely to adopt sustainable habits. Moreover, the interdisciplinary nature of sustainability aligns well with PBL's

integrated learning model, encouraging students to draw connections across science, geography, social studies, and beyond.To create impactful and lasting change, education systems must evolve beyond content delivery and cultivate active, reflective, and socially responsible learners. Embracing pedagogical innovations like PBL can help transform schools into catalysts for sustainable development, nurturing a generation equipped to meet the environmental challenges of the future.

Literature Review

Genc.(2015) through the research titled "The project-based learning approach in environmental education" investigated about the effect of project-based learning on students' attitudes toward the environment.The project-based learning approach in environmental education focused specifically on environmental education and concluded that PBL significantly improves students' ecological knowledge and attitudes, offering hands-on experiences that contribute to lasting behavioral changes.

Stevenson.(2007) in Schooling and environmental education: Contradictions in purpose and practice argued that conventional educational structures often limit students' ability to engage critically with environmental content and suggested that PBL offers a transformative space for experiential, reflective learning.

Barron and Darling-Hammond(2008) in Teaching for meaningful learning: A review of research on inquiry-based and cooperative learning supported this by showcasing how students involved in PBL display greater agency, critical thinking, and motivation, particularly when addressing sustainability-related issues.

Bell.(2010) in Project-Based Learning for the 21st Century: Skills for the Future emphasized that PBL fosters an authentic learning environment where students gain not only content knowledge but also environmental values and civic responsibility.

Kricsfalusy, George, and Reed.(2018) in Integrating problem- and project-based learning opportunities: Assessing outcomes of a field course in environment and sustainability. Environmental Education Research found that students who engaged in PBL as part of environmental field courses developed higher levels of systems thinking and a stronger connection to ecological concepts.

Hubert.(2023) in Teaching sustainability through project-based learning, Academy of Singapore Teachers provided practical examples of PBL in sustainability education and reported increased student engagement and long-term knowledge retention.

Rianti, Utaya, and Purwanto.(2024) in Uncovering the effectiveness of the project-based learning model and ecological intelligence: Impact on environmental problem-solving ability in senior high school, observed that integrating ecological intelligence with PBL significantly improved students' problem-solving abilities in environmental contexts.

Gaps Identified

Despite growing research on the benefits of Project-Based Learning (PBL) in sustainability education, several critical gaps remain. Firstly, there is limited focus on middle school students, especially those in Grade 7, a pivotal stage for instilling long-term environmental values. Secondly, most studies are concentrated in Western or urban contexts, with minimal attention to Indian, rural, or semi-urban settings where cultural relevance and resource availability differ significantly. Another major gap is the lack of longitudinal research; current studies often assess short-term knowledge gains but rarely examine sustained behavioral change. Furthermore, sustainability is frequently addressed from an environmental perspective alone, overlooking its economic, social, and cultural dimensions. While PBL promotes student-centered learning, few studies delve into students' sense of agency, voice, or how they apply their learning to real-world issues. Methodologically, there is an over-reliance on single data sources, with limited use of mixed-method approaches that could provide a more holistic understanding. Additionally, the integration of technology in PBL remains underexplored, despite its potential to enrich student engagement and collaboration. Lastly, teacher-related challenges, including training needs and implementation barriers, are often neglected, though they are crucial for the successful adoption of PBL in classrooms.

Need of this Study

Environmental sustainability remains one of the most urgent global priorities. While students may be aware of environmental issues, there often exists a clear gap between knowledge and action. Traditional teaching methods, which emphasize theoretical content, frequently fail to inspire students to adopt sustainable behaviors in their daily lives. Project-Based Learning (PBL) offers a promising solution by enabling students to engage in hands-on, real-world environmental challenges, encouraging them to think critically, collaborate, and develop practical solutions.This approach helps demystify sustainability, making it accessible and personally relevant to young learners, who may otherwise perceive it as a distant issue reserved for experts. By actively involving students in projects such as waste management, water conservation, or eco-friendly school initiatives, the study seeks to empower them to see their role in creating change. Additionally, it aligns with international education goals like SDG 4 (Quality Education) and SDG 13 (Climate Action),

reinforcing the school's responsibility to cultivate environmentally responsible citizens.

From a pedagogical standpoint, the study draws on educational psychology principles that support active, student-centered learning to improve engagement, retention, and long-term behavior change. There is a pressing need to shift environmental education from passive awareness to active participation—and this study addresses that need through a structured, impactful PBL approach.

Significance of the Study

This study is significant as it explores the potential of Project-Based Learning (PBL) to bridge the gap between environmental awareness and actionable behavior among middle school students. By shifting from traditional rote-based instruction to hands-on, inquiry-driven learning, the study aims to foster deeper understanding, personal relevance, and long-term commitment to sustainable practices. It contributes to both environmental education and pedagogical innovation by demonstrating how real-world projects can empower students to take initiative and become active agents of change in their schools and communities. The findings can inform educators, curriculum developers, and policymakers seeking effective strategies to integrate sustainability into school education.

Scope of the Study

The study focuses on middle school learners, specifically Grade 7 students, within an urban school setting. It examines the effectiveness of PBL in enhancing awareness, engagement, and personal action related to environmental sustainability. While the study centers on environmental themes such as waste reduction, water conservation, and green practices, it also evaluates student collaboration, critical thinking, and reflective learning. The scope is limited to short-term intervention and does not include long-term behavioral tracking, teacher training analysis, or comparisons with other instructional methods.

Delimitations

- The study is limited to one grade level (7th standard) and may not reflect broader trends across other age groups.
- Time constraints may limit the depth and scale of projects undertaken.
- The findings may be influenced by students' pre-existing environmental exposure outside school.
- The study relies on self-reported behaviors in post-tests, which may not always reflect actual long-term changes.
- Availability of resources (like access to local environmental data, digital tools, etc.) might affect project implementation.

Statement of the Aim

This study aims to investigate how effective Project-Based Learning is in enhancing awareness and promoting sustainable practices among 7th-grade students by engaging them in collaborative environmental projects that bridge classroom knowledge with real-world application.

Objectives:

1. To assess the baseline knowledge and awareness of students regarding sustainability.
2. To implement a project-based intervention focusing on local environmental issues.
3. To evaluate the improvement in knowledge, awareness, and behaviors post-intervention.
4. To encourage student collaboration and ownership of learning.
5. To instill a sense of responsibility towards the environment.

Research Design

Methodology

To investigate the effectiveness of Project-Based Learning (PBL) in enhancing students' knowledge, attitudes, and practices related to environmental sustainability, a structured offline questionnaire method was employed for data collection. Questionnaires are a widely accepted research tool, valued for their ability to collect standardized, quantifiable data while maintaining respondent anonymity and encouraging honest responses. This approach allowed for the systematic collection and analysis of student perceptions before and after the educational intervention.

Instrument Used: Questionnaire

A comprehensive, self-administered questionnaire was designed as the primary data collection instrument. It consisted of 15 items divided into three key sections:

1. **Knowledge-Based Questions** – to assess factual understanding of sustainability concepts.
2. **Awareness and Attitude** – using a 5-point Likert scale ranging from 'Strongly Agree' to 'Strongly Disagree', this section gauged students' perceptions, values, and openness towards environmental issues.
3. **Behavior and Practices** – to evaluate students' current engagement with sustainable habits in daily life.

   The questionnaire was carefully developed to ensure content validity and was distributed in printed format to ensure accessibility and ease of response among middle school students.

Sample

The sample comprised 50 students from 7th grade, studying in SSC board-affiliated schools located in the suburban region of Mumbai. The participants were selected to represent a typical cohort of middle school learners in an urban Indian educational context.

Duration

The study was conducted over a period of two months.

Data Collection Procedure

A **pretest/posttest** design was adopted to measure changes in student responses resulting from the educational intervention:

- **Pre-Test:** The baseline questionnaire was administered prior to the implementation of the PBL activities. Students completed the printed survey during classroom hours under the supervision of the researcher.

- **Post-Test:** Following the completion of the project-based learning phase, the same questionnaire was re-administered to assess changes in knowledge, attitudes, and behaviors related to sustainability.
  All data collected from the questionnaires were compiled for quantitative analysis to draw meaningful inferences regarding the impact of PBL on students' environmental education outcomes.

Intervention Phase

The intervention was designed as a four-week structured learning experience aimed at fostering deeper awareness and behavioral engagement with sustainability among 7th-grade students. Moving beyond textbook-based instruction, the intervention emphasized inquiry, critical thinking, collaboration, and real-world problem-solving—core elements of Project-Based Learning (PBL).

The process began with a pre-test to establish baseline data on students' knowledge, attitudes, and behaviors related to environmental sustainability. This was followed by an interactive orientation session, where foundational concepts such as resource conservation, waste management, climate change, and eco-friendly practices were introduced through multimedia, local case studies, and storytelling to build relevance and stimulate curiosity.Students were then organized into heterogeneous groups, each comprising 5–6 members. Empowered with choice, groups selected sustainability topics that were meaningful to their daily lives or communities. Common themes included reducing single-use plastic, water conservation, promoting afforestation, and energy-saving practices. This autonomy encouraged personal investment and intrinsic motivation.

During the research and planning phase, students engaged in data collection through surveys, interviews, observations, and peer interactions. They consulted diverse sources—books, school-provided digital content, and community inputs—to explore root causes and potential solutions. The teacher functioned as a facilitator, prompting reflection and higher-order thinking through Socratic questioning and scaffolded guidance.Each group then developed a solution-oriented project. Initiatives included awareness drives, proposal of infrastructural changes (e.g., waste segregation systems), behavior audits, and campaign materials. Students documented their learning journeys and insights through reflective journals, promoting metacognition and ownership.

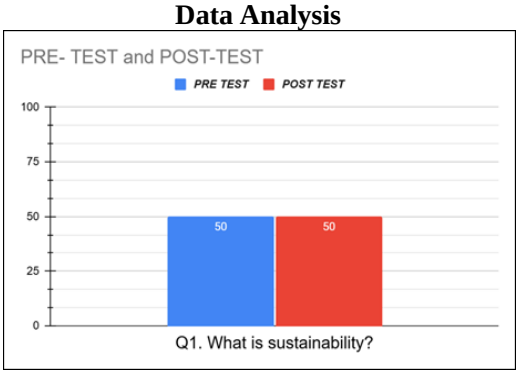
The final phase involved peer presentations, where each group shared their process, findings, and proposed interventions using visual aids, models, or dramatizations. This not only consolidated content knowledge but also enhanced communication, collaboration, and presentation skills. A post-test was conducted to evaluate changes in student understanding and behavior. Results showed marked improvement in sustainability knowledge, attitude shifts, and increased environmental responsibility in daily life—such as conserving electricity or reducing plastic use at home.

Post-test:

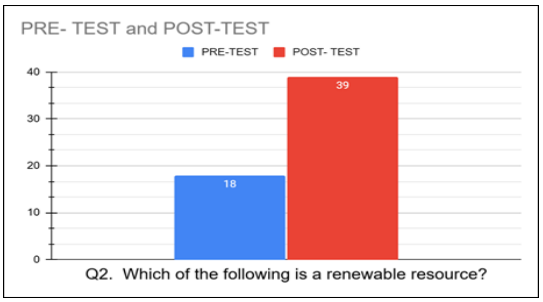
After the intervention period, the same post-test questionnaire (identical to the pre-test) was distributed to the same 50 students. Students completed the questionnaire under supervision, and the completed forms were collected for comparison and analysis. The pre-test and post-test results were then evaluated to determine any improvements in students' knowledge, attitudes, and practices related to sustainable practices.

Diagrams Used: Bar Graph

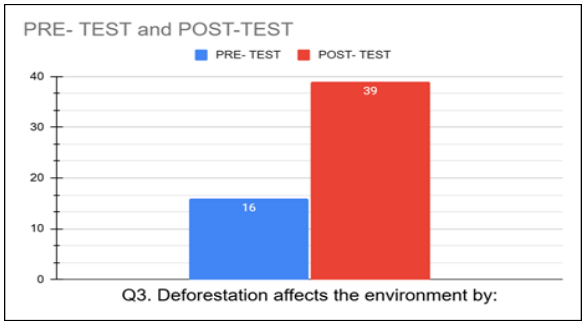
Data Analysis



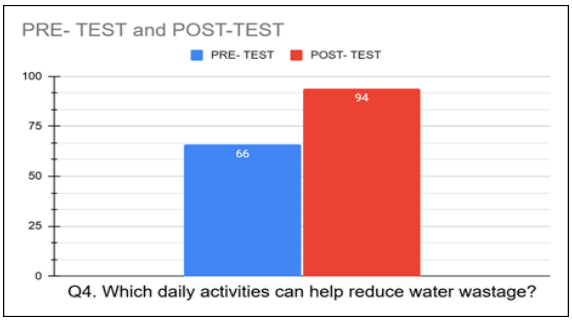
Result: The understanding of students about sustainability was accurate during the pre-test as well as the post-test.



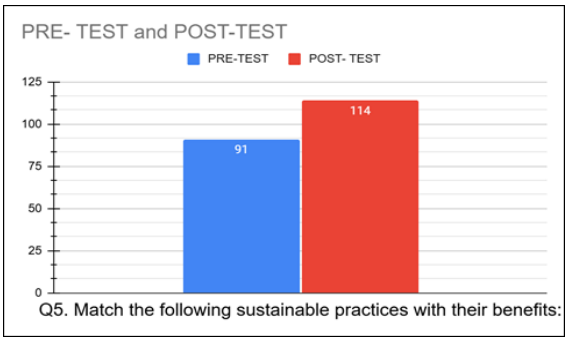
Result: The result shows that there was an increase in the understanding of renewable resources after the intervention.



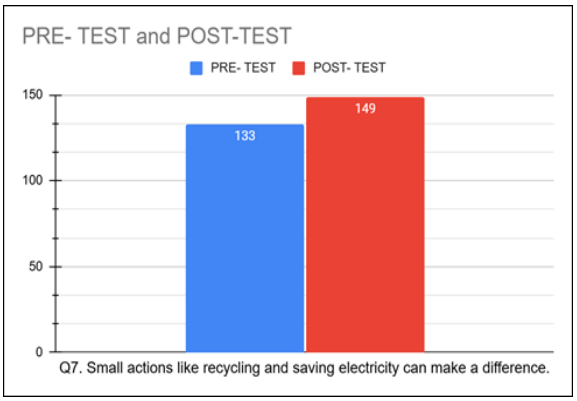
Result: The result shows that the understanding of students about the impact of deforestation on the environment increased after the intervention.



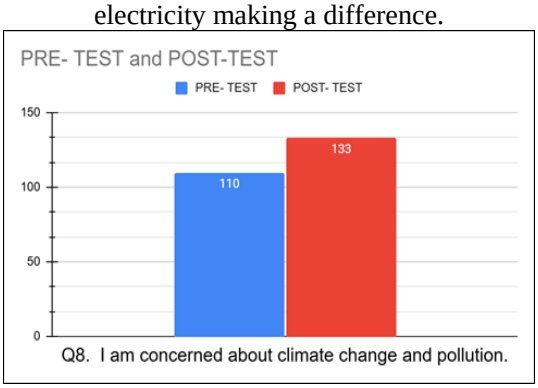
Result: The result shows that the student's understanding about the activities that can reduce water wastage increased after the intervention.



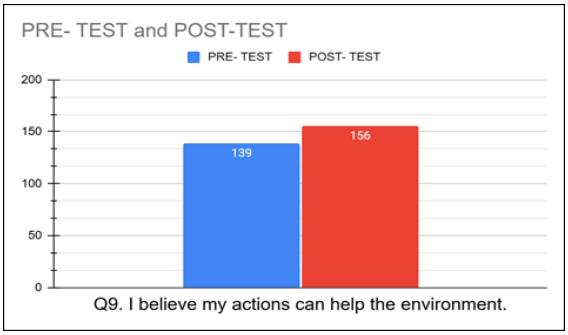
Result: The result shows that there was an increase in the student's understanding about the benefits of sustainable practices after the intervention.



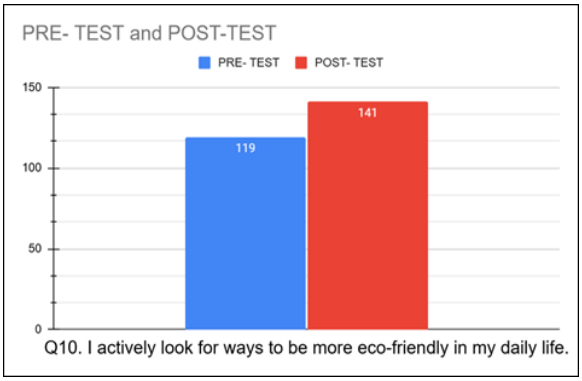
Result: There was an increase in student's understanding after the intervention about recycling and saving electricity making a difference.



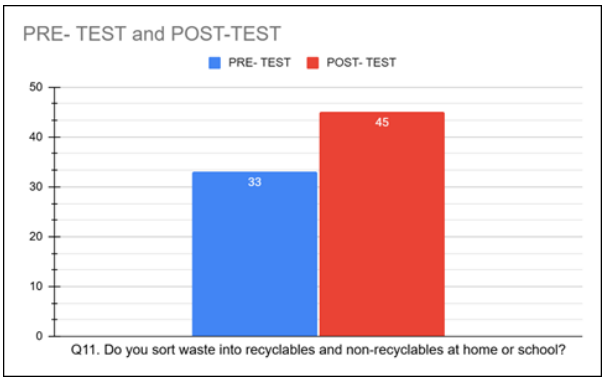
Result: There was an increase in the concern level of students about climate change and pollution after the intervention.



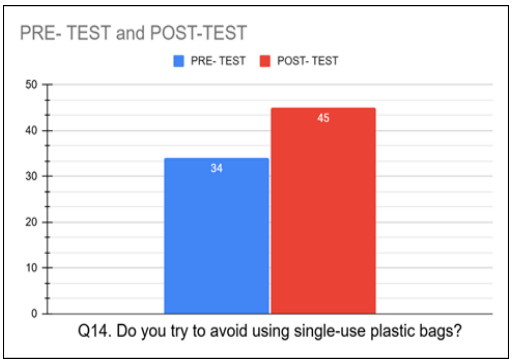
Result: There was an increase in the student's level of self-awareness after the intervention.



Result: There was an increase in the actions of students, looking for ways to be more eco-friendly after the intervention.



Result: There was increase in the number of students that sort the recyclable and non- recyclable waste at home or at school.



Result: There was an increase in the number of students trying to avoid the use of plastic bags after the intervention.

Major Findings of the Study

The study aimed to evaluate the effectiveness of Project-Based Learning (PBL) in enhancing awareness about sustainable practices among 7th-grade students. Analysis of pre- and post-test results, along with qualitative observations, revealed the following key findings:

1. Significant Improvement in Conceptual Understanding

Students demonstrated increased clarity in identifying sustainability-related concepts such as renewable resources, deforestation impacts, and practical conservation strategies.

2. Heightened Environmental Awareness and Concern

A shift was observed from passive acknowledgment to active concern for environmental issues, including climate change, pollution, and personal ecological impact.

3. Positive Changes in Attitudes and Behaviors

Students reported adopting eco-conscious habits such as minimizing electricity usage, segregating waste, and reducing single-use plastics in daily life.

4. Greater Engagement in Sustainable Activities

Participation in environmentally responsible actions—such as tree planting, clean-up initiatives, and awareness campaigns—rose notably after the intervention.

5. Effective Real-World Application of Knowledge

Students applied their learning to real problems through project work, demonstrating critical thinking and proposing actionable solutions to sustainability challenges.

6. Development of 21st-Century Skills

The collaborative and inquiry-driven nature of PBL promoted key competencies including teamwork, creativity, analytical thinking, and effective communication.

Suggestions and Recommendations

Based on the outcomes of the study, the following recommendations are proposed to strengthen the integration of **PBL in environmental education**:

Institutionalize PBL in Curriculum Design

Schools should systematically incorporate project-based modules, particularly in science and environmental studies, to connect academic content with real-world relevance.

Invest in Teacher Training

Professional development programs should focus on equipping teachers with skills in designing, managing, and assessing PBL experiences to maximize their pedagogical impact.

Promote Student Autonomy and Local Relevance

Giving students the freedom to choose topics related to their surroundings fosters deeper engagement and contextual understanding of sustainability.

Encourage Community and Parental Involvement

Collaborations with local environmental experts and community visits enhance experiential learning. Parental support can reinforce sustainable practices beyond school.

Conclusion

This study demonstrated that Project-Based Learning is a powerful instructional strategy for enhancing students' awareness and adoption of sustainable practices. By engaging students in inquiry-driven, collaborative, and authentic tasks, the intervention fostered meaningful learning experiences that extended beyond the classroom.

Students developed not only a better understanding of environmental issues but also a personal commitment to sustainability. The intervention successfully nurtured essential skills such as critical thinking, communication, and problem-solving—skills essential for responsible citizenship in the 21st century.

The experience reaffirmed the importance of moving beyond passive knowledge acquisition to active, reflective, and socially engaged learning. While challenges such as limited instructional time and varying student engagement were encountered, they offered valuable insights for refining the approach.

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Barriers to Adopting Evidence-Based Policymaking

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Abstract:
Evidence-based policymaking (EBPM) seeks to integrate rigorous empirical evidence into the policymaking process to enhance the effectiveness and efficiency of public policies. Despite its potential, EBPM faces significant barriers that hinder its widespread adoption across various governance contexts. This paper explores institutional, political, cultural, and technical barriers to EBPM, drawing on case studies from healthcare, education, and environmental policy sectors. Through a mixed-methods approach, including literature reviews, stakeholder interviews, and policy analysis, this study identifies key challenges such as resistance to change, data accessibility issues, and competing political priorities. The findings suggest that overcoming these barriers requires targeted capacity-building, stakeholder engagement, and adaptive policy frameworks. Recommendations are provided to foster a culture of evidence use in policymaking, ensuring better alignment between research and practice.

Keywords: Evidence-Based Policymaking, Barriers, Institutional Resistance, Data Accessibility, Political Influence, Policy Implementation

Introduction

Evidence-based policymaking (EBPM) has emerged as a cornerstone of modern governance, aiming to ground policy decisions in rigorous, empirical data rather than intuition or political expediency. By leveraging scientific evidence, EBPM seeks to improve policy outcomes in areas such as healthcare, education, and environmental sustainability. However, despite its theoretical appeal, the adoption of EBPM remains uneven across jurisdictions and sectors. Barriers such as institutional inertia, political pressures, cultural resistance, and technical limitations often impede its implementation.

This paper investigates the multifaceted barriers to adopting EBPM, with a focus on understanding their origins and impacts. By examining case studies and stakeholder perspectives, the study aims to provide actionable insights for policymakers and researchers. The research is guided by the following questions: What are the primary barriers to EBPM adoption? How do these barriers manifest across different policy domains? What strategies can mitigate these challenges?

Objectives

1. To identify and categorize the key barriers to adopting EBPM across institutional, political, cultural, and technical dimensions.
2. To analyze the impact of these barriers on policy outcomes in healthcare, education, and environmental sectors.
3. To propose evidence-informed strategies for overcoming barriers and promoting EBPM adoption.

Literature Review

The concept of EBPM draws from evidence-based practice in fields like medicine, where decisions are informed by systematic reviews and randomized controlled trials (RCTs). In policymaking, EBPM involves the systematic use of data, evaluations, and research to design, implement, and assess policies (Head, 2010). However, the literature highlights several barriers to its adoption.

Institutional Barriers

Institutional structures often resist EBPM due to entrenched practices and bureaucratic inertia. Cairney (2016) notes that government agencies may prioritize continuity over innovation, limiting their capacity to integrate new evidence. Additionally, siloed organizational structures hinder cross-departmental collaboration, which is essential for evidence synthesis (Cartwright & Hardie, 2012).

Political Barriers

Political dynamics significantly influence EBPM adoption. Policymakers often face pressure to prioritize short-term electoral gains over long-term evidence-based solutions (Nutley et al., 2007).

Ideological biases and lobbying by interest groups can further distort evidence use, as seen in debates over climate change policies (Oreskes & Conway, 2010).

Cultural Barriers

Cultural attitudes toward evidence vary across contexts. In some settings, policymakers may distrust academic research, perceiving it as disconnected from practical realities (Davies et al., 2000). Conversely, researchers may fail to communicate findings in accessible ways, exacerbating the research-policy gap (Oliver et al., 2014).

Technical Barriers

Technical challenges, such as limited data availability and analytical capacity, also impede EBPM. Many governments lack access to high-quality, real-time data, particularly in developing countries (Brixi et al., 2013). Furthermore, the complexity of statistical methods like RCTs can overwhelm policymakers without specialized training (Banerjee & Duflo, 2011).

This study builds on existing literature by integrating empirical data and stakeholder insights to provide a comprehensive analysis of EBPM barriers.

Research Data and Methodology

This research employs a mixed-methods approach to investigate barriers to EBPM, combining qualitative and quantitative data to ensure robustness and depth.

Data Sources

1. **Literature Review**: A systematic review of peer-reviewed articles, policy reports, and books on EBPM, focusing on barriers across healthcare, education, and environmental policy. Databases such as PubMed, JSTOR, and Google Scholar were used, with search terms including "evidence-based policymaking," "policy barriers," and "evidence adoption."
2. **Stakeholder Interviews**: Semi-structured interviews with 30 stakeholders, including policymakers, researchers, and practitioners from the UK, US, and India. Participants were selected using purposive sampling to ensure diversity in expertise and geographic representation.
3. **Case Studies**: Analysis of three policy domains—healthcare (vaccination programs), education (early childhood interventions), and environmental policy (carbon emission regulations)—to contextualize barriers.
4. **Survey Data**: A survey of 150 policymakers across the selected jurisdictions to quantify perceptions of EBPM barriers, using a Likert-scale questionnaire.

Methodology

- **Qualitative Analysis**: Interview transcripts and case study documents were coded using thematic analysis to identify recurring themes (e.g., institutional resistance, data accessibility). NVivo software facilitated coding and theme extraction.
- **Quantitative Analysis**: Survey responses were analyzed using descriptive statistics and regression analysis to assess the relative significance of different barriers. SPSS was used for statistical processing.
- **Triangulation**: Findings from interviews, surveys, and case studies were cross-referenced to ensure validity and minimize bias.

Ethical Considerations

The study adhered to ethical guidelines, obtaining informed consent from interview participants and ensuring anonymity in survey responses. Data were stored securely in compliance with GDPR and institutional protocols.

Findings

The research identified four primary categories of barriers to EBPM, with specific manifestations in the studied policy domains.

Institutional Barriers

- **Bureaucratic Inertia**: In the UK's education sector, stakeholders reported that long-standing curricula resisted evidence-based reforms, such as phonics-based reading programs, due to entrenched practices.
- **Siloed Structures**: In India's healthcare system, fragmented data systems between central and state governments hindered evidence integration for vaccination campaigns.
- **Limited Capacity**: Many agencies lacked staff trained in evidence appraisal, as seen in US environmental agencies struggling to interpret complex climate models.

Political Barriers

- **Short-Term Priorities**: In the US, political pressures to deliver immediate results undermined long-term evidence-based climate policies, with policymakers favoring visible infrastructure projects over emission reductions.
- **Ideological Resistance**: In healthcare, anti-vaccine sentiments influenced policy decisions in some regions, despite overwhelming scientific evidence supporting vaccination.
- **Lobbying Influence**: Environmental policy case studies revealed that fossil fuel industries lobbied to discredit evidence on carbon emissions, delaying regulatory action.

Cultural Barriers

- **Distrust in Evidence**: Policymakers in India expressed skepticism toward academic research, citing its perceived irrelevance to local contexts.
- **Communication Gaps**: Researchers often failed to translate findings into policy-relevant formats, as seen in education where complex

RCT results were not distilled for decision-makers.

- **Risk Aversion**: In all sectors, a cultural preference for "safe" traditional policies over innovative evidence-based approaches was evident.

4.4 Technical Barriers

- **Data Accessibility**: In developing countries, real-time data on health outcomes or educational attainment were often unavailable, limiting EBPM's feasibility.
- **Analytical Complexity**: Policymakers reported difficulties interpreting statistical models, such as regression analyses used in environmental impact assessments.
- **Resource Constraints**: Budget limitations restricted investment in data infrastructure, particularly in low-income settings.

Survey Results

The survey revealed that political barriers were perceived as the most significant (mean score: 4.2/5), followed by institutional (3.9/5), technical (3.7/5), and cultural barriers (3.5/5). Regression analysis indicated that organizational capacity and political will were the strongest predictors of EBPM adoption ($p < 0.05$).

Discussion

The findings underscore the complexity of adopting EBPM, as barriers are deeply interconnected. For instance, political pressures exacerbate institutional inertia by prioritizing short-term wins over systemic change. Similarly, technical limitations amplify cultural distrust when policymakers struggle to engage with evidence due to its complexity.

Sector-Specific Insights

- **Healthcare**: Political and cultural barriers, such as vaccine hesitancy, require targeted public communication strategies to align evidence with public perceptions.
- **Education**: Institutional resistance to curriculum changes necessitates capacity-building for educators and administrators to embrace evidence-based methods.
- **Environmental Policy**: Political lobbying and technical data gaps highlight the need for transparent, accessible evidence platforms to counter misinformation.

Strategies for Overcoming Barriers

1. **Capacity-Building**: Training programs for policymakers on evidence appraisal and data literacy can address technical and institutional barriers.
2. **Stakeholder Engagement**: Involving communities and practitioners in evidence generation can bridge cultural gaps and enhance policy legitimacy.
3. **Policy Experimentation**: Pilots and randomized trials can demonstrate EBPM's value, reducing political and institutional resistance.
4. **Improved Communication**: Researchers should prioritize policy briefs and visualizations to make evidence accessible to non-experts.
5. **Data Infrastructure Investment**: Governments must prioritize real-time, high-quality data systems to overcome technical barriers.

Limitations

The study's reliance on purposive sampling may limit generalizability, as stakeholder perspectives may not fully represent all contexts. Additionally, the survey sample size (n=150) constrains the statistical power of quantitative findings. Future research should explore longitudinal impacts of EBPM adoption and include more diverse jurisdictions.

Conclusions

This research highlights that barriers to EBPM are multifaceted, spanning institutional, political, cultural, and technical domains. While these challenges are significant, they are not insurmountable. By investing in capacity-building, stakeholder collaboration, and robust data systems, governments can foster a culture of evidence use that enhances policy effectiveness. The case studies in healthcare, education, and environmental policy demonstrate that context-specific strategies are essential for overcoming resistance and aligning evidence with practice.

Future research should focus on evaluating the long-term impacts of EBPM interventions and exploring innovative tools, such as AI-driven analytics, to streamline evidence integration. Ultimately, the success of EBPM depends on a shared commitment to prioritizing evidence over expediency, ensuring policies that deliver tangible societal benefits.

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Conceptualizing e-CRM as a Strategic Tool in Digital Banking Transformation

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Abstract:
This conceptual paper explores the strategic role of electronic Customer Relationship Management (e-CRM) in driving digital transformation within the banking sector. By integrating theoretical insights from strategic management, relationship marketing, and information systems, the paper proposes a conceptual framework that positions e-CRM as a central pillar in enhancing customer-centricity, operational efficiency, and innovation. The study contributes to the literature by redefining e-CRM not just as a technological tool, but as a holistic strategy for achieving competitive advantage in the digital banking era.

Keywords: e-CRM, Digital Transformation, Banking, Customer-Centricity, Strategic Management, Innovation, Relationship Marketing

Introduction:

The global shift toward digitalization has profoundly reshaped the competitive dynamics of the banking industry. Technological advancements, particularly those introduced by fintech innovators, have disrupted conventional banking models, compelling traditional financial institutions to rethink how they operate and deliver value. Simultaneously, customer expectations have evolved—demanding instant, personalized, and seamless services—while regulatory landscapes continue to adapt to the complexities of digital finance. In response, banks are embracing digital transformation, a process defined as the integration of digital technologies into all areas of business, fundamentally altering operations and customer interactions (Choudhury & Harrigan, 2014).

Within this transformative context, electronic Customer Relationship Management (e-CRM) emerges not merely as a technological solution but as a strategic enabler. It plays a pivotal role in aligning digital tools, customer data, and engagement strategies to drive organizational change. Unlike traditional CRM systems, which primarily manage transactional relationships, e-CRM harnesses the power of real-time data analytics, artificial intelligence, and multichannel communication platforms to deliver personalized, consistent, and proactive customer experiences (Ngai et al., 2009). This paper conceptualizes e-CRM as a central pillar of digital transformation in banking, arguing that its strategic deployment enhances operational agility, customer-centricity, and innovation. The aim is to develop a comprehensive conceptual framework that illustrates how e-CRM can be leveraged to strengthen competitive advantage and foster long-term growth in the digital banking ecosystem (Payne & Frow, 2005).

Research Objectives:

1. To explore the strategic potential of e-CRM in the context of digital banking transformation.
2. To integrate theoretical insights from strategic management, relationship marketing, and information systems to conceptualize e-CRM as a multidimensional construct.
3. To develop a conceptual framework that highlights the role of e-CRM in enhancing customer-centricity, operational efficiency, and innovation in banking.
4. To propose research propositions that can guide future empirical studies on e-CRM and digital transformation.

Literature Review

Research on e-CRM has traditionally focused on its role in improving customer service and operational processes. Key themes include automation of customer interactions, centralized data management, and enhanced service delivery (Ngai et al., 2009). However, there remains a gap in understanding the strategic potential of e-CRM in driving digital transformation.In the domain of relationship marketing, scholars emphasize the importance of building long-term relationships through customer engagement, trust, and loyalty. e-CRM, by facilitating continuous and personalized communication, aligns well with these objectives (Morgan & Hunt, 1994). Strategic management

literature, particularly the Resource-Based View (RBV), highlights how IT capabilities can be leveraged for sustainable competitive advantage. When eCRM is viewed through this lens, it becomes a strategic asset that enables banks to respond dynamically to changing market conditions (Barney, 1991).

The integration of these perspectives suggests a more holistic understanding of e-CRM—not just as a technical solution, but as a strategic capability that supports the broader goals of digital transformation (Payne & Frow, 2005).In a broader perspective on digital transformation and financial inclusion, Abdulquadri et al. (2021) explored the use of chatbots in Nigeria's financial services industry. The study emphasized that chatbot technologies, when designed effectively, can radically transform banking by improving customer engagement, expanding financial access, and promoting inclusion in underserved regions. Using the S-A-T model, the authors found that Nigerian banks are increasingly adopting chatbots on platforms such as WhatsApp and Facebook. However, challenges such as limited responsiveness, absence of local language integration, and privacy concerns hinder their effectiveness. This study reinforces the strategic significance of chatbot-enabled e-CRM in achieving digital transformation goals in emerging economies

Theoretical Background

This section outlines the theoretical underpinnings that inform the conceptual framework of this paper:

- **Resource-Based View (RBV):** The Resource-Based View (RBV) of the firm, introduced by Barney (1991), posits that sustainable competitive advantage arises from the possession and strategic utilization of valuable, rare, inimitable, and non-substitutable (VRIN) resources. In the context of modern banking, e-CRM systems qualify as such resources when effectively aligned with organizational goals. These systems facilitate the accumulation and use of proprietary customer data, advanced analytics, and customer engagement capabilities that competitors cannot easily replicate. For example, a bank leveraging e-CRM to tailor financial products based on predictive analytics not only enhances service personalization but also deepens customer loyalty, creating a competitive moat that is difficult to erode.
- **Dynamic Capabilities Theory:** Proposed by Teece, Pisano, and Shuen (1997), the Dynamic Capabilities Theory emphasizes a firm's capacity to integrate, build, and reconfigure internal and external competences in response to rapidly changing environments. In banking, where customer expectations, regulations, and technologies evolve quickly, e-CRM systems enable dynamic capabilities by delivering real-time insights into customer behavior and market trends. This allows banks to sense new opportunities (e.g., emerging customer needs), seize them by swiftly launching relevant services, and transform internal operations accordingly. For instance, feedback loops integrated into e-CRM platforms can prompt timely adjustments in customer service protocols or digital banking interfaces.
- **Relationship Marketing Theory:** Relationship Marketing Theory, as advanced by Morgan and Hunt (1994), centers on the long-term development and maintenance of mutually beneficial customer relationships. Unlike transactional marketing, which focuses on single exchanges, relationship marketing aims for loyalty and ongoing interaction. e-CRM tools directly support this approach by enabling consistent, personalized engagement with customers across multiple digital touchpoints such as email, social media, and mobile apps. This sustained interaction builds trust and enhances customer satisfaction, both of which are critical in a highly competitive and regulated sector like banking.

Research Methodology

This paper employs a **conceptual approach,** that explore the strategic role of electronic Customer Relationship Management (e-CRM) in driving digital transformation within the banking sector. The methodology is designed to support the development of a conceptual framework by drawing on existing literature, case studies, and expert insights.

Proposed Conceptual Framework

The proposed framework conceptualizes electronic Customer Relationship Management (e-CRM) as a strategic enabler across three key dimensions: Customer centricity, Operational efficiency and innovation and agility.

1. Customer-Centricity

A core premise of e-CRM is its ability to place the customer at the center of the bank's strategic priorities. This is achieved through:

- **Advanced Data Mining and Behavioral Analytics:**
  e- CRM platforms gather data from multiple sources—transactional records, social media activity, website behavior—and transform it into actionable insights. This deep understanding allows banks to anticipate customer needs and preferences with a high degree of accuracy (Ngai et al., 2009).
- **Personalized Product and Service Offerings:**
  With access to detailed customer profiles, banks can create tailored financial solutions, such as personalized credit card offers, investment advice, or loan packages, thereby enhancing

relevance and engagement (Payne & Frow, 2005).

- **Omni-Channel Integration:**
  e-CRM ensures seamless customer experiences across physical branches, mobile apps, websites, and call centers. This consistency not only improves customer satisfaction but also reinforces brand trust (Choudhury & Harrigan, 2014).

2. Operational Efficiency

5e-CRM contributes significantly to the internal efficiency of banking operations by:

- **Automating Routine Tasks:**
  Functions such as query resolution, customer follow-ups, appointment scheduling, and survey feedback collection can be automated, freeing up human resources for higher-value interactions (Ngai et al., 2009).
- **Centralizing Customer Data:**
  A unified e-CRM system acts as a central repository for all customer interactions, reducing data silos and duplication while ensuring that all departments have access to accurate and up-to-date information.
- **Streamlining Workflows:**
  By integrating back-office processes and front-end customer interactions, e-CRM enhances responsiveness and reduces turnaround times. This efficiency translates to cost savings and better resource utilization.

3. Innovation & Agility

In a rapidly evolving financial landscape, the capacity to innovate and adapt is crucial. e-CRM supports this by:

- **Supporting Responsive Strategy Formulation:**
  Real-time dashboards and predictive analytics allow banks to quickly identify market changes and customer sentiment, enabling timely adjustments to marketing strategies or product offerings (Teece et al., 1997).
- **Enabling New Service Models:**
  E-CRM provides a platform for testing and deploying innovative solutions such as AI-powered chatbots, robo-advisors, and voice-activated banking assistants, offering new modes of customer interaction and service delivery.
- **Fostering Data-Driven Innovation:**
  By continuously analyzing customer data, banks can uncover unmet needs and trends, which inform the development of new products or enhancements to existing ones. This positions the bank as a proactive, customer-focused innovator.

  These dimensions interact synergistically to support digital transformation, positioning e-CRM as both a driver and an outcome of strategic renewal. The framework suggests that banks that strategically implement e-CRM are better equipped to navigate the complexities of the digital era (Barney, 1991; Teece et al., 1997).

Research Propositions

Based on the proposed framework, the following propositions are presented for future empirical validation:

- **P1:** e-CRM significantly enhances customer-centric capabilities in digital banking by enabling personalization and seamless service delivery (Ngai et al., 2009).
- **P2:** Effective e-CRM implementation leads to improved operational efficiency through automation and streamlined processes (Payne & Frow, 2005).
- **P3:** e-CRM contributes to organizational agility and innovation by providing actionable insights and enabling rapid response to change (Teece et al., 1997).
- **P4:** The strategic alignment of e-CRM with digital transformation goals positively influences a bank's competitive advantage (Barney, 1991).

  These propositions can serve as a basis for future studies that aim to empirically test the impact of e-CRM on different dimensions of digital transformation.

Implications

- **Theoretical Implications:** This paper contributes to the literature by integrating theories from marketing, IT, and strategic management to develop a unified conceptualization of e-CRM. It challenges the traditional view of CRM as a support function and positions it as a strategic capability (Choudhury & Harrigan, 2014).
- **Managerial Implications:** For practitioners, the framework provides a roadmap for leveraging e-CRM as a strategic tool. Bank executives and digital transformation leaders can use this model to guide investment decisions, prioritize capabilities, and measure outcomes.
- **Future Research Directions:** Empirical studies are needed to validate the conceptual framework across different banking contexts—commercial vs. retail, developed vs. emerging markets, etc. Longitudinal studies could also examine how e-CRM maturity correlates with transformation success over time.

  Conclusion This paper reframes e-CRM from a purely technical solution to a strategic catalyst for digital transformation in banking. By proposing a multidimensional framework grounded in established theories, it offers a novel perspective on how banks can leverage e-

CRM to enhance customer value, improve operational efficiency, and drive innovation. The insights generated by this conceptualization can inform both academic research and practical strategy development, laying the groundwork for future empirical validation and strategic implementation.

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Theoretical Insights into Insurance Literacy and Its Role in Health Insurance Purchase Decisions

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Abstract:
The theoretical foundations of insurance literacy and its important influence on decisions to obtain health insurance are examined in this conceptual work. One of the most important factors influencing customer behaviour in the insurance market is insurance literacy, which includes knowledge, comprehension, and skills pertaining to insurance goods and services. This research attempts to clarify how insurance literacy influences people's attitudes, beliefs, and decision-making processes surrounding health insurance by looking at a variety of theoretical frameworks and including pertinent literature. It also emphasises how improving insurance literacy can benefit customers, insurers, and legislators in order to support better health insurance coverage and general financial well-being.

Keywords: Insurance Literacy, Health Insurance, Consumer Behavior, Decision-Making, Behavioral Economics, Information Processing Theory, Social Cognitive Theory

Introduction:

Insurance literacy has increasingly become a focal point in discussions about consumer welfare and market efficiency within the insurance sector (Barnes et al., 2015). This is particularly relevant in the context of health insurance, a vital part of the healthcare system that offers financial protection against medical expenses and supports better health outcomes (Lusardi & Mitchell, 2014). Despite its importance, the complexity of health insurance products and the general lack of consumer knowledge often result in suboptimal purchase decisions (Luster et al., 2021). This paper explores the theoretical dimensions of insurance literacy and its significant role in shaping health insurance purchase decisions. It draws on relevant literature and theoretical models to provide a comprehensive understanding of how insurance literacy can enhance consumer decision-making and improve overall market efficiency (Thaler & Sunstein, 2008; Simon, 1972). By examining the cognitive biases and heuristics that influence consumer behavior, as well as the impact of information processing and social influences, this study aims to identify strategies for enhancing insurance literacy and promoting better health insurance choices (NBER, 2015).

Objectives

1. To review existing literature on insurance literacy and its impact on health insurance purchase decisions.
2. To explore theoretical frameworks that explain the role of insurance literacy in consumer behavior.
3. To identify gaps in current research and propose future research directions.
4. To provide recommendations for policymakers, insurers, and consumers to enhance insurance literacy.

Literature Review

Insurance Literacy and Consumer Behavior

Insurance literacy is a multifaceted concept that includes knowledge of insurance terminology, concepts, and product features, as well as the ability to evaluate and select appropriate insurance policies. Research has shown that higher levels of insurance literacy are associated with more informed and rational decision-making in the insurance market. For example, studies have found that individuals with higher insurance literacy are more likely to purchase health insurance and choose policies that better match their needs (Barnes et al., 2015).

Recent studies have highlighted the transformative impact of digital services on customer purchase behavior in the insurance industry. Bharti, Agarwal, and Satsangi (2024) conducted a study in the Uttar Pradesh region of India, examining how InsurTech companies' digital services influence customer purchase behavior. Using Partial Least Squares Structural Equation Modeling (PLS-SEM) and Importance-Performance Map Analysis (IPMA), the authors found that search convenience and trust are

significant factors influencing perceived value, which in turn positively impacts customer attitude and purchase intention (Bharti et al., 2024).

Understanding the purchase behavior of consumers for life insurance products is crucial for developing effective marketing strategies and improving consumer financial security. Bhatia, Bhat, and Tikoria (2021) conducted a systematic review using the TCM (Theory, Context, Methods) and ADO (Antecedents, Decisions, Outcomes) frameworks to provide a comprehensive analysis of the factors influencing life insurance purchase behavior. The study aggregated 136 unique antecedents from 76 relevant articles, categorizing them into eight broad categories, including demographic, financial, psychological, social, product-related, marketing-related, regulatory, and environmental factors (Bhatia et al., 2021).

Insurance Literacy and Financial Well-being

Insurance literacy is closely linked to financial literacy, which has been extensively studied in the context of personal finance. Financial literacy refers to the knowledge and skills necessary to make informed financial decisions (Lusardi & Mitchell, 2014). Similarly, insurance literacy involves understanding the financial implications of insurance products and making informed choices to protect oneself from financial risks. Higher insurance literacy has been shown to improve financial well-being by reducing the likelihood of financial distress due to unexpected medical expenses (Garrick et al., 2012).

Health Insurance Literacy

Health insurance literacy specifically refers to the knowledge and skills required to navigate the complexities of health insurance policies. This includes understanding coverage details, premium structures, deductibles, and out-of-pocket costs (McCormack et al., 2009). Research has shown that individuals with higher health insurance literacy are more likely to enroll in health insurance plans and make better use of their coverage (Luster et al., 2021).

Theoretical Frameworks

Behavioral Economics Perspective

Behavioral economics offers valuable insights into the cognitive biases and heuristics that influence consumer decision-making in the insurance domain. For instance, individuals may exhibit bounded rationality, relying on mental shortcuts and limited information processing capabilities when evaluating health insurance options (Thaler & Sunstein, 2008). Insurance literacy can help mitigate these biases by providing consumers with a more comprehensive understanding of the risks and benefits associated with different policies, enabling them to make more rational and optimal choices.

Bounded Rationality and Decision-Making

Bounded rationality suggests that individuals have limited cognitive resources and information-processing capabilities, leading them to rely on heuristics and mental shortcuts when making decisions (Simon, 1972). In the context of health insurance, this can result in suboptimal choices due to a lack of understanding of policy details and coverage options. Insurance literacy can enhance individuals' ability to process and evaluate complex information, leading to more informed and rational decisions (Thaler & Sunstein, 2008).

Information Processing Theory

Information processing theory posits that individuals' ability to process and comprehend complex information is crucial for effective decision-making. In the context of health insurance, consumers need to assimilate and analyze a vast amount of information, including policy details, coverage limits, and premium structures (Simon, 1972). Insurance literacy enhances their information processing capacity, allowing them to better understand and evaluate the available options and make informed purchase decisions.

Cognitive Load and Decision-Making

Information processing theory highlights the cognitive load involved in evaluating complex insurance products. High cognitive load can lead to decision fatigue and suboptimal choices (Simon, 1972). Insurance literacy can reduce cognitive load by providing consumers with the necessary knowledge and skills to understand and evaluate insurance policies more efficiently. This can lead to better decision-making and higher satisfaction with insurance choices (Politi et al., 2016).

Social Cognitive Theory

Social cognitive theory emphasizes the role of observational learning, social influences, and self-efficacy in shaping behavior. In the insurance context, individuals may learn about health insurance through interactions with peers, family members, or healthcare providers (Bandura, 1977). Insurance literacy can enhance their self-efficacy by providing the necessary knowledge and skills to navigate the insurance market confidently and make well-informed choices.

Self-Efficacy and Insurance Literacy

Self-efficacy refers to an individual's belief in their ability to perform specific tasks or behaviors (Bandura, 1977). In the context of health insurance, higher insurance literacy can enhance self-efficacy by providing individuals with the knowledge and skills needed to navigate the insurance market. This can lead to more confident and informed decision-making, ultimately improving health insurance coverage and financial well-being (McCormack et al., 2009).

Empirical Studies

Empirical studies have consistently shown that insurance literacy positively impacts health insurance purchase decisions. For example, a study by Luster et al. (2021) found that individuals with higher insurance literacy were more likely to purchase health insurance and choose policies with higher coverage levels. Similarly, a survey by the National Bureau of Economic Research (NBER) revealed that individuals with higher insurance literacy had better health outcomes and lower healthcare costs (NBER, 2015).

Health Insurance Literacy and Health Outcomes

Research has shown that higher health insurance literacy is associated with better health outcomes. Individuals with higher insurance literacy are more likely to understand their coverage and use their health insurance effectively, leading to improved health status and lower healthcare costs (Luster et al., 2021). This highlights the importance of insurance literacy in promoting not only financial well-being but also overall health outcomes.

Methodology

Research Design

This paper employs a conceptual approach, integrating theoretical frameworks and existing literature to provide a comprehensive understanding of the role of insurance literacy in health insurance purchase decisions. The research design involves a thorough review of academic journals, books, and reports related to insurance literacy and consumer behavior in the health insurance market.

Data Collection

The primary source of data for this paper is secondary research, including peer-reviewed articles, government reports, and industry publications. The literature review focuses on studies published in the last two decades to ensure the relevance and timeliness of the findings.

The Role of Insurance Literacy in Health Insurance Purchase Decisions

- Enhancing Risk Perception and Awareness
- Risk Perception and Insurance Demand
- Influencing Attitudes and Preferences
- Attitudes and Insurance Literacy
- Facilitating Decision-Making and Policy Selection
- Decision-Making and Insurance Literacy
- Mitigating Adverse Selection and Moral Hazard
- Adverse Selection and Moral Hazard

Implications and Recommendations

Policy Recommendations

1. Launch Public Awareness Campaigns: Use media and community-based initiatives to raise awareness about the importance of health insurance and the benefits of being insurance literate.
2. Regulate Insurance Market Communication: Ensure that insurance companies provide clear and transparent information about policy details, coverage options, and costs to help consumers make informed decisions.

Insurer Recommendations

1. Provide Clear and Accessible Information: Use plain language and visual aids to explain policy details, coverage options, and costs.
2. Develop Educational Resources: Offer workshops, seminars, and online resources to help consumers understand insurance concepts and make informed choices.
3. Collaborate with Stakeholders: Work with policymakers, healthcare providers, and community organizations to develop comprehensive insurance literacy programs.

Consumer Recommendations:

1. Seek Educational Resources: Utilize online resources, books, and workshops to learn about insurance concepts and policy details.
2. Engage with Experts: Consult with insurance agents, financial advisors, or healthcare providers to gain a better understanding of insurance options and make informed choices.
3. Stay Informed: Regularly review policy details and stay updated on changes in insurance regulations and market trends to ensure optimal coverage.

Scope for Further Research in Insurance Literacy and Health Insurance

1. With the increasing use of digital platforms for health insurance enrollment and management, there is a need to study how these tools can be optimized to enhance insurance literacy. Research could focus on the effectiveness of interactive decision aids and online educational resources.
2. Studies have shown disparities in insurance literacy across different demographic groups, including racial and ethnic minorities, low-income individuals, and non-native speakers. Future research should explore targeted interventions to address these disparities and improve health outcomes for vulnerable populations.
3. Most current research on insurance literacy is cross-sectional. Longitudinal studies are needed to understand how changes in insurance literacy over time impact health insurance purchasing decisions and overall health outcomes.
4. Comparative studies across different countries can provide insights into best practices for improving insurance literacy. Understanding how different healthcare systems address this issue can inform policy and practice in other regions.

Conclusion

Insurance literacy is a critical factor influencing health insurance purchase decisions. By examining various theoretical frameworks and integrating relevant literature, this paper has highlighted the multifaceted role of insurance

literacy in enhancing risk perception, influencing attitudes and preferences, facilitating decision-making, and mitigating adverse selection and moral hazard. The findings underscore the importance of promoting insurance literacy among consumers, insurers, and policymakers to foster a more informed, efficient, and sustainable health insurance market. Future research should continue to explore the practical applications and effectiveness of different strategies for enhancing insurance literacy and further elucidate its impact on consumer behavior and market outcomes in the health insurance domain.

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Sustainable Agriculture through Natural Resource and Water Management in Tribal Areas of Nashik District, Maharashtra

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Abstract:-

Natural resource management refers to the management of natural resources such as land, water, soil, plants and animals, with a particular focus on how management affects the quality of life for both present and future generations. Natural resource management is the taking care of natural resources such as land, water, marine and biological systems, with a particular focus on how the management affects the quality of life for both present and future generations. It's about the long-term implications of actions - thinking about the future and not just about now. Resource Management: the balancing of natural resources such as materials or substances occurring in nature which can be exploited for economic gain.

Keywords: Water Resource, Sustainable Development, Resource Management, Natural Resources,

Introduction:

Environmental resource management involves overseeing natural resources that are interconnected with human activities, monitoring their usage and depletion, and taking appropriate actions to achieve desired results. The primary goals of environmental resource management include ensuring environmental sustainability, promoting a clean environment, and fostering economic and social stability. Natural resource management pertains to the oversight of resources such as land, water, soil, plants, and animals, with a focus on how such management practices influence the quality of life for both current and future generations. It addresses the interaction between people and natural landscapes, incorporating aspects like land use planning, water management, biodiversity protection, and the long-term sustainability of industries such as agriculture, mining, tourism, fisheries, and forestry. This approach recognizes the vital connection between human livelihoods and the health and productivity of our ecosystems, emphasizing that responsible land stewardship is crucial to maintaining these landscapes.

Objectives:

1. Make cities and settlements inclusive, safe, flexible and sustainable development
2. To provide a national framework for decision-making based on our principles of sustainable development

Research Methodology:

The present research work has based on both primary and secondary data. However, primary data is the main source to meet the objectives of the study. Therefore, the correlated data has collected by conducting intensive fieldwork and questionnaire has been used for the same. During the field investigation, observation method as well as informal personal communications with some persons has made for the purpose of verification of data. Secondary data has collected from the various government offices, books, journals, newspapers and several websites etc., which have explained under references.

Policy Initiatives for Sustainable Development

The Survey cites current Government of India policies in direction of achieving SDGs. These include Swachh Bharat mission, Beti Bacho Beti Padhao, Pradhan Mantri AwasYojana, Smart Cities, Pradhan Mantri Jan Dhan Yojana, Deen Dayal Upadhyay Gram Jyoti Yojana and Pradhan Mantri UjjwalaYojana, among others. The Namami Gange Mission- a key policy priority towards achieving the SDG 6 - was launched as a priority programme with a budget outlay of Rs.20,000 crores for the period 2015-2020. Major components include sewerage project management, urban and rural sanitation, tackling industrial pollution, water use efficiency and quality improvement, ecosystem conservation and Clean Ganga Fund, among others.

Sustainable development:-

Sustainable development involves finding a balance between safeguarding the environment and promoting economic growth, as well as balancing the needs of the present with those of the future. It emphasizes fairness in development and actions across different regions and times, according to Cruz et al. (2007). Achieving sustainable development requires the integration of economic, social, and environmental strategies. Sustainable

urban development focuses on achieving social equity and environmental protection during urban growth, while also reducing the negative impacts and costs associated with urbanization.

Concept of the sustainable urban development:-

The concept of sustainable urban development was shaped by the UN General Assembly's conference on the "human environment" held in Stockholm in June 1972. The conference established key principles regarding the "human environment," stressing that every person has a fundamental right to a quality environment and a responsibility to protect it for both present and future generations. It also emphasized the need to preserve the Earth's natural resources for the benefit of both current and future generations. In 1983, a decade later, the World Commission on Environment and Development was formed to address the ongoing depletion of natural resources and the challenges of unsustainable development.Forest is the basic life supporting system of tribes. Their economy is agro-forest based which substituted with livestock and skilled labour. Based on the ecological background the economies of the hill tribes are classified into four groups namely 1) Food gatherers 2) Shifting cultivators 3) Settled cultivators 4) Pastoralists and 5) Artisans.

Food Gatherers:

The chenchus are known as food gatherers. Their habitats are found in the Nallamalai forest areas. chenchu population is distributed in Kurnool, Mahaboobnagar, Nalgonda, Prakasam, Ranga Reddi and Guntur districts. Forest degradation in the Nallamalai and declaration of wild life tiger project sanctuary in the zone are much reflected on the livelihood of Chenchus. The establishment of hydro-electrical power generation project at Sri Sailam also created survival problem to some of the Chenchus who were rehabilitated into the colonies. Under Chenchu Development Project, certain of the interior chenchus were rehabilitated into the colonies and allotted agricultural land to them. Literally they were uprooted from their natural environment. Now they are facing the problem of adaptability to new environment and with the new economic pursuit of agriculture. In the process certain of the chenchus become beggars, thieves and some of them taken up the profession of fire wood selling. Now the chenchus are at cross roads. The chenchus still who live in the interior forests are totally depending on the flora and fauna of forest and labour employment of Forest department. Once, they were nomads, semi nomads and now slowly adopting to sedentary life. Most of the chenchus are in transitional stage of food gathering to food production. Large majority of them are struggling hard for their survival due to scanty of flood material in the forest environment.

Shifting Cultivators:

Khond, Konda Savara, Konda Reddi, Porja, Kolam and Gadaba tribes are largely subsisting on shifting cultivation (Podu), where as some families in other tribes also practice 'Podu' cultivation in addition to settled cultivation. The aboriginals in the tropical forest zones forced to practice this crude method of cultivation for meeting their basic prime need of food. They know how to maintain eco-friendly relations even with this method of cultivation. The practice of shifting cultivation in the Eastern Ghats forest zone is also resulting to some extent of deforestation. Actually these tribes practice it forcefully due to ecological and geographical factors, which are inter connected with the habitats and settlement patterns. The recent forest policies are against to this method of cultivation and considered as the main source of livelihood to primitive tribes, who are largely subsisting on Podu cultivation. No doubt the practice of shifting cultivation damages certain extent of forest land and creating natural imbalance which resulting to environmental degradation.

Settled Cultivators:

The Bagatas, Koyas, Gonds, Manne Doras, Malis, Reddi Doras, Nooka Doras and Valmikis living in the valleys and nearby streams where plain landscape prevails, have totally adopted to settled cultivation but the same tribes inhabiting near the hill tracts and interior forests are resorting to shifting cultivation. In such areas they largely subsist on dry cultivation. In general very limited extent of land is available for wet cultivation in the Eastern Ghats. Wet cultivators usually raise the paddy crop during kharif season. However, a few of them currently growing commercial crops like turmeric, maize, tobacco, chillies, cotton, cashew, orange, ginger, Pippallu (Piper longum), different varieties of beans, etc., mixed croping like pulses, millets and oil seeds is the dominant feature in the dry and Podu cultivation. The wet cultivators use only the freely available surface water for irrigating the crops, which they raise. They have not yet developed the water conservation attitude but they have the traditional
knowledge of water resource management even in the mountains. Terrace cultivation is also seen here and there in between the two hillocks where springs flow in rainy and winter seasons. The cultivators in the forested zones are now facing the problem of soil erosion due to hill terrain and deforestation. Soil erosion problem is associated with the forest degradation. Agriculture is mainly dependent on land and rainfall, year by year there is a declining trend in rainfall due to forest deterioration. Almost all the respondents accepted that the deforestation is

the major cause for decline of rainfall. In summer months most of the tribal habitats are facing very acute drinking water problem. In such settlements, the tribal women folk walk miles together to fetch potable drinking water from the hill streams and springs located at down to the hills of far away places. Scarcity of agricultural land, in sufficient rainfall and lack of irrigation facilities in the habitats of settled cultivators, are also creating food insecurity to them

Livelihoods of Tribes:

Forest is the basic life supporting system of tribes. Their economy is agro-forest based which substituted with livestock and skilled labour. Based on the ecological background the economies of the hill tribes are classified into four groups namely 1) Food gatherers 2) Shifting cultivators 3) Settled cultivators 4) Pastoralists and 5) Artisans.

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Livelihoods of Tribes:

The forest serves as the fundamental life-sustaining resource for tribal communities. Their economy is primarily agro-forest based, supplemented by livestock and skilled labor. Depending on their ecological context, the economies of hill tribes can be categorized into five groups: 1) Food gatherers, 2) Shifting cultivators, 3) Settled cultivators, 4) Pastoralists, and 5) Artisans.

Food Gatherers:

The Chenchus are recognized as food gatherers and primarily inhabit the Nallamalai forest region. Their population is spread across the districts of Kurnool, Mahaboobnagar, Nalgonda, Prakasam, Ranga Reddi, and Guntur. The degradation of forests in Nallamalai and the establishment of the Tiger Wildlife Sanctuary have had significant impacts on the Chenchus' livelihoods. Additionally, the creation of the hydroelectric power project at Sri Sailam has caused survival difficulties for some Chenchus, leading to their relocation to colonies. Through the Chenchu Development Project, some Chenchu communities were resettled, and agricultural land was allocated to them. However, this move has displaced them from their traditional environment, and they are now struggling to adjust to both the new surroundings and the shift toward an agricultural economy.

Shifting Cultivators:

The indigenous communities in tropical forest areas are compelled to use this primitive method of cultivation to meet their essential food needs. Despite using this approach, they manage to maintain eco-friendly practices. However, the shifting cultivation method practiced in the Eastern Ghats forest region has contributed to some degree of deforestation. These tribes are forced into this practice due to ecological and geographical factors, which are closely linked to their settlement patterns and habitats. Recent forest policies oppose this form of cultivation, although it remains a crucial source of livelihood for many primitive tribes, who primarily rely on Podu cultivation. While shifting cultivation does lead to some forest degradation and disrupts the natural balance, contributing to environmental harm, it is still integral to their survival.

Settled Cultivators:

The wet cultivators rely solely on readily available surface water for irrigating their crops. While they haven't developed modern water conservation practices, they possess traditional knowledge of water resource management, even in mountainous areas. Terrace cultivation can also be found in areas between two hillocks where springs flow during the rainy and winter seasons. However, cultivators in forested regions are now grappling with soil erosion caused by the hilly terrain and deforestation. This erosion is closely tied to forest degradation. Agriculture, which largely depends on land and rainfall, is facing a decline in rainfall due to the deterioration of forests. Nearly all respondents agreed that deforestation is a major factor contributing to reduced rainfall. During the summer months, many tribal communities experience severe drinking water shortages. In these areas, tribal women often have to walk long distances to collect potable water from hill streams and springs located far from their homes. The scarcity of agricultural land, insufficient rainfall, and lack of irrigation facilities in the settlements of settled cultivators are also contributing to food insecurity in these regions.

Artisans:

They manufacture all kinds of agricultural implements, household articles etc., Even some of the Gonds, Kolams, Koyas and chenchus have tekn up blacksmithy and carpentry. A few Gonds and Kolams have become good sculptors in both wood and stone. Sonar Lambadas are experts in manufacturing of gold and silver ornaments. The colourful dresses with attractive ornaments and embroidery are manufactured by themselves. Once they have manufactured gunny bags with jute by manually. Some of the Porjas, Kyas, Konda Reddis, Chenchus, Kolams and Yerukulas are good basket makers. Now only a few of them are totally depending on household industry. Occupational mobility among the artisans is basically due to non-availability of raw material in the natural environment and less demand for their products.

Shifting Cultivation and deforestation:

Shifting cultivation consists of several stages. First, the land is cleared by burning the vegetation. In the second stage, the soil is disturbed with a hoe (Valuva) after rainfall, and crops are then planted in the plot, typically without any additional fertilizer other than the nutrients from the burned vegetation. In the third stage, the plot is used for one to three years, depending on local conditions. Afterward, the plot is left fallow to regain its fertility. In the fifth stage, a new plot is cleared for cultivation, and the cycle is repeated when the previous plot has been abandoned. There are three critical factors in this system: the availability of land, the labor needed to grow the key crops, and the length of the growing season during which the primary crops can be cultivated or alternated with supplementary crops.

Conclusion:-

A large portion of the tribal population in the Eastern Ghats continues to struggle with poverty and food insecurity, largely due to forest degradation and limited food resources. Environmental laws and policies are not effectively enforced by the relevant authorities, resulting in an imbalance in the natural ecosystems of tribal areas and surrounding settlements. Recent forest policies also undermine the rights of tribes to access forest

land and other resources. This has led to frequent forest and land disputes in the tribal regions of the Eastern Ghats in Andhra Pradesh. The National Forest Policies of 1952 and 1988 are prime examples of how state policies and thoughtless actions have negatively impacted tribal communities, disrupting their long-standing customary rights and their deep connection with nature and the spirit of the forest. These policies have marginalized tribes within their own ancestral lands, restricting access to their traditional habitats and the resources they depend on. Additionally, the growing threat of globalization poses an external challenge that requires urgent attention.

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Importance of E- Marketing in Modern Business

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Abstract:
This articles point out that to the importance of modern e-marketing; its background and its benefits. It explores the current e-marketing situation, e-marketing definitions and examples of good and bad e-marketing Chances are your organization is already engaged in e-marketing, so in these articles throughout improve your current e-marketing practices or plan new initiatives.

Key words: E-Marketing, Digital Marketing, Modern Business

Introduction:

The Internet is an electronic means of communication that is constantly evolving and helps to increase the competitiveness of an organization in the virtual world. Marketing is a vital activity and is of great importance in both commercial and nonprofit organizations. Products or services, marketing are a real challenge to the success, survival, growth and prosperity of organizations. Because it allows them to design, develop and distribute their products based on the needs and wants of the target market. The distinctive feature of electronic marketing is the ability to measure the effect in real time and allow marketers to check its effectiveness and customize messages based on their effectiveness compared to traditional marketing.



Objectives:

1. To understand the E-marketing
2. To indentifies the importance of E-marketing.

Concept of E-Marketing:

E-Marketing is the process of marketing of products and services over internet and telecommunication networks. In simple terms, marketing strategies and techniques which are utilized to access target customers through online mode are referred to E-marketing. E-marketing includes use of internet for all the activities of advertising, promotion publicity, channel of distribution, marketing research to find out customers' needs and wants. Electronic marketing is interchangeably used to mean online marketing, web marketing, internet marketing and digital marketing. According to Judy Strauss, "E-marketing refers to application of broad range of information technology for creating more customer value through more effective segmentation, targeting, differentiation and positioning strategies, planning more efficiently and executing the conception, distribution, promotion and pricing of goods, services and ideas; and creating exchanges that satisfy individual consumer and organization's consumer objectives".

Recent Trends in Marketing:

The market scenario in the world today is changing very rapidly. The boundaries of nations are disappearing for exploiting the opportunities of business. Today's customers are global and exhibit international characteristics. Because of developments of information technology, rapid means of transportation, liberalization, and mobility of people across the world, their buying habits are fast varying and so are the fortunes of various organizations. In the Globalised business environment, the marketer must move goods faster

and quicker to satisfy the consumers' needs and wants by serving the best quality goods and services. Therefore marketers are shifting from transaction thinking to relationship building and also focusing on lifelong customers. So, marketer has given more emphasis on the notion, "offer more for less" and adopt different strategies to satisfy the consumers. It is possible to carry out all the business transactions over an electronic network, primarily through the internet. The number of internet users is increasing very rapidly. They use a variety of tools like computers, laptops, tablet and smart or android phone devices to access different websites. Besides the social media networks have opened new avenues of interacting with customers.

V. Importance of E-Marketing:

1. Any Time market: E - Marketing provides 24 hours and 7 days "24/7" service to its users. So consumer can shop or order the product anytime from anywhere.

2. Direct contact of end consumer by the manufacturers cuts down the substantially intermediation cost. Thus products bought through e-marketing become cheaper.

3. Customer can buy whatever they want/ need just by browsing the various sites.

1. Modern marketing method:

E-marketing is characterized as a modern marketing method that keeps pace with the development of the times and corresponds to it, allowing marketers to attract customers through the right and most effective channels, since electronic marketing relies on smart phones, tablets, email and smart TVs as communication channels with the target audience and often achieves better results compared to traditional marketing methods.

2. Greater transparency compared to traditional marketing method:

E-marketing is characterized by greater transparency compared to traditional marketing methods, since it allows buyers to compare products and choose the best prices. It also allows marketers to measure the impact of the marketing process and reach the target audience as quickly as possible at the beginning of the Internet, many enthusiasts believed that the virtual space would be able to replace the real reality in the near future, and real work, shopping, entertainment and communication would take place exclusively through the Internet. The hypothesis that the Internet could become the only advertising channel for online marketing The Internet is the inevitable future of general marketing, but after the first ten years of the Internet's development, it became clear that such a scenario is unlikely in the near future. The main purpose of the Internet is not to replace the real world, but simply to complement it and simplify the communication process. Similarly, Internet marketing does not replace traditional marketing, but rather complements it. Electronic marketing has begun to develop rapidly, and the number of people who use it is increasing to gain benefits and profits for themselves or their businesses.

3. To use the opportunities available to Internet users:

The main purpose of electronic marketing is to use the opportunities available to Internet users to achieve the highest possible profits, growth and development and gain. Independently receive various information and data about the organization, products and brands that interest them, 37 since the organization and the customer in the field of electronic marketing maintain communicative relationships and quickly and interactively respond to the needs and requests of customers, process incoming information and draw conclusions from profitable marketing activities. The tools of digital marketing and electronic marketing are similar, since the Internet is electronic and interactive. However, there is a difference that distinguishes electronic marketing from digital marketing, which is an online or offline mode, which means that electronic marketing uses different tools. Used exclusively in the online environment, while digital marketing uses in the online and offline environment of communication going beyond the Internet and using many different digital media, such as digital television and various mobile applications from short messages, interactive screens, printed leaflets, posters containing a quick response.

4. E-Marketing is one of the models of digital marketing:

E-marketing is one of the models of digital marketing, and without it in the modern era it is difficult to promote, create and improve any brand or product. These two systems of marketing activity do not become obsolete, but only work on improving, updating and changing every day, supplementing them with new electronic and digital technologies that allow you to receive, analyze and use more accurate, objective and timely. Marketing activity requires a transition from traditional marketing tools to cross-border promotion of products in order to increase customer loyalty through dialogue and real added value of products.

Conclusion:

Above discussion clear that the E-banking is the advance technology and the aggressive infusion of information technology has transformed the functioning of modern businesses word wide. In the corporate sector increasingly playing an important role in improving the E-marketing operation. E-marketing helps in better customer relationships, retaining and attracting new markets. In fact, it enables the market to develop global and local market expands their modern business.

E-marketing is a major method of advertising and helps in promoting of business..E-marketing has facilitated a user friendly website, less time consumption and easy accessibility for large number of customers.

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Balancing Innovation and Integrity: An Analysis of Ethical Standards in Artificial Intelligence

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Abstract:
Artificial intelligence is transforming the lives of individuals to levels they never believed possible. Artificial intelligence is gradually gaining control over traditional work and substituting human judgment. It continues to be extensively utilized in a number of industries, including enterprise, administration, production, shipping, medical care, educational institutions, and the executive branch. It could be claimed that we are currently in the modern age of intelligent machines. The use of AI has resulted in increased effectiveness and expenditure savings, all of which are helpful to economic expansion, advancement of society, and the wellness of people. Simultaneously, AI raises numerous serious ethical concerns for consumers, programmers, individuals, and community. As a result, it is crucial and essential to tackle the ethical challenges or hazards associated with AI in order for it to be designed, utilized, and constructed with integrity. AI ethics, often known as machine morality, is a growing and multidisciplinary field that addresses ethical challenges related to the use of artificial intelligence. This research paper will discuss the various ethical concerns and implications arises due to the emergence and application of artificial intelligence and how the moral dimension of AI is an ingredient for developing ethical AI or causing AI to operate ethically. It concerns the morals or responsible guidelines and standards that govern what is ethically appropriate and unacceptable.

Keywords: Artificial Intelligence, Ethics, Implications, Ethical behaviour, Automation, Ethical AI, Machine, Morality.

Introduction:

Artificial intelligence is transforming the lives of individuals to levels they never believed possible. Machine learning-based robots, software programs, and self-driving cars, among others, perform useful tasks and offer advanced outcomes to societal problems. The basic purpose is to contribute to making life more convenient and pleasurable, enhance wellness, and inflict little or minimal disturbance. Artificial intelligence has advanced rapidly and significantly over the previous decade. Artificial intelligence is gradually gaining control over traditional work and substituting human judgment. It continues to be extensively utilized in a number of industries, including enterprise, administration, production, shipping, medical care, educational institutions, and the executive branch. It could be claimed that we are currently in the modern age of intelligent machines.

The use of artificial intelligence is becoming increasingly prevalent in our everyday lives, whether we are cognizant about it or not. The use of AI has resulted in increased effectiveness and expenditure savings, all of which are helpful to economic expansion, advancement of society, and the wellness of people. Without a question, AI's swift advancement and widespread use has already had an impact on the way we live, mankind, and civilization. Simultaneously, AI raises numerous serious ethical concerns for consumers, programmers, individuals, and community. Several instances of bad results from AI are being recorded lately. As an example, in 2016, the driver of an electric Tesla vehicle tragically passed away in an automobile crash following its Automation feature failing to detect an approaching truck. Microsoft's AI chat bot, Tay.ai, has been shut away upon discovering that its reputation for being racist and sexist only shortly after she became part of Twitter. Additionally, there are numerous other cases that address AI malfunctions, impartiality, prejudice confidentiality, and various other issues related to ethics. More gravely, offenders are already starting to use artificial intelligence to damage people and the communityAs a result, it is crucial and essential to tackle the ethical challenges or hazards associated with AI in order for it to be designed, utilized, and constructed with integrity. AI ethics, often known as machine morality, is a growing and multidisciplinary discipline that addresses ethical challenges related to the use of artificial intelligence. The moral dimension of AI is an ingredient for developing ethical AI or causing AI to operate ethically. It concerns the morals or

responsible guidelines and standards that govern what is ethically appropriate and unacceptable.

Ethical Concerns And Consequences Of Ai:

We need to first identify and comprehend the possible ethical concerns or hazards that artificial intelligence might present before we can begin to solve the ethical challenges of artificial intelligence. The required artificial intelligence (AI) ethical standards, norms, regulations, and specifications can subsequently be suitably developed. We can create and develop AI that acts morally if it has sufficient values. In entirety, the term "ethical concern related to AI" refers to the ethically repugnant or troublesome consequences that are pertinent to AI (i.e., the threats and concerns presented by the creation, execution, and usage of AI) and that require attention. Five basic areas are utilized to address ethical challenges related to AI: ethical concerns arising from AI attributes, ethical dangers resulting from human elements, and societal, legal and ecological implications of ethical AI concerns.

A) Ethical concerns arising from AI attributes:

- **Transparency:** Understanding the reason a machine learning algorithm reached an action is crucial for creating confidence, particularly when it leads to negative repercussions or loss. Given that an intelligent car's automation has caused multiple fatalities, it is evident that full disclosure is critical for determining the circumstances under which these tragedies arise, as well as correcting any technological or functional shortcomings. The opaqueness in ML, frequently referred to as black-box, constitutes one of the key hurdles to the clarity of AI. ML is the foundation of modern AI, particularly (deep) cognitive networks. However, the machine learning induction technique is difficult to articulate and grasp. The transparent nature of ML causes systems or algorithms unclear to audiences and experts. This primarily contributes to the opacity concern. The absence of disclosure causes not just a clarity challenge, additionally causing obstacles with people's oversight and mentoring of ML or AI. Thus, opacity or clarity represents one of the many extensively acknowledged drawbacks of AI.
- **Data Privacy and Safety:** AI functionality relies heavily on retraining information Typically, a significant quantity of information likely including confidential and personal data, is necessary to develop an artificial intelligence (AI) system, especially a framework for deep learning. Exploitation and unethical usage of records, such as private data breaches or manipulation, are important moral difficulties that affect all people, establishment, business, and state. Safety and confidentiality of data are critical challenges that arise in the invention and deployment artificial intelligence.
- **Independence, Deliberation and Obligation:** As artificial intelligence advances, present artificially intelligent machines or representatives such as medical machines, gain independence deliberateness, and obligation. The independence of AI relates to an AI mechanism's capability to function with no input from humans or immediate oversight. Being deliberate relates to an AI mechanism's capability to operate in an ethically destructive or useful manner, with its behaviour being planned and premeditated. Obligation means that the AI technology follows certain ethical guidelines and assumes certain duties. Nevertheless it is difficult to determine the amount of independence deliberateness, and obligation a system powered by AI should have.

B) Ethical dangers resulting from human elements:

- **Accountability:** Who is liable the moment an AI technology or entity failed to complete a function and causes negative implications? Several variables can contribute to the poor outcome, including software programs, input information, faulty execution, or various other problems. This creates a phenomenon known as the "many-handed conundrum." Hence, accountability is a question of ethics that affects individuals who are components engaged in AI creation, development, installation, and use.
- **Moral parameters:** To construct ethical AI, complete and equitable criteria must be established to guide development and regulation. To develop moral frameworks for AI, both scholars and developers must first grasp preexisting ethical concepts and ideas.
- **Human Rights legislation:** Researchers, programmers, and all other AI design professionals and utilization stakeholders must be informed about human rights legislation. With no education regarding human rights regulation, individuals might disregard and violate fundamental human rights by not comprehending it. Human rights legislation or policies vary greatly between states or areas. Multiple governments have issued numerous human rights legislation, including various Conventions on Human Rights.

C) Societal implications of ethical AI concerns:

- **Automated Operations and employment substitution:** As employees in factories are substituted by automated machines and bots, artificial intelligence will revolutionize the human resources landscape. Because automated machines are capable of handling some jobs more quickly and proficiently than mankind, several individuals are concerned that machines and other artificial intelligence (AI) innovations could substitute a major portionof present workforce in the not so distant future. Consequently, several individuals are concerned about technology and employment

substitution.

- **Availability:** The availability of developing technological advances such as artificial intelligence (AI) is going to have substantial effect on the welfare of people. Nevertheless, it would be illicit and unjust if just a certain percentage of the general public benefited through artificial intelligence. Look into manufacturing artificial intelligence items and amenities which are available to everybody, to ensure that the positive outcomes of artificial intelligence can be shared evenly
- **Politics and civil liberties:** Immoral artificial intelligence will manipulate what is real, ultimately leading to a degradation of credibility and widespread acceptance for artificial intelligence technologies. The depletion of educated and trusted societies weakens republics. As liberal societies deteriorate and institutional prejudices worsen, the unrestrained pursuit of civil liberties is hardly guaranteed to individuals. Therefore, democratic processes and liberty need to be considered in the ethical framework of artificial intelligence.
- **The employment industry:** Artificial intelligence is currently utilized across a wide range of industries, including sophisticated production, medical care, energy exploration and production, transit, and financial services. The effects of mechanization on "blue collar" industries have already been observed. Additional job opportunities will be impacted by artificial intelligence technology. Further occupations could become redundant as artificial neural networks or machines grow more complex, imaginative, adaptable, and clever. As a result, artificial intelligence (AI) systems have the potential to endanger existing work classifications, remove occupations, and result in widespread joblessness across a variety of industries. Further, prejudice in the workplace may pose a problem; for example, the use automation will significantly affect those lacking advanced skills.
- **Inequity:** Artificial intelligence (AI) innovations are anticipated to help businesses increase productivity and efficiency by streamlining how they operate. Nonetheless, many contend that the people in their staffs will suffer as a result. The outcome will therefore unavoidably mean that profits will be distributed among a smaller number of people and that those who own based on artificial intelligence businesses would profit disproportionately, that does in fact widen social disparities .
- **Fundamental freedoms, confidentiality, and integrity:** Artificial intelligence has already had a significant impact on these areas. Smart personalized assistants like Google Home, the Echo from Amazon, and Apple's Siri, for instance, may acquire information regarding their consumer's hobbies and habits, but customers also express dissatisfaction over the simple fact that these programs constantly operate and monitoring in the shadows. Our confidentiality is certainly impacted by it. Government and individual's fundamental right to confidentiality and human integrity are significantly impacted by AI. For example, humans might be more susceptible to deception if artificial intelligence possesses the ability to ascertain their opinions regarding politics.
- **Bias:** Artificial intelligence can acquire prejudices that humans have, including racial and sexual orientation biases. The acquisition of information, the worth that producers and consumers place on it, or the method of training itself can all contribute to artificial intelligence's biases. Numerous instances of computational, machinery, or artificial intelligence prejudice are documented. Unanticipated societal bias or exclusion will be encouraged by artificial intelligence biases. Therefore, prejudice is a moral dilemma that the general population discusses frequently.
- **Trust:** Artificial intelligence has tremendous potential for improving both people's lives and community as a whole. Transit, the customer service sector, medical care, educational institutions, law enforcement, and recreation are just a few of the areas where technology is transforming our everyday life. However, the introduction of these artificial intelligence (AI) platforms must adhere to basic liberties and promote compassion and confidence. Artificial intelligence needs to be neutral and equitable for it to earn your confidence. We have to make certain that AI-generated judgments are uncontaminated by bias and prejudice as the number of these selections increases. It is basically necessary that artificial intelligence make ethical choices, whether or not it is screening resumes for employment applications, selecting students for college admittance, or calculating scorecards for lending organizations.

D) Legal implications of ethical AI concerns:

- **Criminal law:** A voluntarily committed act (or omission) and a motive to carry out an unlawful act are the two components of the offense, in accordance with modern criminal code. Machines or artificial intelligence (AI) devices could be made directly accountable for unlawful conduct or culpable acts if it is demonstrated that they possess
  adequate conscience or knowledge. Our criminal statutes along with the whole justice system will need to be changed if we acknowledge that artificial intelligence creations are sentient beings with autonomous minds, liberty, ethical judgment, and cognitive faculties of itself.
- **Tort law:** This area of law deals with circumstances when actions taken by one person cause hurt, distress, unjust damage, or damage to others. Ignorance and accountability for products are the two regulatory domains which are pertinent in an

incident featuring an automated automobile or vehicle. However, as operator mistake accounts for the majority of incidents nowadays, the recklessness rule governs who is responsible for incidents. Because artificial intelligence (AI) technologies (like autonomous automobiles or another intelligent machines) will be involved in lawsuits for personal injuries, like accidents involving autonomous vehicles or claims for damages where a machine harms an individual, the tort law, which covers a wide range of private damages complaints, will be greatly impacted as time passes .

E) Ecological implications of ethical AI concerns:

- **Natural resource use:** As artificial intelligence is developed and used, there will be a greater need for various resources from nature, including precious metals that are rare like nickel, cobalt, graphite, and others. Entrepreneurs may be compelled to begin prospecting in freshly discovered and increasingly complicated areas as the current supply declines. As a result, uncommon metal manufacturing and utilization will rise, worsening the ecosystem.
- **Wastage and contamination:** The growing manufacturing and application of artificial intelligence (AI), including machines, will worsen the problem of waste and contamination, including the build-up of hazardous compounds and metallic substances in the ecosystem.
- **Energy-related issues:** Using the artificial intelligence machines, particularly neural networks, typically entails developing machine learning algorithms on vast volumes of information which typically uses a lot of fuel. The greenhouse gas emissions created by teaching an automated Transformer framework, is approximately five times that of a standard automobile over the course of its lifespan.

The Solution For Handling Ethical Concerns In Artificial Intelligence

Developing ethical AI:

It is necessary to comprehend what ethical conduct is in order to build artificial intelligence machines that are capable of reasoning and acting morally. This includes moral evaluations of either right or wrong, and additionally issues of justice, equity, virtue, and numerous other moral precepts. Artificial Intelligence principles are therefore strongly tied to moral concepts, involving with ideas of right and wrong action. In accordance with current theories of morality, this section discusses methods for integrating morality into artificially intelligent machines.

What is Ethics?

The idea of ethics is intricate, nuanced, and multifaceted. The code of conduct that guide a person's or a community of people's acts or conduct are known as ethics. To put it another way, ethics constitutes an established set of values, norms, or regulations that aid in judging what is considered acceptable or appropriate. In a broad sense, ethics is the study of good and evil as well as the moral duty and responsibilities of organizations. Industrial ethics, animal ethics, warfare ethics, medical ethics, and technical ethics are just a few of the real- world scenarios to which the principles of ethics has been implemented as human-to-human, human-to-animal, and even human-to-machine contact increases. The field of morality and values in studies is always changing and growing.

What is "Ethics of AI" and "Ethical AI"?

The moral framework of technological advancement that deals with machines and other artificially intelligent entities includes the moral dimensions of artificial intelligence (AI). It may be separated into two categories: machine ethics and robo-ethics. The ethical actions of people when they create, utilize, and engage with artificial intelligence intermediaries, as well as the resulting effects of bots on individuals and the community, are the focus of roboethics. Furthermore, we ought to speculate about machine rights—the idea that humans should have ethical responsibilities to smart robots—as technologies get smarter and could eventually grow mindful. It is comparable to both animal protection and human liberty. For example, the morality of deploying intelligent military machines to hazardous combat zones or placing bots in unclean situations. This group includes the freedoms of mind and sentiment, equal treatment, freedom of speech, and liberation. In the field of research pertaining to the construction of automated ethical agents, machine ethics examines the ethical conduct of Artificial Moral Agents (AMAs). Machines or artificially intelligent
creatures should act with integrity and display moral ideals as technologies develops and machine intelligence increases. Experts refer to the moral conduct of artificially intelligent machines as ethical AI.

Ethical theories

Current academics consists the hierarchical structure of ethical theories which is categorized into three primary branches: Meta-ethics, Normative Ethics, and Applied Ethics. Meta-ethics focuses on the foundational nature and meaning of ethical principles, encompassing perspectives like Virtue Ethics, which emphasizes character and moral virtues. Normative Ethics, the central focus in this structure, explores principles that determine the moral rightness or wrongness of actions, dividing into two main frameworks: Deontological Ethics and Consequentialist Ethics. Deontological ethics is further subdivided into Agent- Centered, Patient-Centered, and Contractualist approaches, focusing on duties and rights in moral reasoning. Conversely, Consequentialist Ethics evaluates actions based on outcomes and includes subcategories like Ethical Egoism, Ethical Altruism, and Utilitarianism, each

emphasizing different perspectives on who benefits from moral actions. Finally, Applied Ethics involves applying these theoretical frameworks to real-world moral issues. This taxonomy provides a comprehensive guide to understanding and analyzing ethical considerations in various domains.

Conclusion:

Studying and tackling ethical and moral challenges in artificial intelligence is currently in the early stages. Ethics regarding artificial intelligence include more than just the distinction between right and wrong, good and evil, morality and immorality. This is not an issue that can be resolved by an intimate group. Artificial intelligence raises important ethical and moral concerns that require immediate attention. This study emphasizes the importance of ethical and moral considerations for artificial intelligence agents among stakeholders. We want to build ethical AI by gaining an understanding of human values, improving current ethical standards, and enhancing dialogue with artificially intelligent machines in this AI era. The ethics of artificial intelligence ought to be the primary priority when designing artificial intelligence bots, not a secondary consideration. The eventual survival of mankind may be dependent on the correct advancement of artificial intelligence integrity. Artificial intelligence (AI) systems are not agnostic; they are designed with societal aims in consideration trained on data pertaining to humans, and used to meet contemporary demands; thus, they must have ethical consequences. The challenge is how to raise consciousness and build procedures to encourage the ethical growth of artificial intelligence that will last long into the years to come. Neglecting AI ethics could cost credibility from customers and the general public, along with driving away scarce skill.

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Impact of Scientific Survey to Awareness of Solar Energy in Rural Area

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Abstract:
A survey in Maharashtra found that there is a lack of awareness and understanding of renewable energy sources. This paper presents the scientific survey on public awareness of renewable energy sources help identify factors that influence people's willingness to use renewable energy. Help to combat climate change and preserve the environment. Renewable energy sources play an essential part in counteracting climate change, which continues to threaten our eco-systems. Fossil fuels remain the biggest contributors to climate change and environmental degradation. Scientific survey significantly impacts renewable energy awareness by providing data-driven insight into public knowledge, attitude and perceptions, informing policy development and educational initiatives. The scientific survey can also help identify how to best reach people with information about renewable energy. Public awareness of renewable energy is important because it can help people make decisions that support the transition to a low-carbon economy.

Keyword: Scientific Survey, Solar Energy, Renewable energy, Wind Energy, Biomass Energy etc.

Introduction:

Solar energy is the natural source of energy from solar power absorbed from sun through solar panel. It is renewable form of energy on the planet Earth and a readily available form of energy. Since ancient days people have been using solar energy. These surveys help identify knowledge gaps, understand motivations for adopting renewable energy and gauge support for related policies.

A survey in India found that there is a general lack of education and understanding about renewable energy. This report presents the finding of a survey conducted to assess the awareness and understanding of Renewable Energy Sources among residents. The objectives is to evaluate the level of knowledge regarding renewable energy options, their benefits and challenges, as well as to identify potential areas for educational outreach and community engagement.

In addition to surveys, other ways to increase awareness of renewable energy include: Teaching young people about renewable energy, encouraging investment in renewable energy technologies and Promoting policies that support renewable energy. A scientific survey is a research method that uses a structured process to gather data from a target audience. The data can be used to support ore refute a hypothesis.

Objectives:

1. To measure the awareness of various non-conventional energy sources among villagers
2. To identify misconceptions or gaps in knowledge regarding renewable energy
3. To recommend strategies for improving awareness and education about renewable energy
4. To demonstrate the solar equipment in the presence of villagers

Methodology:

The scientific survey was conducted through structured questionnaires distributed to a sample of residents from both rural area and urban areas. The questionnaire included multiple choice questions, open ended questions to gather quantitative and qualitative data on their knowledge and perceptions of renewable energy sources.

India is actively developing several renewable energy sources, including solar, wind, hydropower, biomass, geothermal and tidal energy to reduce its reliance on fossil fuel and meet growing energy demands. Renewable do not emit greenhouse gases in energy generation process, making them the cleanest, most viable solution to prevent environments degradation.Generating energy of that produces no greenhouse gas emission from fossil fuels and reduces some types of air pollution. Diversifying energy supply and reducing dependence on imported fuels. Creating economic development and jobs inn manufacturing, installations and more.

According to first of its kind survey conducted by Mercom Capital group titled 'India Renewable Energy Awareness Survey,' only 56% of Indian consumers have heard of 'Renewable Energy' or 'Clean Energy' and 27% of consumers have heard of 'Energy Efficiency'.

In Maharashtra, most respondents preferred to install their own renewable energy systems rather than buying electricity from grid. Only 16% of respondents agreed to pay a premium for renewable electricity energy from grid. Many respondents expressed an interest in adopting renewable energy, with 25% showing a strong desire.

Following point look at the impact:

- Measuring Public Awareness: Survey help quantify how many people are aware of Solar as well as renewable energy sources and their benefits, such as solar, wind and hydropower.
- Understanding Attitudes and Perceptions: Survey reveal public opinions on renewable energy, including their support for development, their willingness to adopt it, and their understanding of associated costs and benefits.
- Identifying Knowledge Gaps: Survey pinpoint areas where the public nesses more information, such as the technical aspects of renewable energy technologies or the impact of renewable energy policies.
- Informing Policy Development: Survey findings provide valuable data of policymakers, helping them understand public sentiment and develop policies that are more likely to be accepted and supported.
- Guiding Educational Initiatives: Survey can inform the design of educational programs and materials that effectively address knowledge gaps and promote a positive understanding of renewable energy.
- Assessing the Success of Renewable Energy Project: Survey can be used to track changes in public awareness and attitudes following the implementation of renewable energy projects.
- Understanding Social Acceptance: Surveys help identify potential social obstacles to renewable energy adoption, such as concerns about aesthetics or environment impact.
- Measuring the Impact of Renewable Energy Policies: Surveys can be used to assess the effectiveness of government policies aimed at promoting renewable energy adoption.
- Facilitation Public Engagement: Surveys can be used to encourage public participation in renewable energy initiatives, empowering individuals to contribute to the transition to a sustainable energy future.

Some looks at the scientific findings during the surveys:

Negative Impacts:

- Autoimmune Diseases: Some research indicates that individuals born with higher solar energy exposure may have a higher prevalences of certain autoimmune condition like multiple sclerosis.
- Skin Cancer and Aging: Long-term exposure to UV radiation from the sun can increase the risk of skin cancer and accelerate skin aging.
- Lifespan: studies suggest that higher solar radiation at birth may be associated with a shorter average lifespan.

Positive Impacts:

- Vitamin D Production: Sunlight is essential for our bodies to produce vitamin D, which is crucial for immune function, bone health and the prevention of various diseases.
- Improved Public Heath: Transitioning to solar energy reduces air pollution and greenhouse gas emissions, leading to improved public health outcomes, especially in cities that are heavily reliant on fossil fuels.
- Environmental Benefits: Solar energy is a clean and renewable energy sources that helps reduce our reliance on fossil fuels and mitigate climate change.
- Economic Benefits: Solar energy can create jobs, stimulate local economies, and reduce energy costs for consumers and businesses.

Overall, scientific survey on solar energy highlight both the potential benefits and drawbacks of solar exposure and the wider environmental and societal impact of its adoption.

Importance of surveys:

- **Understand Public Attitudes**: surveys help identify how people perceive and experience renewable energy development and policy.
- **Identify Preferences**: Surveys can help identify which renewable energy sources people prefer, such as solar, wind or hydropower.
- **Identify factors that influence attitudes**: survey can help identify factors that influence people's willingness to use renewable energy, such that education level and environmental consciousness.
- **Monitor Trends**: survey can help monitor changes in public attitudes over time.

Understanding Public Perceptions:

- **Public Participation**: Surveys can help to understand how people perceive and experience renewable energy development and policy.
- **Policy Making**: Surveys can help to inform decision making and governance within the energy system.
- **Social Settings**: survey can help to ensure that energy solutions are rooted in specific social setting.

Renewable Energy and Conservation:

- **Wildlife Conservation**: Renewable energy projects can have conservation concerns, and careful planning can help to reduce risks to biodiversity.
- **Climate Change**: Renewable energy is key to the solution to climate change, which is having adverse effect on many species.
- **Transition to Low-Carbon Solution**: Research that combines social sciences and humanities with technological breakthroughs can help with transition to low-carbon solution.

The Indian government has implemented initiatives like National Solar Mission to promote solar energy development. Solar energy is used for electricity generation, heating and cooling and increasingly used in both large-scale power plants and rooftop solar system.

Recommendations:

1) **Community Workshops**: organize workshops in both villagers to educate residents about the benefits and workings of renewable energy sources. This session could include demonstration on solar panel installations and biomass utilization.
2) **School Programs**: Implement educational programs in local schools to tech children about renewable energy, fostering a culture of sustainability from young age.
3) **Information Campaigns**: develop informational materials that outline the advantages of using renewable energy sources, addressing common misconceptions about their reliability and efficiency.
4) **Partnerships with NGOs**: Collaborate with non-governmental organizations focused on renewable energy to facilitate training sessions and provide resources for implementing renewable technologies in homes.

Conclusion:

The results of this study could contribute to our understanding of the growing body of material about increasing awareness of and attitudes towards renewable energy usage and other developing nations to boost environmental and socio-economic progress. This study investigates and assess environmental public awareness of solar energy by collecting and analyzing data on the awareness of survey respondents of renewable energy, in addition to their intention to adopt it. Scientific survey can help with renewable energy conservation by understanding public perceptions and preferences, and by improving the efficiency of energy system. There is recognition of solar energy, misconceptions about reliability and benefits of renewable resources persist. By enhancing educational initiatives and providing practical information about renewable energy technologies, the community can be better equipped to transition towards sustainable energy practices, ultimately contributing to environmental conservation and economic development.

Scientific survey on renewable energy sources are important to help understand public attitudes and preferences. This information can help policymakers and businesses develop policies and programs that encourage the use of renewable energy. Solar energy is commonly used for solar water heaters and house heating. The heat from solar ponds enables the production of chemicals, food, textiles, warm greenhouses, swimming pools and livestock buildings. Cooking and providing a power source for electronic devices can also be achieved by using solarener

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Intelligent Urbanism & Eco-Friendly Architecture –Key to Achieve SDG

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Abstract:
"Intelligent Urbanism" and "Eco-friendly Architecture" in the context of B.Ed. (Bachelor of Education). That's a unique and meaningful angle, especially since both topics are super relevant to environmental education, sustainable development goals (SDGs)**,** and interdisciplinary teaching in schools and colleges. The present study is an effort to sensitize the B.Ed. students for sustainable development and equip with the lesson note and the concept clarity of the same.

Key words-Intelligent Urbanism, Eco-Friendly Architecture, Sustainable Development Goals, Environmental Education, Interdisciplinary Teaching

Introduction:

India, a country of rich heritage, has always been believing in Living in Harmony with nature. The developed countries and world mega cities are also insisting the same with each passing by day. The SDG can be achieved only through integrated efforts from all the sides of the Environment. In New York, architects think how to create conditions for development of agriculture in urban environments through the idea of green roofs and vertical farms. In Hawaii, each family that would build a house starting from 2010 will have to set up a system for heating water through solar panels. The idea of environmentally friendly building goes to a point of creating camp cars and trailers with zero energy efficiency that would be completely created from natural resources.

The goal of sustainable architecture is to reduce the strong impact that is done by destroying natural large areas used for construction, energy and hydro consumption, and air alternation. This movement goes to the fact that the uncontrolled use of natural resources will become a serious threat to our life in the future. The initiative calls for an integrated and synergistic design.

Respecting the basic principles would give us the ways to design a building, energy and material efficiency, saving natural resources, social and quality improvement, sustainable optimum and toxic reduction."Intelligent urbanism" and "eco-friendly architecture" are both essential pillars in creating sustainable, liveable cities. They complement each other—urbanism shapes the *macro*, while architecture influences the *micro* environment.

The concepts of Intelligent urbanism, Eco friendly architecture-

Intelligent urbanism- **Principles of intelligent urbanism** (**PIU**) is a theory of urban planning composed of a set of ten axioms intended to guide the formulation of city plans and urban designs. They are intended to reconcile and integrate diverse urban planning and management concerns. These axioms include environmental sustainability, heritage conservation, appropriate technology, infrastructure-efficiency, place making, social access, transit-oriented development, regional integration, human scale, and institutional integrity. The term was coined by Prof. Christopher Charles Benninger.

The Principles of the concept are-

- Principle one: a balance with nature
- Principle two: a balance with tradition
- Principle three: appropriate technology
- Principle four: conviviality
- Principle five: efficiency
- Principle six: human scale
- Principle seven: opportunity matrix
- Principle eight: regional integration
- Principle nine: balanced movement
- Principle ten: institutional integrity

Eco friendly architecture-

What is sustainable architecture and environmentally friendly building?

Green building or environmental friendly building is a construction of buildings through a process responsible for Nature. This process covers environmental sources, starting from the design, implementation, construction, materials, maintenance, renovation, until the deconstruction of the building. This concept complements the classical type of construction particularly in terms of cost, functionality, durability and comfort. The development of today's new technologies improves

existing methods of construction and creates architecture with positive effect on the human health and friendly environment.

Intelligent Urbanism

This is an urban planning framework that focuses on smart, sustainable, and human-centric city development. It typically includes these key principles:

1. **Sustainability** – Minimizing environmental impact and preserving natural resources.
2. **Human Scale Design** – Planning for walkability, accessibility, and community interaction.
3. **Efficient Infrastructure** – Smart mobility systems, renewable energy grids, and green waste management.
4. **Mixed Land Use** – Integrating residential, commercial, and public spaces to reduce commute and enhance vibrancy.
5. **Cultural and Heritage Sensitivity** – Respecting local traditions and architectural identities.
6. **Social Equity** – Ensuring inclusive growth and access to opportunities for all residents.
   Example: Masdar City (UAE) or Curitiba (Brazil) are known for implementing intelligent urbanism concepts.

Eco-Friendly Architecture

This refers to building design and construction that minimizes environmental harm. It includes:

1. **Energy Efficiency** – Solar panels, passive heating/cooling, LED lighting.
2. **Sustainable Materials** – Use of recycled, reclaimed, or rapidly renewable materials.
3. **Water Conservation** – Greywater recycling, rainwater harvesting, low-flow fixtures.
4. **Green Roofs & Walls** – Improve insulation, reduce urban heat island effect.
5. **Smart Building Systems** – Automated systems for lighting, temperature, and energy management.

Where They Intersect

- **Green buildings in walkable, mixed-use communities.**
- **Transit-oriented developments using sustainable construction.**
- **Digital twin cities** integrating architecture, infrastructure, and IoT.
- **Urban farming on rooftops** that blends architecture and food systems.

Objectives of the Study-

1. To relate human development with nature
2. To discuss the need of citizenship for sustainable development
3. To suggest ways for achieving next generation living.

Data and Methodology- Being a research related to study the present circumstances, the research methodology was Case Study and data was collected through the use of e resources.

Result and Discussions-

The following discussion gives the importance of the same.

Why It Matters in Education

- Encourages environmental awareness and responsible citizenship.
- Aligns with **National Education Policy (NEP 2020)** goals of integrating sustainability into the curriculum.
- Supports **experiential learning** and project-based teaching.
- Connects students with **real-world issues** like climate change, urbanization, and resource conservation.

Teaching Themes & Learning Objectives

Theme	Learning Objective	Activities
Eco-friendly Architecture	Understand sustainable design in homes/schools	Model-making using recycled materials, poster creation
Intelligent Urbanism	Explore how cities are planned for sustainability	Map-based projects, group debates on smart cities
Sustainable Living	Promote eco-conscious daily habits	Classroom waste audit, composting experiments
Urban Transport & Pollution	Study transport's role in intelligent urbanism	Field trips, role-play public planning meetings
Local & Traditional Architecture	Blend cultural heritage with eco-design	Comparative study of local vs. modern buildings

Integration in Subjects (Interdisciplinary Approach)

- **Social Science** – Urban planning, civic awareness, government policies.
- **Science** – Renewable energy, ecosystems, environmental impact.
- **Mathematics** – Measuring carbon footprint, calculating water/energy usage.
- **Art & Craft** – Eco-models, city design collages, recycled material art.
- **English/Hindi** – Essay writing, storytelling on "City of the Future".

For B.Ed. Students: Project/Assignment Ideas

1. **Lesson Plan:** "A Day in a Green City" – Using storytelling and drawing to teach Grade 4 students.
2. **Teaching Aid:** Create a 3D model of an eco-friendly school building.
3. **Workshop Module:** Conduct an awareness session for students on "Smart Cities and Green Living".
4. **Research Paper:** "Role of Education in Promoting Sustainable Urban Development".
5. **Community Project:** Start a school garden or green wall with student involvement.

Educational Impact

By introducing these concepts early, future teachers can:

- Foster eco-conscious mind-sets.
- Encourage critical thinking about urban life and sustainability.
- Inspire students to become *change makers* in their communities.

Lesson Plan: Intelligent Urbanism & Eco-Friendly Architecture

General Information

- **Subject**: Environmental Studies / Social Science / General Science
- **Topic**: Intelligent Urbanism & Eco-Friendly Architecture
- **Class Level**: Grade 7–10 (adaptable)
- **Duration**: 40–50 minutes
- **Teaching Level**: Upper Primary / Lower Secondary
- **Type of Lesson**: Demonstration / Project-based

Learning Objectives

By the end of the lesson, students will be able to:

1. Define intelligent urbanism and eco-friendly architecture.
2. Identify key features of a sustainable city.
3. Understand the importance of green buildings in urban development.
4. Design a basic model or sketch of an eco-friendly neighbourhood.
5. Reflect on how their daily actions impact the urban environment.

Teaching Aids

- Flashcards with terms (urbanism, solar panel, rainwater harvesting, etc.)
- PPT or chart with examples (e.g., smart cities, green buildings)
- Video clip (2–3 min) showing an eco-city or green building
- Recycled materials (for a model-making activity or demonstration)
- Worksheet for student reflection or quiz

Lesson Procedure

Steps	Teacher's Activity	Student's Activity	Time
Introduction	Ask: "What makes a city smart or green?" Show images of two cities: one crowded/polluted, one eco-friendly.	Students observe, respond with their thoughts.	5 min
Presentation	Explain key concepts using a short presentation or chart: - 7 Principles of Intelligent Urbanism - Features of eco-friendly buildings	Listen, ask questions, take notes.	10–15 min
Video/Demo	Show a short video on Nashik City or a green building.	Watch and discuss observations.	5 min
Activity	Group task: Sketch or build a model of a "Smart Green School/City". Provide recycled materials and instructions.	Work in groups, use creativity and reasoning.	15–20 min
Discussion	Present group models/sketches, explain features (solar panels, green roofs, smart transport).	Peer feedback, reflective questions.	5–7 min
Assessment	Distribute a short worksheet or reflection: "What can we do at school/home to support a smart, green future?"	Fill worksheet individually.	3–5 min

Assessment Methods

- Observation during group work
- Responses in discussion
- Completed worksheet
- Creativity and practical thinking in model/sketch

Follow-up / Homework

- Students can survey their neighbourhood or school and suggest 3 ways to make it eco-friendlier.
- Optional: Write a letter to the local municipality suggesting one smart urban feature.

Notes for B.Ed. Trainees

- Highlight **experiential and participatory learning**.
- Integrate **SDGs (Sustainable Development Goals)**, especially Goal 11: Sustainable Cities and Communities.
- Encourage **interdisciplinary teaching** (Science + Social Science + Art).

Conclusion:

It is true that in order to improve and protect the environment from pollution sustainability must be there between environment and development. The concept of sustainable development based on the notion that natural resources should be exploited

for the benefit of both present and future generation. As we know that increased industrial activity worldwide requires the use of natural resources which are depleting day by day. It is also true that the need for resource conservation, efficient use of resources and environment friendly corporate policies and behaviour has now been recognised worldwide. The country needs an Environmental policy and planning, while being globally sensitive must be based on local needs. Finally, if sustainable development has to move from mere wishful thinking and slogan-mongering into a reality, the world (developed and developing) as a whole has to move towards a new world order in which new economic and technological orders are dovetailed. Such an order has to be aimed at benefiting the poor because in the chain of sustainable development, the weakest links are poverty and inequality. Last but not least, if the principles of sustainable development are followed then definitely with the economic growth and industrial development of a country environment protection can be maintained.

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Different co-curricular activities in school for achieving sustainable development goals

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Abstract:
Sustainable goals, more formally known as the Sustainable Development Goals (SDGs), are a set of 17 global objectives adopted by all United Nations member states in 2015. They are part of the 2030 Agenda for Sustainable Development, aiming to address urgent challenges like poverty, inequality, climate change, environmental degradation, peace, and justice.

Introduction:

Co-curricular activities play a vital role in shaping well-rounded, socially responsible students and are powerful tools for promoting the United Nations' Sustainable Development Goals (SDGs). These activities—ranging from environmental clubs and debate societies to health campaigns and cultural programs—complement academic learning by fostering critical thinking, teamwork, and community engagement. In schools, such initiatives not only nurture students' personal growth but also inspire them to take meaningful action toward building a more equitable, sustainable world. By aligning co-curricular programs with the SDGs, educational institutions can empower the next generation to be active contributors to global development.

Importance of the study-

This study highlights the essential role that co-curricular activities play in achieving the Sustainable Development Goals (SDGs) within the school environment. By linking classroom learning with real-world issues, such activities help students develop a sense of responsibility, empathy, and global awareness. They encourage practical involvement in areas such as environmental conservation, gender equality, health, quality education, and community service—core elements of the SDGs. Understanding the impact of these activities can help educators design more effective programs that not only enhance students' skills and values but also contribute to sustainable development at the local and global levels.

Explanation of the Study

This study explores how various co-curricular activities in schools contribute to the realization of the Sustainable Development Goals (SDGs). It examines the types of activities implemented—such as eco-clubs, health awareness programs, cultural events, and community outreach initiatives—and analyses their impact on students' understanding and involvement in sustainable development. The study also looks at how these activities are planned, integrated into the school curriculum, and supported by teachers, administrators, and the wider community. Through observations, case studies, and relevant data, the research aims to demonstrate how education beyond the classroom can foster active citizenship and promote global goals at the grassroots level.

Objectives of the Study

The main objectives of this study are:

1. To identify various co-curricular activities conducted in schools that align with the Sustainable Development Goals (SDGs).
2. To analyse the role of these activities in raising awareness and promoting action toward sustainable development among students.
3. To recommend strategies for enhancing the integration of SDG-focused activities in school systems.

Here are the 17 goals:

1. **No Poverty** – End poverty in all its forms everywhere
2. **Zero Hunger** – End hunger, achieve food security and improved nutrition
3. **Good Health and Well-being** – Ensure healthy lives and promote well-being
4. **Quality Education** – Ensure inclusive and equitable education for all
5. **Gender Equality** – Achieve gender equality and empower women and girls
6. **Clean Water and Sanitation** – Ensure availability and sustainable management of water
7. **Affordable and Clean Energy** – Ensure access to sustainable energy for all
8. **Decent Work and Economic Growth** – Promote sustained, inclusive economic growth and employment

9. **Industry, Innovation and Infrastructure** – Build resilient infrastructure and promote innovation
10. **Reduced Inequalities** – Reduce inequality within and among countries
11. **Sustainable Cities and Communities** – Make cities safe, inclusive, and sustainable
12. **Responsible Consumption and Production** – Ensure sustainable consumption and production patterns
13. **Climate Action** – Take urgent action to combat climate change and its impacts
14. **Life Below Water** – Conserve and sustainably use oceans and marine resources
15. **Life on Land** – Protect, restore, and promote sustainable use of ecosystems
16. **Peace, Justice and Strong Institutions** – Promote peaceful societies and inclusive institutions
17. **Partnerships for the Goals** – Strengthen global partnerships for sustainable development

1Different co-curricular activities in schools that can support the achievement of Sustainable Development Goals (SDGs):

Different Co-Curricular Activities Supporting SDGs:

1. **Eco-Clubs and Environmental Campaigns**
   - Activities: Tree planting, recycling drives, clean-up campaigns, water conservation efforts
   - Clean Water and Sanitation –world water day. Save water related activities like poster making, Drama
2. **Health and Wellness Programs**
   - Activities: Health check-up camp, Yoga, mental health awareness, nutrition workshops, blood donation drives
3. **Social Service and Community Outreach**
   - Activities: Volunteering, visiting orphanages/old age homes, charity fundraising
4. **Gender Sensitization Programs**
   - Activities: Debates, workshops, skits on gender equality, self-defence training
5. **Cultural and Heritage Activities**
   - Activities: Celebrations of cultural diversity, traditional arts, language clubs
6. **Debate, Quiz, and Model United Nations (MUN)**
   - Activities: Competitions on current global issues, simulations of international diplomacy
7. **Science and Innovation Clubs**
   - Activities: STEM projects, sustainability challenges, exhibitions
8. **Entrepreneurship and Financial Literacy Programs**
   - Activities: Student-run businesses, money management workshops

Co-curricular activities serve as practical platforms for students to connect academic knowledge with real-world issues. By participating in these activities, students not only learn about the Sustainable Development Goals (SDGs) but also become actively involved in initiatives that promote change. For instance, environmental clubs increase awareness of climate issues, while health campaigns educate students on personal and public well-being. These activities foster critical thinking, leadership, teamwork, and a sense of social responsibility. Through hands-on experiences, students develop a deeper understanding of sustainability challenges and are motivated to take meaningful actions both within and beyond the school environment.

It involves suggesting practical strategies that schools can adopt to make SDG-related learning more engaging, structured, and impactful. Recommendations may include training teachers to align activities with specific SDGs, incorporating SDG themes into existing clubs and events, fostering partnerships with local NGOs, and creating student-led initiatives that address real community challenges. By developing a supportive environment and policy framework, schools can ensure that SDG-focused activities become a consistent and meaningful part of students' educational journey.

Conclusion:

Co-curricular activities are powerful tools for embedding the values and principles of sustainable development in the minds of students. These activities go beyond academic learning, offering students opportunities to engage with real-world issues, develop life skills, and become responsible global citizens. By aligning co-curricular programs with the Sustainable Development Goals (SDGs), schools can play a transformative role in shaping a more just, inclusive, and sustainable future. Encouraging student participation in such initiatives not only enhances their personal growth but also contributes meaningfully to global progress. It is essential for educational institutions to recognize this potential and integrate SDG-focused activities into the core of school life.

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The Impact of AI and Automation in Remote Work in IT Industry: Exploring the Futuristic Aspects

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Abstract:

Artificial Intelligence (AI) and automation are profoundly reshaping how remote work is conducted across various industries. These technologies have significantly increased productivity, streamlined communication processes, and enhanced overall workforce management. Companies are finding that by leveraging AI, they can maintain high levels of operational efficiency even as their teams work from disparate locations around the globe. Furthermore, AI tools are playing a pivotal role in strengthening cybersecurity, boosting employee engagement, and providing data-driven insights that inform smarter business decisions. However, this transformation is not without its complications. There are growing ethical debates surrounding the implications of AI in the workplace, particularly concerning job displacement, privacy infringements, and the biases that can exist within algorithmic systems. This paper seeks to explore the multifaceted role of AI and automation in the context of remote work, presenting real-world examples from sectors such as information technology, healthcare, education, and finance. Additionally, it evaluates how AI is influencing employee satisfaction, tracks ongoing innovations in this space, and delves into the evolving regulatory landscape, with a specific focus on how India is responding to these shifts.

Key Words: IT Industry, Remote Work, AI, Automation

Introduction:

The global workplace is undergoing a seismic shift, driven largely by technological advancements in AI and automation. What was once considered a temporary solution during times of crisis—remote work—has now evolved into a permanent fixture in the corporate world. This transition has been facilitated by intelligent systems that do much more than automate mundane tasks. From collaboration platforms powered by machine learning algorithms to predictive analytics tools that help managers make informed decisions, AI is redefining the very nature of how work gets done. Businesses are relying on these technologies to maintain a high degree of productivity while ensuring robust security protocols in a decentralized work environment. But the integration of AI into remote work structures also raises serious concerns. Issues like data privacy, the ethical implications of AI decision-making, and the restructuring of job roles have come to the forefront. This paper aims to provide a comprehensive examination of how AI is currently being deployed in remote work settings. Through the use of case studies, empirical research, and trend analysis, it investigates both the opportunities and the challenges that come with AI-driven automation and offers a glimpse into what the future of remote work might look like.

Literature Review on AI in Remote Work

An extensive body of research has emerged in recent years highlighting the transformative impact of AI on remote work. Indian academic institutions such as the Indian Institute of Management (IIM) Bangalore have contributed significantly to this discourse. A 2023 study by IIM Bangalore revealed that AI-powered automation led to a remarkable 35% increase in productivity within IT and financial sectors. However, the study also noted a growing anxiety among employees about their long-term job security. This duality—enhanced efficiency accompanied by job uncertainty—is a recurring theme in global research as well. For example, a 2024 McKinsey report projected that task automation driven by AI would increase by 50% by the year 2030, affecting a broad spectrum of industries and potentially transforming the workforce landscape entirely.

Another dimension explored in recent studies is the employee experience. According to research published by the Harvard Business Review, a significant majority—about 79%—of remote workers expressed a preference for AI-powered scheduling tools. These tools reduce the administrative burden and free up time for more meaningful work, thereby contributing positively to job satisfaction. These findings collectively underscore the complex yet transformative role AI is playing in shaping the future of work. AI is not

merely a tool for automation; it is a dynamic force that is reengineering workflows, enhancing decision-making capabilities, and redefining the employee-employer relationship.

AI-Powered Communication and Collaboration

One of the most impactful applications of AI in remote work environments is in the realm of communication and collaboration. Intelligent virtual assistants and chatbots, such as ChatGPT and Microsoft Cortana, are being widely adopted to handle routine inquiries, schedule meetings, and even assist with complex workflows. These AI tools significantly reduce the time employees spend on repetitive administrative tasks and instead allow them to focus on more strategic initiatives. They also enhance team collaboration by offering personalized task management and supporting real-time language translation, which is particularly beneficial for global teams working across different time zones and linguistic barriers.

AI's influence extends into video conferencing as well, making virtual meetings more efficient and less taxing for participants. Technologies such as Krisp AI eliminate background noise, while services like Otter.ai and Google Meet AI provide real-time transcription and translation. Furthermore, tools like Zoom AI Companion generate automated summaries of meetings, allowing team members to stay aligned even if they are unable to attend in real-time. A noteworthy case is that of Tata Consultancy Services (TCS), a global IT services giant based in India. TCS has successfully integrated AI-powered collaboration tools to manage its vast remote workforce of over 450,000 employees. The company employs AI-driven dashboards to monitor and boost productivity, and virtual assistants to streamline task delegation and time management.

Workforce Monitoring and Productivity Management

AI-driven tools are increasingly being used to monitor and manage employee productivity, especially in remote work settings. Applications such as Hubstaff, Time Doctor, and Teramind provide detailed analytics by tracking screen time, keystrokes, and idle periods. While these tools can enhance organizational accountability and offer insights into employee performance, they also raise serious ethical and psychological concerns. The constant surveillance enabled by these technologies can lead to employee stress, reduced job satisfaction, and even burnout.

The Indian IT sector, known for its early adoption of emerging technologies, has been at the forefront of these discussions. Companies like Infosys have implemented AI-based monitoring systems to evaluate the efficiency of their remote teams. However, following significant employee pushback, Infosys had to revise its monitoring policies. The company opted for a more flexible and less invasive approach, emphasizing outcomes rather than micromanagement. This shift highlights the need for balance—while AI can drive performance improvements, it must be implemented in ways that respect employee autonomy and privacy.

AI and Cybersecurity in Remote Work

As remote work becomes more prevalent, the need for robust cybersecurity measures has become paramount. AI has emerged as a powerful tool in this arena, capable of detecting and responding to threats in real time. Advanced systems like Darktrace and IBM Watson for Cybersecurity utilize machine learning algorithms to monitor network behavior, identify anomalies, and neutralize threats before they can cause harm. These systems provide a level of vigilance and adaptability that traditional security measures often lack.

In addition to threat detection, AI is also being used to secure access points through advanced authentication techniques. This includes biometric authentication and AI-enhanced multi-factor authentication (MFA), which add layers of security to remote access systems. A compelling example is HDFC Bank in India, which implemented AI-driven fraud detection technologies to monitor remote transactions. As a result, the bank reported a 27% reduction in cyber fraud within a single year—a testament to the effectiveness of AI in enhancing cybersecurity for remote operations.

Automation of Repetitive Tasks

One of the most celebrated benefits of AI in remote work is its ability to handle repetitive and time-consuming tasks through Robotic Process Automation (RPA). Tools such as UiPath, Blue Prism, and Automation Anywhere are automating functions like data entry, invoice processing, customer support, and even aspects of human resources such as payroll and onboarding. This shift not only reduces operational costs but also allows employees to concentrate on tasks that require critical thinking and creativity.

Recruitment is another domain where AI is making significant strides. AI-powered platforms like HireVue and LinkedIn Talent Insights are transforming the way organizations attract and assess talent. These tools can quickly scan thousands of resumes, conduct initial screening interviews, and evaluate candidates based on predefined criteria. A case in point is Wipro, which uses AI to streamline its hiring process. The result has been a 40% reduction in recruitment time and a noticeable improvement in hiring accuracy.

AI's Impact on Employee Satisfaction and Work-Life Balance

Beyond efficiency, AI is also contributing to improved work-life balance and overall employee satisfaction. Intelligent scheduling tools like Clockwise AI optimize calendars to minimize

meeting fatigue and maximize deep work time. Other tools like Grammarly AI and Microsoft Viva assist in managing emails and prioritizing important communications, helping employees stay focused on what truly matters. AI-driven wellness platforms such as Headspace AI go a step further by recommending stress-reducing activities tailored to an individual's needs and work patterns.

Companies are increasingly using AI to monitor employee well-being. These systems analyze patterns in work behavior, communication tone, and engagement metrics to identify signs of burnout or dissatisfaction. For example, Tech Mahindra has adopted an AI-based wellness program that tracks stress indicators and suggests personalized interventions. This initiative led to a 15% improvement in employee satisfaction, demonstrating how AI can support not just productivity, but holistic employee well-being.

Future AI Innovations in Remote Work

Looking ahead, the capabilities of AI in remote work settings are poised to expand even further. Generative AI technologies like ChatGPT and Gemini AI are being integrated into workspaces to automate everything from report writing to strategic forecasting. These tools can synthesize large datasets into actionable insights, personalize user interfaces, and even generate creative content tailored to specific business needs.

Another exciting development is the emergence of AI-powered virtual workspaces and metaverse environments. Platforms like Meta's Horizon Workrooms and Microsoft Mesh for Teams are creating immersive virtual office experiences where employees can collaborate as if they were physically present in the same room. These innovations are particularly promising for fostering team cohesion in remote-first organizations.

AI is also expected to play a growing role in mental health support. Future applications will likely include tools that can detect emotional distress based on speech patterns, writing style, or biometric data, and offer real-time support or connect individuals to mental health resources. This represents a significant step forward in making remote work environments not only more productive but also more compassionate and inclusive.

Ethical Considerations and the Regulatory Landscape in India

As AI continues to permeate the workplace, ethical concerns are gaining prominence. Issues such as bias in hiring algorithms, lack of transparency in decision-making, and potential invasions of privacy must be addressed head-on. Organizations have a responsibility to ensure that their use of AI is fair, accountable, and transparent. In India, the government has taken proactive steps through the National Strategy for AI, spearheaded by NITI Aayog, to provide ethical guidelines for AI deployment in the workplace. These guidelines emphasize data privacy, algorithmic accountability, and fairness in AI applications.

Leading companies like Infosys are aligning their practices with these ethical standards. Infosys has established internal AI governance frameworks to ensure compliance with India's data protection regulations while still leveraging AI to enhance efficiency. This balance of innovation and responsibility serves as a model for other organizations navigating the complexities of AI adoption.

Conclusion

AI and automation are no longer futuristic concepts—they are actively transforming how remote work is conducted today. These technologies are improving productivity, enhancing security, and making communication more seamless across teams spread out globally. However, they also introduce a set of challenges that cannot be ignored. Ethical concerns, potential job displacement, and issues around data privacy demand thoughtful and strategic responses from organizations. To fully realize the benefits of AI while mitigating its risks, businesses must invest in ethical AI practices, continuous employee upskilling, and strong regulatory compliance. As we move toward a future shaped by AI-powered innovations like virtual offices and mental health support systems, it is clear that the future of work will be not only more intelligent but also more attuned to human needs.

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Transforming Vulnerability into Resilience: Strategies for Climate Adaptation

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Abstract:
Climate change poses significant threats to natural ecosystems, livelihoods, and human well-being, particularly in vulnerable regions. This paper explores the concept of environmental resilience as a crucial framework for transitioning from vulnerability to sustainability. By examining adaptive strategies, community-based responses, and policy interventions, the study highlights how ecosystems and societies can absorb climatic shocks and recover more effectively. Special attention is given to sustainable practices that enhance resilience, such as ecosystem-based adaptation, water conservation, and renewable energy integration. The paper also addresses the role of education, local governance, and indigenous knowledge in fostering long-term environmental resilience. Drawing from both global and local case studies, the research emphasizes the need for inclusive, proactive, and science-based approaches to strengthen resilience against climate impacts. Ultimately, the study advocates for a resilience-focused development model that aligns with environmental sustainability and climate justice.

Keywords: Climate Change, Environmental Resilience, Sustainability, Adaptation, Vulnerability, Ecosystem-based Strategies, Climate Justice, Sustainable Development

Introduction:

Climate change is increasingly recognized as one of the most pressing global challenges of the 21st century. Its far-reaching impacts—ranging from rising temperatures and sea levels to erratic weather patterns and biodiversity loss—have exposed the vulnerabilities of both human and natural systems. Particularly in ecologically sensitive and socioeconomically disadvantaged regions, the consequences of climate change exacerbate existing risks, threatening livelihoods, food security, water availability, and overall well-being. In this context, the concept of environmental resilience has gained prominence as a guiding framework for climate response. Resilience refers to the capacity of ecosystems and human communities to absorb disturbances, adapt to changing conditions, and transform in ways that maintain their core functions and identities. Transitioning from vulnerability to sustainability requires integrated strategies that enhance this resilience while promoting long-term environmental stewardship. This paper explores the multidimensional nature of environmental resilience, examining how sustainable practices, policy interventions, and community engagement can serve as pathways toward climate adaptation. The study emphasizes the importance of local knowledge systems, participatory governance, and ecosystem-based approaches that not only mitigate climate risks but also empower communities to thrive in the face of uncertainty. As global efforts intensify to achieve the Sustainable Development Goals (SDGs) and meet the targets of the Paris Agreement, fostering environmental resilience has become central to climate action. By bridging science, policy, and practice, this research seeks to highlight the critical shift from reactive measures to proactive resilience-building strategies that ensure both ecological balance and human well-being in a changing climate.

Review of Literature

Environmental resilience is a key approach to address the escalating impacts of climate change (**Folke et al., 2010**). **Adger (2000)** emphasized social resilience as vital in building adaptive capacity. **IPCC (2021)** highlighted the disproportionate effects of climate risks on vulnerable populations. **Berkes and Ross (2013)** argued for integrating community knowledge into resilience planning. **Walker and Salt (2006)** introduced resilience thinking to shift systems from vulnerability to sustainability. **Smit and Wandel (2006)** explored adaptation pathways in rural communities. **Gunderson and Holling (2002)** discussed the resilience of ecological systems under pressure. **O'Brien et al. (2004)**differentiated between adaptation and transformation strategies. **Leichenko (2011)** emphasized climate justice in resilience discourse. **Pelling (2011)** highlighted urban resilience and governance as critical to sustainable adaptation.

Objectives

1. To analyse the impacts of climate change on vulnerable ecosystems and communities, identifying key drivers of vulnerability.
2. To evaluate adaptive strategies and resilience-building practices that promote sustainable development.
3. To assess the role of policy frameworks, governance, and climate justice in advancing environmental sustainability.

Methodology

This study adopts a desk-based, secondary research approach to explore the transition from vulnerability to resilience in the context of climate change. The methodology begins with an extensive review of existing literature, including scholarly articles, reports, policy documents, and case studies that examine environmental resilience, vulnerability, and adaptive strategies. The focus is on synthesizing findings related to ecosystem-based adaptation, community-led initiatives, and policy frameworks that enhance resilience. The analysis also includes a comparative study of global and local case examples to identify best practices and common barriers to resilience-building. A systematic review of policy documents, climate reports (e.g., IPCC), and relevant academic works provides insights into the role of governance, climate justice, and institutional frameworks in fostering long-term sustainability. Data analysis focuses on identifying trends, gaps, and effective strategies for resilience promotion, offering a conceptual understanding of how ecosystems and communities can adapt to climate impacts.

Understanding Climate Vulnerability

Climate vulnerability refers to the degree to which natural and human systems are exposed to, and incapable of coping with, the adverse effects of climate change. These vulnerabilities arise from a combination of environmental fragility, socio-economic inequality, poor infrastructure, and limited adaptive capacity. Populations living in ecologically sensitive zones, marginal communities, and those with inadequate access to resources often face the highest risks. The impact of climate change on such regions includes more frequent and intense extreme weather events, shifts in rainfall patterns, rising temperatures, and degradation of natural ecosystems. These consequences can lead to food insecurity, displacement, water scarcity, and health crises. Addressing climate vulnerability, therefore, requires not just an environmental focus but also an understanding of its social, economic, and institutional dimensions. Identifying the underlying drivers of vulnerability is crucial to devising strategies that enable communities and ecosystems to respond effectively to climate-related challenges.

The Concept of Environmental Resilience

Environmental resilience is defined as the ability of ecosystems and societies to absorb shocks, adapt, and recover from the impacts of environmental stresses, while maintaining their core functions and identity. In the context of climate change, resilience implies not only the capacity to survive disruptions but also to transform in ways that reduce future risks and enhance sustainability. Resilience is an evolving concept that intersects ecology, social science, and policy. It shifts the focus from reactive responses to proactive planning, emphasizing the importance of preparedness, adaptability, and innovation. Building resilience involves strengthening both natural systems and human institutions through sustainable land use practices, conservation, education, and capacity building. This approach supports a transition from vulnerability to sustainability by promoting long-term ecological balance and community well-being. It also encourages stakeholders to work collaboratively across disciplines and sectors to ensure that responses to climate change are inclusive, equitable, and adaptive.

Pathways to Sustainability Through Resilience-Building

The path from vulnerability to sustainability is paved with strategic interventions aimed at reducing risk and enhancing adaptive capacity. Several approaches can be employed to achieve this transition:

- **Ecosystem Restoration and Protection:** Reviving forests, wetlands, and coastal ecosystems not only restores biodiversity but also strengthens natural buffers against climate impacts.
- **Community-Based Adaptation:** Engaging local populations in climate planning and action builds trust, encourages ownership, and ensures that solutions are culturally appropriate and locally relevant.
- **Sustainable Economic Practices:** Promoting low-carbon, climate-resilient livelihoods such as organic farming, renewable energy, and nature-based tourism can reduce environmental pressure while supporting economic development.
- **Innovation and Technology:** The integration of early warning systems, climate modeling tools, and information dissemination platforms enhances decision-making and preparedness.
- **Education and Awareness:** Building knowledge about climate change and resilience strategies empowers individuals and communities to take action and advocate for sustainable practices.

These multi-pronged efforts create resilience across ecological, economic, and social dimensions, aligning with the objectives of this

study by promoting sustainable development through resilience-building.

Governance, Policy, and Climate Justice

Resilience is not only a technical or ecological issue; it is deeply embedded in governance and social equity. Effective policies, institutions, and governance structures are essential to support resilience planning and implementation. Climate resilience policies should be adaptive, inclusive, and guided by evidence-based decision-making. Involving multiple stakeholders—including government, academia, civil society, and private sector—ensures more responsive and representative governance. Moreover, the principles of climate justice must be integrated into resilience frameworks. Vulnerable populations often have the least resources to adapt to climate change, despite contributing the least to its causes. Ensuring fairness in the distribution of adaptation resources, access to information, and participation in decision-making processes is key to fostering just and effective climate action. Policy integration across sectors such as agriculture, water, energy, and health further strengthens systemic resilience. Transparent governance, accountability mechanisms, and policy coherence enhance society's capacity to plan, adapt, and recover in the face of climate disruptions.

Toward a Resilient and Sustainable Future

The journey from vulnerability to sustainability represents both a significant challenge and a unique opportunity for societies worldwide. As the impacts of climate change intensify, it is crucial to shift from a reactive mindset, which focuses primarily on responding to immediate crises, to a proactive approach that anticipates future risks and fosters long-term resilience. Environmental resilience, as a framework, offers a comprehensive path forward by integrating ecological, social, and governance systems to reduce vulnerabilities and enhance adaptive capacities. By deepening our understanding of the vulnerabilities inherent in ecosystems and communities, we can implement targeted strategies to mitigate risks. Strengthening both natural systems—such as forests, watersheds, and biodiversity—and social structures—through education, community engagement, and inclusive governance—enables societies to absorb and adapt to environmental shocks. This requires a paradigm shift in how we approach climate change, moving beyond isolated interventions to systemic, transformative actions that prioritize sustainability. Environmental resilience is not just about enduring the impacts of climate change but about equipping communities to thrive in a rapidly evolving world. This calls for rethinking humanity's relationship with the environment, embracing innovative solutions, and fostering equity in climate actions. Only by adopting a holistic, forward-looking strategy can we ensure a sustainable and resilient future for generations to come.

Conclusion:

The transition from vulnerability to sustainability in the face of climate change is an urgent global imperative. This study reveals that climate vulnerability stems from multiple interrelated factors—ecological fragility, socio-economic disparities, and limited adaptive capacity—all of which disproportionately affect marginalized communities. To address these challenges, environmental resilience emerges as a strategic framework that not only emphasizes survival but also encourages transformation toward sustainable futures. By examining the core components of resilience—ranging from ecosystem restoration and community-based adaptation to technological innovation and inclusive governance—this research highlights the multifaceted pathways through which resilience can be cultivated. Importantly, it also underscores the necessity of integrating climate justice into policies to ensure that vulnerable populations are not left behind. Ultimately, this paper concludes that building resilience is not a singular action but a continuous, adaptive process that requires collaboration, foresight, and a deep commitment to ecological and social equity. Only through such holistic and inclusive approaches can societies effectively bridge the gap between the risks of today and the possibilities of a sustainable tomorrow.

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Corporate Social Responsibility and Sustainable Development in India: A Framework for Assessment and Implementation

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Abstract:
This research paper develops a comprehensive framework for aligning Corporate Social Responsibility (CSR) with sustainable development goals in the Indian context. Since the landmark Companies Act of 2013 mandatory CSR spending, India has pioneered a regulatory approach that has transformed how businesses contribute to social and environmental initiatives. Despite significant progress, challenges remain in strategic implementation, impact assessment, and alignment with sustainable development goals. Through analysis of BSE SENSEX companies and extensive stakeholder engagement, this study examines current CSR practices, evaluates their effectiveness, and proposes the "CSR-SD Integration Framework" comprising five interconnected components: strategic alignment, contextual responsiveness, systems thinking, impact orientation, and collaborative governance. The research reveals a gradual shift from compliance-oriented approaches toward more strategic CSR, though education and healthcare initiatives continue to dominate while environmental sustainability receives significantly less attention. Findings indicate varying degrees of alignment with SDGs, with most companies retrospectively mapping activities rather than using the framework to reorient priorities. The study concludes that effective contribution to sustainable development requires moving beyond isolated projects toward integrated, collaborative approaches that create synergies across economic, social, and environmental dimensions.

Keywords: Corporate Social Responsibility, Sustainable Development, CSR in India, Companies Act 2013, Impact Assessment, CSR Framework, Development Goals

Introduction

Corporate Social Responsibility (CSR) has evolved significantly worldwide, transitioning from voluntary philanthropic activities to strategic business imperatives integrated with corporate governance and sustainability. In India, this evolution took a distinctive turn with the enactment of the Companies Act, 2013, which made CSR spending mandatory for companies meeting certain criteria. This legislative move positioned India as one of the pioneers in making CSR spending a statutory obligation rather than a discretionary activity, creating a unique laboratory for examining the effectiveness of mandated corporate social engagement.

The concept of CSR is intrinsically linked to sustainable development, which seeks to balance economic progress with social equity and environmental protection. The United Nations Sustainable Development Goals (SDGs) provide a comprehensive framework of 17 interconnected goals addressing global challenges from poverty and inequality to climate change and environmental degradation. Businesses, through their CSR initiatives, can contribute significantly to achieving these goals, particularly in developing economies like India where development challenges remain substantial despite rapid economic growth.

Literature Review

1."Corporate Social Responsibility and Sustainable Development"

A research paper by Ms. Pranjali Bhagwat emphasized that Corporate Social Responsibility (CSR) is no longer a voluntary or peripheral business function but a core component of sustainable development. It demonstrates that CSR, when strategically aligned with business operations, enables companies to address economic, environmental, and social challenges simultaneously. The study affirms that CSR acts as a bridge between corporate success and societal well-being, promoting ethical practices, stakeholder engagement, environmental stewardship, and inclusive growth.

2. The researchers in journal titled "Corporate social responsibility and sustainable development goals: Evidence from responsible business leaders examined the alignment of CSR activities with Sustainable Development Goals (SDGs) among India's Maharatna public sector companies. It highlights that these organizations have made significant strides in integrating CSR

with SDGs, particularly in areas like education, healthcare, and environmental sustainability. However, the research also identifies gaps in strategic alignment and reporting practices, suggesting a need for more structured approaches to maximize impact.

3.Tripathi.et.al, 2024:

Corporate social responsibility in India: A review of corporate contributions to sustainable development goals. The study reviews the CSR initiatives of Indian corporations in relation to the SDGs. It finds that while many companies have undertaken projects aligned with goals such as quality education and clean energy, there is often a lack of strategic planning and impact assessment. The authors suggest that for CSR efforts to be more effective, companies need to adopt a more integrated approach that aligns with their core business strategies and includes measurable outcomes.

4. The study conducted by Nain, V., & Gupta, D. in their paper

"Business concepts, tactics, and strategies for corporate social responsibility and sustainable development "explains the business strategies and tactics for implementing CSR in alignment with SDGs. It emphasized the importance of integrating CSR into the core business model rather than treating it as a peripheral activity. The authors argue that such integration can lead to enhanced brand reputation, customer loyalty, and overall business sustainability, while also contributing positively to societal goals.

5. The research (Ayande, A., Sabourin, V., & Cuevas Moreno, R. (2015).

focuses on the analysis of hundreds of articles on the promotion of ethical and moral values for corporate social responsibility (CSR) and sustainable development. This critical analysis explores the organizational strategies employed by corporations to promote CSR and sustainable development. The authors find that while many companies have adopted CSR initiatives, these are often reactive and lack a strategic framework. The paper advocates for a proactive approach where CSR is embedded into the corporate culture and decision-making processes, leading to more sustainable and impactful outcomes.

6.This study conducted by Sharma, E., & McLean, G.N. (2024).

Investigates the relationship between CSR initiatives aligned with SDGs and a company's financial performance, with a focus on human resource development (HRD). The findings suggest that companies engaging in CSR activities not only contribute to societal goals but also experience improved financial outcomes. Additionally, such initiatives positively impact HRD by enhancing employee engagement, satisfaction, and retention, thereby creating a virtuous cycle of organizational growth and social contribution.

CSR in the Indian Context

In India, CSR has deep cultural roots in the tradition of corporate philanthropy, where business families like the Tatas and Birlas have historically contributed to social causes through trusts and foundations. However, the landscape changed significantly with the Companies Act, 2013, which codified CSR requirements under Section 135.As per the Act, companies with a net worth of ₹500 crore or more, or turnover of ₹1,000 crore or more, or a net profit of ₹5 crore or more during any financial year are required to spend at least 2% of their average net profits made during the three immediately preceding financial years on CSR activities. The Act also mandates the formation of a CSR committee of the Board, formulation of a CSR policy, and disclosure of CSR activities in the annual report.

CSR and Sustainable Development

The relationship between CSR and sustainable development is increasingly recognized in the literature. Sustainable development, defined as development that meets the needs of the present without compromising the ability of future generations to meet their own needs, aligns closely with the principles of CSR. Both concepts emphasize balancing economic progress with social equity and environmental protection.

Problems

The implementation of Corporate Social Responsibility (CSR) in India, despite the structured approach provided by the Companies Act, 2013, faces several challenges that hinder its potential contribution to sustainable development. This section identifies key problems in the current CSR landscape in India.

1. Skewed Focus of CSR Initiatives

Research indicates a disproportionate focus on education and health interventions in CSR activities in India. While these are critical areas for development, this skewed focus may come at the expense of other important dimensions of sustainable development, such as environmental sustainability, gender equality, and economic empowerment. Analysis of CSR spending patterns among BSE SENSEX companies reveals that education and healthcare collectively account for approximately 60% of total CSR expenditure, while environmental sustainability initiatives receive only about 12% despite their critical importance for long-term development.

2. Compliance vs. Genuine Commitment

The mandatory nature of CSR under the Companies Act, 2013 has led to concerns about a compliance-oriented approach rather than genuine commitment to social responsibility. Some companies may view CSR as a regulatory burden

rather than an opportunity to create shared value, potentially limiting the creativity, innovation, and long-term commitment necessary for impactful CSR.

This compliance mindset is reflected in various practices: treating the 2% spending requirement as a ceiling rather than a baseline; focusing on meeting procedural requirements rather than maximizing impact; selecting projects based on ease of implementation rather than development need; and approaching reporting as a disclosure exercise rather than a tool for learning and improvement.

3. Lack of Policy Coherence

Examples of policy incoherence include situations where CSR guidelines encourage spending in certain areas while other policies create different incentives or requirements; disconnects between CSR reporting frameworks and other disclosure requirements; and lack of alignment between CSR priorities and sectoral development policies. These inconsistencies create compliance burdens for companies and reduce the effectiveness of policy frameworks in driving positive social and environmental outcomes.

Objectives

1. This research aims to develop a comprehensive framework for aligning Corporate Social Responsibility (CSR) initiatives with sustainable development goals in the Indian context. The specific objectives of the study are:

1. To Analyze the Current State of CSR Implementation in India

This objective involves examining how companies in India, particularly those listed on the BSE SENSEX, are implementing CSR post the Companies Act, 2013. It seeks to understand the evolving landscape of corporate social responsibility in India since the introduction of mandatory CSR requirements and identify patterns, trends, and variations in implementation approaches.

Specifically, this objective focuses on analyzing:

- Patterns of CSR spending across different sectors, regions, and company types
- Priority areas for CSR investment and how these have evolved over time

2. To Examine the Relationship Between CSR Activities and Sustainable Development Goals

This objective focuses on assessing how existing CSR initiatives in India align with the United Nations Sustainable Development Goals (SDGs). It seeks to understand the extent to which corporate social investments are contributing to India's progress toward the 2030 Agenda for Sustainable Development and identify opportunities for enhancing this contribution.

The specific aspects examined include:

- Explicit and implicit linkages between corporate CSR activities and specific SDGs
- Distribution of CSR efforts across different SDGs, identifying both well-addressed and neglected goals
- Alignment between corporate SDG priorities and national development needs

Limitations

This section acknowledges the constraints and limitations that may impact the research findings and their interpretation.

Data Availability and Quality Constraints

The data limitations are particularly pronounced in several areas. First, while aggregate CSR expenditure figures are generally available, detailed breakdowns of spending across different projects and geographies are often incomplete or inconsistently reported. Second, outcome and impact data beyond basic output metrics (number of beneficiaries, activities conducted) are limited for many CSR initiatives.

Methodological Challenges in Impact Assessment

The complexity of sustainable development itself, with its interconnected economic, social, and environmental dimensions, creates additional methodological challenges. CSR initiatives may have both intended and unintended consequences across these dimensions, some of which may be difficult to capture through conventional assessment approaches. Additionally, some important aspects of sustainable development, such as empowerment, resilience, and systemic change, are inherently difficult to measure quantitatively.

Limited Access to Corporate Decision-Making

This limitation affects the ability to fully assess the strategic integration of CSR within corporate decision-making and the genuine commitment to sustainable development beyond public statements and formal policies. The research addresses this constraint through triangulation of multiple data sources, including both public documents and interviews with corporate representatives where possible.

Data Sources

The research draws on multiple sources of data to provide a comprehensive understanding of CSR practices and their relationship with sustainable development:

Secondary Sources

1. Academic Literature: Scholarly articles, books, and research papers on CSR and sustainable development, with particular focus on the Indian context. This includes theoretical frameworks, empirical studies, and policy analyses that provide context and comparative perspectives for the primary research.
2. Industry Reports: Reports published by industry associations, consulting firms, and research organizations on CSR trends, best practices, and impact assessments in India. These reports provide sector-specific insights and broader

analyses of CSR implementation patterns across the corporate sector.

3. Sustainable Development Reports: National and international reports on India's progress toward sustainable development goals, which provide context for assessing the contribution of CSR to broader development objectives.

Research Methodology

This section outlines the methodological approach employed in the research, including research design, philosophical underpinnings, and specific methods used to investigate the relationship between Corporate Social Responsibility and Sustainable Development in India.

Research Philosophy and Approach

This study adopts a pragmatic philosophical stance, recognizing that understanding the complex relationship between CSR and sustainable development requires multiple perspectives and methods. Pragmatism emphasizes the practical consequences of ideas and theories, focusing on what works in addressing specific research questions rather than adhering rigidly to particular ontological or epistemological positions. This philosophical orientation is particularly appropriate for research on CSR, which inherently spans both corporate and social domains and involves diverse stakeholder perspectives.

The pragmatic approach allows for the integration of positivist elements (focused on observable patterns and measurable outcomes) with interpretive dimensions (exploring meanings, motivations, and contextual factors).

Research Design

A mixed-methods design is employed, combining quantitative and qualitative approaches to provide a comprehensive understanding of the research questions.

The research design comprises several interconnected components:

1. Quantitative Phase: Collection and analysis of quantitative data on CSR expenditure, sectoral allocation, compliance patterns, and other measurable aspects of CSR implementation.
2. Qualitative Phase: In-depth exploration of implementation processes, stakeholder perspectives, and contextual factors through interviews, case studies, and document analysis.
3. Integration Phase: Synthesis of quantitative and qualitative findings to develop comprehensive understanding and integrated frameworks.

Quantitative Component

The quantitative component focuses on measuring patterns, trends, and relationships in CSR implementation across Indian companies. It involves several analytical approaches:

1. Descriptive Analysis: Statistical description of CSR expenditure patterns, sectoral allocations, geographical distribution, and compliance rates among BSE SENSEX companies. This includes measures of central tendency (means, medians) and dispersion (standard deviations, ranges) to characterize the landscape of CSR implementation.
2. Trend Analysis: Study of changes in CSR practices over time, particularly following regulatory amendments and external events such as the COVID-19 pandemic. This involves time series analysis, year-on-year comparisons, and identification of significant shifts in CSR patterns over the study period.

Qualitative Component

The qualitative component provides depth, context, and explanatory insights to complement the quantitative findings. It employs several methods:

1. Case Study Research: In-depth examination of selected CSR initiatives that exemplify different approaches, sectors, and sustainable development goals. Each case study involves multiple sources of evidence, including documents, interviews, and direct observations. The case studies follow a common analytical framework while allowing for context-specific exploration of implementation processes and outcomes.
2. Thematic Analysis: Systematic coding and analysis of interview transcripts, company reports, and other qualitative data to identify recurring themes, patterns, and insights regarding CSR implementation and its relationship with sustainable development. The thematic analysis employs both predetermined codes based on the research framework and emergent codes that capture themes arising from the data.
3. Content Analysis: Systematic examination of CSR reports, policy documents, and media coverage to identify stated objectives, approaches, and reported outcomes of CSR initiatives. This includes analysis of both manifest content (explicit statements) and latent content (implicit meanings and framing).

Data Collection Methods

The specific methods used for data collection include a range of techniques designed to capture different aspects of CSR implementation:

1. Document Review: Systematic collection and analysis of company annual reports, CSR reports, sustainability reports, regulatory filings, government notifications, and academic literature related to CSR in India. A structured coding framework ensures consistent extraction of relevant information across documents. The review covers both mandatory disclosures required under the Companies Act and voluntary reporting through sustainability reports and other communications.

2. Focus Group Discussions: Facilitated discussions with groups of stakeholders (e.g., CSR professionals, beneficiaries, community representatives) to explore collective perspectives and experiences regarding CSR implementation.

Conclusion

The analysis of Corporate Social Responsibility (CSR) in India reveals significant progress since the Companies Act, 2013 mandated CSR spending, yet persistent gaps hinder its potential to drive sustainable development. While CSR initiatives have prioritized education (60% of spending) and healthcare, environmental sustainability (12%) remains underfunded despite its critical role in achieving SDGs. Compliance-driven approaches dominate, with many companies retroactively mapping activities to SDGs rather than strategically aligning with them. SMEs, constituting 90% of India's enterprises, face structural challenges in implementing CSR due to limited resources and expertise. Impact assessment remains weak, focusing on outputs (e.g., beneficiaries reached) rather than systemic outcomes, leading to negligible correlations between CSR spending and SDG performance in states like Bihar and Uttar Pradesh. Ownership structures also influence spending patterns, with government and foreign firms exceeding mandated contributions, while promoter-owned entities often underinvest.

Recommendations

1. **SME Capacity Building**: Develop tiered CSR frameworks and fiscal incentives for SMEs, coupled with training programs on impact measurement and partnership models.
2. **Enhanced Impact Assessment**: Mandate third-party evaluations using standardized metrics (e.g., SDG Index) and extend assessment timelines to capture long-term outcomes.
3. **Circular Economy Integration**: Promote CSR projects aligned with circular economy principles, such as waste-to-resource initiatives, through tax benefits and public-private partnership.
4. **Regional Equity**: Allocate 30% of CSR funds to low-SDG-performing states (e.g., Bihar, Chhattisgarh) to address geographical disparities.

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Education & Lifelong Learning

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Abstract:
Education and lifelong learning are regarded as aspects that are of utmost significance in the present existence. In order to acquire productivity and sustain one's living, it is essential for the individuals to recognize their significance and dedicate themselves wholeheartedly towards acquisition of education and learning. All individuals are different in their backgrounds, natures and occupations. Due to these, they possess different meanings and interpretations of the terms 'education' and 'lifelong learning

Key Words- Lifelong learning, Important of lifelong learning, Benefits of lifelong learning

Introduction:

Lifelong learning and education encompass the continuous process of acquiring knowledge and skills throughout a person's life, from early childhood to old age. It's a holistic approach that integrates formal, non-formal, and informal learning to foster individual growth and contribute to societal development. This concept is central to the United Nations' development agenda and UNESCO's work

Lifelong learning

Lifelong learning is a form of self-initiated education that is focused on personal development. More popular than ever now, what are the benefits?

What is a lifelong learning

Lifelong learning is a form of self-initiated education that is focused on personal development.

While there is no standardized definition of lifelong learning, it has generally been taken to refer to the learning that occurs outside of a formal educational institute, such as a school, university or corporate training. Lifelong learning does not necessarily have to restrict itself to informal learning, however. It is best described as being voluntary with the purpose of achieving personal fulfillment. The means to achieve this could result in informal or formal education.

Important of lifelong learning

Whether pursuing personal interests and passions or chasing professional ambitions, lifelong learning can help us to achieve personal fulfillment and satisfaction. It recognizes that humans have a natural drive to explore, learn and grow and encourages us to improve our own quality of life and sense of self-worth by paying attention to the ideas and goals that inspire us.

But what does personal fulfillment mean? The reality is that most of us have goals or interests outside of our formal schooling and jobs. This is part of what it means to be human: we have a natural curiosity and we are natural learners. We develop and grow thanks to our ability to learn.

Lifelong learning recognizes that not all of our learning comes from a classroom.

- For example, in childhood, we learn to talk or ride a bike.
- As an adult, we learn how to cook a new dish and how to be more confident.

These are examples of the everyday lifelong learning we engage in on a daily basis, either through socialization, trial and error, or self-initiated study. Personal fulfillment and development refer to natural interests, curiosity, and motivations that lead us to learn new things. We learn for ourselves, not for someone else.

Key checklist for lifelong learning:

- Voluntary
- Self-motivated or self-initiated
- Doesn't always require a cost
- Often informal
- Self-taught or instruction that is sought
- Motivation is out of personal interest or personal development

Examples of lifelong learning

Here are some of the types of lifelong learning initiatives that you can engage in:

- **Developing a new skill** (eg. sewing, cooking, programming, public speaking, etc)
- **Self-taught study** (eg. learning a new language, researching a topic of interest, subscribing to a podcast, etc)
- **Learning a new sport or activity** (eg. Joining martial arts, learning to ski, learning to exercise, etc)
- **Learning to use a new technology** (smart devices, new software applications, etc)
- **Acquiring new knowledge** (taking a self-interest course via online education or classroom-based course)

Benefits of lifelong learning

1. **Renewed self-motivation**
   Sometimes we get stuck in a rut doing things simply because we have to do them, like going to work or cleaning the house. Figuring out what inspires you puts you back in the driver's seat and is a reminder that you can really do things in life that you want to do.
2. **Recognition of personal interests and goals**
   Re-igniting what makes you tick as a person reduces boredom, makes life more interesting, and can even open future opportunities. You never know where your interests will lead you if you focus on them.
3. **Improvement in other personal and professional skills**
   While we're busy learning a new skill or acquiring new knowledge, we're also building other valuable skills that can help us in our personal and professional lives. This is because we utilize other skills in order to learn something new. For example, learning to sew requires problem-solving. Learning to draw involves developing creativity. Skill development can include interpersonal skills, creativity, problem-solving, critical thinking, leadership, reflection, adaptability and much more.
4. **Improved self-confidence**
   Becoming more knowledgeable or skilled in something can increase our self-confidence in both our personal and professional lives.

- In our personal lives, this confidence can stem from the satisfaction of devoting time and effort to learning and improving, giving us a sense of accomplishment.
- In our professional lives, this self-confidence can be the feeling of trust we have in our knowledge and the ability to apply what we've learned.

Organizational lifelong learning

Sometimes lifelong learning is used to describe a type of behavior that employers are seeking within the organization. Employers are recognizing that formal education credentials are not the only way to recognize and develop talent and that lifelong learning may be the desired trait.

Thanks to the fast pace of today's knowledge economy, organizations are seeing lifelong learning as a core component in employee development. The idea is that employees should engage in constant personal learning in order to be adaptable and flexible for the organization to stay competitive and relevant.

This type of personal learning is often referred to as continuous learning. You can read more about continuous learning and what it means for both the employee and employer here.

According to some researchers, however, there is criticism that organizations are leveraging the concept of lifelong learning in order to place the responsibility of learning on employees instead of offering the resources, support and training needed to foster this kind of workforce.

Do I need to be proactive about lifelong learning?

Most people will learn something new at some point in their daily routine just by talking with other people, browsing the internet based on personal interest, reading the newspaper, or engaging in personal interest.

However, if making more effort to learn something new is important for either personal, family, or career reasons, or there is a need for a more organized structure, then here are some steps to get started.

How to adopt lifelong learning in your life?

1. **Recognize your own personal interests and goals**
   Lifelong learning is about you, not other people and what they want. Reflect on what you're passionate about and what you envision for your own future. If progressing your career is your personal interest, then there are ways to participate in self-directed learning to accomplish this goal. If learning history is your passion, there are likewise ways to explore this interest further.
2. **Make a list of what you would like to learn or be able to do**
   Once you've identified what motivates you, explore what it is about that particular interest or goal that you want to achieve. Returning to our example of someone having a passion for history, perhaps it is desired to simply expand knowledge on the history of Europe. Or perhaps the interest is so strong that going for a Ph.D. is a dream goal. Both of these are different levels of interest that entail different ways of learning.
3. **Identify how you would like to get involved and the resources available**
   Achieving our personal goals begins with figuring out how to get started. Researching and reading about the interest and goal can help to formulate how to go about learning it. With our history example: the person who wants to simply learn more about a particular historical time period could discover books in the library catalog, blogs, magazines and podcasts dedicated to the subject, or even museums and talks. The individual who wanted to achieve A Ph.D. in history as a personal goal could research university programs that could be done part-time or online, as well as the steps one would need to take to reach the doctorate level.
4. **Structure the learning goal into your life**
   Fitting a new learning goal into your busy life takes consideration and effort. If you don't

make time and space for it, it won't happen. It can easily lead to discouragement or quitting the learning initiative altogether. Plan out how the requirements of the new learning initiative can fit into your life or what you need to do to make it fit.For example, if learning a new language is the learning goal, can you make time for one hour a day? Or does 15 minutes a day sound more realistic? Understanding the time and space you can devote to the learning goal can help you to stick with the goal in the long-run.

5. **Make a commitment**
   Committing to your decision to engage in a new learning initiative is the final and most important step. If you've set realistic expectations and have the self-motivation to see it through, commit to it and avoid making excuses.

Conclusion:

Education and lifelong learning are the concepts that continue to exist throughout the lives of the individuals. This education familiarizes the students with the outside world. In the formal system of education, a student learns advanced academic concepts and gets involved in extra-curricular activities. In colleges and universities, individual selects one subject area of his interest and upon completion of this education, they either get engaged in employment opportunities, or establish their own businesses, or become home-makers. Learning continues throughout the lives of the individuals. There is a relationship between education and lifelong learning, they continue to take place simultaneously throughout the lives of the individuals. Instructional methods delivered by the teachers, interaction with the other individuals, experiences, listening and observing are various methods that contribute in the acquisition of education and learning.

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Impact of Globalization on Language and Literature

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Abstract:
Globalization is a beneficiary term that has turned the world into a small village through trade and connectedness.As globalization crosses boundaries societies and economies it's impact can be noticed .Results are multiculturalism andmultilingualism and it's impact on language is of vital importance.The positive impact of globalization is that it has made cross communication around the globe easy It has given dominanceto some languages while some local and regional languages are endangered
It's impact on literature can also be noticed Different writers showing different shades of globalization.With the changing time they experience the same issues everywhere has changed their themes and writing styles

Introduction

What is Globalization

Globalization can be defined as enough connections and interdependence that trade and technology have changed the world into.Globalization also include economic and social change that have occured.It is like the threads of spider web formed in years and these threads are increasing overtime.Globalization has travelled through distance places through people ,money ,material goodsideas and even disease and devastation

Impact of Globalization on Language

Globalization is now a transcending force that crosses geographical boundaries,connecting societies,economies and cultures in unpredictable ways,As the world is becoming a small village due to Globalization it's impact on language has become a subject of vital importance,

The positive aspect of globalization is the diffusion of languages made easy by migration ,diffusion due to increased mobility for eg .Mandararin a Chinese language,most widely spoken language in the world also promoted through cultural initiatives.

Due to new technological advancements has increased cross communpaperof new hybrid language known as "Creoles"or "pidigens" for eg.Hinglush

Globalization has also resulted in the dominance of few languages over others primarily English has developed as"lingua franca for business and trade and as a common language for communication

Negative impact of Globalization on language are the loss of minority languages as majority languages become controlling and the decrease in grammatical skills as communicators use internet ,short hand and abbreviations

Globalization of media ,technology and cultures has given rise to a handful of dominant languages at the risk of smaller regional languages.Thus many local languages are increasingly becoming endangered for eg 40percent of world's 7000 languages are at risk of disappearing according to the estimates by endangered language project

Globalization affecting Literature

"Language has the ability to sow the seeds of literature in the society and Globalization is the only tool which cultivates throughout the world.

So English literature is also a celebration going beyond modern India reflecting the various shades of Globalization.

It has helped the writers to cross boundaries and experience the same important issues every where .This has helped them to change their themes ,writing styles which has changed with the changing time.

Many Indian English novelists like Raja Rao ,Kamla Markandaya,Anita Desai ,Bharati Mukherjee,Salman Rushdie,Amitav ghosh Robinton Mistry,Vikram Seth etc belongs to different cultures,residing in one and educated in another move from country to country Many of them have "Multicultural citizenship in a globalized.

World famous philosopher Peter Singer in his book"One world discusses. the ethics of Globalization and how a global ethic rather than a nationalistic approach can provide illuminating. answers to important problems.Arundhat Roy's "The God of small things"mentions the emergence of Globalization for the growth of literature.

The term Globalization is being used since 90's and the realities of Globalization have been explored iwithin text and context.Globalization is a "beneficiary term " as it enriches the value of language and literature through communication although communication is an important bridge between confusion and clarity but somehow it helps us to accept globalization of language and literature.

Objective:

1. To find out the positive impact of Globalization on language
2. To find out the negative impact of globalization on language
3. To find out the positive impact of globalization on literature
4. To find out the negative impact of globalization on literature

Methodology-literary methodology is used

Review Of Literature

A Study on the impact of globalization on literature

Dr .P.Shoba 2022

International journal of Technology,management and Social science(IJTMSS)

Language ,Literature,Culture and globalization

Dr Indira A Budhe

Research journal English language and literature(RIELAL) 2021,Vol 9

Impact of globalization on English language and English teaching

Dr Madhullika Panda

Journal of Critical review.2021,Vol 8,Issue 1

Conclusion:

Globalization has left both positive and negative affect on the people their culture resulting in multilingualism and multiculturalism .It has immensely impacted language and literature .On one side where it has paved way for cross cultural communication it has also given dominance to some languages for eg.English is now the"lingua franca of the world .Some local and regional languages are also endangered due to it

Literature is also affected by globalization It has changed the writing style ,themes of the writers with changing time Different writers have shown different shades of globalization.Writers crossing boundaries are experiencing the same issues every where.This means that globalization has turned the world into a small village it has affected people ,their culture ,language and literature.it has helped all writers to come under one umbrella.

Whatever the impact may be but globalization has helped people in learning the dominant language English "lingua franca of the world

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Research Inventions are prone to resilience prior to renewal or adaptation

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Abstract:
Every living thing has participated in experiments and research since the beginning. Daily life of every living being is going through one or the other experiment /research. This could be with an intention of surviving. But in today's world humans had to endure both natural and unforeseen changes, and they have all acquired survival skills by accident or by experimentation. Every mishap or experiment that is viewed as a teaching moment results in new developments, which is why the entire world is changing geographically, socially, and economically, as well as through scientific experiments, scientific inventions have altered human lifestyles. Since the 19th century humans have involved in research with an intention to learn more, to develop in depth knowledge, experiment or explore. This paper examines the resilience of scientific research following its innovative inventions or renewables and subsequent societal acceptance of them.

Key words: Scientific research, Nazi experiments, Accidental inventions, resilience to research and renewal.

Introduction:

Human existence and the environment have always included experimentation, research, and learning. Humans have experimented with food, clothes, shelter, medicine, education, farming, hunting, and other things, since the beginning of time. The same is true for animals, who also experiment, learn, and adapt by picking up new hunting skills. Many a times they learn by accidents. Through experimentation, and even accidental learning changes were introduced. For example, the invention of silk fabric by accidental drop of cocoon in the hot tea. Crockery designs using charred hair; discoveries that how innovation has been fuelled by unintentional learning.

Historical breakthroughs show this clearly:

- **Benjamin Franklin** demonstrated that lightning could generate electricity.
- **Alexander Graham Bell** invented the telephone.
- **Indian systems like Naturopathy and Ayurveda** also reflect deep-rooted research and knowledge passed through generations.

At its core, research is a science that permeates practically every aspect of existence. Think about the idea of a "test-tube baby"—the first Indian physician to perform in vitro fertilisation (IVF) successfully was Dr. Subhas Mukhopadhyay. After Louise Brown of the UK, he was the second person in the world to accomplish this accomplishment. He was criticised and even shunned because his work was not well known in India at the time. This creation, which is enclosed, shielded, and robust, is a symbol of both scientific and technical achievement that has generated ethical discussion. In the end, individuals embrace innovation and change when they get the rationale and perceive real-world advantages. When this clarity is lacking, resistance frequently ensues.

Human existence and the environment have always depended on experimentation, study, and learning. Humans have experimented with food, clothes, shelter, medicine, education, farming, and hunting since the beginning of time. Animals also experiment, gain new hunting skills, and adjust to their environment through learning; humans are not the only ones who exhibit this spirit of inquiry.

Without change, life would be boring and uninteresting. All living things change by learning and adapting, whether because of deliberate experimentation, studies, or accidents. The core of human evolution is this continuous process of learning and change.

Research Methodology:

Formulation of the research Problem:

The researcher has been interested in learning more about the societal repercussions of research since learning in elementary school history class that Galileo Galilei was penalised for his discovery on the earth's rotation. Galileo Galilei was spared because he favoured the heliocentric concept of the universe and thought that the Earth revolved around the Sun. Because this contradicted the Church's geocentric perspective, he was convicted for heresy by the Roman Inquisition in 1633. He was sentenced to life in home confinement after being proven guilty. Furthermore, history records that Galileo observed sunspots—dark patches on the Sun's surface—moving around the disc, indicating that the Sun rotated. This observation further

challenged the geocentric viewpoint, which maintained that the Sun was an ideal, unchangeable sphere. Although society at the time was able to withstand this discovery, civilians now accept it as true.

Research design: An empirical research design was used for this investigation. The researcher also contrasts the utilisation of earlier technologies and research innovations with their current applications.

Sources of Data: A range of historical scientific studies in the fields of science and human management were used to collect secondary data. These studies were cited for their innovations and their impact on the response of the society being studied.

Scope of the study:

This study is limited to only scientific studies, but without any time limit and those studies which were resisted by the society were also considered, in order to compare the societal reaction to the findings and inventions and the impact of those studies in recent years. No geographic boundaries are also considered for this study.

Analysis or discussion:

Research is essentially about exploring the future, anticipating upcoming challenges and preparing to overcome them. Its goal is to reduce future difficulties and improve quality of life. The development of simple, user-friendly tools and equipment has made daily tasks easier, promoting independence and reducing reliance on others. For women managing dual roles at home and in the workplace, these advancements have been a boon, making it easier to balance responsibilities. Especially for the working women, modern appliances like grinders, refrigerators, gas stoves, dishwashers, washing machines, slicers, graters, juicers, roti makers, ovens, and more, have transformed household chores into manageable tasks, saving time and effort. Robots, in various fields, have significantly reduced human effort

Without research, there would be no inventions and without inventions, life would remain difficult and stagnant. Research serves as the foundation of innovation, enabling transformation and building resilience, the ability to adapt and respond to global disruptions.

Collaborations, both past and present, open doors for future partnerships across disciplines and regions, expanding the scope of innovation. Looking ahead, knowledge creation will play a vital role in shaping a more adaptive, inclusive, and sustainable world.Renewal reflects our commitment to rethinking and reshaping existing systems, structures, and ideas to create a better future.

Interdisciplinary research encourages change, explores emerging trends, engages with critical debates, and fosters visionary thinking that can help us reframe our collective future. Time travel symbolizes our desire to explore the future, experimenting with the unknown, including the creation of devices that might one day make it possible. Across fields—whether it's human life on Mars, space exploration, social systems, economy, or governance—experiments are constantly being conducted to improve our understanding and enhance human life.

Change manifests in many ways—from shifts in culture, food habits, and behaviour to transformations in lifestyle. Renewal and change are part of our natural evolution—our physical features such as height, weight, and appearance have changed over time, as our languages, food preferences, clothing, and way of thinking. Had women not gained freedom, and had civilization not progressed through experimentation and change, we would likely still be living in ignorance and stagnation.

From the bicycle to airplanes and submarines, every major development is the result of advancements in electronics and communication. Today, we do not feel the distance from loved ones, though they live seven seas across. Thanks to the internet enabling affordable voice and video calls worldwide. Every invention paves the way for new experiments and further innovations. This cycle of ideas fuels continuous development, resulting in frequent improvements and upgrades to existing products. One idea often becomes the foundation for many more.

Examples of Resilience and Transformation:

A powerful example of resilience is Srinivasa Ramanujan, whose journey was challenged by superstitions, such as the belief that crossing the seas would invoke divine punishment. Despite such opposition, he travelled abroad and made immense contributions to mathematics. Ironically, today, people of all religions and backgrounds fly across the globe freely, embracing global mobility.

Alcohol, once used medically as an anaesthetic during surgeries to ease pain, eventually turned into a source of pleasure and, for some, addiction. This shows how research can sometimes lead to unintended negative consequences. Similarly, cell phones, originally intended to enhance communication, are now often misused, especially by the younger generation.

The Dual Impact of Human Invention - Many human inventions have undoubtedly improved convenience, but they've also made people increasingly lazy and dependent. AI, robots, and modern transportation have reduced the need for physical movement, leading to a sedentary lifestyle. Children, influenced by gadgets like tablets and smartphones, are reading less and writing poorly.

Even as medicine and technology cure many diseases, new viruses and health issues

continue to emerge, often as byproducts of these very innovations. Medical research continues to offer hope for survival and better health, addressing both existing and future health concerns. Innovations and inventions—such as electricity, the telephone, internet, automobiles, solar and wind energy etc., have all contributed to making life more convenient.

Environmental Consequences of Scientific Progress: - Many chemical, geological, and industrial experiments are damaging the Earth itself, contributing to subtle but serious effects, like the slowing of the planet's rotation by milliseconds. China stands as an example of rapid development paired with considerable environmental impact.

Even controversial people like Hitler have made contributions to medical research throughout history, sometimes by engaging in extreme self-experimentation that raises moral concerns.

One of the most horrific examples is the Nazi human experimentation program, carried out primarily between 1942 and 1945 in concentration camps under the Nazi regime. These medical experiments were performed on prisoners, often without consent, and involved extreme suffering and death.

After World War II, the perpetrators were brought to justice during the Doctors' Trial (USA vs. Karl Brandt et al.), held on August 19, 1947. The public outrage over these atrocities led to the creation of the Nuremberg Code, which became a cornerstone in the development of modern medical ethics. During the trial, many Nazi physicians claimed their actions were justified by military necessity, even comparing the victims of their experiments to collateral damage in warfare.

One such doctor, Sigmund Rascher, conducted tests with Polygal—a clotting agent made from beet and apple pectin. He believed it could reduce blood loss from injuries in combat. To test it, subjects were given the substance, then shot or had limbs amputated—without anaesthesia.

Other unethical experiments included:

- Bone, nerve, and muscle transplants
- Injecting bacteria into bone marrow to test battlefield medicines
- Surgical procedures on conjoined twins, including attempts to alter sex organs
- Freezing, high-altitude, and seawater experiments to test survival under extreme conditions
- Sterilization and radiation tests, some of which indirectly influenced the development of radiation therapy
- Sulphonamide testing for treating infected wounds
- Forced experiments on homosexual men, attempting to change their sexual orientation
- Twin studies intended to increase the birth rate of twins
- Vaccine and serum testing for diseases like malaria, typhus, tuberculosis, typhoid, yellow fever, and hepatitis
- When these doctors were captured and questioned for their action st trial, few of them argued that no international laws explicitly governed medical experimentation at the time. Others disturbingly claimed that their actions were in service of humanity and scientific progress t the people all over the world.

Today, there is still ongoing debate over whether data obtained through these unethical experiments should be used. Some argue that if the information has the potential to save lives, then refusing to use it could itself be considered unethical, despite its horrifying origins. As the need of the hour calls for the use of these experiments to save lives, they are now utilized in the medical field. Research is actually exploring the future being prepared to face the challenges

The Role of Research in Sustaining Life:

Research not only strengthens mental agility but also contributes to physical well-being. Research leads to invention, Invention fosters innovation, nnovation drives development, and development must aim for sustainability. Survival in this world demands adaptation, often born from experimentation, accidental discoveries, and continuous learning.In the field of management, most leaders test out different management styles but these valuable experiments often go undocumented. Throughout history, society has shown resistance to changes, e.g. Opposition to allopathic medicine, Rejection of computers by banking employees, Hesitation toward concrete housing, Resistance to altering water sources for urban development. Yet over time, these resistances give way to new systems, from monarchies and authoritarian regimes to democratic governance.Modern tools like the internet and air travel have enabled people, including women, to work in different countries. Without these inventions, we would be forced to revert to manual methods we have long forgotten. Today, we are so dependent on technology that it's hard to imagine life without it.

Recommendations:

Research should be development-oriented—aimed at improving survival, not causing destruction. It should prioritize the protection of nature and the environment, thereby supporting a more comfortable and sustainable human existence. It is important to identify and support research. Any useful research that we are unable to comprehend should not be dismissed and ridiculed by others. It is important to remember that we cannot blindly follow any researcher's experiment because there is

always a chance to retest it. Recognising or awarding any research endeavour should not incite jealousy or fear. Since it can cause more damage than it can fix or mend any problems. It would be beneficial if we promote collaboration and group research.

Conclusion:

Human evolution reflects significant changes in our physical form and appearance—from the earliest humans to the way we look and live today. Had these changes not occurred, we might have remained in a primitive state, perhaps even less advanced than the animals. It is using our intelligence and capabilities that we continue to progress.Every organism in nature exhibits consider able resistance to change,but eventually adapts and t olerates it. Renewal is the essence of growth — whether it's adapting to change or initiating it. Research is essentially a journey into the future—a way of preparing for and anticipating challenges before they arise. It allows us to predict obstacles and develop strategies to overcome them, ultimately making life easier and more efficient.

There is no life without experimentation and research. Change is inevitable, and accepting it is essential for survival and growth. Research provides the pathway for innovation, invention and exploration, making life not only easier but also more meaningful and exciting.

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Participation of skill development programme in empowerment of rural women

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Abstract:
The objective was to study the contribution of skill development in empowerment of rural women. The present study was conducted in a village of Bhualpurkhanav, District of Varanasi selected randomly, for collecting data through questionnaire and interview schedule. A sample of 100 rural women respondent were taken randomly. A field survey was done to study the contribution And awareness of rural women about skill development programme which was started for women empowerment. It was observed that respondent be longed to above 15 age group. So it can be concluded that 33percent respondent were aware and benefited from skill development programme but still there are women, who are unaware of these programme they only knows the rename. So it necessary to make these programmer each able to the rural women .so they can get benefit. A programme is successful when it benifited to maximum. Rural women are more benifited when they will use the available appournities and skil ldevelopment programme which are started by Indian government.

Keywords. Skill, development, women, programme, government, empowerment, rural.

Introduction:

India has the largest technical man power in the world however, compared to its population. It is not significant and there is a tremendous scope of improvement in this area. In India the emphasis has been on general education at the receiving end. This has been resulted that large number of educated people remaining unemployment. The present government during 16th Loksabha election has been prepared an environment of skill development in every field for everybody.

After independence many different types of developing programs were started for the empowerment of women . But none of the program me did not reach till the right and last person . The question is, that these programs should be reached to the rural women or right person who exactly want to these programs and benefited from it. If we see from this point of view it is noticed that the government send one rupee for , normal person get only 25 paisa. But The main question is that what happen if this cycle is going on . In the research, it is found that most of the rural women do not have enough awareness about these programs. why do more girls or young women not come forward to trained in it is and other similar skill training institutes? While ,at the same time there are more young women in computer(it) training? In order to justify the cost of acquiring training, it is necessary to be able to secure a job that pays a premium over an unskilled job. Further, the young women should.

Objective:

1. To study the participation of skill development program me in empowerment of rural women and there awareness, knowledge about these programs.

Research method--

The present study was conducted in village of bhualpur khannav , ,District of Varanasi selected randomly and stratified method used for collecting data through interview and questionnaire schedule. A sample of rural women respondents were taken randomly. Field survey was done to study the contribution and awareness of rural level women about skill development programmes .

Sample selection- In the age range of15th years and above age group. 100 rural females were selected randomly for this study.

Data collection- Data collected through questionnaire and interview schedule .

Statistical analysis- Statistical analysis was done by using frequency and percentage.

Result and discussion- The total result and discussion obtained from the present study as well as relevant discussion have been summarized under following heads

Table no- 1- Distribution on the basis of respondents of awareness about skill development programe

S.N.	Awareness of skill development training program me	No.	Percent
1	Yes	55	55
2	No	15	15
3	Know something	22	22
4	Did not pay attention for this side	08	08
	Total	100	100

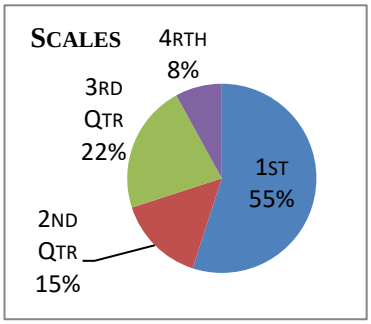


Table no. 1-Shows that maximum 55 percent respondents were aware about skill development programs but they knew there name only ,08 percent respondent said they did not pay attention for this side---

Table.no.-2-Distribution of the respondents on the basis of facilities provided them by skill development programs-

S.N.	Awareness about facilities provided	No	Percent
1	Facility for loan	33	33
2	Facility for training	18	18
3	Relaxation in intrest	12	12
4	Did never pay attention	37	37
	Total	100	100



Table no.2 Shows that33 percent respondent said they facilitated loan from those programs ,18 percent respondent had taken skilled training,12 percent had taken interest and 37 percent respondent said they did never pay attention for it, which is not significant ,good and hopefully .

Table no. 3-Distribution of respondents women on the basis of taken skill training

S.N.	On the basis of taken skill training	No.	Percent
1	Yes	33	33
2	No	77	77
	Total	100	100



This data shows that only 33 percent respondents(women) taken skill training and maximum 77 percent respondent said they had not taken training it is a bigdraw back, failures of this programme.

Table. No. 4-Distribution of respondents on the basis of condition of equipment in training centers

S.N.	Condition of equipment on training centers	No.	Percent
1	All equipment are available in centers	40	40
2	Very limited equipment	60	60
	Total	100	100

Table no. 4 shows that the condition of skilled training centers which are started in rural areas 60 percent respondents said in training centers have limited equipment's.

Table no.5- Distribution of respondents on the basis of training related experiences-

S.N.	On the basis of training related experiences	No.	Percent/
1	It is helpful in our economical social development	25	25
2	It is helpful established own interprises	40	40
3	It is helpful our over all development	15	15
4	Not good	30	30
5	Other	-	-
	Total	100	100

Table no.5 shows , training related experiences of rural women(respondents) maximum 40 percents said skill training is very helpful to established in own enterprises.

Summary and conclusion;-

It concluded that, government has been started many skilled programmes for rural women and we need to make success those programs to our participation ,contribution and awareness. If we are not participated in these then it will not be success.

Suggestion;-

It is skill development programs and women empowerment can be more effective in participation and awareness of women ,if women's will be participate and aware about government programmes self.

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A Study of the Challenges Faced by Consumers in Using Voice Search and Voice Assistants and by Digital Marketers in Voice Search Optimisation

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Abstract:
In today's digital world, Voice Search has become popular among users & businesses. The evolution of voice search technology has had a significant impact on both digital marketing strategies and consumer behavior. As of today, the most used personal voice assistance services are Google Voice Assistant, Siri from Apple, Cortana from Microsoft, Bixby from Samsung and Alexa from Amazon.

Keywords: Voice Search, Voice Assistant, Digital Marketing, Consumer Behaviour and Voice Search Optimisation

Introduction:

In today's digital world, voice search has become popular among users and businesses. Voice search is a technique that employs the human voice to process searches and various types of requests. Optimizing content for voice search is becoming increasingly challenging for websites to rank well in search engines**.** As of today, the most used personal voice assistance services are Google Voice Assistant, Siri from Apple, Cortana from Microsoft, Alexa from Amazon, and Bixby from Samsung. People use voice search and voice assistants for various tasks such as information retrieval, shopping, navigation, making phone calls, setting alarms, playing music, messaging someone, asking for weather-related information, etc. The increasing popularity of voice search among kids and senior citizens in India has transformed the digital landscape in the country.

Problem of statement

Aim of the study is to identify problems encountered by consumers and digital marketers.

Research Methodology

The proposed study is descriptive in nature. The convenience sampling technique is used. Primary data will be collected from 200 people who use voice search and voice assistants and 100 digital marketers. A well structure questionnaire will be designed consisting of variables like usage duration, misunderstanding accents, background noise, limited language support, hands free operation, reduced screen time.

Result

Most people use voice search or voice-activated virtual assistants like Siri, Google Assistant, Alexa, Cortana, Bixby etc. People prefer voice search over traditional text-based search due to various factors such as free operation, multitasking, natural language interaction, ease of use, reduced screen time, and enhanced user experience. Voice search needs improvement in retrieving relevant information, consistency in performance, local language recognition, and noise reduction.

1.1 History of Voice Search and Voice Assistants:

The concept of voice search was first introduced in 1952 when Bell Laboratories created the 'Audrey' system, which was a system that identified numbers spoken by a single voice. Shoebox, created by IBM in the early 1960s, was dubbed the "forerunner of today's voice recognition systems" because it could understand and reply to 16 English words, including the digits 0 to 9. Dragon Dictate, introduced in 1990, is an old program for Windows by Dragon Systems, which was later replaced by the Dragon NaturallySpeaking system. Dragon Dictate is specifically designed for Mac users. Google Voice Search and Siri were launched in 2011.

1.2 Uses of voice search:

According to a recent study on voice search usage, almost 17 percent of consumers say that their top voice assistant request is to check the weather. 13 percent use voice assistants to check up definitions and information and 14 percent use them to conduct searches while driving. Voice search is also frequently used to find online goods and

services, which is a fact that e-commerce companies should be aware of (Brin, 2022).

1.3 Statistics of Voice Search :

1. 46% of individuals don't think their voice assistant will understand and handle order appropriately (PWC, 2018).
2. 41% of consumers expressed worries about passive listening, trust and privacy (Bing, 2019).
3. Voice search is used by almost 20.5% of people worldwide (Kumar, 2025).
4. 58% of customers use voice search to find locate nearby businesses (Mosby, 2025).

1.4 Problem Statements:

This research aims to identify and understand the problems encountered by consumers and digital marketers in utilizing and optimizing for voice technologies. The findings of this study can inform the development of more user-friendly and accessible voice technologies, as well as guide digital marketers in creating effective voice optimization strategies.

2. Research Methodology:

2.1 Objective:

1. To identify problems encountered by consumers while using voice search or voice assistant.
2. To identify problems encountered by digital marketers while voice search optimization.

2.2 Hypothesis:

Hypothesis 1-

H_0 -There is no significant difference among the problems encountered by consumers while using voice search or voice assistant.

H_1 -There is significant difference among the problems encountered by consumers while using voice search or voice assistant.

Hypothesis 2-

H_0 -There is no significant difference among the problems encountered by digital marketers while voice search optimization.

H_1 -There is significant difference among the problems encountered by consumers while using voice search or voice assistant.

2.3 Significance:

One study found that typing is 3.7 times slower on average than voice searches. Because of this, it is a magical feature that allows searching and result display to happen much faster than with a regular keyboard (Tata, 2023). It is crucial to use a voice search application for a company because it opens up a brand to a wider audience, such as senior people who struggle with hand dexterity due to aging. Voice search tools are a godsend. Similar to this, those with partial disabilities who find it uncomfortable to sit in a typing position can simply put out their needs and receive results right away.

The voice search technology is multilingual. New advancements are being made to improve multilingual choices. So, consumers can use any language they are most comfortable with for voice search marketing. This will make voice search technology more widely adopted by users (Tata, 2023). A voice optimization strategy may help businesses simplify the procedure for everyone, increasing production and efficiency.

2.4 Methodology:

For the study, a descriptive research methodology was used. A survey was done for this study. To evaluate the instrument's validity, split-half, spearman, and Cronbach alpha Brown's tests were computed to assess the instrument's dependability and internal consistency. The instrument was deemed dependable for the investigation since the Cronbach alpha was 0.732. The split-half dependability was determined using a scale of 0.623, which is sufficient, indicating that the questionnaire is dependable and internally consistent.

Given that the Spearman-Brown correlation value was 0.768, the questionnaire is regarded as internally correlated and trustworthy. Questionnaires were used to gather primary data. Research papers, reference books, journals, websites, and other sources are used to gather secondary data. For the research, a convenience sampling technique was performed. 202 voice search or voice assistant users and 103 digital marketers from Thane were included in the sample.

2.5 Limitations:

1. Despite concerted efforts, we were unable to fully reach every region of Thane.
2. Primary data is collected from the questionnaire, which may not accurately reflect actual behaviour or attitudes. We might have used a combination of various data collection methods to gain more insights.
3. This study focuses on the challenges faced by consumers while using voice search, voice assistants, and digital marketers in voice search optimization. This may limit the advanced concepts of voice search and voice assistants.

3. Review of Literature:

Users get frustrated and may stop asking questions if digital assistants provide poorly pronounced responses. In Finland, there's hesitancy in leveraging SEO for digital assistants and voice search, but as businesses realize their potential, adoption of SEO strategies in this realm is likely to rise (Hautsalo, 2019). Educators perceive voice as their primary professional tool but often overlook voice-related issues, considering them common and unavoidable despite being aware of their potential negative effects (Ritika Gautam,Srikanth Nayak,Usha Devadas, 2022). AI technologies like machine learning, deep learning, and big data greatly improve the efficiency of marketing through personalization, automation, and predictive analysis, both consumers and digital marketers are confronted

with various challenges (Junaid Rahman, 2024). Factors like performance expectancy and hedonic motivation, and inhibiting factors such as value barriers and image barriers, impact the consumer adoption of voice assistants (Surbhi Choudhary, 2024).

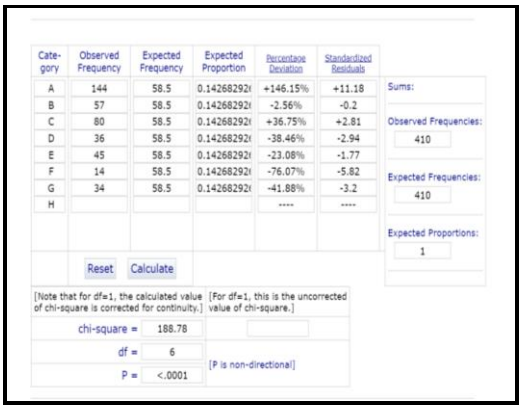
4. Data Analysis and Discussions :

4.1.1:

To identify the problems encountered by the consumers while using voice search or voice assistant we performed percentage rank method and chi-square test.

Variables	Responses	Percentage	Rank
Misunderstanding accents	144	35.12	1
Limited language support	57	13.9	3
Background noise results in error	80	19.5	2
Inconsistent performance	36	8.78	5
Difficulty with complex queries	45	10.97	4
Incompatibility with devices	14	3.41	7
Unable to use voice search due to poor internet connection	34	8.29	6
Total	410	100	

Table 4.2.1.1: Percentage Rank Method



Cate-gory	Observed Frequency	Expected Frequency	Expected Proportion	Percentage Deviation	Standardized Residuals
A	144	58.5	0.14268292(	+146.15%	+11.18
B	57	58.5	0.14268292(	-2.56%	-0.2
C	80	58.5	0.14268292(	+36.75%	+2.81
D	36	58.5	0.14268292(	-38.46%	-2.94
E	45	58.5	0.14268292(	-23.08%	-1.77
F	14	58.5	0.14268292(	-76.07%	-5.82
G	34	58.5	0.14268292(	-41.88%	-3.2
H				----	----

Sums:
Observed Frequencies: 410
Expected Frequencies: 410
Expected Proportions: 1

Reset Calculate

[Note that for df=1, the calculated value of chi-square is corrected for continuity.] [For df=1, this is the uncorrected value of chi-square.]

chi-square = 188.78
df = 6
P = <.0001 [P is non-directional]

Table 4.2.1.2: Chi- square test using Vasarstats

Inference

In Table 4.2.1.1, we applied the percentage rank method. Our analysis revealed that the primary issue faced by consumers is misunderstanding accents, which holds the first rank. The second rank is attributed to background noise results in error, followed by limited language support in the third rank, difficulty with complex queries in the fourth rank, inconsistent performance in the fifth rank, inability to use voice search due to poor internet connection in the sixth rank, and finally, incompatibility with devices securing the last rank.

Vasarstats was used to do a chi-square test in Table 4.2.1.2. Here, A stands for misunderstanding accents, B for limited language support, C for background noise that results in errors, D for inconsistent performance, E for difficulty with complex queries, F for device incompatibility, and G for being unable to use voice search due to a poor internet connection. The P value is less than 0.0001, which is less than 0.05, which shows the observed frequencies have a significant difference. Hence, we accept the alternate hypothesis, i.e., that there is significant difference among the problems encountered by consumers while using voice search or voice assistant.

4.1.2:To identify the problems encountered by digital marketers while implementing voice search optimization strategies, factor analysis was done.

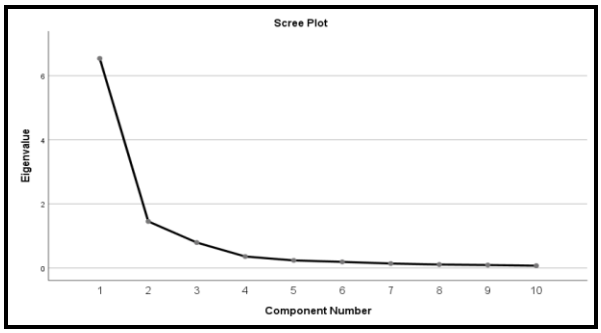
Factor analysis for Thane-

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.884
Bartlett's Test of Sphericity	Approx. Chi-Square	1097.761
	df	45
	Sig.	.000

Table 4.2.2.1: KMO and Bartlett's Test

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.539	65.390	65.390	6.539	65.390	65.390
2	1.455	14.551	79.941	1.455	14.551	79.941
3	.796	7.960	87.900			
4	.360	3.598	91.499			
5	.239	2.390	93.889			
6	.193	1.928	95.817			
7	.141	1.412	97.229			
8	.110	1.103	98.333			
9	.094	.936	99.269			
10	.073	.731	100.000			
Extraction Method: Principal Component Analysis.						

Table 4.2.2.2: Communalities



Scree Plot

Component Matrix[a]		
	Component	
	1	2
Keyword Optimisation Changes	.605	-.474
Speech Recognition Accuracy	.770	-.393
Voice Search Algorithm Changes	.897	-.174
Difficulty in Performing Complex Tasks	.889	-.050
Voice Activation Errors	.873	-.040
Limited Data Privacy	.742	.536
Technical Optimization	.762	.563
Poor Performance in Low End Devices	.893	-.118
Designing Speech Based Application	.780	.532
Natural Language Processing	.828	-.375
Extraction Method: Principal Component Analysis.		
a. 2 components extracted.		

Table 4.2.2.3: Component Matrix[a]

Inference

The output of factor analysis is obtained by requesting principal component analysis.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy is calculated as 0.884, which indicates that the sample is adequate to go ahead with factor analysis.

As evident from Table 4.2.2.3, we find that two factors extracted together account for 79.941% of total variances. Hence, we have reduced the number of variables from 10 to two underlying factors and

accept alternate hypothesis i.e., there is significant difference among the problems encountered by consumers while using voice search or voice assistant.

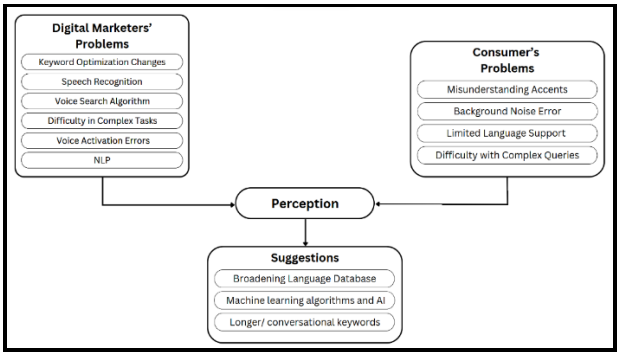
Sr. No.	Factors	Factor loading
Factor 1	Process Optimization	0.897, 0.893, 0.889, 0.873, 0.828
Factor 2	Speech Privacy Optimization	0.563, 0.536, 0.532

Table 4.2.2.4: Factors considered for problems encountered by digital marketers

5. Summary of Findings:

Almost more than half of our respondents use voice search daily or weekly with their electronic devices. Misunderstanding accents, background noise resulting in errors, and limited language support are some of the major problems encountered by consumers. Major problems faced by digital marketers are keyword optimization changes, speech recognition accuracy, and voice search algorithm changes. We have reduced the number of variables from 10 to two underlying factors. If we can solve this problem, it covers 79.9% of problems. Voice search needs improvement in retrieving relevant information, consistency in performance, local language recognition, and noise reduction.

6. Conceptual model:



This conceptual model identifies digital marketers' problems and consumer's problems as independent variable which influences overall perception (dependent variable) of users. The suggestions such as broadening language database, improving machine learning algorithms and AI, and using conversational keywords are proposed to enhance perception of users.

7. Suggestions:

1. Voice assistant companies like Google, Apple, Microsoft, Samsung, and Amazon also the companies associated voice search should hire a language expert in each dedicated region to expand their language databases and improve their accent recognition systems.
2. Background noise errors can be minimized through advanced machine learning algorithms and AI. Some premium mobile phones features an AI that effectively cancels out background noise, such as wind, in videos. However, this technology is currently exclusive to premium devices only and limited to video applications. If a similar capability could be integrated with voice search and voice assistants, it would significantly enhance accuracy.
3. For instance, if someone wants to eat South Indian food, they might search 'restaurant near me.' However, if they are using voice search or a virtual assistant, they are more likely to phrase it as 'best South Indian restaurants near me.' Therefore, digital marketers should focus on incorporating longer and more conversational keywords.

Conclusions:

Both consumers and digital marketers encounter various challenges. These hurdles emphasize the need for continuous improvement in accuracy, background noise cancellation, keyword optimization, and cross-language compatibility to enhance user experiences. Despite these challenges, a majority of people hold a positive perception regarding voice search and voice assistants. Kids, elders and person with disability find the use of voice search very easy and convenient. It provides hand-free operation, multitasking, ease of use, reduced screen time, and an enhanced user experience.

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Impact of Online Business Model on Indian Economy

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Abstract:
Indian economy is quickest developing economy in entirety world and the biggest showcase in entire world. In setting to this there is a wide scope for improvement of offline and online showcase. Since final 15 a long time utilize of web and keen phone are expanded and playing key part in advancement of e-commerce showcase. Fundamental infrastructural highlights like helpful instalment strategy, cash on conveyance, quick conveyance of item, costumer situated alluring plans, simple strategy to return item etc. play crucial part in improvement in ecommerce. Government's diverse approaches like Advanced India and Start-up moreover allow inspiration to individuals for online shopping. In India, the online trade advertise was 3.9 billion US$, which increment and reach to 12.6 billion US$ in 2013 and 38.5 billion US$ in 2017. This paper centres on the effect of online trade show on the Indian economy.

Keywords: online commerce, e-commerce, Indian economy

Introduction:

Indian economy is one of the fast-expanding economies in entire world. In India approx17.00% populace of entirety world is living. So, there is a tremendous showcase for shopper items. Since final two decades increment in centre course wage gather have been seen. Other than this, due to cheaper savvy phones and moo web rate there is tremendous increment in the clients of savvy phones and web, which gives critical commitment in improvement of e-commerce showcase. Diverse activities taken by Government and propelling of diverse approaches like Advanced India and Start-up plays imperative part in improvement of e-commerce. There was advertise for ecommerce in 2009 was as it were 3.9 billion US$ which develop up and reach up to 12.6 billion US$ and 38.5 billion US$ in the year 2013 and 2017 separately. Concurring to the analysts, till 2026 there will be 200 billion US$ advertise of e-commerce and it will be 4.00% share of GDP of country. [1]

Objectives:

1. To think about the online commerce model.
2. To dissect different variables included in online commerce model
3. To think about the effect of online commerce demonstrate on Indian Economy

Hypothesis

H0: There is no critical effect of online trade show on Indian Economy.

H1: There is a critical effect of online commerce demonstrate on Indian Economy.

Online Commerce Model

E-Commerce is a developing division in India. Fair like the development of IT industry in India through the 1990s, the 2010s will be recollected for the development in the E-Commerce industry. In its display state the commitment of E-Commerce to GDP is around 0.2% which is anticipated to develop 15 times to around 2.5% by 2030. [2] The effect is so gigantic that the show wave of de-monetisation might have not been thought if E-Commerce did not exist. E-Commerce to a huge degree made a difference assimilate its stun as well as picked up the most extreme out of it as well. By 2030 the commitment to GDP by E-Commerce is anticipated to reach to around 300 billion Dollars which is around 20 billion Dollars in its show state. [3]

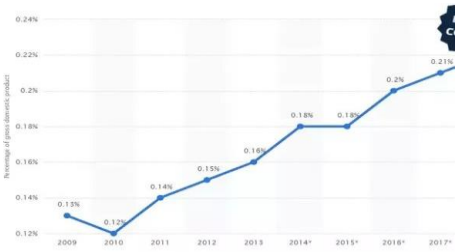




Figure 1.Size of e-Commerce industry in India (includes only B2C e-tail excluding online travel and classifieds)

After the beginning wave of B2C E-Commerce, the B2B division is picking up a parcel of footing. 95% of the trade in the B2B segment is still chaotic and E-Commerce will offer assistance compose by utilize of innovation and other bolster functions. The impacts of E-Commerce industry are still in exceptionally beginning organize but are obvious. The effect at the minute can be seen in the taking after sectors: - [4]

1. **Technology- One of the major drivers of innovation will be E-Commerce industry and bad habit versa.** We are seeing modern age innovative arrangements (AI/Machine Learning) being taken up to illuminate the commerce issues to bring commerce to everybody carefully. This is seen in both B2C and B2B division. Venture into innovation segment is happening to drive development in the E-Commerce domain.
2. **Logistics- Coordination's industry is both a bottleneck and a driver for e-commerce industry**.
   For the same we see how final mile and inter-city coordination's arrangements have come up to carefully interface the distinctive partners over the nation. The Uber demonstrate of moving travellers is executed in a few shapes or the other in the calculated division. The development of E-Commerce will drive advancement in the calculated division to make the items accessible to the conclusion user.
3. **Travel- At the minute 70% of the commitment to E-Commerce comes from the travel division which incorporates the online ticket bookings to other travel courses of action.**
   This has made the showcase competitive by bringing all players on the same stage and has too given shopper more alternatives. Travel industry will be most punctual adopters to ended up totally digitized and that is much obliged to E-Commerce.
4. **Education- One of the businesses to have the most significant effect of E-Commerce is the instruction.**
   The capacity of E-Commerce to give quality instruction to everybody is gigantic. India will have one of the greatest sets of youth populace and subsequently the scope for instruction division to be the greatest achievers since of E-Commerce is sure.
5. **Etail- The hail bearers of the E-commerce wave have been the different E-Retail commerce stages.**
   Etail segment is anticipated to contribute to around 3% of the add up to Retail offers by 2020 and is at show around 1%. This wave is seen in both B2C and C2C demonstrate and is bound to develop advance. This is not as it were for products but too has captured the nourishment sector. [5]
6. **Other Businesses- The way of working in the Genuine Domain division is as of now seeing the alter since of the E-Commerce industry.**
   This will alter advance with all property related exchanges coming online and getting closed online as well. Keeping money segment is profiting as well with decreased operations taken a toll of online exchanges. E-Commerce in wellbeing care has brought wellbeing related arrangements to the urban India and will assist enter profound into Level I and Level II cities.
7. **Support Businesses- There are different back businesses which have created since of E-Commerce.**
   These are computerized promoting, analytics, instalment portals etc. These will get to be billion dollars divisions as E-Commerce develops exponentially. [6]
   Besides the effect to these businesses, E-Commerce is making a difference make the advertise more competitive, driving way better client involvement and driving availability of merchandise to all. E-Commerce is too bringing exchanges online which makes the framework more straightforward and to a degree may assist drive innovative selection. This will moreover offer assistance in driving debasement levels down with everything coming online. The effect is significant and will advance with time.

Impact of Online Trade Show on Indian Economy

E-commerce in India is developing not fair since of the web infiltration is expanding but too due to the ideal biological system created by the advertise. E-commerce and electronic applications in mechanization has brought in colossal development in India. E-commerce is interfacing

rustic India for the commerce thus creates town economy. Agreeing to NATIONAL REPORT OF E-COMMERCE Advancement IN INDIA, it was clearly expressed that there is increment in web entrance in India to exceptionally expansive degree. Web client increments to 429.23 million in 2017 which is anticipated to take a gigantic upward slant to 829 million in 2021, which will hence offer assistance web economy of India to develop altogether. [7]

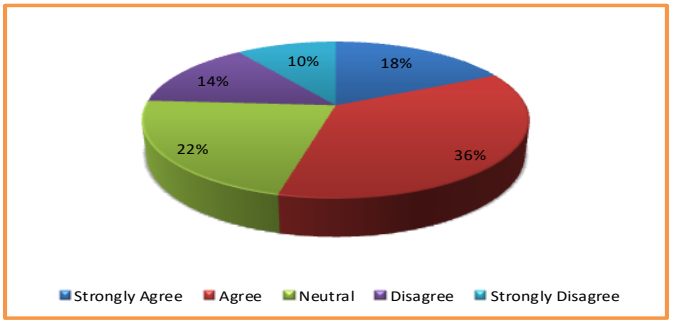
With the increment of advanced entrance and increment of web infiltration in Indian setting, it was hence required to interface between the development and effect of ecommerce in setting of Indian scenario." With the increment in computerized buyer, it was very clear the web infiltration will hence moreover eventually rise to certain degree, too as we have considered in prior paper that m-commerce has moreover expanded altogether in this way lead to development in m-commerce. Hence, with the progression of innovation and increment in share of smartphone and web administrators it was very clear that web infiltration was much required to make a more noteworthy effect on the Indian showcase.} [8]

Table 1: Effect of online trade show on Indian Economy

Total Respondents: 50

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
9	18	11	7	5

Graph 1: Effect of online commerce demonstrate on Indian Economy



From the over chart; it is found that out of 50 respondents 18% are unequivocally concur with the articulation 'Impact of online commerce demonstrate on Indian Economy'; 36% concur with the articulation, 22% are unbiased with the articulation, 14% are oppose this idea with the articulation whereas 10% are unequivocally oppose this idea with the statement. [9]

That implies larger part of the respondents feels that online commerce demonstrate is essentially affecting on the Indian Economy.

Hypothesis Testing:

Hypothesis accepted amid this investigate have been the recommendation as explanations approximately the perceptible marvels in this consider that may be judged as genuine or untrue. As a explanatory articulation around the two or more factors, the speculations expressed were of the provisional and notional nature. The Theories expected amid the consider are:

H0: There is no noteworthy effect of online trade show on Indian Economy.

H1: There is a critical effect of online trade show on Indian Economy.

The theories expressed over have been shaped after carefully analysing the inquire about destinations and the issue definition. In a nutshell, the speculation accepted amid this investigate think about has been the best expression of the inquire about objective in the shape of a well-formed and testable explanation which seem be refuted or demonstrated by observational information. [10]

This speculation with respect to effect of online commerce show on Indian Economy through the One Test t-test utilizing measurable computer program SPSS.

One-Sample Statistics

N	Mean	Std. Deviation	Std. Error Mean
49	2.1802	1.8360	.03261

One-Sample Test

Test Value = 2.68					
T	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
				Lower	Upper
.014	49	.023	.00045	-.0521	.0598

To test this speculation; a Likert scale is utilized. Reaction of 50-part respondents are recorded and inputted in the SPSS program. The cruel esteem produced is 2.18 and Standard Deviation is 1.84. The test esteem is set as 5 as Likert scale is five level scale to record the reactions. From the over One Test t-test speculation is critical i.e. 0.023. So, the Invalid theory is rejected and the interchange theory 'There is a critical effect of online trade show on Indian Economy' is accepted. [11]

Conclusion:

Currently online businesses have ended up an indispensably portion of regular. Online commerce demonstrates i.e. e-commerce is rising as a critical apparatus to certify detonating development of Indian economy. With a rapidly developing web entrance e-commerce offers an alluring alternative for the retailers to extend. To accomplish this, there ought to be more speculations in supporting foundation and inventive and diversion changing commerce models in India. E-commerce is moreover appearing a colossal development in advancement of worldwide trade wiping out the obstructions of boundaries between countries. It is moreover a necessarily portion in GDP commitment. Imports of merchandise are moreover expanding through ecommerce which will advantage different areas of society in terms of information, abilities, mechanical progression, and moved forward ways of showcasing as well as business. Computerized promoting is too developing at speedier pace as it's quick, fetched viable and simple. Agreeing to the theory tried; it is found that there is a noteworthy effect of online trade show on Indian Economy.

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Omnichannel Marketing: Integration of Online and Offline Strategies in the Indian Retail Landscape

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Abstract:

Omnichannel marketing serves as a revolutionary retail strategy in India which unites online and offline platforms to provide synchronized buying journeys to customers. This descriptive paper investigates omnichannel strategy development along with deployment stages and market effects in India through three major retail businesses - Reliance Retail, Myntra, and Fabindia. This paper evaluates personalization and operational efficiency through technology analysis of academic journals and industry reports and real-world cases. The Indian retail industry operates with a market value of $625 billion because customers increasingly choose omnichannel commerce as it unites digital accessibility and physical interaction. From bolstering blockchain adoption and rural market expansion to phygital improvements the article investigates existing difficulties in cybersecurity deaths and supply chain efficiency before suggesting solution methods. India's dynamic retail sector needs omnichannel strategies as an essential operational element for achieving sustainable growth because they provide specific actionable directions to businesses that want success in our evolving digital economy.

Keywords: Omnichannel retail, phygital integration, consumer behavior, Indian retail, digital transformation

Introduction

The Indian retail sector holds $625 billion worth yet experiences a revolutionary shift because of digital advancement and evolving consumer demands. Omnichannel marketing has become crucial because it serves to combine traditional shopping divides between online stores and physical locations. This academic research analyses how Indian retailers deploy integrated shopping routes to deliver superior customer interactions combined with operational excellence that promotes expansion opportunities under marketplace competition.

The Indian Retail Landscape

The omnichannel retail model builds beyond multi-channel retail through the integration of harmonizing connections between online stores and mobile applications with physical stores. Omnichannel retailing received increased adoption across.The retail market is primarily held by offline stores (98%), although e-commerce sector shows constant 25% yearly growth. Research from Indian shopper's shows that 68% of them examine products online even though they make their final purchases in stores so services need to blend easily.

Literature Review

Radhakrishnan (2023) in their research suggests that Indian consumer behavior transforms because omnichannel marketing lets people access online convenience together with offline personalization. Modern Indian customers require smooth integrated interactions between all their customer interfaces. Retail businesses adopting omnichannel operations successfully handle market changes by improving customer satisfaction thus increasing brand loyalty. Organizations need to implement this integration to maintain their competitiveness against market transformations in the modern retail landscape. Omnichannel marketing establishes itself as a strategic requirement which enables businesses to achieve long-term success when operating in the Indian market.

Hole along with Pawar and Khedkar investigated the benefits and obstacles of Indian omnichannel retail operations in their research from 2019. The article shows that companies must use digital tools for understanding how customers behave while meeting their changing expectations. The authors demonstrate that omnichannel retail success demands a systematic method which unites superior logistics and supply chain administration with extensive knowledge about Indian customers.

Dr. Animesh Biswas analyses in his study how omnichannel retailing creates substantial benefits for customer satisfaction. This analysis verifies that omnichannel adoption represents a necessary strategic principle for retail businesses which intend to succeed in the current interconnected marketplace..Kumar, Bhattacharjee, Priti, and Sidhu studied in 2020 how omnichannel retailing affects consumer store selection patterns in the Indian market. The integration between digital and physical stores substantially influences customer preferences due to ease of use as well as

individualized encounters and smooth channel transitions between systems according to their conclusion. Despite these outcomes the study recognizes that implementation of modern technology between business operations and the need to maintain stable branded communications remains a concern across networks. The authors make it clear that retail success in the dynamic Indian market demands effective omnichannel approaches that lead to retail competitiveness.

Objective of study

1) To comprehend the meaning of omnichannel marketing in the Indian landscape.
2) To assess the challenges and opportunities faced by Indian retailers in integrating online and offline marketing channels effectively.
3) To explore the role of technology, including AI, AR, and unified commerce platforms, in enhancing omnichannel marketing in India's retail landscape.

Research Methodology

The descriptive study analyzes secondary data using qualitative methods from academic journals, industry reports, and case studies. The investigation relies on published sources, government data, online sources and academic research papers found in JETIR and IJCRT, as well as scholarly evaluations of Myntra, Reliance Retail, Fabindia, and Nike.

Case Studies and Findings:

Myntra: Blending AR and Loyalty Programs

The Myntra "Insider" program lets customers earn rewards by purchasing items through either online or offline channels, thus building strong customer loyalty. The AR-powered virtual try-on functionality at the platform cuts down on returns by 25% and increases consumer involvement.

Myntra's Omnichannel Transformation

The Indian e-commerce leader Myntra came into existence through its launch in 2007 before Flipkart's acquisition in 2014 to provide fashion, beauty, and lifestyle products to its customers. Myntra advanced from being an online-only retailer to developing into an omnichannel innovating firm, which demonstrates digital and physical retail integration across the Indian market.

When Myntra first launched as an internet retailer, it operated solely through online channels until the company expanded into physical store outlets in 2017.

Myntra entered a turning point when it launched its initial physical store in Bengaluru to combine the advantages of online shopping with bodily experiences that traditional stores provide.

Key Omnichannel Initiatives:

- Myntra uses its "phygital" strategy to transform online and offline shopping methods. Myntra Studios serves as a content-focused platform to let users find style cues by using methods similar to social network platforms, thereby making the technology bridge physical store interactions with digital shopping.
- Myntra uses machine learning algorithms to deliver unified customer experiences by recommending personalized products to users both through their website and physical stores. Myntra implements technology-based customization through its distinct filter systems that assist customers in identifying products which align with their individual tastes.
- Myntra maintains a powerful logistics network through which they execute more than 27,000 pin code deliveries while operating three main distribution centers in Bengaluru, Delhi, and Kolkata. Hybrid logistics with Flipkart manages inventory and delivery services uniformly from online to offline channels so customers can benefit from click-and-collect and in-store returns for their online purchases.
- Customer engagement and support functions at Myntra depend on the Oracle Service Cloud platform which connects email and voice interactions with chat and social media communication for customers.

Reliance Retail: Building an Omnichannel Empire

Reliance Retail established itself as a $100 billion company through its phygital (physical + digital) integration model since its 2006 launch in India's retail industry. Reliance pursues household consumption market domination between 20–30 percent through a combination of Jio's telecommunications capabilities and its network of below-13,000 stores with united online and offline platform integration.

Key Omnichannel Initiatives:

- **JioMart Integration:**
- The JioMart platform unites Reliance's shops with Jio's extensive subscriber base to offer various services which include instant delivery service and local delivery access and implified grocery pickup options. Through POS systems Reliance aims to include 8–9 million traditional stores in its network so they become delivery stations and inventory management sites.
- **Acquisition-Driven Expansion:**
- Reliance obtained a $3.4 billion value by buying Future Group's 1,800 stores to expand its physical presence across India; however, this acquisition created difficulties managing online-offline outlet rivalry. Through its self-produced products such as Campa Cola and Independence, the company achieves better profitability than external suppliers, leading to reduced dependency on outside suppliers.
- **Technology-Driven Operations:**

- The technology driven AI practices automate inventory management to ensure proper stock placement to over 27,000 delivery points. The joint campaigns between Reliance Digital and Google resulted in a 35% increase in store-based sales during festive seasons.

FabIndia: Crafting a Culturally Rooted Omnichannel Experience

The company Fabindia started operations in 1960 as a supplier of handcrafted apparel and home decor items and organic foods. The business implements an omnichannel method to protect Indian artisan heritage alongside digital innovation.

Key Omnichannel Initiatives:

- **Phygital Showrooms**: Customers can use touchscreens in stores to explore limited online collections and make delivery orders for home. The block-printing and organic farming workshops establish a connection between virtual product viewing and physical customer interaction.
- **Data-Driven Personalization**: The CRM system at Fabindia unifies consumer profiles through purchase data from over 300 traditional stores together with their digital channels to deliver customized coupons (kurtas made from standard fabrics get discounts for recurring buyers).
- **Community Building:** The Fabindia Rewards loyalty program provides twice the number of points for customers who buy products across different channels this leads to a 30% rise in repeat buyers. Craft demonstrations broadcast through Instagram provide customers with both virtual access and physical DIY sessions which led to a 20% rise in customers entering the stores.

Nike's Omnichannel Retail Transformation:

Nike operates as the worldwide omnichannel retail model to show the seamless way online and offline consumer interactions can connect. Nike developed new benchmarks in retail engagement through its journey reimagination followed by technological investments and customer relationships focused on direct-to-consumer (DTC) operations.

Strategic Shift: From Wholesale to Direct-to-Consumer

Throughout its past Nike depended mostly on wholesale suppliers for its distribution network. The company has transitioned into a DTC strategy by focusing its operations through its official website and mobile applications and retail store network. Nike's strategic adjustment allows complete customer experience management and superior data harnessing capabilities and large-scale personalized marketing delivery. The commitment to an omnichannel shopping model delivered rewards to Nike by boosting revenue and stock value since customer preferences evolved to omnichannel purchasing patterns.

Through its Nike app consumers access an integrated method to go seamlessly from digital to physical encounters. Through the app users can book online before they try products in store and the experience remains seamless.

Key Omnichannel initiatives:

- **Seamless Checkout and Fulfillment**: The Nike stores enable customers to use self-checkout kiosks together with mobile payment methods for a streamlined checkout process. Through their unified inventory system Customers can make online purchases that they can pick up in store as well as do in-store purchases which can be delivered to their home.
- **Personalization and Data-Driven Engagement**: Through analyzing data across entire customer interaction channels Nike delivers highly personalized experiences to its users. Retailer touchscreen recommendations point customers toward products they have previously viewed while inventory distribution systems use data analysis for better stock placement near buyers' locations.
- **Loyalty Program Integration**: Nike uses their loyalty program NikePlus as an integrated initiative that functions throughout each marketplace. Every member of the loyalty program experiences regular benefits accompanying customized promotions and instant access to new product releases through the application and both digital and store shopping platforms.
- **Loyalty Program Integration: Door-to-door** sales methods at stores become exclusive pre-release events and workshop programs in addition to community engagement activities to build strong consumer loyalty for the brand.

Challenges in Omnichannel Adoption

1) **Fragmented Customer Data and Identification**
   Indian retailers face their biggest challenge when customer information remains disunited between different sales channels. Different areas where merchant maintains customer data including their online platforms as well as physical retail locations and external marketplaces result in insufficient data integration which prevents comprehensive understanding of individual customers.
2) **Inconsistent Product Information and Inventory Visibility**
   Customers develop trust issues when they find mismatches between what they discover about products and their prices and availability across online versus offline channels. The absence of integrated

inventory management systems within many retail operations leads to secondary effects of product shortages and delivery delays, which create upset customers.

3) **Technology Integration and Legacy Systems**
The design limitations of legacy systems against omnichannel operations lead them to create separate data storage structures that block information flow. The process of making online and offline systems run simultaneously in real-time becomes highly complex due to the need for extensive IT infrastructure development accompanied by trained personnel.

4) **Operational Complexity, Costs and Supply Chain Coordination**
Retail operators need to manage their inventory together with logistics operations and fulfillment tasks on various channels and facilities and locations. The management of reverse logistics for returns/exchanges across channels alongside speedy and economical delivery service and quality control represents major operational obstacles

5) **Delivering a Consistent and Seamless Customer Experience**
The company needs to provide customers with a unified experience which flows between all sales platforms. Any customer wants to experience a consistent interaction whenever they shop through online channels, in real stores, or on mobile applications. The decentralized operations frequently create inconsistencies which affect the quality of service together with promotional offers and post-sales assistance.

6) **Data Security and Privacy Concerns**
The massive growth of digital contact points has produced data security protection as a fundamental priority. Businesses dealing with retail face growing danger from data security breaches along with cyber assaults.

7) Recommendation

1) **Leverage Advanced Technologies for Seamless Integration**
The adoption of AI-based customization helps retailers improve the consumer experience through technology advancements. Data analysis performed by machine learning gives Myntra the capability to provide individualized product suggestions through their AR virtual try-on application.
Salesforce Commerce Cloud acts as a unified commerce platform which merges ERP and CRM and POS systems to make inventory and pricing match across channels while improving operational performance.
Augmented Reality (AR) and Virtual Try-Ons constitute technology platforms adopted by Nykaa and Lenskart which allow consumers to view products online and enhance confidence through simulated retail experiences that lower return rates.

2) **Strengthen Supply Chain and Logistics**
The retail industry advances its operations through innovative implementation of Micro-Fulfillment Centers to achieve better customer satisfaction results. With assistance from third-party logistics suppliers such as Delhivery retailers have developed Micro-fulfillment centers for operating localized inventory points that accelerate delivery speed.Myntra enables hybrid returns management through which customers receive the option to return their online orders in physical stores. such implementation provides better customer convenience options and decreases return logistic expenses and enhances total retail returns operations.

3) **Build Phygital (Physical+Digital) Experiences**
The Shoppers Stop Magic Mirror along with other smart mirrors and digital kiosks enable customers to access online products in physical store locations.
The implementation of experiential retail zones where Nike leads in-store running clubs combines digital engagement elements with tangible in-person interaction to create stronger brand relationships with customers.

4) **Leverage Advanced Technologies for Seamless Integration**
Retailers use AI-driven personalization techniques to advance their customer experience through advanced technologies. Myntra uses machine learning algorithms in AI-based personalization to study consumer behavior patterns which produces personalized recommendations through its AR virtual try-on service.
Salesforce Commerce Cloud acts as a unified commerce platform which merges ERP and CRM and POS systems to make inventory and pricing match across channels while improving operational performance.
Nykaa and Lenskart along with other brands apply Augmented Reality (AR) and Virtual Try-On features which allow online customers to try products virtually which

improves self-confidence and decreases return rates and provides virtual shopping experiences.

5) **Strengthen Supply Chain and Logistics**
The retail industry advances its operations through innovative implementation of Micro-Fulfillment Centers to achieve better customer satisfaction results. With assistance from third-party logistics suppliers such as Delhivery retailers have developed Micro-fulfillment centers for operating localized inventory points that accelerate delivery speed.
Myntra enables hybrid returns management through which customers receive the option to return their online orders in physical stores. such implementation provides better customer convenience options and decreases return logistic expenses and enhances total retail returns operations.

Build Phygital (Physical+Digital) Experiences

Retailers use interactive technologies combined with experiential zones inside their stores to deliver improved customer experiences. The Shoppers Stop Magic Mirror along with other smart mirrors and digital kiosks enable customers to access online products in physical store locations.
Retailers build experiential zones within their stores using demonstrations and workshops as well as community events which include Nike's in-store running clubs to create immersive physical-digital brand experiences that strengthen customer relationships.

Conclusion

The retail sector of India transforms omnichannel marketing strategies that unite virtual convenience systems with real physical authenticity. The market leaders will emerge from brands that pursue integrated marketing approaches while deploying consumer-centric technology solutions and fixing infrastructure problems. These findings demonstrate how crucial it is for retailers to adopt quick adaptations and innovations because 70% of them will implement omnichannel models by 2026.

Myntra's example shows that omnichannel retail strategies work effectively within the Indian retail market. The strategic combination of online and offline channels together with personalized technological applications and customer-focused strategies enables Myntra to provide others in Indian retail a successful model for market evolution. Organizational success proves how essential agile mentalities combined with new ideas along with complete customer experience understanding lead to lasting business expansion.

The technological investment by Reliance has made massive achievement by gaining omnichannel market control while Fabindia achieved loyal customers by embracing roots and sustainability. Digital efficiency needs equal consideration to human-centric measures in the various retail environments throughout India.

Internet-connected stores prove their ability to deliver success through the effective combination of digital and physical retail networks by Nike. Nike established itself as the worldwide standard for omnichannel retail through its management of the customer experience path as well as data exploitation and impactful interface delivery. Indian retailers should borrow Nike's methods to establish durable customer-centered operations within the changing retail industry environment.

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Interweaving Politics and Intimate Bonds in Nayantara Sahgal's Storm in Chandigarh

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Abstract:
Nayantara Sahgal's Storm in Chandigarh (1969) masterfully blends the political unrest of post-independence India with the nuanced exploration of personal relationships. Set during the Punjab-Haryana reorganization, the novel examines the interplay between societal constraints and individual desires through complex man-woman dynamics. This article analyzes Sahgal's critique of patriarchal norms and her advocacy for emotional authenticity in relationships, as seen in characters like Vishal Dubey and Saroj. While her political insight is widely praised, critics highlight occasional narrative fragmentation. Drawing parallels with D.H. Lawrence's philosophy, Sahgal redefines love as an extension of personal freedom, challenging traditional marriage constructs. The novel's enduring relevance lies in its call for relationships grounded in mutual respect and its reflection on the incomplete internalization of freedom in Indian society.

Keywords: Nayantara Sahgal, Storm in Chandigarh, post-independence India, man-woman relationships, political novel, gender roles, freedom, emotional authenticity, Indian literature, D.H. Lawrence

Introduction:

Nayantara Sahgal, a scion of the Nehru-Gandhi family, was immersed in India's political and social ethos, which profoundly shaped her literary career. Her novels, set against pivotal national events, reflect the challenges and aspirations of post-independence India, capturing the era's disillusionment with nuance and depth. Her intimate knowledge of political discourse, derived from her family's legacy, lends authenticity to her portrayals of a nation in transition.However, Sahgal's narrative style has sparked debate. Critics like Jasbir Jain argue that her political commentary sometimes overshadows her storytelling, resulting in a prose that feels more analytical than immersive (Jain 89). Similarly, Shyamala A. Narayan notes that her integration of personal and political narratives can lack seamlessness, with character arcs occasionally overshadowed by historical context (Narayan 123). Despite these critiques, Sahgal's ability to probe the human psyche, particularly through gendered relationships, elevates her work beyond mere political allegory.

In Storm in Chandigarh (1969), Sahgal sets her story amid the Punjab-Haryana reorganization, a period of linguistic and territorial disputes following the 1947 Partition. The novel juxtaposes this political upheaval—with Chandigarh as a contested symbol of unity and division with the personal struggles of its characters, offering a lens into the evolving dynamics of love, marriage, and identity in modern India.At the narrative's heart is Vishal Dubey, a government official tasked with mediating the regional conflict. A widower, Vishal is tormented by the memory of his emotionally barren marriage to Leela, which ended with her untimely death: "They lived as strangers within the confines of marriage" (Sahgal 65). His encounter with Saroj, trapped in a stifling marriage to the domineering businessman Inder, sparks a transformative connection rooted in mutual understanding. Meanwhile, Gauri, bound to a Bengali businessman in a pragmatic but loveless union, seeks fleeting passion outside her marriage, exposing her unmet emotional needs.

Sahgal uses these relationships to explore the tension between societal norms and personal agency. She posits that marriage should be a partnership of equals, not a transaction of power or convenience. Inder and Saroj's marriage epitomizes patriarchal control, with Inder viewing his wife as a possession rather than a partner. Saroj's growing awareness of her emotional deprivation leads her to embrace Vishal's companionship, choosing self-discovery over submission.In contrast, Mara and Jit embody a modern, egalitarian relationship. Mara's independence and Jit's respect for her autonomy suggest a progressive ideal, yet Mara's affair with Inder reveals persistent emotional voids. This complexity underscores Sahgal's view that even modern relationships can falter without deep intellectual and emotional connection.

Vishal and Saroj's bond, however, stands as a beacon of hope. Their relationship, built on empathy and respect, transcends societal constraints. Vishal's assertion, "No system can contain the

entirety of life," reflects Sahgal's belief in prioritizing human values over rigid conventions (Sahgal 130). Their connection offers Saroj a path to emotional liberation, redefining her sense of home and belonging.Sahgal's characters grapple with the dichotomy of tradition and freedom, a recurring theme in her oeuvre. She reframes adultery as a response to emotional starvation rather than a moral failing, challenging societal judgments. Through Vishal, she critiques India's superficial embrace of freedom: "We've won political freedom, but it's yet to shape our minds or lives" (Sahgal 175). This statement highlights her call for a deeper, internalized liberty that informs personal relationships.

Drawing inspiration from D.H. Lawrence, Sahgal views love as a union of autonomous individuals, free from societal or material burdens. She rejects romanticized notions of marriage, advocating instead for partnerships grounded in trust and equality. Superficial relationships, devoid of communication, are portrayed as hollow, while those fostering mutual growth are celebrated.

Storm in Chandigarh ultimately transcends its political setting to probe the essence of human connection. Sahgal's vision champions the transformative power of love and the necessity of personal freedom, urging a reevaluation of societal norms. Her portrayal of resilient, self-aware women aligns her with contemporaries like Shashi Deshpande, while her nuanced critique of post-independence India ensures the novel's lasting relevance.

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Integrating Self-Determination Theory into HR Practices: Implications for Employee Performance in Banking

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Abstract:

This study examines at how Self-Determination Theory (SDT) is incorporated into Human This research looks into how Self-Determination Theory (SDT) is incorporated into banks HR procedures and considers how it might improve worker performance. SDT provides a theoretical framework for comprehending how motivation affects behavior and performance in the workplace by emphasizing autonomy, competence, and relatedness. With its high pressure and performance expectations, the banking industry can greatly benefit from HR strategies that encourage intrinsic motivation and create a more engaged and effective workforce.

This research study looks at how HR procedures based on SDT can affect worker motivation and output in banking organizations using secondary data from earlier studies, case studies, and organizational reports. The results show that when HR methods put an emphasis on relatedness—by creating supportive relationships—competence—by ensuring ongoing training and development—and autonomy—by giving workers more control over their tasks—employee satisfaction and performance increase. Banks can improve employee engagement, lower attrition, and increase overall organizational performance by incorporating SDT principles into HR procedures.

This study emphasizes how crucial it is to match HR tactics with SDT in order to establish a work atmosphere that inspires people to provide their best effort. It emphasizes SDT's capacity to mold HR procedures that support workers' professional development and well-being in addition to achieving organizational goals. The study concludes by indicating that SDT-based HR procedures can be crucial in creating a driven, productive workforce in the banking industry.

Keywords: Self-Determination Theory, Human Resource Practices, Employee Performance, Banking Sector, Employee Engagement, Organizational Psychology, Job Satisfaction

Introduction:

Background

Organizational success in the fast-paced, cutthroat banking industry depends on encouraging employee engagement and performance. Three basic psychological needs—autonomy, competence, and relatedness—are the driving forces behind intrinsic motivation, according to Deci and Ryan's Self-Determination Theory (SDT), a psychological framework. In contrast to extrinsic rewards, which frequently have little impact on sustained engagement, SDT provides a more thorough knowledge of how intrinsic elements can raise worker productivity and pleasure.

The experiences and results of employees are greatly influenced by human resource (HR) procedures. HR tactics can meet the psychological demands of workers when they are in line with SDT principles, fostering an atmosphere that encourages motivation and excellence. The banking industry's conventional HR procedures, however, frequently overlook the fundamental demands that promote long-term engagement and effectiveness in favor of extrinsic motivators like cash payouts and strict performance reviews.

Problem Statement

Traditional HR procedures like performance reviews, bonuses, and training courses are still widely used, but many banks still face issues with low staff engagement, high employee turnover, and dwindling productivity. This discrepancy shows that potential may go unrealized because standard HR techniques could not adequately meet employees' psychological requirements. In order to enhance employee engagement, motivation, and overall

Litreature Review:

Autonomy, competence, and relatedness are three intrinsic psychological demands that must be met for the best motivation and performance, according to Deci and Ryan's (1985) Self-Determination Theory (SDT). According to research by Ryan and Deci (2000), better levels of engagement, creativity, and job satisfaction are the

results of intrinsic motivation, which is fueled by the satisfying of these requirements. Baard, Deci, and Ryan (2004) also showed that workers who feel related and autonomous report higher levels of job satisfaction and productivity. Conversely, conventional extrinsic motivators, such monetary compensation, frequently erode intrinsic motivation (Deci, Koestner, & Ryan, 1999). Research has indicated that HR procedures in the banking industry tend to overlook employees' psychological requirements in favor of performance monitoring and financial incentives (Kuvaas et al., 2017).Gagné and Deci (2005) contended that competence-enhancing methods like as skill development and feedback, when combined with environments that allow autonomy, lead to long-term employee engagement and lower turnover. The importance of customized training programs and participatory decision-making in promoting internal motivation and organizational commitment was also emphasized by Alfes et al. (2013). Research on the application of SDT principles to HR practices in the banking industry is still lacking, despite these findings. This calls for more investigation into the ways in which relatedness, competence, and autonomy can be incorporated into HR strategies to improve employee performance and well-being.

Research gap: Although there is a wealth of study on HR procedures and employee motivation, little is known about how Self-Determination Theory (SDT) is applied in the banking industry. Today's HR procedures frequently prioritize extrinsic motivators over the psychological needs of relatedness, competence, and autonomy. Furthermore, limited research and practical frameworks exist about the ways in which SDT-aligned techniques can improve employee performance and well-being in high-pressure banking settings. By investigating SDT's ability to transform HR procedures for long-term motivation and enhanced results, this study fills these gaps**.**

Methodology

This study will be based solely on secondary data to explore the integration of Self-Determination Theory (SDT) into HR practices in the banking sector. And reviewed from the research paper which are published nationally and internationally.

Objective

1) This study's main goal is to investigate the effects of incorporating Self-Determination Theory (SDT) into banking businesses' HR procedures. Through the use of secondary data, this research will investigate how HR practices that emphasize autonomy, competence, and relatedness—all of which are in line with SDT principles—can enhance worker motivation and output in the banking industry.

Self-Determination Theory (SDT)

Deci and Ryan created the Self-Determination Theory (SDT), a psychological theory that highlights the significance of intrinsic drive in human action. Autonomy, competence, and relatedness are the three fundamental psychological demands that must be met for optimal well-being and performance, according to SDT.



Autonomy:

The sense of control over one's choices and actions is referred to here. Autonomy in the workplace is achieved when workers are empowered to take initiative in their responsibilities, are provided flexibility in their activities, and participate in decision-making. Higher levels of autonomy are associated with higher levels of job satisfaction and motivation.

Competence:

Being competent means that workers feel capable and productive in their positions. This is promoted when workers are assigned challenging tasks and receive pertinent feedback that encourages their development.

Relatedness:

The need to feel a connection with other people is known as relatedness. When workers have a sense of belonging within the company and have deep ties with their managers and coworkers, they are more driven.Employees are more intrinsically motivated when these three demands are satisfied, and this is linked to improved performance, engagement, and work satisfaction.

Employee Motivation and Performance

SDT has been linked to employee engagement, motivation, and performance in a number of studies. According to research by Gagné and Deci (2005), workers who have a lot of autonomy at work are more likely to be more

motivated and perform better. Additionally, companies are more likely to improve job satisfaction and lower burnout rates if they offer training programs that foster competence and skill growth. The significance of relatedness is emphasized by Baard, Deci, and Ryan (2004), who discovered that workers who experience support from their managers and coworkers are more likely to be engaged and dedicated to their companies. According to these findings, motivated, engaged, and productive employees are more likely to have their psychological needs met.

HR Practices

Employee development, incentive programs, and performance management are usually at the heart of HR procedures in the banking industry. But these methods frequently ignore the basic psychological needs described in SDT. Extrinsic reward schemes and performance reviews, which emphasize bonuses or promotions, are examples of traditional HR tactics that do not adequately meet employees' underlying motivational Also, a lot of banks use uniform training programs that might not address the demands of each employee's personal development. Providing employees with individualized learning opportunities that enhance their competencies and foster their sense of mastery and development would be a more SDT-aligned approach to HR procedures. HR procedures should also create an atmosphere that encourages solid interpersonal bonds, teamwork, and social support in order to satisfy the relatedness need.

Theoretical Framework

This research is framed within the context of Self-Determination Theory (SDT), which serves as a theoretical lens to explore the role of HR practices in fostering employee motivation and performance in the banking sector. By integrating SDT into HR practices, organizations can better meet employees' intrinsic psychological needs. This approach suggests that HR strategies that focus on enhancing autonomy, competence, and relatedness are likely to lead to a more motivated, satisfied, and high-performing workforce. This framework will guide the analysis of existing HR practices in the banking sector, offering insights into how these practices can be adapted to promote intrinsic motivation and improve employee outcomes. Through this lens, the research aims to provide actionable recommendations for HR professionals in the banking industry to foster a more engaged and productive workforce.

Conclusion:

Self-Determination Theory (SDT) has the potential to be a game-changing framework for improving HR procedures in the banking industry, as this study shows. Employers can promote long-term motivation, increased engagement, and greater performance by focusing on meeting the intrinsic psychological requirements of their workforce—autonomy, competence, and relationship. Traditional banking HR procedures, which frequently place a strong emphasis on extrinsic rewards, fall short in meeting these fundamental demands, which results in disengagement and less than ideal results. One way to create a motivated and high-performing staff is to include SDT principles into HR tactics like interactive decision-making, individualized development plans, and encouraging work environments.

This study emphasizes the significance of reconsidering HR procedures to conform to SDT, not only to increase organizational efficiency but also to enhance employee happiness and well-being. Although earlier research has demonstrated SDT's effectiveness in other domains, its use in banking is still little understood. Through its insights and practical suggestions for HR professionals in the field, this study helps close this gap. Future studies could build on these results by examining the long-term effects of SDT-based therapies and how corporate culture influences their uptake. Banking companies can gain a competitive edge by incorporating SDT principles into their operations and cultivating a resilient, dedicated, and driven team.

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Role of Rural Based Small & Cottage Industry in the Socio-Economic Development of India

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Abstract:

India has its characteristics in her villages since it has an impressive background & prosperous history based on agriculture and its produce. The socio-economic status of India was based on this product. After its independence the Planning Commission and Ministry of Finance focused on its development to uplift the socio-economic status of rural Indians. In this era of the global village, the world is shrunken, and the benefit of this global development has to be achieved by highlighting the peculiarity of India by setting the global market with the help of commerce and industries is a timely need which will develop the socio-economic status of Indians, especially concerning rural India.

Keywords: MSME, Startup, Micro Enterprise, Small Enterprise & Medium Enterprise.

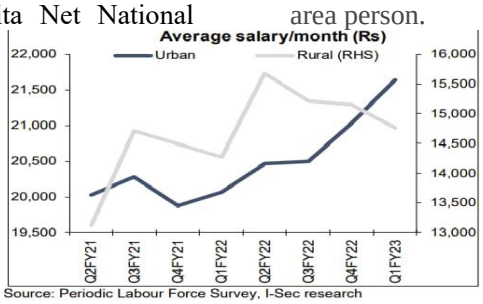
Introduction:

Though India has made socioeconomic growth in all respects it is still hard to say that, India has made overall growth thoroughly. Because its rural areas are deprived of the exact and actual growth, today, it appears everywhere that, India has been changed and developed. Still, it seems factual that the actual data and the so-called development are inconsistent and have a positive correlation. Somewhere in some other parts, the development appears rapidly but somewhere this is not the fact. This contradiction is always unveiled as a comparison of development between rural and urban areas within our country. This disregard appearing & it is rigorously seen in the economic development of rural areas within India.

As per the latest provisional estimate published on 31st May 2023, India's per capita Net National Income at constant 2011-12 prices increased by 35.12% from Rs. 72805 in 2014-15 to Rs.98,374 in the year 2022-23 (https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1913325)

As we are aware more than 66% of the Indian population is still residing in rural India. Previously this figure was at 80%. This reduction is witnessed due to heavy inequality in the per capita income of rural & urban people.

In 2020-21, the average annual income of urban households in India was Rs.2,67,656, compared to Rs. 1,67,833 for an average rural household. According to an ICICI Securities report, the average monthly income for a salaried person in urban India was Rs.21,647 in the first quarter of fiscal year 2023, compared to Rs. 14,700 per month for a rural area person.



Source: Periodic Labour Force Survey, I-Sec research

(https://www.business-standard.com/finance/personal-finance/india-s-average-monthly-salary-in-urban-india-is-rs-21-647-123071700339_1.html)

The above figure envisages that in rural India, the fluctuation of the average salary is greater than the average salary in urban India. The migration of rural people to urban areas is disturbing the income status level of Indian people area-wise. This migration from rural to urban diminishes the earnings ratio of urban area people since the total population which is the divisible factor to calculate per capita income is getting higher and higher day by day in urban areas. At the same time, this migration from rural to urban is resulting in the thinner productivity of rural areas due to insufficient human force available to enhance rural productivity.

Measures to be taken by Trade, Commerce & Industries:

Therefore, it is high time to fill the gap as regards income between urban and rural areas. Measures have to be taken to improve the productivity of the rural regions and to increase the income of rural people, small and cottage industries must be set up in rural India. The entrepreneurs from the society and business fraternity must mobilize their resources in the rural area so that the rural people can get work at their doorstep. This will lead to an improvement in the per capita income of rural people at the same time it will help to improve the productivity of rural areas. This will reduce the migration of rural people to urban areas. Ultimately it will result in balancing the per capita income of rural and urban people within India.

Before the independence of India, the Britishers neglected the development of rural areas within India. Whereas rural people were solely dependent on agriculture, there was not a healthier growth of industries in rural or urban parts of India. After the independence of our country, the people from rural areas then grew up in the rural industries with the help of the Government and entrepreneurs set the rural industries, especially in the field of coir where coconut is produced in south India. Jute industries in the eastern part, and chemicals in the western part, are examples.

Measures to be taken by Governments

India has turned its economic policies drastically from 1992-93 onwards. From the year 1994 Government of India concentrated on the power of service industries which were untouched by its independence from the taxing net. The central Government then introduced the concept of service tax initially, 12 services were brought into the net of service tax then more than 100 services were brought into the net of service tax. Since, 2013 there were important amendments were made to the Service Tax Law & Company Law. There were major changes brought into The Indian Companies Act, of 1956 then this Act is now known as the Indian Companies Act, of 2013. From the year 2013 onwards in the Service Tax, only 12 services were put out of the net of charging the service tax, and apart from these services, all the services were brought into the net of the service tax. From 01/07/2017 onwards the Goods & Services were merged and the Goods & Service Tax Act, 2017 was introduced throughout India at once.

Incentives are expected to be provided by the Central or State Governments to the entrepreneurs to set up new business enterprises. The entrepreneurs can set their business as Micro, Medium & Small Enterprises:

Make in India Vs. Made in India

Both these concepts have the sense with the production but there is a thin line difference between both of these terminologies. Previously worldwide the concept of Made In was familiar which envisages that the resources to produce an item such as raw material and labor were used by the country that owns it and preparing it. China is the country that brought in the concept of Make In throughout the world. Since China has much human power in numbers in its hands and to provide the opportunity to its people China attracted the entire world to produce their product in China itself. In Make In concept a country used to manufacture goods for another country, the raw material may be provided by the country that desires to prepare it or otherwise, they use to purchase it from China itself and they prefer to make it through labor from China. Now, on this line of Make In, India is also offering other countries to make their goods from Indian human force. By adopting this concept, the government is providing the opportunity to earn to the Indian citizens within our country this leads to improved individual income and ultimately increases the national overall income.

Startup:

Nowadays, the startup concept is very prevalent in India. The above Make in India & Made In India concepts are also running through this startup concept. It means the entrepreneurial activities to be carried out by forming startup enterprises to carry the commerce, trade & industry within a state or country. These startups may be operated in the form of a Sole Trader, a Partnership Firm, an LLP, a Joint Stock Company, or in any other organized manner. This is helping the society to improve its Socio-Economic status within the country. Startups are attracting capital markets, by forming the company startups are nowadays attracting people to invest in such kinds of startup companies the best example "Zomato".

Following some of the village and agriculture-based businesses that can be carried by forming Startups as Make in India

In India Fusion of Agriculturists and Industrialists through MSME may make a difference:

MSME means Micro, Small and Medium Enterprises

Micro-Enterprise:

A micro-enterprise is one where the investment in plant and machinery (their original cost excluding land, building and items specified by the Ministry of Small-Scale Industries in its notification No. S.O. 1722(E) dated October 5, 2006) does not exceed Rs.25 lakh.

Small enterprise:

A small enterprise is one where the investment in plant and machinery (see above) is more than Rs.25 lakh but does not exceed Rs.5 crore.

Medium enterprise:
A medium enterprise is one where the investment in plant and machinery (see above) is more than Rs.5 crore but does not exceed Rs.10 crore.

Definitions in the context of Service Industries:

Micro-Enterprise:
Investment in equipment does not exceed Rs.10 lakh

Small Enterprise:
Investment in equipment is more than Rs.10 lakh but does not exceed Rs.2 crore

Medium enterprise:
Investment in equipment is more than Rs.2 crore but does not exceed Rs.5 crore.

Micro, Small & Medium Enterprises - The Engine of inclusive growth & development

Worldwide, micro small, and medium enterprises (MSMEs) have been accepted as the engine of economic growth and for promoting equitable development. The major advantage of the sector is its employment potential at low capital cost. The labor intensity of the MSME sector is much higher than that of the large enterprises.

Agriculture products like Coir from coconut trees, Orange Squash from oranges likewise jute yarn, cotton yarn, and so many food processing units have the scope to build industrial wealth with the help of agriculture. Here some data are provided to prove the positive correlation between agriculture and industry.

Coir Industries in India:

Coconut is produced in about 91 countries of the world. India produces 12685 million nuts and occupies third place after Indonesia and the Philippines. The Indian share in the world's coconut production is about 16.28% and 17.07% in the area harvested. Annual production is about 216651 million nuts with an average of 10122 nuts per hectare. The high-producing state is Kerala in terms of area, followed by Tamil Nadu, Karnataka, Andhra Pradesh, and Odisha. Coconut Husk Utilization and Market Potentials Currently 36310.44 lakh husks are utilized for generating fibers

Jute

Jute is India's second-important fiber crop, after cotton. Today, in the world market, Jute is in great demand because of its cheapness, softness, strength, length, luster, and uniformity.

Utility

Jute is used for producing a huge variety of utility products like gunny bags, hessian, ropes, strings, carpets, rugs and clothes, tarpaulins, upholstery, and decoration pieces. In recent times jute fiber has also been used to manufacture men's shirting materials and women's sarees, salwar-kameez material, after making the softness process of the fiber. Linen fabrics are nowadays introduced in the textile market of India

Fox Nut (Makhana):

The food has high nutritional value, recently The central Government of India, enacted a special scheme in the Union Budget of 2025, especially with a special reference to the State of Bihar, the largest producer of Fox Nut, and proposed to form "Makhana Board " there.

Benefits of rural-based small & cottage industries

As discussed in this paper the fusion of agriculturists & industrialists will lead to improved socio-economic status of the states within India especially the states having Special Category Status (SCS). Within India the Planning Commission was established in the year 1951 since its inception it dragged many surveys and collected data which are helpful to chalk out their different plans for the overall development of our country. The data they collected reflects the lack of socio-economic growth in certain states within India. Hence, in the year 1969, it was decided to pinpoint certain states which were required more attention for their overall development.

Which states then will be treated as SCS?

The states facing financial inertia, having geographically hilly area status, bearing more tribal population, facing low per capita income, having international political borders, etc. are the criteria to get a Special Category Status (SCS)

Then it seemed that apart from northeast states some of the states like Himachal Pradesh, Jammu & Kashmir, and recently the state of Telangana is categorized as SCS. The main objective is to enable the states within India to go through many challenges related to socio-economic criteria. Such states will become enabled by providing them with fiscal help and making them autonomous and independent to generate revenue by their means and conversion of natural resources with optimum use to generate revenue for them at ground level. By providing the states with such special category status the business and agriculture sector will grow which ultimately helps to raise the per capita income of the people within such states.

Hence, in light of the above facts & figures, it can be concluded that this is the right time to grab the opportunity for entrepreneurs to set up the agriculture items-based industry in the recent scenario of the sociopolitical status of the Indian economy.

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Thematic Analysis: A Qualitative Method for Exploring Patterns in Political Science Research

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Abstract:
This paper explores thematic analysis as a vital method in qualitative research, emphasizing its analytical value and practical applications. Thematic analysis involves identifying, analyzing, and interpreting patterns within qualitative data such as interviews, documents, or media content. Being a broad and theoretically very neutral method, it is applied widely across subjects, such as psychology, education, health, international relations, and political science. The paper outlines the six essential steps of thematic analysis as established by Braun and Clarke and gives a clear research guide. Particular emphasis is placed on its application to international relations and Indian politics, where it facilitates the unearthing of the way political narratives, policy discourses, and public attitudes are constructed. The method's strengths and weaknesses are critically evaluated as well as means of maintaining rigor and reliability, including triangulation, reflexivity, and peer debriefing. Ethical aspects are also emphasized, particularly where studies are concerned with sensitive issues or vulnerable groups. Finally, the paper contends that thematic analysis is not merely a technique of coding but an efficacious tool of interpretation which has the potential to unearth underlying meanings, relations of power, and ideological constructions in social and political life. If conducted with a systematic yet flexible process, researchers are able to extract rich understandings from qualitative data and make significant contributions to theory and practical knowledge.

Keywords: thematic analysis, qualitative research, coding, patterns, reflexivity, international relations, Indian politics, trustworthiness, political discourse, ethical research

Introduction:

Qualitative research is used to learn about people's experiences, ideas, and behaviours. Unlike quantitative research, qualitative research is concerned with the meaning people intend when they speak or act. Thematic analysis is among the most widely employed qualitative research methods. This paper defines thematic analysis, how it is done, where to apply it, its advantages and limitations, and how to ensure that work is reliable and ethical.

What is Thematic Analysis?

Thematic analysis is a core qualitative research method applied to identify, examine, and interpret recurring or thematic patterns in data. It allows researchers to analyze rich textual data like interview transcripts, media reporting, or policy briefs by analyzing it into major themes that capture underlying significance or recurring ideas.

As described by Braun and Clarke (2006), thematic analysis is a versatile and user-friendly technique that can be applied within a range of epistemological paradigms. Researchers are able to use an inductive stance, in which the themes arise organically from the data, or a deductive stance, in which the analysis is informed by prior theories or concepts. Furthermore, thematic analysis can work at varying levels of interpretation: it may attend to semantic content (what the participants literally state) or to latent content (assumptions, ideologies, or meanings beneath the surface).

This technique is particularly useful since it permits both descriptive and interpretative findings. It is not wedded to a particular theoretical school, and for that reason it is versatile across disciplines and subject matter. Thematic analysis is a process that not only reveals what is said but also examines how and why particular problems are constructed or felt in certain ways and thus serves as a valuable means of investigating discourse, culture, identity, and power relationships within both micro and macro levels (Braun & Clarke, 2012; Nowell et al., 2017).

Steps in Thematic Analysis

Braun and Clarke formulated a six-step procedure for conducting thematic analysis:

Braun and Clarke's six-step process for conducting thematic analysis provides a structured way to explore qualitative data**:**

- **Familiarization with the Data:**
  The first step involves immersing oneself in the data to become deeply familiar with its content. This includes reading and re-reading transcripts or texts, taking preliminary notes, and beginning to think about possible patterns. It's an active process where researchers start forming ideas and potential areas of interest.
- **Initial Code Generation:**
  This is the process of systematically searching for features of the data that are notable or significant. These codes are brief terms that capture significant things in the text, like a recurring issue, feeling, or experience. Coding can be manual or using software, and multiple codes may be applied to each piece of text.
- **Theme searching:**
  Once a list of codes has been created, the researcher needs to sort the codes into possible themes. A theme identifies something meaningful about the data and the research question. Researchers look at how codes intersect to create broad categories or stories. The initial themes are not yet conclusive but are the basis upon which more intense analysis will be built.
- **Themes Reviewing:**
  During this stage, themes are developed and analyzed to ensure they are representative of the data. Themes can be combined, bifurcated, or deleted if they lack sufficient evidence. The researcher verifies if the themes are logical with respect to the coded extracts and the overall dataset. This makes the themes robust and coherent.
- **Defining and Naming Themes:**
  After the themes have been examined and finalised, every theme is defined and named. This task includes breaking down the core of every theme and what element of the data it represents. Researchers document thorough examinations of every theme, displaying how it makes the broader research story unfold.

Writing up the Report:

The final thing to do is write the analysis out in an organized and engaging manner. This involves choosing vivid, descriptive quotes from participants, connecting findings back to the research questions, and discussing them within the backdrop of previous literature. The report should provide a clear tale about the data, illustrating the way the themes address the research aims.

This structured yet adaptable process enables researchers to investigate a broad spectrum of qualitative data and develop meaningful conclusions without compromising methodological rigor.

How Thematic Analysis is Utilized

Thematic analysis is applied in most areas such as psychology, education, health, and social sciences. In psychology, thematic analysis can assist in comprehending people's experience with mental health. In education, it could be employed to examine teacher-student interaction. Since it is very versatile, researchers apply it in numerous kinds of studies, whether they are examining new concepts or testing hypotheses. It can also be employed as part of an array of methods to provide a more complete picture (Clarke & Braun, 2014).

In international relations, thematic analysis is particularly effective for analyzing how states convey their interests, how foreign policies are crafted, and how narratives of power, security, and diplomacy are created globally. For example, through examining diplomatic speeches or policy statements, researchers can discover common themes regarding national identity, regional cooperation, or global danger (Tickner, 2005). This technique is also employed in order to learn how global challenges like climate change, migration, and terrorism are constructed by international organizations.

In Indian politics, thematic analysis is employed to examine political discourse, election campaigns, public opinion, and debates over policy. Political scientists may analyze interviews with politicians, media reporting, or parliamentary debates to see patterns in the way political parties speak about development, nationalism, or social justice (Chatterjee, 2020). It also serves to understand how people from various regions or communities view governance, democracy, or political leadership. Thematic analysis provides a more profound and rich understanding of the political culture and the stories that frame public life in India.

Strengths and Weaknesses

A major strength of thematic analysis is that it's simple to use and does not need a rigid theory. It is suitable for novices and can be used in numerous circumstances. It facilitates close and significant analysis of individuals' stories (Braun & Clarke, 2013).

There are, however, a few challenges. Because the approach depends on interpretation by the researcher, there is a possibility of personal bias. If the procedure isn't strictly adhered to, the findings may not be valid. Additionally, there are no strict guidelines, which can make it difficult to assess the quality of the analysis (Nowell et al., 2017).

Making Thematic Analysis Trustworthy

To guarantee that thematic analysis generates credible and trustworthy findings, researchers need to use methods that increase the trustworthiness of the study. Trustworthiness in qualitative inquiry is usually assessed based on credibility, transferability, dependability, and confirmability (Lincoln & Guba, 1985).

- **Triangulation:**
  This is the process of employing diverse data sources, methodologies, or researchers to cross-check and confirm findings. For instance, in a study on Indian politics public opinion, data could be gathered from news reports, interviews, and social media to determine whether equivalent themes recur across sources**.**
- **Reflexivity:**
  Reflexivity is used to refer to the fact that researchers continuously reflect about their own assumptions, biases, and impact on the research process. In politically sensitive contexts such as Indian politics or global relations, one's position and how this may impact interpretation of data is critical (Berger, 2015).
- **Audit Trails:** Maintaining a detailed account of the research process—such as coding choices, theme formulation, and revision changes—makes it possible for others to follow how conclusions were derived. This is especially critical when researching intricate matters like foreign policy discussions or election narratives**.**
- **Member Checking:**
  Sharing the findings with participants so that the interpretation is congruent with their worldview is done. It ensures credibility by establishing that the identified themes are congruent with the lived experiences of the participants involved.
- **Peer Debriefing:**
  Presenting the findings and process to colleagues or managers is useful in introducing new insights and minimizing individual bias, thus making the study more reliable.

Software Tool Utilization:

NVivo and MAXQDA, computer programs, not only facilitate the coding and organization of vast amounts of data but also enhance transparency during the analysis process since others can scrutinize and validate the coding scheme and theme development (Paulus & Lester, 2021).

By implementing these strategies, researchers can make thematic analysis more valid and conduct results that are not only insightful but also rigorous and reliable.

Ethical Issues

Qualitative research places great emphasis on ethics. Researchers must obtain participants' permission (informed consent), ensure their privacy, and handle sensitive information carefully. They must also ensure that participants' voices are represented truthfully and respectfully. In dealing with vulnerable groups or sensitive issues, researchers must ensure extra caution in observing ethical protocols (Orb et al., 2001).

Conclusion:

Thematic analysis is not simply a means of categorizing qualitative data—it is a strong tool for unearthing the underlying meanings and power relations contained in individuals' accounts, discourses of institutions, and social practices. It is flexible enough to enable researchers to go beyond brief observations to analyze how identities, ideologies, and structures get produced and contested in various locales.

In areas like international relations and Indian politics, thematic analysis can be used by scholars to track the way political narratives are created, how legitimacy is presented, and how public discourse constructs and mirrors wider power dynamics. For instance, repeated themes in diplomatic messages or campaign speeches expose not just what is being communicated but how issues are strategically presented to serve specific interests or values. Therefore, thematic analysis is not a matter of detailing themes—it is a matter of analyzing how language, discourse, and representation make political meaning and bring about social change.

In addition, its usefulness is in its accessibility and versatility. It is accessible to beginner researchers and experienced scholars, too, in a broad array of fields. When applied stringently, it is capable of aiding theory building, policy making, and action research. It also invites critical examination on the part of the researcher, leading to more open and ethically defensible scholarship.

Even with its advantages, thematic analysis has its weaknesses. Threats include researcher bias, overgeneralization, or superficiality if not conducted carefully. However, through adherence to systematic practice and ethical codes, these risks can be effectively controlled.

In the end, thematic analysis is more than just a coding practice—it is a rich interpretative framework that allows qualitative researchers to dig seriously into rich social realities and create knowledge that counts.

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Policy, Governance, and Resilience Planning: Enabling Communities to Thrive Amid Future Uncertainties

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Abstract:

In the Anthropocene era, where the world is rapidly changing, governments are increasingly confronted with complex challenges—ranging from climate instability and health crises to technological disruption and socio-economic inequalities. These evolving realities demand a shift from reactive governance to proactive and adaptive systems. This paper critically examines the intersection of policy formulation, governance practices, and resilience planning as essential tools for ensuring societal well-being and long-term sustainability. It conceptualizes resilience not just as the ability to recover from crises, but as the institutional capacity to anticipate, adapt, and evolve through inclusive and equitable strategies. Emphasizing participatory decision making, transparency, and institutional agility, the paper draws insights from global and national case studies to illustrate how resilience-oriented governance can bridge short-term needs and long-term visions. By integrating social equity, legal flexibility, and multi-sectoral coordination, the study argues for embedding resilience as a guiding principle in policy and governance frameworks. In doing so, it offers a forward-thinking perspective on how nations can foster cohesive, just, and future-ready societies amid growing uncertainty.

Keywords: Resilience Planning, Public Policy, Governance Systems, Institutional Adaptability.

Introduction:

We live in a world increasingly defined by complexity, volatility, and interconnected risks. Climate change, pandemics, cyber threats, rising authoritarianism, economic inequality, and rapid digital transformation have fundamentally reshaped the expectations from governments. These conditions demand not only reactive crisis management but proactive, inclusive, and sustainable governance frameworks that prepare societies to withstand, adapt to, and grow through systemic disruptions. This is where the concept of **resilience planning** enters the policy discourse. Resilience is no longer a luxury—it is an imperative for states, communities, and institutions alike.

In the Indian context, resilience must be understood within the country's pluralistic social structure, deep-rooted constitutionalism, and uneven development trajectories.

Amidst the debates on national integration, legal uniformity, and social justice, Article 44 of the Indian Constitution, which envisages a Uniform Civil Code (UCC), presents a profound test of India's commitment to both unity and diversity. This paper explores how resilience planning, through a careful balance of equity, legality, and cultural sensitivity, can guide India's approach to transformative yet inclusive governance.

Objectives:

1. To explore and articulate the concept of resilience planning as it applies to contemporary governance structures, with a specific focus on the Indian policy context.
2. To examine both theoretical foundations and practical applications of resilience through selected national and international policy case studies.
3. To critically assess the role and implications of Article 44 (Uniform Civil Code) within the broader framework of resilience-oriented governance.
4. To develop a governance approach rooted in resilience that promotes inclusion, cultural diversity, participatory decision-making, and long-term sustainability.

Data and Methodology

1. Doctrinal Legal Analysis

This part of the study involves a deep examination of legal texts, especially the Indian Constitution. Article 44, which talks about the Uniform Civil Code (UCC), is studied carefully to understand its meaning and intent. The analysis also includes reviewing legal commentaries, expert opinions, and judgments from Indian courts to explore how the law has been interpreted over time. The goal is to understand how the idea of "resilience"—the ability of society to adapt and recover from challenges—can be supported through constitutional values and legal frameworks.

2. Comparative Policy Review

- **Sweden's Civil Contingencies Agency (MSB)**

Outcome: Successfully improved national preparedness during the COVID-19 pandemic by integrating early-warning systems with decentralized emergency response units. However, critics noted delayed actions in care homes, highlighting the need for stronger local healthcare integration.

- **New Zealand's Wellbeing Budget**
  Outcome: Led to increased investments in mental health and child welfare, signaling a shift from GDP-centric planning to human-centric resilience. Yet, implementation gaps remain in tracking long-term effectiveness across Māori communities.
- **India's National Action Plan on Climate Change (NAPCC)**
  Outcome: Enhanced inter-ministerial coordination on climate actions and promoted renewable energy initiatives like the National Solar Mission. Still, lack of funding and uneven state-level implementation limit its scalability and inclusiveness.
- **Pradhan Mantri Garib Kalyan Yojana (PMGKY)**
  Outcome: Acted as a robust economic buffer during COVID-19, benefiting over 80 crore people through food security and direct cash transfers. Nevertheless, data gaps and exclusion errors underscore the need for better targeting mechanisms.

3. Thematic Content Analysis

- **Inclusivity** – Are all groups in society, especially the vulnerable, considered in resilience planning?
- **Adaptability** – Can the governance system adjust to new challenges and uncertainties?
- **Sustainability** – Are the solutions long-term and environmentally conscious?
- **Institutional Legitimacy** – Do people trust the institutions that are supposed to manage resilience?

Result and Discussion

Understanding Resilience Planning

Resilience planning encompasses more than merely reacting to or recovering from crises; it is a proactive, dynamic process aimed at fostering adaptability, systemic transformation, and long-term sustainability. It requires institutional and policy innovation that prioritizes inclusion, preparedness, and future-readiness.

- **Inclusivity and Participatory Governance:** Ensuring that all social groups— particularly vulnerable and marginalized communities— have a voice in shaping policies.
- **Anticipatory and Data-Driven Decision Making:** Leveraging technology, forecasting tools, and data analytics to anticipate risks and tailor responses.
- **Cross-Sectoral and Institutional Integration:** Building coherence between different levels of government, sectors, and policy domains to avoid fragmentation.
- **Legal Codification:** Embedding resilience strategies within statutory frameworks to ensure continuity, consistency, and enforcement.
- **Adaptive Flexibility:** Maintaining the capacity to recalibrate policies and strategies in response to evolving socio-environmental conditions.

4. Theoretical Significance of Governance for Resilience

Governance for resilience goes beyond administrative capacity; it reflects the political, ethical, and social underpinnings of state functioning. The resilience of governance is measured by its **legitimacy**, **citizen trust**, and **ability to facilitate collective action**.

Effective governance in this context aligns global commitments, such as the Sustainable Development Goals (SDGs), with local institutional practices and community values.

- **Democratically Accountable:** Grounded in transparency and responsive to public scrutiny. **Contextually Grounded:** Tailored to the unique needs, traditions, and challenges of specific regions or communities.
- **Institutionally Resilient:** Capable of enduring shocks without systemic breakdown.
- **C. Features of Resilient Governance**
- **Transparency:** Enabled by open data systems, accessible governance processes, and public visibility into policy formulation and implementation.
- **Accountability:** Ensured through robust grievance redressal mechanisms, institutional checks and balances, and periodic audits.
- **Social Inclusion:** Actively involving women, minorities, indigenous populations, and other marginalized communities in policy design and implementation.
- **Policy Flexibility:** Incorporating feedback loops and real-time data to allow for timely adjustments in laws and governance mechanisms.
- **Legal Backing:** Developing laws that institutionalize risk reduction, equity, and preparedness, such as climate legislation, disaster management laws, and personal law reforms.
- **D. Challenges in Building Resilient Systems**
- **Resource Constraints:** Limited fiscal capacity and institutional inefficiencies hamper implementation.
- **Bureaucratic Inertia:** Resistance from entrenched administrative structures can slow down or dilute reforms.

- **One-size-fits-all Approaches:** Standardized solutions may overlook local contexts, cultural nuances, and region-specific needs.
- **Impact Assessment Difficulties:** Evaluating long-term effectiveness of resilience strategies remains methodologically complex.
- **Overreliance on Technology:** Technological solutions may sideline necessary socio-political and structural reforms.
- **E. Opportunities for India**
- **Decentralized Resilience Strategies:** Through initiatives such as the State Action Plans on Climate Change (SAPCCs), which allow for localized planning and implementation.
- **Social Safety Nets:** Programs like the Pradhan Mantri Garib Kalyan Yojana (PMGKY) and Ayushman Bharat represent scalable models for socio-economic resilience.
- **Legal and Institutional Innovations:** Experimentation with laws governing forest rights, digital platforms for public services, and rights-based welfare delivery enhances adaptability.
- **Pluralistic Constitutional Framework:** India's constitutional vision provides the ideological foundation for harmonizing diversity with national integration and sustainable development.

The Uniform Civil Code (UCC) and Its Role in Resilience Planning

Article 44: Legal Framework and Constitutional Mandate

Article 44 of the Indian Constitution, as part of the Directive Principles of State Policy, states:

"The State shall endeavour to secure for the citizens a uniform civil code throughout the territory of India."

While not enforceable by courts, it reflects a constitutional aspiration toward uniformity in civil laws about marriage, divorce, inheritance, guardianship, and adoption across religious communities.

The spirit of Article 44 lies in fostering **legal equality** and **justice in personal matters**, aligning with the principles of **individual dignity**, **gender equality**, and **national unity**. However, in a culturally diverse society like India, its implementation necessitates a nuanced and inclusive approach that respects the pluralistic fabric of the nation.

Merits of the Uniform Civil Code

Promotion of Gender Justice: A UCC could eliminate discriminatory practices embedded in various personal laws, particularly those affecting women's rights in marriage, divorce, and inheritance.

- **Legal Clarity and Uniformity:** A common set of civil laws could reduce legal ambiguities and contradictions between religious personal laws.
- **National Integration:** Uniformity in civil law may foster a greater sense of shared citizenship and reduce inter-community legal disparities.

Critiques and Concerns

- **Perception of Cultural Homogenization:** Certain minority communities perceive the UCC as a threat to their religious autonomy and cultural identity.
- **Risk to Minority Rights:** Critics argue that a uniform code might override community-specific traditions and erode the safeguards provided under Articles 25–28 (religious freedom).
- **Challenges to Secularism:** In India's context of positive secularism, where the State engages with all religions equally, the imposition of a uniform code without adequate dialogue may contradict the secular ethos.

Toward a Resilience-Centered Approach to UCC

- **Democratic Deliberation:** Conducting widespread consultations with religious leaders, legal scholars, civil society organizations, and community representatives to build consensus.
- **Phased and Incremental Legal Reform:** Introducing optional uniform civil laws, followed by gradual harmonization based on voluntary adoption and success stories.
- **Pluralistic Codification:** Instead of erasing traditions, codifying a civil code that accommodates diversity while upholding fundamental rights.
- **Safeguarding Religious Freedom:** Reaffirming the constitutional guarantee under Article 25, ensuring that religious practices not contravening public order, morality, or health remain protected.

Relevance

Intersection of Legal Reform and Resilience

Legal frameworks in India, including constitutional provisions, statutory laws, and personal laws, often reflect a complex balance between uniformity and pluralism. While reforms like the Uniform Civil Code (UCC) aim to standardize civil laws across communities, they simultaneously raise concerns about cultural sensitivity and inclusion. In this context, resilience planning must move beyond administrative readiness and focus on the **social legitimacy of legal changes**. If laws are enacted without acknowledging the **lived realities, cultural identities, and historical injustices** faced by marginalized groups, they may lead to alienation, unrest, or resistance.

Vulnerabilities Across Sectors

India faces chronic risks across environmental, economic, and social domains:

- **Environmental threats** such as floods, droughts, and air pollution disproportionately affect the poor and vulnerable, revealing deep

structural weaknesses in disaster preparedness and urban planning.

- **Identity politics** rooted in religion, caste, and ethnicity often polarize public discourse and complicate efforts at national legal unification or social cohesion.
- **Legal pluralism**, while providing communities the right to practice personal laws, creates tensions when reforms are perceived as intrusive or homogenizing.
- These realities demand a governance model that is **context-sensitive, inclusive, and transparent**—characteristics central to resilience.

Moral and Political Dimensions of Resilience

Resilience in India is not only about withstanding shocks—whether environmental, economic, or social—but also about fostering **moral responsibility, political stability, and ethical governance**. It requires recognizing that:

- A **top-down legal reform** without grassroots participation may erode democratic legitimacy.
- A **technocratic approach** that overlooks cultural diversity may fail to gain social acceptance.
- A **developmental policy** that prioritizes infrastructure over human dignity may create invisible victims rather than empowered citizens.
- True resilience in India must be anchored in **social justice**, **constitutional morality**, and **dialogue-based policymaking**.

The Constitutional Edge

India's Constitution provides a robust framework for striking a balance between diversity and unity. Provisions such as **Article 14 (equality before the law), Article 21 (right to life and dignity), Article 44 (Directive Principles of State Policy), and Article 25 (freedom of religion)** create an interpretive space where legal reform can coexist with pluralistic values. If used creatively and inclusively, these constitutional tools can help build **a resilient, rights-based legal ecosystem** capable of addressing the challenges of this century.

Conclusion:

Resilience planning has become crucial in today's world where uncertainties and challenges are increasing rapidly. For a country like India, which is known for its vast social and cultural diversity, simply focusing on structural solutions is not enough. There is a need to include social justice, legal flexibility, and open dialogue in the governance process. As explored in this paper, resilience is not about enforcing uniformity, but about creating systems that can adapt, recover, and evolve according to the realities people face every day. The debate over the Uniform Civil Code (UCC) highlights how important it is to balance constitutional values with the cultural and religious diversity of the nation. A UCC that follows a step-by-step approach, involves public consultation, and respects various traditions can help build stronger institutions and public trust. Therefore, governance in India must be participatory, inclusive, and focused on the rights of all citizens. True resilience lies not just in strong laws and policies, but in the willingness to listen, include everyone, and make decisions that support a fair and sustainable future for all.

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Destination Branding in Medical Tourism: A Conceptual Framework

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Abstract:
Medical tourism the practice of traveling abroad to receive medical treatment has evolved into a vital sector within both global healthcare and tourism industries (Connell, 2013). Driven by rising healthcare costs, long waiting times, and growing demand for high-quality, affordable care, patients are increasingly crossing borders to access treatment. In this competitive landscape, destination branding has emerged as a strategic tool for countries seeking to attract international patients. A strong brand not only conveys clinical excellence but also reassures prospective patients by projecting reliability, trustworthiness, cultural sensitivity, and overall value.
This paper explores the conceptual foundations of destination branding in the context of medical tourism and highlights its growing significance in influencing patient behavior. It identifies the essential components that contribute to a successful medical tourism brand—ranging from healthcare quality and accreditation to cultural compatibility and government support. Further, the study proposes a conceptual framework that illustrates how brand image, perceived service quality, and trust converge to shape patient decision-making and destination choice. The insights presented aim to guide policymakers, healthcare providers, and tourism stakeholders in crafting integrated branding strategies to position themselves competitively in the global medical tourism market.

Keywords: medical tourism, destination branding, healthcare marketing, patient trust, brand image, service quality

Introduction:

Medical tourism is a rapidly growing phenomenon driven by factors such as rising healthcare costs in developed countries, long waiting lists, and the increasing availability of quality healthcare services in developing nations (Bookman & Bookman, 2007). This cross-border healthcare movement not only affects patient flows but also contributes significantly to national economies. Countries seeking to attract international patients must differentiate themselves not only through quality healthcare but also through strategic branding that conveys reliability, value, and care.

In the past decade, the medical tourism industry has transformed from a niche sector to a major contributor to the global economy. The rise of digital platforms and global communication has empowered patients to compare treatment options across borders, consider affordability, and seek destinations offering both high-quality healthcare and enriching tourism experiences. Moreover, patient decision-making is influenced by trust, cultural compatibility, and perceived service quality—factors that are strongly shaped by a destination's brand identity.As patients become more informed and discerning, the role of branding has expanded beyond traditional marketing. Destination branding integrates national image, healthcare reputation, cultural assets, and tourism infrastructure to offer a compelling value proposition. This comprehensive branding approach influences not only patient choice but also long-term destination loyalty and word-of-mouth recommendations. Consequently, understanding the conceptual underpinnings of destination branding is vital for stakeholders aiming to compete effectively in the global medical tourism market.

Theoretical Foundation

The conceptual foundation of this paper draws on multiple theories:

- **Place Branding Theory**:
  Focuses on how destinations create unique identities that appeal to target audiences. In medical tourism, this involves projecting a consistent image of healthcare quality, patient care, and cultural compatibility (Kavaratzis & Ashworth, 2005). Effective place branding incorporates emotional and rational associations, offering a comprehensive identity that resonates with potential medical tourists.
- **Service Marketing Mix (7Ps)**:
  Product, Price, Place, Promotion, People, Process, and Physical Evidence—all tailored to healthcare services and patient expectations

(Booms & Bitner, 1981). This extended marketing mix provides a useful framework for evaluating the tangible and intangible factors that shape the healthcare service experience and contribute to branding success in medical tourism.

- **Theory of Planned Behavior (TPB)**:

  Explains how attitudes, subjective norms, and perceived behavioral control influence a patient's intention to travel for medical purposes (Ajzen, 1991). This theory emphasizes the psychological mechanisms behind travel decisions and underscores the importance of branding in shaping favorable attitudes and perceptions of control.

- **Signaling Theory**:

  In the context of medical tourism, branding acts as a signal of service quality and reliability. When patients face information asymmetry regarding foreign healthcare providers, a strong destination brand serves as a cue that reduces uncertainty and enhances trust (Spence, 1973).

- **Destination Image Theory**:

  Suggests that tourists' overall perceptions of a destination significantly influence their behavioral intentions. In medical tourism, a positive image of the healthcare system, safety, hospitality, and supporting infrastructure is crucial to attracting and retaining international patients (Echtner & Ritchie, 1991).

  These interrelated theoretical perspectives contribute to a robust understanding of how destination branding influences medical tourist behavior and the strategic development of competitive positioning in the global healthcare market.

Components of Medical Tourism Destination Branding

1. **Healthcare Quality and Accreditation:**

   High-quality medical care forms the backbone of a destination's brand identity in medical tourism. Accreditation from internationally recognized organizations such as the Joint Commission International (JCI), International Society for Quality in Health Care and ISO not only assures adherence to global standards but also serves as a benchmark for safety, cleanliness, clinical protocols, and patient outcomes. These endorsements significantly reduce perceived risk among prospective patients. Furthermore, hospitals can strengthen their brand by transparently showcasing treatment success rates, publishing peer-reviewed clinical results, and leveraging patient testimonials, awards, and international partnerships to communicate excellence and reliability.

2. **Cost Advantage:**

   One of the primary motivations for seeking treatment abroad is the considerable cost savings. Many developing nations can offer high-quality services at a fraction of the price due to lower labor and operational costs. However, price competitiveness must be balanced with perceived value. Clear and transparent pricing structures—covering consultation, treatment, accommodation, and follow-up—build trust and minimize uncertainty. Destinations offering bundled packages with additional perks like airport pickup, translator services, and recovery accommodations stand out. Exchange rate advantages further enhance affordability, allowing patients to access premium services that may be financially out of reach in their home countries.

3. **Trust and Credibility:**

   In a sector where patients are entrusting their health to foreign systems, trust is paramount. Destinations build credibility through consistent, transparent communication, visible service quality, and a strong ethical code. This trust is reinforced through third-party endorsements, international affiliations, published clinical audits, and responsiveness to patient feedback. User-generated content such as online reviews, video testimonials, and case studies can significantly influence decision-making. Additionally, partnerships with reputable insurance providers and global patient advocacy groups help reduce perceived risks, providing a safety net that boosts confidence among international patients.

4. **Cultural Compatibility and Language:**

   Medical tourists often face apprehensions related to language barriers, religious practices, dietary restrictions, and unfamiliar social norms. Destinations that proactively address these concerns by offering multilingual medical staff, culturally sensitive care, and accommodations for religious and dietary needs create a welcoming environment. Providing pre-arrival information in multiple languages, offering familiar cuisine, and training staff in cultural etiquette help minimize anxiety and promote a smooth recovery. Such attention to patient comfort not only enhances the care experience but also leads to higher patient satisfaction, loyalty, and positive word-of-mouth.

5. **Tourism Appeal:**

   Medical tourism extends beyond treatment—patients increasingly seek holistic experiences that support healing and wellness. Countries rich in cultural, historical, and natural attractions offer patients the opportunity to combine healthcare with relaxation and

rejuvenation. Proximity to beaches, mountains, heritage sites, and resorts, along with wellness services like ayurveda, spa treatments, and yoga retreats, adds immense value. Destinations that position themselves as both medical and leisure hubs can appeal to a broader demographic, including those traveling with family members. Enhancing the tourism infrastructure and creating integrated medical-tourism packages can significantly elevate the destination's attractiveness.

6. Government Policy and Support:

Government involvement is crucial to legitimizing and scaling medical tourism. Supportive policies can streamline visa processing (e.g., medical visas, extended stays), ensure consistent regulatory standards, and encourage foreign investment in healthcare infrastructure. Public-private partnerships can facilitate capacity building, innovation, and integrated branding campaigns. Governments also play a role in safeguarding patient rights, ensuring legal protection, and monitoring ethical standards in cross-border care. Coordinated efforts between ministries of health, tourism, foreign affairs, and trade are vital for building a robust and sustainable medical tourism ecosystem.

Proposed Conceptual Framework

The proposed framework identifies the dynamic relationships between destination branding and patient decision-making:

Diagram: Conceptual Framework of Destination Branding in Medical Tourism

Branding Activities
(Healthcare quality, Cost, Trust, Culture, Tourism, Policy)
↓
Brand Image
↓
Perceived Service Quality → Trust and Reliability
↓
Patient Choice/Intention to Travel

- **Brand Image**: Overall perception influenced by branding efforts and patient experiences.
- **Perceived Service Quality**: Patients' evaluation of service excellence, shaped by expectations and outcomes (Parasuraman et al., 1985).
- **Trust and Reliability**: Key for reducing perceived risk and encouraging commitment.

Implications for Policy and Practice

The proposed framework has several practical implications for key stakeholders involved in medical tourism:

Policy Makers:

To strengthen medical tourism competitiveness, policymakers must integrate healthcare and tourism development into national strategies. This includes simplifying medical visa processes, offering fiscal incentives to private healthcare providers, and launching international branding campaigns. Investment in transport and digital infrastructure is also essential to support seamless patient experiences. Healthcare Providers : Hospitals and clinics should align service delivery with branding promises. This involves maintaining high clinical standards, acquiring international accreditations, training staff in cultural competence, and offering multilingual support. Patient-centric care, transparency in pricing, and follow-up services are also vital to build reputation and trust.

Tourism Boards: National and regional tourism authorities should actively promote medical services in conjunction with leisure tourism. Coordinated marketing efforts, co-branded travel packages, and inclusion of healthcare offerings in travel expos and global campaigns can attract a wider audience. Collaborative Networks: Partnerships between healthcare institutions, hospitality providers, insurance companies, and travel agencies are essential for creating holistic medical tourism ecosystems. Such collaborations help in delivering integrated care, improving patient satisfaction, and amplifying destination visibility.

Conclusion:

As global healthcare dynamics evolve, medical tourism continues to gain traction among patients seeking affordable and high-quality care abroad. Destination branding is no longer a supplementary activity but a strategic necessity for countries aspiring to attract international patients. By integrating healthcare excellence, cultural familiarity, tourism appeal, and policy support into a coherent brand identity, destinations can significantly influence patient decision-making.The conceptual framework presented in this paper underscores the importance of building trust, enhancing perceived service quality, and creating a strong brand image to drive medical tourism growth. For stakeholders, adopting a collaborative and patient-focused approach is key to sustaining long-term competitiveness in this sector.Future research should empirically validate the proposed model across diverse geographic and treatment contexts. Longitudinal studies could explore patient loyalty, brand equity, and the role of digital platforms in shaping perceptions, providing a data-driven foundation for strategic branding decisions in medical tourism.

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Geo-Spatial Assessment of Groundwater Potential under Changing Land Use Patterns in the Amravati Basin

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Abstract:

The Amravati Basin, located in Maharashtra, India, has undergone significant land use and land cover (LULC) changes over the past decade due to increasing anthropogenic activities such as urban expansion, agricultural intensification, and infrastructure development. These changes have had a direct impact on the region's groundwater potential, a critical resource for domestic, agricultural, and industrial needs. This study investigates the influence of LULC transformations on groundwater potential zones using an integrated approach involving remote sensing, GIS, and the Analytical Hierarchy Process (AHP). Satellite imagery from 2014 and 2024 was analyzed to assess LULC changes, which revealed a notable decline in forest cover and a rise in built-up and agricultural land. Groundwater potential zones were delineated by integrating thematic layers such as soil, geology, slope, and drainage density. The results show that forested and agricultural areas contribute positively to groundwater recharge, while urban and barren lands correlate with poor recharge potential. A moderate negative statistical correlation (r = -0.64) between LULC changes and groundwater zones underscores the adverse effects of certain land use practices. The study emphasizes the need for sustainable land management strategies to enhance groundwater recharge and ensure long-term water security in the Amravati Basin.

Keywords: Land Use and Land Cover (LULC), Groundwater Potential, GIS, Remote Sensing, AHP, Sustainability

Introduction:

The Amravati Basin, characterized by its diverse ecological and hydrological features, has been significantly influenced by anthropogenic activities leading to notable changes in land use and land cover (LULC). Understanding these changes is imperative, as they directly impact groundwater potential zones, which are critical for sustaining water resources in the region (Agone, 2014). Groundwater serves as a vital resource for agriculture, drinking water supply, and industrial activities, making its conservation and management essential for the socio-economic development of the Amravati basin region. This study aims to explore the intricate relationship between LULC changes and groundwater potential within the Amravati Basin, an area that has been subject to various studies yet remains under-researched concerning the specific impacts of LULC alterations on groundwater resources. By reviewing previous studies on LULC dynamics and groundwater potential, this research seeks to fill existing knowledge gaps and provide a comprehensive analysis of the current state of groundwater resources in the basin. Employing a robust methodology that encompasses detailed data collection and advanced analysis techniques, this research will assess the extent of LULC changes and their correlation with groundwater distribution. The findings will contribute to a better understanding of the implications of LULC changes on groundwater potential zones, offering insights that can inform effective management strategies for groundwater conservation in the Amravati Basin. Ultimately, this study aims to provide recommendations for future research and practical approaches to enhance groundwater sustainability in the face of ongoing environmental changes (Agone & Bhamare, 2012).

In addition to examining the direct impacts of LULC changes on groundwater potential, it is crucial to consider the broader implications of urbanization and agricultural expansion within the Amravati Basin. The increasing impervious surfaces due to urban development significantly hinder natural groundwater recharge processes, exacerbating water scarcity issues in the region. Moreover, as population pressures mount, there is a growing demand for agricultural land, which often leads to the conversion of forested areas into cropland—an alteration that not only affects local biodiversity but also diminishes the basin's ability to retain moisture and regulate hydrological cycles. This multifaceted challenge necessitates an integrated approach to land use planning that prioritizes sustainable practices, ensuring that both ecological integrity and community needs are met

while safeguarding vital groundwater resources for future generations. Implementing strategies such as reforestation, the creation of green spaces, and the use of permeable materials in urban infrastructure can significantly enhance groundwater recharge and mitigate the adverse effects of development on water resources.

The impact of land use and land cover (LULC) changes on groundwater potential zones in the Amravati Basin can be understood through a synthesis of various studies that explore similar dynamics in different regions. LULC changes, driven by anthropogenic activities such as urbanization, agriculture, and industrialization, significantly affect groundwater recharge and quality. For instance, studies have shown that increased urbanization leads to a decrease in groundwater levels due to reduced infiltration and increased surface runoff, as observed in the Dakshina Kannada district, Karnataka, where groundwater depletion was linked to urban expansion (Bhat et al., 2018). Similarly, in the Koraiyar watershed, Tamil Nadu, the conversion of wet crop areas to dry crops and industrial zones has led to a decline in groundwater levels, highlighting the impact of LULC on groundwater dynamics (Naik et al., 2024). The use of GIS and remote sensing techniques has been instrumental in delineating groundwater potential zones by integrating various thematic layers such as LULC, drainage density, and geology, which are crucial for assessing groundwater recharge potential (S, 2022) (Bunkar et al., 2022). In the Raniganj coal mining area, LULC changes due to mining activities have altered groundwater potential, with significant land conversion affecting recharge zones (Sikdar et al., 2004). Furthermore, studies employing multi-criteria decision-making approaches, such as the Analytical Hierarchy Process (AHP), have effectively identified groundwater potential zones by assigning weights to factors like geomorphology, slope, and LULC, demonstrating the importance of these parameters in groundwater management (Patel et al., 2024) (Shelar et al., 2023). The integration of these methodologies provides a comprehensive framework for understanding and managing groundwater resources in the face of LULC changes, emphasizing the need for sustainable land management practices to enhance groundwater recharge and mitigate depletion (Bhadran et al., 2022) (Mohsenifard et al., 2023). These insights are crucial for developing effective groundwater management strategies in the Amravati Basin, ensuring the sustainable use of this vital resource.

The Amravati Basin needs further research regarding LULC impacts on groundwater using GIS and AHP methods because it possesses distinct hydrological and land use characteristics. Studies today fail to analyze both the time-dependent changes in land use and their numerical relationship with real groundwater measurements. This geographical area requires more active investigations involving field validation of groundwater potential zones because current investigations in the region remain minimal.

Study area

Amravati River is an important tributary of Tapi River system, flowing through Maharashtra States. It originates from fringes of Sahyadri range, 650 m above mean sea level west of Deccan plateau in Dhule District, Maharashtra. It flows 57.73 kms eastwards and joins Tapi River at Shendvade in Dhule District, Maharashtra. The study basin extends between Latitudes 21° 09’ 44’’ to 21° 24’ 42’’ N and Longitudes 74° 12’ 55’’ to 74° 44’ 06’’ E. spanning an area of 795 sq. km.

Aim and Objectives

Aim

To assess the impact of land use and land cover (LULC) changes on groundwater potential zones in the Amravati Basin using remote sensing, GIS techniques, and statistical analysis for sustainable groundwater resource management.

Objectives:

1. To analyze the temporal changes in LULC patterns in the Amravati Basin using satellite imagery from 2014 to 2024.
2. To delineate groundwater potential zones through GIS-based integration of thematic layers including LULC, soil, geology, slope, drainage, lineament density, and rainfall.
3. To establish a statistical correlation between LULC categories and groundwater distribution patterns.
4. To validate the groundwater potential zones using field observations and borewell data.

Methodology and Database

This study employed an integrated approach using remote sensing, GIS, and hydrological data to assess the impact of land use and land cover (LULC) changes on groundwater potential zones in the Amravati Basin. Multi-temporal satellite imagery from Landsat-8 and Sentinel-2A (10–30 m resolution) was used for LULC classification across selected years, with pre-processing steps including geometric and atmospheric correction. Ancillary data such as topographic maps, soil and geology maps, rainfall records, and groundwater levels were collected from government sources including SOI, NBSS&LUP, GSI, IMD, and CGWB.

LULC classification was conducted using supervised classification with the Maximum Likelihood algorithm, and accuracy was validated through ground truthing and Kappa statistics. Post-classification comparison enabled detection of LULC changes over time. Thematic layers influencing groundwater potential—such as LULC,

soil, geology, slope, drainage and lineament density, rainfall, and water table depth—were prepared and weighted using the Analytical Hierarchy Process (AHP). Weighted overlay analysis in GIS integrated these layers to delineate groundwater potential zones, classified into five categories from very high to very low potential.

Statistical and spatial analyses were carried out to assess the relationship between LULC changes and groundwater availability. Field surveys and borewell data were used to validate the final groundwater potential map, confirming the spatial accuracy and the influence of land use dynamics on groundwater conditions.

Results and Discussion

Changes in LULC in Amravati Basin

Year	2014		2024	
LULC	Area (Sq.km)	Area (%)	Area (Sq.km)	Area (%)
Forest	165.5	20.82	127.2	16.00
Agricultural land	554.02	69.69	572.4	72.00
Built-Up Land	42.78	5.38	55.65	7.00
Barren land	8.6	1.08	7.95	1.00
Water bodies	24.1	3.03	31.8	4.00

The LULC change data from 2014 to 2024 reveals notable shifts in land cover within the study area. Forest lands declined from 165.5 km² to 127.2 km² because of urban development alongside agricultural development and possible timber removal activities. The farming domain expanded from 554.02 km² to 572.4 km² over this period while maintaining the same area boundaries possibly because of rising population numbers or heightened food production requirements. The area of built-up land has grown substantially from 42.78 km² to 55.65 km² due to fast urban growth together with industrial changes in the area that link with infrastructure improvements and residential area expansion. The lower number of barrel areas from 8.6 km² to 7.95 km² indicates that some areas of wasteland received new land use purposes including agricultural farming and urban development. The area occupied by water sources extended from 24.1 km² to 31.8 km² and may result from constructed reservoirs and irrigation systems together with periodic water flow variations. The land use and land cover changes reveal escalating human-driven resource consumption of forests that requires the implementation of sustainable land management strategies to uphold environmental conservation.

Groundwater Potential Zones

The groundwater potential zones delineated within the Amravati basin, derived from the computed composite weighted index, have been classified into five distinct categories: Very Poor, Poor, Moderate, Good, and Very Good groundwater potential zones (refer to Table 3 & Figure). The expanse characterized by very poor groundwater potential encompasses an area of 170.355 km² (21.43%), predominantly situated in the southern, western, and southeastern regions, which are typified by extensive stretches of sparsely vegetated, low dissected hills and plateaus that are underlain by dolerite and basalt rock formations, coupled with inadequate cultivation and minimal rainfall. The region classified as having poor groundwater potential spans 212.631 km² (26.75%) and is interspersed throughout the basin, with a significant concentration located in the southern sector. Geomorphologically, this area forms a component of the pediment peneplain complex, Plateau Remnant, and Moderately Dissected Lower Plateau, which are generally regarded as conducive to groundwater potential; nevertheless, the presence of hard igneous rock formations exhibiting low porosity and permeability, coupled with low average rainfall and patches of barren land, qualifies it as a poor groundwater potential zone. The moderate groundwater potential zone, measuring 169.883 km² (21.37%), is primarily located in the central, southern, and southwestern regions, characterized by hard igneous rock formations, extensive agricultural land, and receiving moderate to high levels of rainfall, while having experienced phased tectonic activities that have resulted in the formation of faults and fractures. This zone is represented as small patches within the areas of very poor and poor groundwater potential, where there exists a high lineament density and dense forest cover. The regions surrounding reservoir areas constitute the most extensive zones exhibiting good and very good groundwater potential, while smaller patches of these zones are also found along faults, fractures, cultivated lands, and areas with dense forestation. Collectively, these regions encompass an area of 242.131 km² (30.46%).

Correlation between LULC Changes and Groundwater Distribution

The evaluation data allows interpretation of the connection between Land Use and Land Cover (LULC) types and groundwater potential categories. The research shows a direct link exists between properties of land usage and groundwater resources distribution patterns.

The groundwater recharge process at areas designated as "Very Good" matches closely with forests covering 127.2 km² since these areas effectively recharge groundwater due to their high

infiltration rates and low surface runoff occurrence. Good groundwater potential exists over areas representing 572.4 km² of agricultural land which supports moderate infiltration that is less efficient than forested districts.

The built-up land (55.65 km²) mainly corresponds to "Moderate" groundwater zones in this area. The construction of roads and buildings in urban regions decreases groundwater recharge through surface runoff and reduced infiltration of water. Barren landscapes show a classification of "Poor" status since vegetation scarcity and weak soil construction prevent water from retaining and penetrating into groundwater supplies (7.95 km²). High levels of contamination correspond to zones situated near bodies of water which make up 31.8 km². Water systems create the appearance of groundwater accumulation by surface processes instead of representing active recharge areas specifically when located above impermeable ground or man-made reservoirs.

The analysis indicates that surface water bodies and barren areas offer limited groundwater support but decent vegetation like forests and agricultural lands provide the most effective water recharge. The regularity demonstrates forest conservation with appropriate land management practices as essential to enhance or sustain water supply in underground reservoirs.

The Pearson correlation coefficient between LULC areas and groundwater potential zone areas is -0.64, with a p-value of 0.24. There is a moderate negative correlation between LULC types and the corresponding groundwater potential areas, suggesting that as the area of certain LULC types increases (e.g., built-up or barren land), the quality of groundwater potential zones tends to decrease. However, the p-value > 0.05 indicates that this correlation is not statistically significant, meaning the observed relationship may not be strong enough to draw firm conclusions without further data or refinement in classification.

This result supports a general geographical understanding that land use changes, especially those involving urbanization or degradation of natural covers, can adversely impact groundwater recharge—but more data points would strengthen the statistical reliability.

Correlation Zones	Area (sq.km)	Area (%)
Very High	154.94	19.49
High	211.13	26.56
Moderate	301.32	37.90
Low	120.98	15.22
Very Low	6.63	0.83

Conclusion

This review of the Land Use and Cover Change (LULC) effects on the groundwater potential zones of the Amravati basin shows the complex relationship between human activity and water resource resilience. The analysis shows that the last decade has seen a major change in land cover, as urbanisation combined with agricultural growth has reduced forest cover but increased the level of built-up. The change in groundwater potential is directly linked to the expansion of impervious land, which reduces the recharge of natural underground aquifers. Research confirms the need to develop sustainable land management plans that protect both the health of the environment and current and future water supply needs due to population growth and economic progress. Stakeholders who promote community-based cooperation and conservation monitoring practices will improve their resilience to changes in the LULC model. The research has provided new insights and practical recommendations that will support the future development of sustainable groundwater management strategies in the Amravati basin despite the current environmental concerns.

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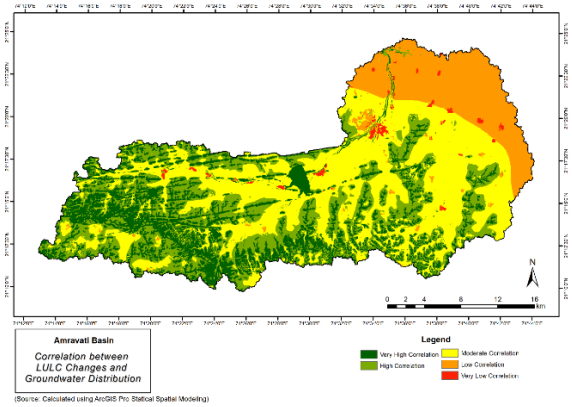


Figure 1 Correlation between LULC Changes and Groundwater Distribution in the Amravati Basin

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Personality Analysis of Major Characters in the novel In The Woods by Tana French through Myers - Briggs type indicator

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Abstract:
Personality is a specific characteristic of a person that refers to the combination of his qualities like thinking, feeling, and the way of behaving that regulates his activities in the environment he is exposed to. Personality varies from person to person, with unique patterns based on biological and environmental influences. The function of personality is to embrace one's ideas and attitude, significantly influencing one's actions. The result of an action, either good or bad, is the response to certain personality characteristics. Several studies on personality have been conducted to define and study its varied qualities. The Myers-Briggs Type Indicator (MBTI) is a popular framework proposed by Katherine Cook Briggs and Isabel Briggs Myers for determining an individual's personality through introspection. The MBTI indicator is divided into four groups, each with two opposing cognitive functions influencing personality. By analysing each cognitive function of the individual, the ultimate result of the personality type to which an individual belongs is perceived. This paper prefigures the personality analysis through the Myers-Briggs Type Indicator for the major characters of the novel In the Woods by Tana French.

Keywords: personality, behaviour, introversion, intuition, thinking, and judging

Introduction:

Tana French is an American-Irish writer. She is an actress by profession and an author by passion. She received her training at Trinity College in Dublin before starting her career as a theatre performer. Eventually, French penned up her long-term interest in mysteries and crime through novels. In her late 30s, French began her writing career and produced six books in the well-known Dublin Murder Squad series. The stories in the series are *In the Woods*, *The Likeness*, *Faithful Place*, *Broken Harbour*, *The Secret Place*, and *The Trespasser*. The personality assessments of the significant figures in French's debut book, In the Woods, are pored over in this paper. Tana French, in her 2007 novel, *In the Woods*, tells the story of a fictional detective, Rob Ryan, and his investigation of the murder of an adolescent girl, Katherine Devlin, in the archaeological site of a small village called Knocknaree on the outskirts of Dublin. Ryan and his partner in the investigation, Cassie Maddox, go searching for the murderer. After several inquiries, the detectives find out the murderer is a hitman hired by Katherine's elder sister, Rosalind Devlin. This paper examines the personalities of the important characters in the novel, including Rosalind Devlin and Rob Ryan, through MBTI and brings out the reasons for their actions.

The Myers-Briggs Type Indicator (MBTI), elaborated by Katherine Cook Briggs and Isabel Briggs Myers, is a personality assessment device that helps people identify their personality type. Isabel Briggs Myers and Peter Briggs Myers together published a book, *Gifts Differing: Understanding Personality Types*, describing the MBTI model in detail based on the psychological concepts of the Swiss psychologist Carl Gustav Jung. Myers considered each personality to be a reward and stated, "Although we all have access to the same basic tools in our psychological toolbox, each of us is more comfortable with and thus prefers a particular tool (or set of tools) for a particular task" (Myers and Myers). During the Second World War, women were appointed to the industrial workforce due to the deaths of men in warfare. Undoubtedly, working in an industrial setting was challenging for most women. According to Isabel Briggs Myers and her mother, Katherine Cook Briggs, the solution is to have a firm awareness of one's personality to determine their preferences for the kinds of jobs they are qualified for. They used the Jungian type theory to create the Myers-Briggs Type Indicator (MBTI), which was the result of this.

It was the Jungian idea of personality that gave rise to the Myers-Briggs Type Indicator. According to Carl Jung's hypothesis, an individual's personality can either lean towards extraversion or

introversion, depending on their environment and psyche. In addition, the MBTI focuses on the mind's preferences to perceive (being aware of objects, etc.) and judge (coming to a decision). The MBTI includes four dichotomies with sixteen personality types. The first dichotomy is based on the association with the outer world, i.e., extraversion (E), and the association with the inner world, i.e., introversion (I). The second includes sensing (S) and intuition (N) based on the way of putting out a piece of information. The state of decision-making is divided into two dichotomies, namely thinking (T) and feeling (F). The last dichotomy is based on the lifestyle, separating it into judging (J) and perceiving (P). As a result, each of the dichotomies is used to create an acronym for all sixteen personality types, such as ENFP, ISTJ, etc.

Introvert Personality

In the novel In the Woods, the MBTI is used as a prism to examine the personalities of several individuals. The study begins by examining the personality of the novel's main character, Rosalind Devlin, the elder sister of the deceased Katherine Devlin. The personality of a person falls under the Jungian archetype, and MBTI declares that "type theory holds that the archetypes are inborn in us all" (Myers and Myers 53). Based on the description given in the novel, the personality type of Rosalind is identified to be INTJ, which stands for introverted, intuitive, thinking, and judging. Rosalind demonstrates an introverted personality by being reticent and reclusive, which is found in the scene after the detectives' investigation with her parents, where she makes a phone call to Ryan requesting "…do you think I could come in and talk to you sometime? … There's something I need to ask you" (French 128). Rosalind conceals the truth until the detectives reveal her involvement in the murder. The majority of introverts find comfort in the company of a small group of people they fully trust. Rosalind is confirmed to be an introvert who finds solace in the presence of Rob Ryan, who understands her circumstances.

Myers declares that "introvert children, entirely ignoring many of the distracting outer stimuli, follow their own quiet bent" (Myers and Myers 54). Rob Adam Ryan is also a main character and narrator in In the Woods. Based on the information provided in the novel, the personality type of Ryan is also INTJ, as is that of Rosalind. Myers calls out that "the introvert, however, starts farther back—with the inner ideas, the mental concepts, derived from what Jung calls the archetypes" (Myers and Myers 53). Ryan seems to maintain a distance from everybody around him. He shares an apartment with Heather whom Ryan "fancied" (French 94). Sometimes Ryan pretends to be sick in front of Heather when he wants to be alone and escapes to his room to progress on his investigation files. Ryan keeps his thoughts and emotions hidden from the outside world, especially when he is in the woods, where he claims, "I saved the wood for Saturday night, hugging the thought to myself like a child saving a huge Easter egg with some mysterious prize inside" (French 345). He often seeks solace in the nearby woods, which is tied to his childhood trauma, clearly indicating his introverted nature.

Intuitive Personality

Rosalind is portrayed as having clever and perceptive thinking throughout the entire novel. She exhibits a keen sense of analysis and frequently foresees the results of her decisions. This is obvious in the scene in which she plots the murder of her younger sister, Katherine Devlin. Rosalind seems to have a strategic mindset while planning the death of her sister with the hatchet man Damien Donnelly, where she admits, "You see what I mean? He was supposed to have sex with her, hit her on the head with a rock, and leave her body somewhere on the dig or in the wood" (French 508). Her intuitive mind works well when Cassie tells Rosalind that "he did what you wanted in the end" (French 508), which exhibits Rosalind's prediction has been fulfilled.

Myers claims, "The intuitive's native language is the word, the metaphor, the symbol, spoken by the unconscious" (Myers and Myers 59). The actions and thoughts of Rob Ryan also perfectly align with the intuitive personality type. Ryan frequently discloses his intuitions through his internal monologue. Rob often establishes the ability to see connections and patterns others might overlook. His presumption on the hair clip that was found in the murder scene proves accurately to be his friend Jamie's. Ryan hides his childhood flashback from everyone around him so that, according to his intuition, he would not be recognised as one of the lost children before one score years.

Thinking Personality

The people with the thinking type, according to Myers, "value logic above sentiment" (Myers and Myers 68). Rosalind frequently chooses to make decisions based on logic and reason rather than feelings. According to Myers, those with this thinking type "are usually impersonal, being more interested in things than in human relationships" (Myers and Myers 68). This is a clear instance where, in the name of love, Rosalind murders Katherine, using Damien as a hitman. She cuts off her contact with Damien once the murder is carried out as planned. Her thinking personality type and her dissociation from the emotional bonds are visible when Cassie comes up to Rosalind with the statements of Damien about the murder, declaring, "He says he did it for you. Because you asked him to" (French 502).

Myers states, “Thinking is essentially impersonal. Its goal is objective truth” (Myers and Myers 65). Rob Ryan is identified as having a thinking personality type; in particular, he applies logic to problem-solving. His objective thinking is visible in the scenes where he contemplates the plight of his missing friends and also in dealing with the investigation of the murder case. Mostly people with a thinking type of personality tend to hunt for truth as they cannot bear the consequences of a lie; likewise, Rob Ryan declares at the beginning of the novel, “I crave truth. And I lie” (French 6). Ryan continuously thinks of his past throughout the novel. He mentions in the beginning that, “ I will come back to this story again and again in any number of different ways” (French 6). Rob Ryan proves both his intuitive and logical thinking abilities by parallelizing his past with the present, which seems to be accurate.

Judging Personality

As stated by Myers, “the judging types decide in advance what they intend to accomplish, and they make careful and sometimes very long-range plans” (Myers and Myers 71). This is demonstrated in the case of Rosalind Devlin, who fits the description of a judging personality by the meticulous planning and successful execution of her sister's murder plot. Rosalind is responsible for ruining Katherine’s dreams when she confesses, “I stopped her from dancing; now and then... I made her sick” (French 505). According to Myers, “having once decided to do a thing, judging types continue to do it” (Myers and Myers 71). This quality of judging personality type is witnessed in Rosalind when she decides that discontinuing Katherine from her dance school would thwart her reputation. Rosalind made multiple attempts to stop Katherine from dancing. She confesses, “I mixed juice with detergent, or cleaning things, or whatever I felt like that day, and I told Katy it was a secret recipe to improve her dancing” (French 506). Rosalind felt disappointed when Katherine learned of her plan. Then too, Rosalind did not give up her decision and finally hired Damien Donnelley to murder Katherine. Though Rosalind is on the wrong side, her judging personality succeeds when her plans to murder Katherine come true. Rob Adam Ryan displays the judging personality type through his preference for structure, organisation, and determination to solve the murder case of Katherine Devlin. The judging personality type according to the MBTI indicator states, “It is natural for a judging type to decide what is the best way of doing a thing and then consistently do it that way” (Myers and Myers 70). Being a detective, Rob Ryan handles every case with the utmost attention and proves his judgmental personality.

Conclusion:

Myers-Briggs Type Indicator (MBTI) analysis of the characters is an interpretive exercise since fictional characters frequently have complex personalities that do not quite fit into one personality type. But based on the characteristics and actions of Rob Ryan and Rosalind Devlin in Tana French's novel In the Woods, their personality type can be identified as INTJ—the architect personality type. Both the characters differ significantly in their roles, but some features group them together. Due to their personality type, they are both reserved and have enigmatic qualities that create an air of conspiracy around them. Through the analysis, it is evident that the personality type of an individual is directly proportional to his behaviours and actions.

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The Role of Consumer Forums and Regulatory Bodies in Curbing Unfair Trade Practices

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Abstract:
The collaboration between consumer forums and regulatory bodies is essential for addressing the multi-faceted issue of unfair trade practices. While consumer forums offer a direct avenue for consumer grievances, regulatory bodies provide the legal and enforcement mechanisms required to uphold market integrity. Together, they form a robust system of checks and balances, ensuring that businesses comply with consumer protection laws. This collaboration leads to more efficient identification of unfair practices, better consumer education, and a stronger deterrent effect on businesses that engage in unethical practices. Furthermore, such partnerships enhance transparency and help foster a market that prioritizes consumer welfare over short-term profits.

Keywords: Consumer, Grievances, Integrity, Unfair, transparency

Introduction:

Consumers play a crucial role in any economy, and this is particularly true for the Indian economy, where they drive demand, influence market trends, and contribute significantly to economic growth. When discussing consumer importance in the context of unfair trade practices, there are several key points to consider:

Protection of Consumer Rights

- **The Indian economy is consumer-driven, with a vast and diverse consumer base.** However, unfair trade practices **(such** as deceptive advertising, selling defective goods, price manipulation, and misleading labels) can exploit consumers. This undermines their trust in the market and negatively impacts purchasing behavior.
- **To safeguard consumers, India has implemented laws like the** Consumer Protection Act **(2019)** Which seeks to ensure fair trade, prevent exploitation, and allow consumers to seek redressal for grievances. Protecting consumers from unfair practices not only boosts consumer confidence but also enhances overall economic stability.

Market Fairness and Efficiency

- **Unfair trade practices** distort the functioning of the market by allowing certain businesses to gain unfair advantages. For instance, practices like false advertising or selling substandard goods can mislead consumers and drive out honest competitors, resulting in an inefficient market.
- **The importance of consumers is directly linked to the principle of market efficiency**. When consumers are well-informed and protected from such practices, the market tends to become more competitive, encouraging businesses to improve product quality and services, leading to better economic outcomes.

Consumer Spending and Economic Growth

- Consumer spending is a major contributor to India's GDP, accounting for a substantial share of its economic activity. Unfair trade practices discourage consumers from spending or investing in certain products, thus impacting demand.
- If consumers feel cheated or unsafe due to the prevalence of unfair trade practices, they may limit their consumption or avoid certain sectors, which affects business revenues and overall economic growth.

Employment and Entrepreneurship

- A fair market environment encourages both entrepreneurship and employment. Unfair trade practices create an environment where businesses can grow without necessarily offering quality products or services. This can stifle innovation and entrepreneurship, as consumers may be less willing to invest in new businesses or products due to a lack of trust.
- On the other hand, protecting consumers from unfair practices fosters healthy competition, which can lead to the creation of more jobs and entrepreneurial opportunities, which in turn benefits the broader economy.

International Trade and Reputation

- India is a major player in global trade, and the reputation of its consumer market impacts its international relations and exports. Unfair trade practices, such as counterfeit products or

substandard goods, can harm India's reputation abroad and lead to trade restrictions.

- Ensuring fair treatment of consumers helps build a positive image of the country's economy, promoting international investments and exports, which are vital to the country's economic prosperity.

Promoting Sustainable Development

- Consumers today are more aware of issues like sustainability, environmental impact, and ethical practices. Unfair trade practices, such as misleading claims about products' environmental benefits, can not only harm consumers but also impede efforts toward sustainable development.
- A consumer-centric economy that is free from deceptive practices encourages ethical business practices, benefiting the environment, society, and the economy in the long run.

  In summary, **consumers are the backbone of the Indian economy**. Protecting them from unfair trade practices ensures that the market operates fairly, competition remains healthy, and consumer confidence is maintained. This leads to sustained economic growth, innovation, better business practices, and a favorable global trade environment.

Consumer forums and regulatory bodies

Consumer forums and regulatory bodies play a critical role in curbing unfair trade practices by providing a platform for consumers to file complaints against businesses engaging in such practices, investigating allegations, issuing orders to cease and desist, and awarding compensation to affected consumers, effectively deterring companies from engaging in unfair practices and protecting consumer rights; this includes educating consumers about their rights and promoting fair market competition.

Key functions of Consumer Forums and Regulatory Bodies:

- **Complaint adjudication:**
  Consumer forums, like District Consumer Forums, State Commissions, and the National Consumer Disputes Redressal Commission, hear complaints from consumers regarding unfair trade practices and provide a mechanism for redressal through hearings and rulings.
- **Investigation and enforcement:**
  Regulatory bodies like the Central Consumer Protection Authority (CCPA) have the power to investigate allegations of unfair trade practices, conduct inquiries, gather evidence, and initiate legal action against erring companies.
- **Issuing orders:**
  Based on investigations, regulatory bodies can issue cease and desist orders to companies found engaging in unfair trade practices, compelling them to stop such practices immediately.
- **Imposing penalties:**
  Depending on the severity of the violation, regulatory bodies can impose fines or other penalties on companies found guilty of unfair trade practices.
- **Consumer awareness campaigns:**
  Both consumer forums and regulatory bodies often engage in public awareness campaigns to educate consumers about their rights, how to identify unfair trade practices, and the process for filing complaints.
- **Policy recommendations:**
  Regulatory bodies can advise the government on policy changes necessary to address emerging issues related to unfair trade practices and strengthen consumer protection laws.

Examples of Unfair Trade Practices that Consumer Forums and Regulatory Bodies Address:

1. False or misleading advertising
2. Price fixing or collusion among competitors
3. Deceptive marketing tactics
4. Tied selling
5. Exploitative terms and conditions
6. Refusal to provide after-sales service
7. Selling substandard or defective products

Consumer forums and regulatory bodies play a crucial role in protecting consumer rights by providing a platform for individuals to file complaints against companies or service providers for defective products, deficient services, or unfair trade practices, allowing them to seek redressal and compensation while also raising awareness about consumer rights and advocating for stronger consumer protection laws; essentially acting as a watchdog to ensure fair market practices for consumers.

Key functions of Consumer Forums and Regulatory Bodies:

- **Dispute Resolution:**
  Primarily, they act as quasi-judicial bodies to hear and resolve consumer complaints, offering a simpler and faster alternative to traditional courts.
- **Consumer Awareness:**
  They actively educate consumers about their rights under consumer protection laws, providing information on how to file complaints, seek refunds, and claim compensation.
- **Investigation and Enforcement:**
  Regulatory bodies can investigate complaints, conduct market surveillance, and take action against companies violating consumer protection laws, including imposing penalties.

- **Policy Advocacy:**
  Consumer forums and regulatory bodies often advocate for policy changes to strengthen consumer protection and address emerging issues in the market.

Different Levels of Consumer Forums:

1. Under the provisions of the CP Act, 1986 there is a three tier quasi-judicial mechanism at the District, State and National levels to provide simple and speedy resolution to consumer disputes-
2. At the district level it is called District Consumer Disputes Redressal Forum (District Forum) . It has jurisdiction to entertain consumer complaints where the value of goods/services including compensation claimed , if any is upto Rs. 20 Lakhs
3. At the state level it is known as State Consumer Disputes Redressal Commission (State Commission). It has jurisdiction to entertain consumer complaints where the value of goods/services and compensation claimed if any upto Rs. 1 Crore and appeals against orders of Distrci Forum.
4. At the national level, It is called the National Consumer Disputes Redressal Commission. It has jurisdiction to entertain complaints where the value of goods / services including compensation claimed, if any exceeds Rs. 1 Crore and appeals against order of State Commissions.

Conclusion

In summary, consumers are the backbone of the Indian economy**.** Protecting them from unfair trade practices ensures that the market operates fairly, competition remains healthy, and consumer confidence is maintained. This leads to sustained economic growth, innovation, better business practices, and a favorable global trade environment.

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Environmental Audits and Their Effect on Sustainable Business Growth

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Abstract:

This study investigates the role of environmental audits as a strategic mechanism for advancing sustainable business growth. Traditionally viewed as instruments of compliance, environmental audits are increasingly recognized for their broader value in enhancing environmental stewardship, operational effectiveness, and stakeholder confidence. Drawing on established theoretical models:-including Elkington's Triple Bottom Line, the Porter Hypothesis, and the Theory of Planned Behaviour, the research explores how audits can drive sustainable development by influencing organizational decision-making and long-term planning. Relying on a comprehensive review of secondary data, including scholarly literature, case studies, and industry analyses, this paper highlights the evolution of environmental auditing practices in diverse sectors and regions. Emerging technologies such as artificial intelligence and the Internet of Things have expanded the scope and precision of audits, enabling more proactive environmental risk management. Nevertheless, challenges persist, particularly concerning inconsistent audit frameworks, limited professional capacity, and barriers to implementation in resource-constrained environments like SMEs. The study is structured around three core dimensions: the scope and methodology of audit practices, organizational responses to audit outcomes, and the effectiveness of sustainability indicators in assessing impact. The findings reveal that when audits are strategically integrated into business operations, they contribute not only to improved environmental performance but also to economic efficiency and stronger social accountability. While obstacles remain, the research underscores the importance of enhancing audit methodologies and refining sustainability metrics to maximize the contribution of environmental audits to long-term, responsible business growth.

Introduction:

Integrating environmental audits into corporate strategy has become vital for sustainable growth, ensuring regulatory compliance while enhancing efficiency, reducing costs, and building stakeholder trust. By assessing environmental performance, businesses can align operations with sustainability goals, supporting long-term economic and ecological resilience. This study draws on key theoretical frameworks to understand this relationship. Elkington's (1994) Triple Bottom Line stresses balancing economic, environmental, and social outcomes. The Porter Hypothesis (Porter & van der Linde, 1995) argues that strict environmental rules can drive innovation and competitiveness. Ajzen's (1991) Theory of Planned Behaviour explains how intentions and perceived control influence eco-friendly corporate actions. Together, these theories illustrate how environmental audits can foster innovation, strategic alignment, and sustainable decision-making.

Recent advancements have expanded environmental audits' scope through technologies like AI, IoT, and machine learning, enabling real-time monitoring and proactive risk management. These innovations help businesses tackle climate-related risks, lower emissions, and adopt renewable energy, while also addressing social concerns such as supply chain ethics. Governmental audits, especially in state-owned enterprises, have driven industrial change and green development. However, challenges remain, including evolving audit standards, limited auditor capacity, inconsistent recommendation implementation, and lack of formal

sustainability policies. Balancing compliance costs with long-term benefits is also a concern. Companies often struggle to embed audits into strategic planning due to these complexities.

Despite a growing focus on sustainability, businesses still face barriers in using audits strategically. Environmental audits are essential tools for evaluating compliance and driving performance improvements, yet their direct link to long-term profitability is underexplored. This research investigates how audits contribute to sustainable business growth, offering insights for firms aiming to merge environmental responsibility with competitive strategy. A review of key literature further informs this exploration, identifying research gaps and building a basis for deeper analysis.

Literature Review:-

Recent studies underscore the strategic importance of environmental audits in enabling businesses to balance environmental protection with economic development. (Yulia N. Kovalenko, 2024)Kovalenko and Stepanova (2024) argue that environmental audits in Russia play a pivotal role in achieving ecological balance while supporting economic stability, citing their utility in minimizing environmental risks and aligning operations with sustainable development goals. Similarly, (Yessenamanova, M., Lukyanets, A., Golovina, E., & Topornin, N., 2022)show how environmental audits enhance governance frameworks across the EU by improving compliance with sustainability policies and environmental protection standards. The operational value of environmental audits is highlighted in multiple empirical studies. (Nazarova, K., Nezhyva, M., Kucher, A., Hotsuliak, V., Melnyk, T., & Zaremba, O., 2021) provide a case study from Ukraine's forestry sector, revealing that environmental audits promote better cost control, resource allocation, and long-term sustainability practices . However, practical challenges such as the complexity of environmental regulations and limited financial resources persist. Audits are increasingly integrated into broader Environmental, Social, and Governance (ESG) frameworks. (Zelentsov, 2022) emphasizes that both internal and external audits contribute to a firm's sustainability strategy, with external audits helping shape corporate responsibility standards. (Pramukti, 2024) adds that despite the absence of standardized audit methodologies, environmental audits help identify innovation opportunities and enhance performance metrics . In sector-specific contexts, audits have shown tangible benefits. (Budko Oksana, Kirichenko Oleksii, 2023) demonstrate how environmental audits, as part of enterprise management systems, help organizations address environmental risks and improve policy compliance.

Similarly, (Ferreira, A., Sebastiani, R., Nascimento, L., De Oliveira, K., Carballo, F., De Sá Zarpellon, C., Vitaliano, F., Silva, A., Nascimento, G., & Almeida-Bezerra, J., 2024) found that environmental audits empower organizations to embed sustainability into decision-making processes, although cost and legal complexity remain persistent challenges, Environmental audits serve as foundational tools in ESG (Environmental, Social, and Governance) frameworks. (qizi, 2024) demonstrated how internal audits strengthen transparency, risk management, and governance, ultimately contributing to more sustainable economic models Furthermore, audits facilitate compliance with sustainability goals while enhancing stakeholder confidence and institutional reputation.

In a broader management context, environmental audits are increasingly viewed as competitive assets. (Rodrigues, K. C. B. T., Marques, F. R. V., Mariano, W. dos S., Saldanha, E. S., Souza, J. P. da C., Silva, J. A. M. da, … Silva, G. P. G. da) concluded that firms adopting robust audit practices not only improve sustainability performance but also gain reputational advantages that translate into market differentiation. This market-driven incentive for sustainability illustrates how audits function as both compliance tools and strategic investments.

Research Gap

Although existing literature thoroughly underscores the strategic, operational, and regulatory significance of environmental audits in advancing sustainability across various sectors and regions, important research gaps remain, particularly regarding their direct influence on sustainable business growth. Many studies tend to focus on audits' contributions to policy compliance and risk mitigation but often fall short of investigating how audit results shape business growth trajectories over time, especially within dynamic and resource-limited environments. While the integration of environmental audits into ESG frameworks is well-documented, there is a noticeable lack of empirical evidence linking audit practices to measurable indicators like profitability, innovation capacity, stakeholder value, or competitive advantage. Sector-

specific studies offer valuable insights into audit adaptability but primarily concentrate on environmental performance rather than broader business development outcomes. Another major gap lies in the narrow focus on large enterprises and heavily regulated industries, with little attention paid to how small and medium-sized enterprises (SMEs) manage environmental audits to drive sustainable growth, despite often lacking strong audit infrastructure. Additionally, although challenges such as regulatory complexity, financial barriers, and methodological inconsistencies are acknowledged, few studies explore how organizations successfully navigate these issues to turn audits into strategic tools. Addressing these gaps, this study seeks to move beyond a compliance-centered view by examining how environmental audits actively contribute to long-term, sustainable business growth, focusing on their impact on business strategy, stakeholder engagement, innovation, and market competitiveness across a range of organizational contexts.

Scope of the Study

The study specifically examines three dimensions of environmental audits: audit processes and methodologies, including the scope, frequency, and depth of environmental assessments; organizational responses to audit findings, including remediation actions, strategic adjustments, and operational modifications; and measurable outcomes in terms of environmental performance, economic benefits, and social impact. By narrowing the focus to these elements, the research provides a targeted analysis of how environmental audits translate into sustainable business growth indicators. Importantly, this study does not attempt to analyze the technical specifics of environmental compliance across all regulatory regimes, nor does it evaluate the relative effectiveness of different audit standards (e.g., ISO 14001 vs. industry-specific frameworks). Instead, it concentrates on the strategic integration of environmental audit findings into business decision-making processes and the resultant impacts on sustainable growth metrics. This focused approach allows for meaningful conclusions about the value-generating potential of environmental audits beyond mere regulatory compliance.

Objectives

1. To examine how environmental audits influence environmental, economic, and social performance.
2. To explore the interconnections among environmental, economic, and social factors in sustainable business growth.
3. To assess the effectiveness of sustainability metrics in measuring the impact of environmental audits on business sustainability.

1. To examine how environmental audits influence environmental, economic, and social performance.

Environmental audits have become essential tools for organizations aiming to strengthen their environmental, economic, and social performance. By providing a structured evaluation of a company's environmental practices, audits help identify areas where resource use can be improved, waste can be reduced, and environmental risks can be better managed. This process not only minimizes the organization's ecological footprint but also promotes greater operational efficiency and innovation in sustainable practices. Through regular audits, companies are able to implement changes that enhance their environmental responsibility and contribute to broader sustainability goals.

In addition to environmental benefits, audits have a direct impact on economic performance. They often reveal opportunities to lower costs through improved energy efficiency, reduced waste disposal fees, and optimized resource management. Organizations that successfully integrate audit findings into their operations frequently experience enhanced profitability, improved market positioning, and greater appeal to investors who prioritize sustainability. Furthermore, companies that demonstrate a strong commitment to environmental responsibility can differentiate themselves from competitors, gaining reputational advantages that support long-term financial growth.

On the social side, environmental audits help businesses build stronger relationships with stakeholders, including customers, employees, regulatory authorities, and the wider community. By showing transparency and accountability in their environmental practices, companies foster trust and demonstrate a commitment to the well-being of society. Audit processes often lead to improvements in workplace health and safety, support for ethical business practices, and greater community engagement, all of which contribute to a company's overall social performance. Taken together, these outcomes show that environmental audits are far more than compliance exercises. They are strategic initiatives that drive sustainable growth, helping

businesses not only meet regulatory expectations but also achieve lasting environmental, economic, and social benefits. Organizations that embrace environmental auditing as part of their broader strategy are better equipped to navigate the evolving demands of a sustainability-driven world while securing their long-term success.

2. To explore the interconnections among environmental, economic, and social factors in sustainable business growth.

Sustainable business growth is deeply influenced by the interconnected relationship between environmental, economic, and social factors. Environmental responsibility has become a core expectation for businesses, requiring careful management of natural resources, reduction of waste, and a proactive approach to minimizing ecological impacts. Environmental audits play a key role by offering companies a clear view of their environmental performance and highlighting areas where improvements can lead to stronger, more sustainable operations. At the same time, economic success is increasingly tied to environmental stewardship. Companies that embrace sustainable practices often find opportunities for cost savings through greater efficiency, better resource management, and reduced operational risks. Beyond internal benefits, businesses that demonstrate a strong commitment to sustainability tend to enhance their reputation, attract new customers, and secure investment from those who value responsible practices. As a result, environmental and economic priorities are now seen as complementary rather than conflicting goals. Social factors are equally critical in shaping sustainable growth. Businesses are expected to act transparently and ethically, addressing the concerns of customers, employees, communities, and regulators. Environmental audits often uncover social impacts, such as effects on public health, worker safety, and community engagement. Companies that address these social responsibilities alongside their environmental and economic objectives tend to build stronger stakeholder relationships and foster lasting community support.

Understanding the connections among environmental, economic, and social elements is essential for creating a truly sustainable growth strategy. Businesses that view these factors as interconnected and equally important are better equipped to navigate today's complex challenges. Environmental audits, by clarifying these links, help organizations integrate sustainability into every level of decision-making, ensuring that growth is not only profitable but also responsible and resilient.

3. To assess the effectiveness of sustainability metrics in measuring the impact of environmental audits on business sustainability.

Sustainability metrics have become essential tools for businesses aiming to measure the impact of environmental audits on their overall sustainability performance. These metrics provide a structured way to assess progress across key areas such as environmental protection, economic efficiency, and social responsibility. When used effectively, sustainability metrics help organizations gauge how well audit-driven initiatives are improving outcomes like energy conservation, waste reduction, emissions control, and resource management. By setting clear benchmarks and tracking changes over time, businesses can better understand whether the actions taken after an environmental audit are genuinely contributing to sustainable development.

However, while sustainability metrics offer valuable insights, they do not always capture the full impact of environmental audits. Traditional indicators often focus on easily measurable outputs, such as reduced water consumption or lower carbon emissions, but may overlook less tangible benefits. Improvements in internal governance, risk management, and stakeholder relationships—often triggered by environmental audits—are difficult to quantify yet are crucial for building a strong sustainability culture. This limitation suggests that relying solely on numerical metrics can sometimes miss the broader, more transformative effects audits can have within organizations. The challenge is further complicated by the diversity of sustainability metrics used across industries and regions. Some businesses adhere to established global standards, while others develop customized indicators that reflect their specific operational realities. This lack of uniformity makes it difficult to compare results or draw universal conclusions about the effectiveness of environmental audits. As a result, assessing the true impact of audits requires not just the application of metrics, but a thoughtful approach to selecting and interpreting them within each unique business context.

Despite these complexities, sustainability metrics remain a critical component in evaluating the success of environmental audits. When carefully designed and applied, they enable organizations to

demonstrate accountability, inform decision-making, and strengthen their commitment to continuous improvement. By adopting a comprehensive and context-sensitive approach to measuring sustainability, businesses can more accurately capture the benefits of environmental audits and support their journey toward long-term, responsible growth.

Research Methodology

The research paper will adopt a secondary data approach to explore the effect of environmental audits on sustainable business growth. Data will be collected from existing literature, case studies, industry reports, and relevant databases, ensuring a comprehensive analysis of how environmental audits influence business performance across various sectors. This methodology will allow for an in-depth examination of audit processes, organizational responses, and sustainability outcomes without the need for primary data collection. The analysis will focus on identifying trends, patterns, and correlations in the use of environmental audits as strategic tools for fostering sustainable business practices. The secondary data approach will facilitate a broader understanding of the subject while addressing existing gaps in the literature.

Discussions

The findings of this research paper indicate that environmental audits play a pivotal role in promoting sustainable business growth across various dimensions. By systematically evaluating environmental performance, these audits not only help businesses meet regulatory requirements but also drive operational efficiencies, cost savings, and positive environmental outcomes, thereby contributing to both short-term and long-term growth. One of the primary ways in which environmental audits impact sustainable business growth is by enhancing environmental performance. Regular audits allow businesses to identify areas for improvement, such as reducing waste, improving energy efficiency, and mitigating environmental risks. This leads to better resource management and a reduction in operational costs, which contributes directly to financial performance. Moreover, the insights from audits can help companies align their operations with sustainability goals, creating a competitive edge in the marketplace. Companies that embrace environmental responsibility often gain reputational advantages, attracting environmentally conscious consumers and investors, thus securing their long-term market position.

Conclusion

This research highlights the crucial role of environmental audits in promoting sustainable business growth. These audits not only ensure regulatory compliance but also drive operational efficiency, cost savings, and competitive advantages. By evaluating environmental performance, audits help businesses identify areas for improvement, reduce risks, and align practices with sustainability goals, benefiting both environmental and economic outcomes. Additionally, audits foster transparency and stakeholder trust, contributing to stronger social performance. However, challenges such as regulatory complexity and financial constraints hinder full implementation. Despite these barriers, environmental audits remain essential for businesses seeking long-term growth, and further research is needed to refine methodologies and overcome obstacles, ensuring that sustainability is effectively integrated into strategic decision-making.

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Empowering Women through Self-Help Groups

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Abstract:

This analytical study meticulously explores the role of Self-Help Groups (SHGs) in empowering women, emphasizing their transformative impact on participants' economic, social, and psychological dimensions. The research was conducted across several rural and semi-urban regions, involving women from diverse socioeconomic strata. Utilizing a mixed-methods approach, the study integrated quantitative assessments of economic benefits with qualitative interviews that captured personal success stories and challenges. Findings indicate that engagement in SHGs significantly enhances women's financial independence by providing access to microcredit facilities and encouraging entrepreneurial ventures. Additionally, SHGs serve as a platform for social interaction and mutual support, which strengthens community ties and elevates women's roles in decision-making processes both within their families and in the wider community.

The psychological uplift associated with these advancements is profound, with many women reporting increased self-esteem and a greater sense of agency. This research underscores the effectiveness of SHGs in not just fostering economic growth but also in cultivating a supportive network that champions the cause of women's empowerment. The study advocates for policy interventions that could scale these initiatives, proposing that more robust support and recognition of SHGs could catalyse widespread societal change towards gender equality. These groups not only provide financial resources but also create a learning environment where women can exchange knowledge on various topics such as legal rights, health, and child care. This educational aspect is crucial as it equips women with the necessary tools to improve their livelihoods and assert their rights within traditionally male-dominated spheres. The empowerment process facilitated by SHGs also encourages women to take on leadership roles within their groups. This shift not only affects group dynamics but also permeates into the community, fostering a new cultural paradigm where women's leadership is more readily accepted and valued.

The ripple effect of this can be seen in how community perceptions change, gradually eroding long-standing gender biases and paving the way for greater gender parity. Moreover, the study highlights the role of SHGs in increasing political participation among women, as they become more informed and confident in their ability to influence local governance and policymaking. This political engagement is a testament to the broader socio-political empowerment that SHGs can foster, contributing to more inclusive and equitable governance structures. The research solidifies the notion that Self-Help Groups are not merely economic platforms but holistic empowerment tools that foster substantial change in the lives of women and their communities. The findings advocate for enhanced governmental and non-governmental support to nurture and expand the SHG model, proposing that such support could be a cornerstone in the global agenda for gender equality and women's empowerment.

Keywords: Self-help groups, women empowerment, socio-economic development, challenges.

Introduction:

The profound impact of Self-Help Groups (SHGs) on women's empowerment has been a focal point of development studies, emphasizing their role as catalysts for socio-economic upliftment in marginalized communities. The genesis of SHGs can be traced back to the cooperative movements of the late 20th century, aimed at combating rural poverty and empowering women through collective action and microfinance (Malhotra & Schuler, 2005). These groups have since evolved into a formidable force for social change, integrating women into the economic fabric of their communities while promoting gender equality (Kabeer, 2001). SHGs empower their members by providing access to financial resources, facilitating skill development, and creating platforms for social advocacy, which collectively enhance their bargaining power both within the household and the wider community (Sen & Batliwala, 2000). As noted by Nussbaum (2003), these groups not only enable women to achieve economic independence but also bolster their self-esteem and decision-making capacity, which are critical components of

social empowerment. This study seeks to further explore these dimensions, drawing on empirical data to analyze how SHGs contribute to reshaping women's roles and statuses across various socio-economic and cultural contexts.

The critical role of Self-Help Groups (SHGs) in India in facilitating women's empowerment becomes increasingly apparent. SHGs have emerged as pivotal platforms where women can collectively address economic and social challenges. By participating in SHGs, women gain access to microfinance opportunities that allow them to undertake small entrepreneurial activities, enhancing their economic status and autonomy (Swain & Wallentin, 2009). Furthermore, these groups serve as a conduit for social change by providing a supportive network that encourages personal and collective growth, critical awareness, and active participation in community affairs (Brody et al., 2018). The empowerment achieved through SHGs also extends beyond financial independence, fostering significant improvements in women's self-perception and societal roles. Studies indicate that members of SHGs often experience an increase in societal respect and influence, contributing to their enhanced involvement in decision-making processes both at home and within the wider community (Amin, 2015). This increased agency is a fundamental aspect of social empowerment, as it challenges and gradually changes the patriarchal norms that have historically restricted women's roles in society. Moreover, SHGs have been instrumental in promoting gender sensitization among both sexes, creating an environment where men and women can work together towards achieving gender equality (Kantor, 2003). These groups facilitate discussions and workshops that educate communities about the benefits of gender equality, addressing deeply ingrained stereotypes and cultural norms that perpetuate discrimination and inequality. This educational aspect is crucial as it equips both men and women with the understanding and tools needed to foster a more inclusive and equitable society. In addition, the influence of SHGs in enhancing women's educational opportunities cannot be overstated. By pooling resources and providing mutual aid, SHGs support women and girls in accessing educational programs, which might otherwise be unattainable due to economic constraints or societal norms that prioritize male education (Mukherjee, 2017). Education, in turn, opens up further opportunities for women, enabling them to pursue higher-paying jobs and positions of leadership, which are essential for societal transformation and the eradication of feminized poverty.

The role of SHGs in empowering women in India is multifaceted, addressing economic, educational, and social barriers through a collective approach. By fostering an environment of support, education, and mutual respect, SHGs not only contribute to the economic development of individual members but also catalyze broader social change, challenging and reshaping the structures that perpetuate gender inequality. Thus, strengthening and expanding the network of SHGs could be a significant stride towards achieving true gender parity in India and beyond, aligning with global efforts to enhance women's rights and societal status.

Concept of Women Empowerment

The concept of women's empowerment encompasses a broad spectrum of activities and initiatives aimed at increasing the degree of autonomy and selfdetermination in women to enable them to represent their interests in a responsible and self-determined way, acting on their own authority. It involves empowering women to make life-determining decisions through the different problems in society. This multifaceted empowerment includes the ability to access the information and resources needed to make financial, social, and political decisions. Women's empowerment is deeply rooted in economic independence, where income generation and financial autonomy play critical roles. Additionally, it extends to social aspects such as enhancing education, reducing gender biases, ensuring equal rights, and access to services, and increasing political participation and representation in decisionmaking processes at all levels. By fostering greater personal and social resources, women's empowerment seeks not only to redress long-standing inequalities but also to create a more equitable and sustainable development pathway for societies worldwide.

Review of Related Literature

Mishra & Sahoo (2022) in their work "Sustainability Challenges of Self-Help Groups in India" delve into the internal and external factors affecting the sustainability of SHGs. They argue that while SHGs have a positive impact on women's empowerment, issues like inadequate managerial skills and financial literacy can hinder their long-term viability. The paper discusses the need for comprehensive training and support systems to build the capacity of SHG members.

Mishra & Sahoo advocate for structured capacitybuilding initiatives tailored to the needs of SHGs to ensure their effectiveness and sustainability. Vasudevan (2022) in his analysis "Capacity Building in Self-Help Groups: A Path to Empowering Women" explores the critical role of capacity building in enhancing the empowerment effects of SHGs. He argues that training in financial management and leadership skills is essential for SHG members to fully realize their potential as economic and social agents. The study highlights

how empowerment through capacity building leads to better governance and increased economic activities within SHGs. Vasudevan recommends ongoing, context-specific training programs to address the evolving needs of SHG members.

Khadka & Smith (2021) in their paper "Gender Roles and Self-Help Groups: An Examination of Empowerment" investigate how SHGs challenge traditional gender roles in conservative societies. They argue that SHGs provide a platform for women to assert their rights and participate in decision-making processes that were traditionally dominated by men. The study details how this shift not only empowers women but also brings about progressive changes in societal attitudes towards gender equality. Khadka & Smith call for continued support of SHGs as a means to promote gender equality and women's empowerment.

Kumar & Jha (2024) in their study "Digital Empowerment of Women through Self-Help Groups" examine how digital literacy enhances the financial and administrative capabilities of women in SHGs. They argue that access to digital tools not only improves financial transactions but also boosts women's confidence in managing group activities and personal finances. The research highlights that when women in SHGs are equipped with digital skills, there is a significant increase in their participation in economic decisions at both household and community levels. Kumar & Jha advocate for targeted digital literacy programs that specifically address the needs and constraints of women in rural settings.

Mehta et al. (2024) in their paper "Mental Health and Women's Empowerment in Self-Help Groups" explore the impact of SHGs on women's mental health. They argue that SHGs serve as a crucial support system for women, offering a platform to discuss personal and sensitive issues, thus reducing mental health stigma. The study discusses how the support structure within SHGs can lead to improved mental health outcomes and enhanced social support among members. Mehta et al. call for integrating mental health modules into SHG programs to enhance their effectiveness in addressing the mental health needs of women.

Discussion

The collective insights from recent studies on the role of Self-Help Groups (SHGs) in women's empowerment offer a comprehensive overview of the transformative effects these groups have on their members and broader community dynamics. Kumar & Jha (2024) and Ghosh & Dutta (2023) highlight the economic empowerment achieved through digital and financial literacy, noting how SHGs provide essential skills that enhance women's financial autonomy and integration into the economy. These skills are not merely tools for individual advancement but also facilitate greater community involvement and decision-making at local levels, thereby fostering economic independence and resilience. The benefits of SHGs extend into the realm of health and social well-being, as emphasized by Mehta et al. (2024) and Pattanaik (2023). Their research points to the critical role SHGs play in addressing mental health stigma and disseminating public health information. These groups serve as vital support networks, offering platforms for emotional support and health education, which are particularly crucial in rural areas where such resources are scarce.

However, the sustainability of SHGs and their longterm impact are contingent on addressing internal and external challenges, as discussed by Mishra & Sahoo (2022) and Vasudevan (2022). These challenges include enhancing managerial skills and financial literacy among SHG members, which are essential for the groups' viability and effectiveness. Capacity building is thus highlighted as a fundamental component for ensuring SHGs not only survive but thrive, enabling them to continue their role in empowering women economically and socially. Moreover, studies by Khadka & Smith (2021) and Janagan & Amutha (2021) explore how SHGs challenge and reshape traditional gender roles. These groups empower women to assert their rights and participate actively in governance and community decision-making processes, which were predominantly male domains. This empowerment leads to progressive changes in societal attitudes towards gender equality, illustrating the broader social impact of SHGs beyond their immediate economic benefits.

In sum, the literature underscores the multifaceted impact of SHGs in fostering economic independence, improving health outcomes, and challenging societal norms. The synthesis of these findings advocates for a holistic approach to supporting SHGs, emphasizing the need for continuous capacity building and policy support to leverage their full potential in driving social change and women's empowerment. This approach not only addresses immediate economic and educational needs but also contributes to a larger shift towards gender equity and community well-being.

Interweaving Women Empowerment and Self-Help Group

The empowerment facilitated by SHGs extends beyond economic benefits; it also encompasses significant social dimensions such as improved mental health support and increased awareness of crucial public health practices. Mehta et al. (2021) highlighted how SHGs offer safe spaces for discussing mental health issues, thus reducing stigma and broadening access to mental health resources. Additionally, Patnaik (2020) demonstrated that SHGs are instrumental in spreading vital information about hygiene and

family planning in remote areas where traditional healthcare services are limited. This dual role of SHGs in promoting economic and social welfare underpins their transformative potential in empowering women and enhancing overall community well-being. Despite these benefits, SHGs face several challenges, including sustaining group dynamics, ensuring financial stability, and securing adequate institutional support. These challenges necessitate ongoing capacitybuilding efforts and the development of leadership skills within SHGs to maintain their efficacy and impact (Mishra & Sahoo, 2015; Vasudevan, 2012). Therefore, while SHGs are effective tools for women's economic and social empowerment, their success largely depends on continuous support and the strategic addressing of inherent challenges.

Moreover, SHGs play a crucial role in social empowerment by providing safe spaces for women to discuss and address issues ranging from mental health to public health awareness. These discussions not only reduce stigma but also promote healthier communities through increased awareness and collective action. The educational aspects brought forth by SHGs in health and personal development are critical in remote and underserved areas, making them indispensable in holistic community development.

However, the sustainability of these groups hinges on overcoming significant challenges related to capacity building and internal governance. The studies emphasize the need for continuous training and support to ensure that SHGs can operate effectively and adapt to changing economic and social landscapes. Ultimately, SHGs are instrumental in challenging traditional gender roles, promoting gender equality, and reshaping societal norms. They empower women not only as economic agents but as leaders and changemakers in their communities. The broad societal impact of SHGs underscores their potential as powerful agents of change, advocating for policies that support and enhance the capacity of SHGs to empower women across the globe. The Self-Help Groups are essential vehicles for promoting women's empowerment and fostering sustainable development. By continuously supporting and strengthening these groups, we can ensure that they remain effective conduits for women's economic and social empowerment, contributing to a more equitable and prosperous society.

Conclusion:

The analytical study of empowering women through Self-Help Groups (SHGs) highlights the pivotal role these groups play in fostering women's autonomy and enhancing their socio-economic status. Through the collective examination of diverse studies, it becomes evident that SHGs are more than just economic catalysts; they are transformative social institutions that significantly impact the lives of women and their communities. SHGs provide critical platforms for women to acquire essential skills, such as financial and digital literacy, which are instrumental in navigating the modern economy. This empowerment extends to financial independence and improved decision-making capabilities, both at home and within the broader community context. The integration of digital tools further amplifies these effects, enabling women to participate more fully in the economy and expanding their access to resources.

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Blockchain for Data Security in Data Analysis

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Abstract:

In the age of big data, ensuring data security and integrity during data analysis has become a critical concern. Traditional centralized data storage and processing systems are vulnerable to breaches, tampering, and unauthorized access. Blockchain technology, with its decentralized and immutable ledger system, presents a promising solution to these challenges. This paper explores the integration of blockchain for enhancing data security in data analysis processes. By leveraging cryptographic techniques, distributed consensus mechanisms, and smart contracts, blockchain can provide secure data provenance, prevent unauthorized data modifications, and enhance trust among data stakeholders. The study examines various blockchain-based frameworks and use cases in sectors such as healthcare, finance, and supply chain analytics, highlighting how blockchain can reinforce data confidentiality, integrity, and availability. Challenges related to scalability, performance, and regulatory compliance are also discussed, along with potential solutions. This work contributes to the growing body of research aimed at combining blockchain with data analytics to create secure, transparent, and trustworthy analytical ecosystems.

Keywords: Blockchain , Data Security, Analysis, Consensus Mechanisms, Chain Analytics

Introduction:

Blockchain technology is increasingly being recognized as a transformative force in enhancing data security within the realm of data analysis. Its decentralized and immutable nature offers robust solutions to longstanding challenges associated with data integrity, privacy, and trust.Data Science Central Understanding Blockchain in Data Security

At its core, blockchain is a distributed ledger system that records transactions across multiple nodes in a network. Each block in the chain contains a cryptographic hash of the previous block, a timestamp, and transaction data, ensuring that once information is recorded, it cannot be altered retroactively without the consensus of the network. This structure inherently provides a high level of security, making unauthorized data manipulation exceedingly difficult.

Enhancing Data Analysis Through blockchain into data analysis processes can significantly bolster data security in several ways: Data Science Central Data Integrity: Blockchain's immutable ledger ensures that data remains unaltered from its original state, providing analysts with a reliable foundation for accurate insights.Decentralization: By distributing data across a network, blockchain eliminates single points of failure, reducing the risk of data breaches and unauthorized access.

Literature Review:

Blockchain technology has garnered significant attention for its potential to enhance data security in data analysis. A comprehensive literature review reveals various facets of how

Blockchain contributes to data integrity, privacy, and trustworthiness in analytical processes.

Data Integrity and Immutability

Blockchain's decentralized ledger ensures that once data is recorded, it cannot be altered retroactively without consensus, thereby preserving data integrity. This feature is particularly beneficial in big data analytics, where data authenticity is paramount. A comprehensive survey highlights blockchain's potential in secure data acquisition, storage, and privacy preservation

Across various domains, including smart cities and healthcare.

Privacy-Preserving Techniques

The literature underscores the importance of privacy in blockchain applications. Techniques such as zero-knowledge proofs, homomorphic encryption, and k-anonymity are employed to protect sensitive data while allowing for its analysis. These methods enable verification of data without revealing the data itself, thus maintaining confidentiality .PubMed

Addressing Security Threats

Despite its advantages, blockchain technology is not immune to security threats. Studies have identified vulnerabilities such as 51% attacks, smart contract bugs, and data leakage risks. A

The integration of blockchain with federated learning has been explored to enhance data
privacy in decentralized machine learning. This combination aims to secure data sharing among multiple parties without compromising individual data privacy, which is crucial in sectors like healthcare and finance.

Challenges and Future Directions

While blockchain offers numerous benefits, challenges such as scalability, energy consumption, and regulatory compliance persist. Future research is directed towards developing lightweight consensus mechanisms, enhancing interoperability between blockchain networks, and establishing standardized legal frameworks to facilitate broader adoption.

Methodology:

Blockchain can significantly enhance data security in data analysis by providing a decentralized, immutable, and transparent record of data transactions and methodologies. This ensures data integrity, traceability, and reduces the risk of tampering or unauthorized access.

Here's how blockchain improves data security in data analysis:

Decentralized and Distributed Ledger:

Blockchain operates on a distributed network of computers (nodes), unlike centralized databases. Each node holds a copy of the blockchain ledger, eliminating single points of failure and enhancing resilience.

This decentralization makes it difficult for any single entity to control or manipulate the data.

Immutability and Tamper-Proofing:

Once data is recorded on the blockchain, it cannot be altered or deleted retroactively without consensus from a majority of the network participants.

This immutability ensures the integrity and trustworthiness of the data.

Any attempt to tamper with the data would require a consensus among a majority of the network, making it practically infeasible.

Transparency and Traceability:

Blockchain provides transparency by making all transactions visible to all network participants, while maintaining privacy through cryptographic techniques.

This transparency fosters trust among stakeholders as they can verify the authenticity and integrity of the data without relying on a central authority. Blockchain allows for data traceability, enabling users to track the data's origin, usage, and changes throughout its lifecycle.

Enhanced Security for Data Analysis:

By ensuring the secure and transparent recording of data, blockchain facilitates more reliable data analysis.

Researchers and analysts can trust the data's integrity, leading to more accurate and reliable insights.

Blockchain can also be used to secure the methodology used in data analysis, ensuring that the process itself is transparent and verifiable.

Applications in Data Analysis:

Data Provenance:

Blockchain can be used to track the origin and lineage of data, ensuring accountability and transparency.

Data Integrity Verification:

Blockchain can be used to verify the integrity of data, ensuring that it has not been tampered with or altered.

Secure Data Sharing:

Blockchain can facilitate secure and controlled data sharing among different parties involved in the data analysis process.

Methodology Documentation:

Blockchain can be used to store and share documentation about the methodology used in data analysis, promoting reproducibility and transparency.

Academic References

For a deeper understanding, consider exploring the following scholarly works: "Blockchain as a Solution of Information Security and Data Privacy Issues: Review": This paper discusses how blockchain enhances security and anonymity, making it suitable for storing sensitive data like personal information and medical records. Research Gate "Blockchain Access Control Ecosystem for Big Data Security": This study presents a blockchain- based access control system that empowers data owners to manage access rights effectively, enhancing security in big data environments.

"A Survey on Blockchain for Big Data: Approaches, Opportunities, and Future Directions": This survey provides a comprehensive overview of how blockchain can be integrated with big data analytics to improve security and privacy.

Blockchain technology offers a transformative approach to enhancing data security within data analysis frameworks. Its core attributes—decentralization, cryptographic integrity, and transparency—provide robust mechanisms to safeguard data throughout its lifecycle.

Key Benefits:

Immutable Data Records: Blockchain's structure ensures that once data is recorded, it cannot be altered without consensus, thereby preserving data integrity.

Enhanced Access Control: Through decentralized consensus mechanisms, blockchain enables precise control over data access, ensuring that only authorized entities can interact with sensitive information.

Tamper-Resistant Storage: The distributed nature of blockchain reduces the risk of single points of failure, making unauthorized data manipulation exceedingly difficult.

Challenges to Consider:

Scalability Issues: As data volumes grow, blockchain networks may face performance bottlenecks, necessitating solutions for efficient scaling.

Regulatory Compliance: Integrating blockchain with existing data protection laws, such as GDPR, requires careful consideration to ensure compliance.

Resource Intensity: Blockchain operations can be computationally and energy-intensive, raising concerns about sustainability and cost.

Conclusion:

Integrating blockchain into data analysis processes presents a promising avenue for enhancing data security. While the technology offers significant advantages in ensuring data integrity and access control, addressing its scalability, compliance, and resource challenges is crucial for widespread adoption. Ongoing research and innovation will play a vital role in overcoming these hurdles and unlocking the full potential of blockchain in secure data analysis.

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4. Access Control and Privacy: Blockchain facilitates fine-grained access control mechanisms, allowing data owners to define and enforce who can access specific data, thus maintaining privacy and compliance with data protection regulations.
5. Integration with Advanced Privacy Techniques: Combining blockchain with technologies like homomorphic encryption and differential privacy enables secure data analysis without exposing sensitive information, ensuring both utility and confidentiality.

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Safeguarding Women against Sexual Harassment: Legal Structures, Obstacles, and Prospects

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Abstract:
Sexual harassment of women is a pervasive social problem that can have major effects on one's physical, mental, and professional health. Many women still experience sexual harassment in many ways, particularly in public places, workplaces, and educational institutions, despite major legal improvements around the world. The nature and effects of sexual harassment are examined, current legislative frameworks are reviewed, their efficacy is assessed, and practical measures to strengthen protection mechanisms are recommended.

Introduction

Human rights and gender equality are frequently violated when women are sexually harassed. It shows itself as unwanted sexual advances, hostile environment-creating behavior, and verbal or physical abuse. Despite the fact that many nations have put laws in place to protect women from this kind of abuse, progress is still hampered by the widespread underreporting, cultural stigma, and lack of enforcement. With an emphasis on legal protections and the difficulties in guaranteeing safety and justice, this essay seeks to give a thorough review of sexual harassment against women.

Understanding Sexual Harassment

Sexual harassment can take many different forms.

- Verbal: Inappropriate jokes, remarks, or sexual innuendo.
- Non-verbal: presenting sexually explicit content, leering, or using gestures.
- Physical: Unsuitable physical contact, violence, or coercion.
- Digital: Harassment through messaging apps, social media, or emails.

It takes place in homes, businesses, schools, streets, and increasingly online areas. Because of ingrained gender stereotypes and power disparities, women are disproportionately affected.

Psychological and Societal Impact

Sexual harassment has serious consequences.

- Psychological trauma: PTSD, anxiety, depression, and low self-esteem are common symptoms among victims.
- Career impact: Out of fear or reprisal, women may quit their employment or pass up promotions.
- Social stigma: Victims may experience shame or blame, which results in their seclusion and quiet.
- Cultural normalization: It may be more difficult to address or report such behavior because of societal views that minimize or disregard it.

Legal Frameworks for Protection

International Legal Instruments

• The United Nations adopted the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW) in 1979, which requires states to end discrimination against women in public and at work.

• ILO Convention No. 190 (2019): Acknowledges the right to a workplace free from harassment and violence.

4.2 National Laws (Example: India)

The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013 (POSH Act):

1. Requires workplaces to set up Internal Complaints Committees (ICCs).
2. Describes sexual harassment and offers a way to file a complaint.
3. This holds true for all women, regardless of their work situation.

Indian Penal Code (IPC) now replaced by Bharatiya Nyaya Sanhita (BNS) Sections:

1. Before Section 354A Of IPC: Addresses physical contact, demand for sexual favors, etc.
2. Now Section 75 of BNS
3. Before Section 509: Punishes acts intending to insult a woman's modesty.
4. Now Section 79 of BNS

International Laws

In the United States, Title VII of the Civil Rights Act of 1964 forbids sexual harassment as a type of job discrimination.

In the United Kingdom, sexual harassment at work is prohibited by the Equality Act of 2010.

- Canada: Protections against harassment and preventative actions are included in the Canada Labour Code.

and the ability to work without fear of harassment is not only demanded by law, but also by morality and society.

Implementation and Challenges

Even with strong legal foundations,execution is frequently insufficient because:

Lack of Awareness

Many women don't know how to report harassment or their rights. Organizations frequently neglect to set up efficient redressal procedures or carry out training.

Fear of Retaliation

Victims worry about losing their jobs, being defamed, or having their careers ruined. This is particularly true in fields of casual work where men predominate.

Ineffectiveness of Internal Committees

ICCs may be inexperienced or unindependent, which could result in unfair or contemptuous proceedings. Sometimes the harasser is a senior official, which makes objectivity challenging.

Societal Attitudes and Victim-Blaming

Victims are discouraged from reporting because of cultural norms that shame them. Skepticism or intrusive inquiry during legal proceedings might cause retraumatization.

Digital Harassment and Legal Gaps

Laws frequently fall behind technology in the face of the surge in online abuse. Legal response is complicated by jurisdictional issues and anonymity on internet networks.

High-Profile Movements and Their Impact

#MeToo Movement

Sexual harassment became much more widely known because of the global #MeToo campaign, which also inspired survivors to come forward. It revealed how commonplace wrongdoing is in industries like politics, entertainment, and the media.

In India, the movement raised awareness of workplace policies and resulted in public disclosures against well-known individuals. But several situations also encountered criticism, threats of legal action, or accusations of slander.

Legal and Policy Reforms

Public pressure has led to:

• Improved enforcement of workplace safety regulations.

• In some nations, harassment education is required.

• Increased corporate responsibility.

Best Practices for Prevention and Protection

Awareness and Education

• Consistent training sessions and workshops on gender sensitivity and sexual harassment laws;

• The inclusion of consent and polite behavior in the curriculum from a young age.

Empowering Internal Committees

• Assure ICCs' independence and gender parity.

• Committee members should get instruction on trauma-informed procedures.

Transparent Reporting Mechanisms

- Options for anonymous reporting.
- Non-retaliation guidelines to safeguard those who file complaints.

Leadership Commitment

- Senior management should lead by example by implementing zero-tolerance rules.
- Visible action against harassers and public declarations help to increase systematic trust.

Technology Solutions

- Using platforms and apps that enable safe documentation and reporting.
- Using AI tools to identify and stop online harassment.

Case Studies

Vishaka vs. State of Rajasthan (India, 1997)

The Vishakha Guidelines were developed as a result of this historic case and subsequently served as the foundation of the POSH Act. It proved that workplace sexual harassment is against the Indian Constitution’s fundamental rights.

In Apparel Export Promotion Council v. A.K. Chopra (1999), a senior officer attempted to harass a female subordinate employee. The case's facts are as follows: AIR 1999 SC 625.

• **Decision:** The Supreme Court upheld the employee's termination, ruling that simply attempting to offend a woman's modesty is unlawful.

• **Importance:** Reaffirmed that sexual misconduct at work will not be tolerated.

Uber (United States, 2017)

Uber changed workplace regulations and terminated several employees after an employee's blog post revealed systemic harassment and HR inaction. The necessity of internal responsibility was demonstrated by the case.

Recommendations for Stronger Protection

- Improve monitoring: Mandatory disclosures from businesses regarding harassment complaints and remedies, as well as regular audits.
- Legal safeguards for individuals who disclose abuse or assist victims are known as whistleblower protection.
- Fast-track courts: These courts expedite sexual harassment cases to guarantee prompt justice.
- Despite the fact that women are the main victims, both genders should be protected in order to foster a welcoming and secure atmosphere.

Conclusion:

Beyond merely passing laws, protecting women from sexual harassment necessitates a cultural change, institutional responsibility, and

active involvement from all facets of society. Effective implementation, victim-centric approaches, and education are still crucial, even though international treaties and statutes like the POSH Act have established a solid framework. Not only is it required by law, but it is also morally and socially necessary for women to live and work without fear of harassment.

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Money Laundering: (India Focused)

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Abstract:
This research critically examines India's legal framework against money laundering, focusing on the Prevention of Money Laundering Act, 2002, and key Supreme Court decisions like Vijay Madanlal Choudhary v. Union of India (2022). Using a doctrinal research approach, the study analyzes modern laundering techniques, enforcement challenges, and India's compliance with international standards such as those set by FATF. It concludes that while legislative progress is evident, issues like digital laundering threats and procedural fairness remain significant hurdles for effective implementation.

Introduction:
Money laundering is the process of disguising the illicit origin of money obtained through criminal events such as drug trafficking, corruption, or terrorist financing. It is a major concern for legal and fiscal systems globally, especially in developing economies like Ind

Literature Review

A. Stages of Money Laundering

1. **Placement**: Injecting illicit money into the financial system.

Example methods:

- Cash deposits into banks (often in small quantities to avoid detection—called "smurfing")
- Using cash-heavy businesses (like restaurants, car washes) to mix dirty money with legitimate sales
- Currency exchanges or buying foreign currencies
- Buying high-value things (jewellery, art, cars)

Layering: Conducting difficult financial transactions to vague the origin.

Example methods:

- Wire transfers through multiple accounts (especially internationally)
- Shell companies or fake accounts
- Buying and selling assets promptly
- Crypto currency mixing services to confuse digital trails

2. **Integration**: Reintroducing the laundered money into the economy as legitimate income.

Example methods:

- Investing in real estate or stocks
- Starting or acquiring businesses
- Purchasing luxury goods
- Making loans to legal businesses

B. In India, money laundering methods often copy universal developments but also adapt to the local economic and regulatory environment. Here's an overview of common money laundering methods used in India — shared for educational and anti-money laundering (AML) awareness purposes:

1. Shell Companies and Fake Invoicing

- Creation of multiple shell companies with no real business to move money between accounts.
- Over- or under-invoicing on imports/exports to shift black money across borders.
- Common in sectors like real estate, jewellery, and pharmaceuticals.

2. Hawala Networks

- An informal, trust-based system for transferring money without physical movement.
- Often used to send/receive black money across borders without any official banking channel.
- Hard to trace due to lack of formal documentation.

3. Cash-Intensive Businesses

- Using businesses like restaurants, petrol pumps, event management, or coaching centers to mix illicit cash with legitimate earnings.
- Allows the integration of black money as "revenue."

4. Real Estate Transactions

- A major area for parking black money in India.
- Common methods:
- Underreporting property sale/purchase prices.
- Cash payments (often unrecorded) alongside official documents.
- Buying properties in names of relatives or benamis (benami transactions).

5. Gold and Jewellery

- Converting cash into gold/jewellery, which is easier to store, move, or resell.

- Frequently used during wedding seasons and festive periods.
- Bullion purchases with fake bills or no PAN details.

6. Banking Channels (Smurfing & Structured Deposits)

- Splitting large sums of money into smaller deposits to avoid detection.
- Depositing through multiple accounts (Jan Dhan accounts, rural bank branches).
- Use of fake PAN cards, forged IDs, or using accounts of low-income individuals.

7. Stock Market Manipulation

- Using penny stocks or shell companies listed on exchanges to inflate stock prices instinctively.
- Buying shares at low cost and selling at high (circular trading) to convert black money into white.

8. Charitable Trusts and NGOs

- Setting up fake trusts or NGOs to show fake donations or expenses.
- Often used to get tax exemptions while moving funds illegitimately.

9. Digital Currency / Crypto Assets

- Buying and transferring crypto currencies to hide the trail of money.
- Using foreign exchanges to bypass Indian KYC rules.

10. Lottery Scams or Prize Schemes

- Showing black money as "lottery wins" or fake prize incomes.
- Often accompanied by forged winning slips or backdated entries.

C. Legal Framework in India

Measure	Description
PMLA (2002)	Prevention of Money Laundering Act — India's core law to combat laundering.
FIU-IND	Financial Intelligence Unit collects & analyses suspicious financial activity.
KYC Norms	"Know Your Customer" rules to verify identity and prevent fake accounts.
STR & CTR Reporting	Banks must report Suspicious Transaction Reports and Cash Transaction Reports.
ED Enforcement	Enforcement Directorate investigates and prosecutes money laundering cases.
Benami Transactions Act	Targets property bought in someone else's name to hide black money.
SEBI & RBI Guidelines	Strict rules for financial institutions, brokers, and NBFCs.
Digital Surveillance	Use of AI, data analytics to trace large/irregular fund movements.

D. Fraud Prevention & Awareness Tips

- Always verify links and emails before clicking.
- Use multi-factor authentication on all bank and UPI apps.
- Never share your OTPs, PINs, or passwords.
- Use secure, updated antivirus and avoid public Wi-Fi for banking.
- Regularly check credit reports and bank statements.
- Report frauds immediately to your bank and cybercrime helpline: 1930 (India).

E. Landmark Case Law

1. **Review of 'Vijay Madanlal Choudhary v. Union of India' (2022) SCC Online SC 929.**

- Case: Supreme Court Agrees to Partially Review PMLA Provisions
- Date: December 2024
- *Summary*: The Supreme Court decided to partially review its earlier judgment in 'Vijay Madanlal Choudhary v. Union of India,' which had upheld various provisions of the PMLA. This move indicates the Court's willingness to re-examine certain aspects of the law to ensure they align with constitutional principles and do not infringe upon individual rights. (Supreme Court observer)

2. Prior Sanction Required to Prosecute Public Servants under PMLA

- Case: Supreme Court Ruling on Section 197(1) of CrPC
- Date: November 2024
- *Summary*: The Supreme Court held that prior government sanction, as mandated under Section 197(1) of the Code of Criminal Procedure (CrPC), is necessary to prosecute public servants, even in cases under the Prevention of Money Laundering Act (PMLA). This decision emphasizes the protection granted to public officials, ensuring that legal proceedings do not hinder their official duties without due authorization. (India today)

3. Concept of PMLA Not to Ensure Continuous Detention

- Case: Supreme Court Remarks on Purpose of PMLA
- Date: February 2025
- *Summary*: While granting bail in a money laundering case, the Supreme Court observed that the PMLA's intent is not to ensure that an individual remains confined. This remark highlights the importance of balancing stringent anti-money laundering measures with the protection of individual liberties. (India today)

4. Emphasis on 'Bail is the Rule' in PMLA Cases

- Case: Supreme Court Upholds Bail Principle in Money Laundering Cases
- Date: August 2024
- *Summary*: The Supreme Court reiterated that the principle "bail is the rule, jail is the exception" applies to offenses under the PMLA. This ruling underscores the judiciary's stance that bail should not be unreasonably denied, even in serious economic offenses, aligning with the broader objective of preventing unnecessary detention. (Juris news)

F. Enforcement Directorate's Recent Actions:

- Arrest of Former Karnataka Bhovi Development Corporation Official: - On April 6, 2025, the Enforcement Directorate (ED) arrested a former general manager of the Karnataka Bhovi Development Corporation in connection with a money laundering case involving alleged departmental irregularities. (Maharashtra tragedy)
- Attachment of Assets in Lakhani Group Case: - The ED attached assets worth over ₹110 Crore belonging to Lakhani India Limited and its group companies. These companies are accused of defrauding multiple banks by misappropriating and diverting funds, resulting in a fraud amounting to ₹162 Crore.
- Seizure of Assets Worth ₹505 Crore: - In two major fraud cases involving the Lakhani group and a real estate firm, the ED attached assets totaling ₹505 Crore.

G. International Collaborations and Arrests:

- Arrest of Crypto currency Exchange Administrator: - At the request of U.S. authorities, Indian officials arrested a crypto currency exchange administrator accused of conspiracy to commit money laundering and violating sanctions.
- Detention of Russian Resident Linked to $152 Billion Money Laundering Scheme: Indian intelligence authorities arrested a Russian resident wanted by the U.S. Justice Department for allegedly operating a crypto currency exchange that facilitated laundering over $152 billion.

H. Legal Proceedings and Court Rulings:

- Bombay High Court Denies Interim Relief to Hawala Operator: The Bombay High Court refused interim relief to Nandkishor Chaturvedi, who challenged a fresh ED case linked to a 2017 probe. The court directed officials to clarify the differences between the two cases before the next hearing.
- Supreme Court's Stance on Money Laundering: The Supreme Court stated that money laundering is an ongoing activity, emphasizing that as long as illicit gains are possessed, the offense continues.

I. Crypto currency and Financial Regulations:

- Seizure of crypto currency in Money Laundering Probe: - The ED seized crypto currency worth ₹1,646 Crore in a significant money laundering investigation, deploying tech-savvy experts to examine complex transactions across numerous crypto wallets.
- Coin base Registers with Indian Financial Intelligence Unit: - U.S.-based crypto currency exchange Coin base registered with India's Financial Intelligence Unit, allowing it to offer crypto trading services in compliance with local regulations.
- These developments underscore India's intensified efforts to combat money laundering, enhance financial transparency, and regulate emerging sectors like crypto currency.

J. Enforcement & Challenges

- Prosecution delays: - FATF noted India's need to expedite convictions.
- Technological complexity: - Rise of crypto assets and trade-based laundering.
- Resource limitations: - Investigative agencies require more tools and training.

Methodology

The present study adopts a Doctrinal Research Methodology. This approach involves an analytical study of existing legal materials, including statutes, case laws, government reports, and international

conventions related to money laundering. Primary sources such as the Prevention of Money Laundering Act, 2002, and recent Supreme Court decisions have been critically examined. Secondary sources, including academic commentaries, FATF reports, and journal articles, have been used to supplement the analysis. The research focuses on understanding the legal framework, judicial trends, and enforcement challenges without engaging in research or observed data collection. This method is particularly suited for a legal research project where the objective is to consolidate and interpret established law and policy.

Conclusion

India's anti-money laundering regime has evolved significantly but still faces enforcement bottlenecks and emerging digital threats. Continued judicial scrutiny, stronger compliance, and global coordination are vital.

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Impact of COVID-19 on the Indian Research Sector

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Abstract

The COVID-19 pandemic brought about unprecedented disruption across the Indian research sector, significantly affecting funding patterns, institutional operations, and the pace of scientific activity. Restrictions on mobility, closure of laboratories, and delays in grant disbursement resulted in stalled research projects and reduced access to critical infrastructure, especially in non-COVID-related disciplines. Early-career researchers and women academics were disproportionately impacted, highlighting pre-existing inequalities within the system. However, the crisis also acted as a catalyst for innovation. Institutions quickly adapted by shifting to virtual platforms, fostering interdisciplinary collaborations, and accelerating biomedical research and diagnostics development. Government and industry partnerships increased, leading to advancements in testing, treatment, and surveillance technologies. Despite the challenges, India's research output particularly in health and virology aw a surge. This dual impact underscores the need for resilient, inclusive, and digitally-equipped research ecosystems capable of responding swiftly to future global challenges.

Keyword:-COVID-19, Research Productivity, Innovation, Collaboration.

Introduction

The outbreak of COVID-19 in early 2020 triggered an unprecedented global health crisis, with wide-reaching consequences for nearly every sector of the economy and society. Among the most significantly affected was the research sector, which found itself both at the center of the response and under pressure from systemic disruptions. In India, where research and development (R&D) is a critical driver of technological advancement, public health innovation, and economic growth, the pandemic exposed vulnerabilities in the existing research infrastructure while also accelerating certain transformative trends. The sudden imposition of nationwide lockdowns, travel restrictions, and the redirection of resources toward immediate pandemic management led to widespread delays in research projects, especially those not directly related to COVID-19. Academic institutions, laboratories, and field research operations faced severe constraints, including limited access to facilities, disruption of supply chains, and interruptions in funding cycles. On the other hand, the urgency of the health crisis spurred a surge in biomedical, pharmaceutical, and interdisciplinary research, creating opportunities for greater collaboration between academia, industry, and government bodies. This paper seeks to examine the multifaceted impact of COVID-19 on the Indian research sector, analyzing the challenges encountered during the pandemic, the adaptive responses from stakeholders, and the long-term implications for research policy and practice. By exploring both quantitative data and qualitative insights, the study aims to identify key lessons and policy recommendations to strengthen the resilience and inclusiveness of India's research ecosystem in the post-pandemic era.

Objectives of the Study

1. To Analyze the Impact of COVID-19 on Research Productivity in India.
2. To Examine the Changes in Funding and Resource Allocation within Indian Research Institutions..
3. To Identify the Adaptive Strategies and Innovations in Research Practices During the Pandemic.

Research Methodology

Secondary research involves the use of existing data and literature to examine the impact of COVID-19 on the Indian research sector. This methodology will focus on gathering and analyzing data from published sources, institutional reports, government publications, and academic literature to draw insights about the changes, challenges, and opportunities faced by the research community in India during and after the pandemic.

Discussion

Impact of COVID-19 on Research Productivity in India

1. Increase in Research Output

Rise in Publications: During the pandemic, India saw a significant rise in research publications, especially in health-related fields. According to Scopus data, the number of publications in India

increased by over 50% during 2020–2022 compared to the pre-pandemic years of 2017–2019. This was largely driven by the urgency of COVID-19-related research.

Biomedical Research Surge: The biomedical research sector, particularly related to COVID-19, saw an increase in scientific publications. From 34,164 publications in 2019, it grew to 40,290 in 2020, marking a significant rise as researchers globally pivoted to studying the virus and its effects.

2. Challenges in Research Productivity

Access to Resources and Laboratories: Many researchers reported difficulty in accessing labs and resources due to lockdowns and restrictions. This led to disruptions in ongoing research and delayed experiments. According to a survey by India Bioscience, 62.5% of researchers reported a negative impact due to limited access to laboratories.

Funding and Grants: The pandemic also delayed grant disbursement, with many researchers experiencing difficulties in securing necessary funds for their projects. Over 55% of respondents in a study mentioned that they faced challenges related to delay funding.

Work-Life Imbalance: Researchers, particularly those with caregiving responsibilities, found it challenging to balance work and home life. Many faced mental health issues such as stress and anxiety due to the pandemic's uncertainties and added responsibilities at home, leading to a reduction in research output.

3. Impact on Gender and Early Career Researchers

Gender Disparities: Female researchers, especially those with caregiving responsibilities, faced greater challenges in maintaining productivity during the pandemic. Studies have shown that women were disproportionately affected by the increased demands of home care, leading to decreased research productivity. This has contributed to widening gender disparities in the research sector.

Early Career Researchers (ECRs): Early career researchers were particularly vulnerable to the impact of COVID-19. Many were unable to access laboratory facilities, faced delays in their projects, and encountered a lack of professional development opportunities. This group also faced increased mental health challenges and career uncertainties during the pandemic.

4. Corporate and Institutional R&D Resilience

Corporate R&D Activity: Despite the challenges, Indian corporate R&D sectors showed resilience during the pandemic. Companies maintained or even increased their spending on R&D, with data indicating no significant decrease in corporate research activities. This was particularly true in pharmaceutical and biotechnology companies involved in COVID-19-related research.

Institutional Research Adaptation: Many research institutions in India adapted by shifting to online platforms for collaboration and data collection. This shift helped sustain some level of productivity, though some areas, particularly experimental research, were heavily impacted due to restricted access to physical infrastructure.

5. Long-term Implications and the Future of Research

Increased Emphasis on Health Research: The pandemic has led to a surge in research output in health-related fields, and this trend is expected to continue as more funding and attention are directed towards medical and biomedical research.

Digital Transformation: The shift to digital collaboration tools and virtual conferences has made it easier for researchers to communicate and share knowledge globally. This may continue to be an important aspect of research even after the pandemic.

Examination of Changes in Funding and Resource Allocation within Indian Research Institutions during COVID-19

1. Shift in Funding Priorities toward Health and Biomedical Research

Emergency Funding for COVID-19 Research

The Indian government rapidly mobilized funds to support research on diagnostics, vaccines, and treatment. Agencies like the Department of Biotechnology (DBT) and Indian Council of Medical Research (ICMR) launched focused calls for proposals related to COVID-19.

DST's COVID-19 Research Initiatives

The Department of Science and Technology (DST) created rapid funding schemes such as the COVID-19 Research Consortium, which prioritized projects related to virus surveillance, contact tracing technologies, and public health modeling.

Redirection of Existing Grants

Some institutions reallocated existing grants to COVID-related themes, often pausing or delaying non-COVID projects, especially in the fields of social sciences, environment, and pure sciences.

2. Delays and Cuts in Regular Research Funding

Slower Grant Disbursement:Many universities and public research bodies experienced delays in disbursing existing grants due to administrative shutdowns and budget reallocations. This affected ongoing long-term research projects.

Budget Cuts for Higher Education: According to reports from the Indian Express and government data, funding for the University Grants Commission (UGC) and centrally funded institutions faced budget constraints, especially in FY 2020–21, as central resources were focused on pandemic response.

Limited Funding for Humanities and Social Sciences: Non-STEM fields saw a relative decline in funding and attention during the pandemic.

Research in these areas was often deprioritized unless it was directly related to pandemic-related issues like mental health, migration, or education.

3. Increased Dependence on External and Industry Funding

Public-Private Collaborations:With government funding focusing primarily on COVID-19, several research institutions sought industry partnerships. Pharma and biotech companies collaborated with research labs for vaccine and drug development (e.g., Bharat Biotech with ICMR).

International Aid and Grants:Indian researchers increasingly turned to international funding agencies such as WHO, Wellcome Trust, NIH, and CEPI for COVID-related grants, particularly for collaborative research on vaccines, public health, and data modeling.

4. Investments in Digital Infrastructure and Remote Research Tools

Funding for Digital Tools:Institutions like IITs and IISc received special funds to upgrade digital labs, learning management systems, and virtual labs, enabling research continuity during lockdowns.

Resource Diversion to Online Research Platforms: Institutions invested in cloud-based data storage, online collaboration tools, and digital libraries. These investments became critical as field and lab-based research slowed.

5. Equity and Distribution Challenges

Disparity between Institutions: Premier institutions (IITs, AIIMS, IISc) received a disproportionate share of COVID-related research funding. Smaller and regional universities struggled to compete for grants due to weaker administrative capacity and lower visibility.

Neglect of Early Career Researchers (ECRs): Funding for postdoctoral fellowships, travel grants, and small research schemes for ECRs was reduced or delayed, impacting their career progression and research output.

6. Long-Term Implications

Greater Government Emphasis on Health R&D: The pandemic has led to a long-term policy shift in favor of health, biotechnology, and data-driven research. National missions such as Atmanirbhar Bharat and National Research Foundation aim to boost self-reliant R&D capacity.

Permanent Infrastructure Upgrades: Many institutions now have better remote working infrastructure and are better prepared for future disruptions, though this came at the cost of temporarily halting other research investments.

Adaptive Strategies and Innovations in Research Practices During the COVID-19 Pandemic in India

1. Digital Transformation in Research

Virtual Collaboration: Researchers widely adopted platforms like Zoom, Microsoft Teams, and Google Meet for conducting meetings, conferences, and collaborative work.

Remote Access to Resources: Libraries, labs, and academic journals were made digitally accessible. Institutions digitized internal systems to allow remote data access and communication.

2. Acceleration of Health and Diagnostic ResearchRapid Development of Diagnostic Tools:

- **Feluda Test**: A paper-strip COVID-19 test developed by CSIR-IGIB.
- **eCovSens**: A portable, non-invasive biosensor developed by DBT-NIAB.

- **Sterilization and Sanitation Technologies**:
  - **Atulya**: A microwave-based sterilization device developed by the Defence Institute of Advanced Technology (DIAT).

3. Innovation in Medical and Support Equipment

- **Low-Cost Ventilators and Oxygen Support**:
  - Devices like RespirAID, a portable respiratory aid, were developed by Biodesign Innovation Labs to support rural and low-resource settings.
- **Air Purification Systems**:
  - Technologies such as SciTech Airon used ionization to reduce viral load in closed environments.

4. Genomic Surveillance and Epidemiological Modeling

- **INSACOG Consortium**: A national initiative launched by the Department of Biotechnology (DBT) to track and study virus mutations through genome sequencing.
- **Data Sharing and Modeling**: Researchers collaborated with international databases and developed AI-based tools for COVID-19 trend forecasting.

5. Public-Private Partnerships and Funding Shifts

- **Industry Collaboration**: CSIR partnered with private firms like Cipla and Cadila to develop drugs, APIs, and diagnostics.
- **Reprioritized Funding**: Research grants were reallocated to focus on virology, public health, and vaccine development.

6. Support for Remote and Theoretical Research

- **Data-Driven Fields Grew**: Researchers in fields like computer science, mathematics, economics, and social sciences continued work using simulations, data analysis, and virtual tools.
- **Literature Reviews and Meta-Analysis**: Researchers used lockdown time for writing reviews, conducting meta-studies, and increasing publication output.

7. Institutional Policy Innovations

- **Flexible Work Policies**: Institutions allowed extended deadlines, flexible schedules, and virtual defenses for theses and dissertations.
- **Well-being and Mental Health Support**: Many institutions initiated wellness webinars

and online counseling to support the mental health of researchers.

Conclusion:

The COVID-19 pandemic profoundly influenced the Indian research sector, acting as both a disruptive force and a catalyst for innovation. On one hand, widespread lockdowns, funding delays, and restricted access to laboratories significantly hindered ongoing research, especially for early-career researchers and non-STEM fields. On the other hand, the crisis spurred rapid developments in health research, digital collaboration, and public-private partnerships. Institutions demonstrated resilience by shifting to remote operations, prioritizing biomedical research, and embracing digital tools for data sharing and collaboration. The surge in COVID-related publications and technological innovations reflects the adaptability of India's research ecosystem. However, the pandemic also exposed systemic challenges, such as unequal resource distribution, mental health strain, and gender disparities in research participation. Moving forward, it is critical to build a more inclusive, well-funded, and digitally equipped research infrastructure to ensure sustained progress and preparedness for future crises

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Bridging Disciplinary Boundaries: Models and Frameworks for Effective Interdisciplinary Collaboration

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Abstract:
In order to solve complicated, real-world issues and promote deeper learning, interdisciplinary collaboration in education has grown in popularity. However, successful models and frameworks that span disciplines are needed to realize its full potential. The theoretical underpinnings, advantages, and difficulties of multidisciplinary collaboration in educational settings are examined in this work. It assesses frameworks that facilitate cross-disciplinary collaborative planning, teaching, and research by referencing case studies, current literature, and best practices. In order to improve multidisciplinary efficacy, the study ends with suggestions for educators, administrators, and legislators.

Keywords: Interdisciplinary, Collaboration, Skill

Introduction:

Single-discipline methods frequently fail to provide students with the skills necessary to tackle complicated challenges in a world that is becoming more and more complex. Diverse disciplinary viewpoints are combined in education through interdisciplinary collaboration to produce more comprehensive learning opportunities. To be successful, though, such cooperation needs strong structures, common objectives, and deliberate design.

Even though having first and Second Education policy we came up with National education policy with a heavy focus on transcending disciplinary barriers, India's National Education Policy (NEP) 2020 represents a substantial paradigm shift in the way education is structured and delivered. A comprehensive, adaptable, multidisciplinary educational system that rejects strict academic silos and encourages interdisciplinary and transdisciplinary learning is what the policy aims to achieve.

Objective of the Study:

1. To explore and analyze existing models and frameworks that promote effective interdisciplinary collaboration across various fields.
2. To understand the strategies and best practices used to foster collaboration across disciplines, and how these strategies help break down silos.
3. To investigate the challenges associated with disciplinary boundaries and identify ways to overcome them to enable seamless collaboration.
4. To assess the real-world implementation of interdisciplinary models and frameworks, providing case studies or examples that showcase their effectiveness in practice.

Research Methodology: This research is based on secondary data.

Theoretical Foundations of Interdisciplinary Collaboration

In order to improve learning and creativity, educators, students, and institutions can collaborate across disciplinary boundaries using a number of theoretical frameworks that form the foundation of interdisciplinary collaboration in education. The main theoretical underpinnings of this strategy are listed below.

1. Community of Inquiry (CoI) Framework

Created by Garrison, Anderson, and Archer, the Community of Inquiry framework highlights the significance of fostering a collaborative and reflective educational atmosphere. It suggests that successful learning takes place through the interaction of three essential presences.

- Cognitive Presence: The degree to which learners are able to create and verify understanding through ongoing reflection and conversation.
- Social Presence: The capacity of participants to connect with the community, engage in purposeful communication, and build interpersonal relationships.
- Teaching Presence: The planning, facilitation, and guidance of cognitive and social activities to attain significant learning results.

In interdisciplinary settings, fostering these presences helps bridge diverse perspectives and promotes deeper understanding among participants.

2. Collaborative Pedagogy

Collaborative pedagogy highlights the importance of social interaction in the learning process. Researchers such as Kenneth Bruffee contend that learning is fundamentally a social activity, with knowledge being created through dialogue and teamwork. This method encourages educators to develop learning experiences that facilitate cooperative learning, peer engagement, and collective exploration, in accordance with the concepts of interdisciplinary collaboration.

3. Professional Learning Communities (PLCs)

PLCs consist of educators working together in ongoing, collective learning to enhance their teaching methods and improve student results. These communities are defined by common values, collaborative inquiry, and an emphasis on student learning. In interdisciplinary settings, PLCs encourage the sharing of ideas and strategies among various disciplines, nurturing a culture of cooperation and mutual accountability for student achievement.

4. Integrative and Project-Based Learning Models

Integrative approaches dismantle conventional disciplinary silos by fusing different academic subjects into coherent learning experiences. With this method, students may apply what they've learned in real-world situations and draw connections across different subject areas. Students engage on challenging, real-world problems as part of project-based learning, which is frequently interdisciplinary in character and fosters critical thinking, teamwork, and the application of information from other fields.

5. Cultural-Historical Activity Theory (CHAT)

CHAT explores learning as a social and cultural activity that is mediated by tools and influenced by social and historical circumstances. It is based on the work of Vygotsky, Leontiev, and Engeström. CHAT offers a prism through which to view how various disciplinary viewpoints and methods might be combined to produce novel learning and teamwork opportunities in interdisciplinary education.

6. Systems Theory

According to systems theory, educational environments are intricately linked systems in which modifications to one component may have an impact on the entire system. This viewpoint is helpful in multidisciplinary collaboration because it emphasizes the necessity of concerted efforts and an awareness of the ways in which various elements of the educational system interact and impact one another. These theoretical underpinnings provide insightful information about how to organize and carry out multidisciplinary collaboration in educational environments. Teachers can create learning experiences that foster greater comprehension, critical thinking, and the capacity to apply knowledge across disciplines by utilizing these frameworks.

3. Benefits of Interdisciplinary Collaboration in Education

- Improved Critical Thinking: Students have the ability to tackle issues from several angles.
- Relevance to the Real World: Multidisciplinary projects replicate real-world problems.
- Innovation and Creativity: Creative problem-solving is fostered by cross-disciplinary engagement.
- Collaborative Skills: Students gain communication and teamwork abilities.

4. Challenges to Effective Collaboration

- Institutional Barriers: Cooperation may be impeded by inflexible departmental structures.
- Distinct Terminologies and Approaches: Every field has its own jargon and methods.
- Assessment Challenges: Assessing multidisciplinary work can be challenging.
- Allocating Resources: There might not be enough money, time, or administrative assistance.

5. Models and Frameworks for Effective Interdisciplinary Collaboration

1. Interprofessional Education Collaborative (IPEC) Framework

A popular strategy for preparing professionals and students from a variety of fields—particularly in healthcare and education—to collaborate and produce excellent, team-based results is the Interprofessional Education Collaborative (IPEC) Framework. The IPEC Framework, which was created in 2009, delineates four fundamental skill categories that are necessary for successful interprofessional practice: Interprofessional Communication, Roles and Responsibilities, Teams and Teamwork, and Values and Ethics.

These abilities place a strong emphasis on effective cooperation, shared decision-making, role clarity, and mutual respect—all of which are essential for dealing with challenging, real-world issues. The framework encourages a comprehensive approach to student learning and well-being in educational contexts by supporting multidisciplinary collaboration between educators, counselors, medical experts, and community partners. Institutions develop a culture of collaboration, increase service delivery, and improve individual and collective outcomes across professions by incorporating IPEC concepts into professional training and practice.

2. Tpack Framework (Technological Pedagogical Content Knowledge)

Teachers can use the TPACK Framework (Technological Pedagogical Content Knowledge) as a model to thoughtfully and successfully incorporate

technology into their lessons. It highlights how three fundamental types of knowledge—technological knowledge (TK), pedagogical knowledge (PK), and content knowledge (CK), or what is being taught, connect. TPACK, which represents the profound comprehension a teacher requires to successfully teach content utilizing suitable pedagogical tactics and technology tools, lies at the core of the framework. By helping them choose and use resources that improve learning and complement subject matter and instructional objectives, the framework pushes teachers to use technology for more than just its own sake. Cooperation as well as digital literacy.

3. Professional Learning Communities (PLCs)

Collaborative groups of educators known as Professional Learning Communities (PLCs) work methodically to improve teaching methods and raise student learning results. PLCs, which are based on the idea that shared accountability and group inquiry result in better educational outcomes, emphasize data-driven decision-making, ongoing professional development, and reflective practice. PLC members routinely analyze student work, co-plan classes, establish shared objectives, and evaluate the efficacy of teaching methods. PLCs eliminate teacher isolation and establish a collaborative learning environment.

4. Bronfenbrenner's Ecological Systems Theory (Applied in Educational Collaboration)

When used in educational collaboration, Bronfenbrenner's Ecological Systems Theory offers a thorough framework for comprehending how different environmental layers affect a student's learning and growth. Five interconnected systems are identified by the theory: the microsystem, mesosystem, exosystem, macrosystem, and chronosystem. These systems each represent varying degrees of impact, ranging from the immediate environment, such as the family and classroom, to the larger societal and cultural ideals (macrosystem). Because it acknowledges that a child's progress is influenced by the dynamic interactions within and across various systems, this model promotes collaboration among educators, parents, school administrators, counselors, and community stakeholders in educational settings.

By adopting a holistic perspective, educators can create interventions and supports that are responsive to the full context of a student's life, thereby promoting equity, engagement, and academic achievement. For example, successful collaboration between teachers and families (mesosystem) or between schools and policy-makers (exosystem) can create consistent, supportive environments that reinforce student learning.

5. Integrated Curriculum Model (ICM)

Deeper, more meaningful learning experiences are made possible by the research-based Integrated Curriculum Model (ICM), which links several topic areas around major themes. Dr. Joyce VanTassel-Baska created the paradigm initially for gifted education, but it can also be used more broadly in general education and interdisciplinary teaching. Three essential elements are included in ICM: higher-order cognitive processes, advanced content understanding, and overarching themes or concepts. ICM promotes students to draw connections between disciplines like science, literature, history, and the arts by structuring the curriculum around real-world issues or big ideas—such sustainability, innovation, or identity. This means that, in reality, a unit on "Global Health" might cover geography (population distribution), biology (disease transmission), ethics (access to care), and math (data analysis). By encouraging inquiry, critical thinking, and knowledge transfer, the paradigm makes learning easier.

6. Co-Teaching Models (e.g., Friend & Cook)

According to Friend and Cook (2010), co-teaching models offer organized ways for two or more teachers—typically a general education teacher and a special education teacher—to work together to deliver instruction in the same classroom. By guaranteeing that all children, including those with special needs, get excellent, differentiated instruction in the least restrictive setting possible, these strategies seek to promote inclusive education. Six co-teaching models are identified by Friend and Cook, each with unique functions and advantages:

- **One Teach, One Observe:**
- **One Teach, One Assist:**
- **Station Teaching:**
- **Parallel Teaching:**
- **Team Teaching:**

These methods enable flexible, responsive instruction, increase student involvement, and promote cooperation. Effective co-teaching promotes academic variety and guarantees that all students' requirements are satisfied by means of mutual accountability and shared competence.

7. Inquiry-Based and Project-Based Learning (PBL) Frameworks

The student-cantered instructional frameworks of inquiry-based learning (IBL) and project-based learning (PBL) encourage in-depth comprehension, critical thinking, and practical application. By encouraging students to pose insightful queries, look into issues, and build their own knowledge via investigation and reflection, inquiry-based learning aims to foster curiosity. By involving students in lengthy, multidisciplinary projects motivated by difficult, real-world problems or difficulties and ending with a concrete output or

presentation, project-based learning expands on this basis.

Both strategies place an emphasis on student agency, teamwork, and active learning, assisting students in acquiring 21st-century abilities including creativity, communication, and problem-solving. IBL and PBL, when incorporated into the classroom, produce dynamic learning environments that relate academic material to real-world situations, increasing the relevance and engagement of learning.

8. Promotion of Multidisciplinary Education: NEP 2020

Restructuring India's educational system to satisfy the demands of the twenty-first century depends heavily on effective interdisciplinary collaboration in NEP 2020. In order to promote a more well-rounded educational experience, the National Education Policy (NEP) 2020 highlights the value of holistic, interdisciplinary education, which promotes the integration of information from other fields.

The establishment of multifunctional educational institutions at all educational levels is envisioned by NEP 2020. By dismantling the conventional boundaries between disciplines, this method allows students to integrate their knowledge from a variety of fields. This cross-disciplinary cooperation improves problem-solving abilities and encourages creativity by assisting students in seeing links between fields such as science, the arts, commerce, and technology.

Conclusion:

In conclusion, tackling the intricate problems of the current world requires successful multidisciplinary teamwork that crosses disciplinary boundaries. We may develop a more integrated approach to teaching, research, and problem-solving by implementing models and frameworks that promote cooperation across many disciplines. The secret to success is creating an environment where people from all fields can collaborate to achieve shared objectives through efficient communication, mutual respect, and shared knowledge. Whether in research, education, or healthcare, incorporating other viewpoints fosters creativity, innovation, and the capacity to address complex problems. The emphasis should continue to be on developing adaptable, cooperative settings where multidisciplinary ideas are accepted as the standard, ultimately leading to favorable societal and academic results as we dismantle conventional silos.

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Digital Banking: Legal and Financial Implication

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Abstract:
This research paper discusses the legal and financial challenges of digital banking, focusing on the rapid changes it brings to the financial sector. Digital banking has made managing money easier, faster, and more accessible for users. However, with this growth, new concerns have emerged, such as risks to cybersecurity, privacy of data, and the potential for fraud. These issues highlight the need for stronger laws and security measures to protect customers and ensure safe banking transactions. The paper also explores how digital banking can increase financial inclusion by reaching underserved communities, but it also points out the challenges of bridging the digital divide. Although digital banking offers many advantages, traditional banks are facing difficulties in adapting to these new technologies and gaining the trust of customers. The research provides recommendations for addressing these issues, such as improving security protocols, creating better laws to protect user data, promoting digital literacy, and ensuring that people without access to technology can still benefit from digital banking. By addressing these challenges, digital banking can continue to expand while minimizing risks, ultimately providing greater benefits to individuals and contributing to a more inclusive and secure financial system.

Keywords Digital Banking, Legal Implications, Financial Implications, Cybersecurity, Traditional Banking, Data Protection

Introduction

The transformation of banking through digital technologies has marked a significant turning point in the global financial ecosystem. In India, this shift towards digital banking has gained remarkable momentum, especially in the past decade. the emergence of digital platforms, supported by initiatives such as "Digital India" and financial inclusion schemes, has played a crucial role in bringing banking services closer to the common citizen. From urban centers to the most remote villages, digital banking is reshaping how people interact with financial institutions. The increasing availability of smartphones, deeper internet penetration, and rapid adoption of digital payment systems have made digital banking more widespread and effective.

In India, the banking industry has steadily progressed from traditional, branch-based services to technology-driven, digital-first models. Customers can now carry out essential tasks such as checking account balances, transferring funds, paying utility bills, and even applying for loans—all without needing to physically visit a bank. This shift has contributed immensely to financial inclusion by enabling access to banking facilities for those who were previously left out of the formal financial system. The outbreak of the COVID-19 pandemic further emphasized the need for digital services, as people sought safer, contactless ways to manage their finances during lockdowns and social distancing protocols. While the growth of digital banking is promising, it also brings forth several important legal, financial, and operational challenges. A key concern is the legal framework that governs digital banking operations. Although India has implemented laws such as the Information Technology Act, 2000, and Reserve Bank of India (RBI) guidelines to regulate digital financial services, the fast-evolving nature of technology demands more dynamic and updated legal responses. Issues related to cybersecurity, online fraud, and data privacy are increasingly critical, especially with the growing number of digital transactions and cyber incidents affecting banks and consumers alike.

Equally significant are the financial implications of digital banking. On one side, it offers substantial advantages, such as reducing the need for large-scale physical infrastructure and helping banks cut down operational expenses. On the other side, banks are required to invest in modern technology, cybersecurity measures, and systems for fraud detection. These investments can be expensive and complex. Furthermore, maintaining consumer trust in digital platforms requires constant innovation and security enhancements.

For the end-user, digital banking offers speed, convenience, and 24/7 accessibility. However, this

ease of use also assumes a level of digital literacy, which is not uniform across all segments of the population. In rural or low-income areas, lack of education, limited internet access, and low awareness about cyber threats can act as barriers to digital banking adoption. As a result, digital banking might unintentionally widen the gap between digitally literate users and those who remain underserved.

Objectives of the Study

1. To study the legal framework governing digital banking services.
2. To examine the financial benefits and challenges of digital banking.
3. To identify the legal issues related to digital banking, such as cybersecurity, data privacy, and fraud.
4. To assess the impact of digital banking on traditional banking systems.

Research Methodology

Secondary data was collected from a range of sources, including reports, research studies, and policy documents, to provide an in-depth analysis of the Digital Banking

Legal Framework Governing Digital Banking in India

Digital banking in India is growing rapidly, and with this growth, the government and regulatory bodies like the Reserve Bank of India (RBI) are implementing important legal frameworks to ensure security and fairness in the system. These laws are being designed to protect both consumers and banks, helping the entire sector to move forward smoothly.

1. Information Technology Act, 2000 (IT Act):

This act is helping the country to give legal recognition to digital transactions. It is addressing issues such as online transactions, digital signatures, and the prevention of cybercrimes like hacking and fraud. It is playing a crucial role in ensuring that digital banking remains secure and reliable for users.

2. Reserve Bank of India (RBI) Guidelines:

The RBI is continuously introducing guidelines for mobile banking, digital payments, and online banking. They are focusing on enhancing security in digital banking, and their regular updates are ensuring that banks are following the best practices for protecting user data and money during online transactions.

3. Payment and Settlement Systems Act, 2007:

This act is governing the safety of digital payment systems. It is overseeing systems like UPI, IMPS, and NEFT to ensure that payments are processed securely and without issues. It is ensuring that these systems are being regulated and functioning in a way that promotes trust and security.

4. Personal Data Protection Bill, 2023:

With the rise of digital banking, protecting personal data has become a top priority. The Personal Data Protection Bill is aiming to keep people's personal information secure when they use digital banking services. It is providing a legal structure for how personal data is being stored, shared, and handled to prevent misuse or breaches.

5. Indian Contract Act, 1872:

Digital banking involves agreements between banks and their customers, and these agreements are governed by the Indian Contract Act. This law is ensuring that both parties are fulfilling their obligations fairly and that there is legal protection for the services being offered through digital channels.

6. Indian Penal Code (IPC):

The Indian Penal Code is being used to tackle crimes related to digital banking. Crimes like online fraud, identity theft, and cyberattacks fall under this code, and legal authorities are taking strict actions against these offenses. This is helping to ensure that digital banking platforms are being used safely and that the guilty are being penalized accordingly.

7. Prevention of Money Laundering Act (PMLA), 2002:

Banks are required to follow the guidelines set by the Prevention of Money Laundering Act, which includes monitoring transactions for any suspicious activities. This is ensuring that digital banking is not being misused for money laundering, and authorities can take appropriate actions to prevent such illegal activities.

Financial Benefits of Digital Banking:

- Digital banking is currently transforming the way people are managing their money. Individuals and businesses are shifting to online platforms like mobile apps, internet banking, and UPI-based systems. Customers are enjoying the benefit of handling their bank accounts anytime and anywhere. They are checking balances, transferring money, paying bills, applying for loans, and investing—all with just a few clicks. This is saving both time and energy.
- Banks are also reducing their operational costs. They are avoiding expenses related to physical branches, paperwork, and manual processing. More banks are adopting automation and artificial intelligence to handle customer queries and backend tasks. This is helping them improve efficiency and provide faster services.
- At present, small businesses and shopkeepers are accepting digital payments through QR codes and mobile wallets. This is helping them grow their customer base and maintain transparency in transactions. Customers are also receiving real-time notifications, which is

helping them track their spending habits and improve financial planning.

- Many banks are partnering with fintech companies to create innovative products like instant loans, auto savings tools, and digital credit cards. These features are giving customers more options and flexibility. Financial inclusion is also increasing, as people from remote areas are opening bank accounts using digital KYC processes.

Financial Challenges of Digital Banking:

- While digital banking is bringing convenience, it is also facing several challenges. Cybersecurity is becoming a serious concern. Banks are dealing with growing cases of phishing, hacking, identity theft, and online fraud. Many customers are receiving fake emails or links, and some are falling into traps that lead to financial losses. Banks are currently investing heavily in secure systems and advanced firewalls to protect user data.
- Another challenge is digital illiteracy. Many users, especially elderly people and rural populations, are struggling to use digital platforms. They are facing difficulties in navigating apps, understanding terms, or using secure payment methods. Banks are trying to bridge this gap by organizing awareness drives and offering customer support in regional languages.
- Technical glitches and server downtimes are also affecting the customer experience. Users are sometimes unable to complete transactions or access their accounts during peak hours. This is creating trust issues, especially among new users. Banks are working to strengthen their infrastructure and ensure uninterrupted services.
- Digital banking is also creating job-related concerns in traditional branches. As automation is increasing, some banking staff are facing reduced roles or the need to upgrade their skills. Banks are currently conducting training programs to help employees adapt to digital systems.
- Moreover, privacy concerns are rising, as many customers are sharing personal data while using third-party apps linked to their bank accounts. Regulatory bodies are continuously updating digital banking guidelines to make the system more transparent and accountable.

  Digital banking is becoming a powerful tool in today's financial world. While it is offering speed, comfort, and accessibility, it is also demanding better awareness, security, and technical strength. Banks are working hard to manage both the benefits and challenges, aiming to make digital banking safer and more inclusive for everyone.

Legal Issues Related to Digital Banking: Cybersecurity, Data Privacy, and Fraud

Digital banking is changing the way people and businesses handle money, but at the same time, it is also bringing serious legal issues. As more people are using internet banking, mobile apps, UPI, and other digital platforms, legal concerns like cybersecurity, data privacy, and financial fraud are increasing. Banks, customers, and the government are now focusing on finding solutions to these issues to make digital banking safe and reliable.

Cybersecurity Issues:

Cybersecurity is one of the biggest legal concerns in digital banking. Hackers are always trying to break into banking systems to steal customer information and money. Cyberattacks like phishing, malware, ransomware, and unauthorized access are becoming more common. If banks fail to protect their systems, they can be held responsible for negligence. Therefore, banks are legally required to follow certain IT and cybersecurity guidelines laid down by the Reserve Bank of India (RBI) and other regulatory bodies. These laws aim to ensure that banks use proper encryption, secure login systems, and regular security audits to protect customer data.

Data Privacy Issues:

In digital banking, customers are sharing sensitive information like Aadhaar numbers, PAN cards, account details, and mobile numbers. If this data is not protected properly, it can be misused. The issue of data privacy is now getting more attention. In India, the Digital Personal Data Protection Act, 2023 is currently being implemented to ensure that banks and financial institutions handle customer data carefully. Under this law, banks must take permission before collecting data and must clearly explain how they are using it. If they fail to follow these rules, they can face legal penalties.

Fraud and Legal Responsibility:

Digital banking fraud is another serious legal problem. Many people are becoming victims of fake calls, messages, or websites that ask for banking details. If fraud happens, it becomes a legal issue to decide who is responsible—the bank or the customer. RBI has given clear rules that if the customer reports the fraud within a certain time, and if the bank's system was at fault, then the customer will not be held liable. Banks must also have systems in place to detect and block suspicious activities. Digital banking is bringing speed and ease, but it is also creating new legal responsibilities. To protect users, banks are required to follow laws related to cybersecurity, privacy, and fraud prevention. Customers are also being advised to stay alert and follow safe banking practices. Only by working together can banks and customers reduce legal risks in digital banking.

Impact of Digital Banking on Traditional Banking

Digital banking is rapidly transforming the financial landscape, bringing significant changes to the way traditional banks operate. As more customers are adopting digital banking platforms for their everyday transactions, traditional banks are being forced to adapt and evolve. Below is an overview of how digital banking is currently impacting traditional banking systems.

Reduction in Physical Branches

Digital banking is currently reducing the need for physical bank branches. With more customers shifting to online banking, they are increasingly performing their transactions via mobile apps or websites. This change is causing traditional banks to close branches or reduce their presence in certain areas. Many banks are downsizing their physical infrastructure, focusing on maintaining a smaller number of branches that offer high-tech services. As a result, traditional banks are reevaluating their business models to prioritize digital channels while decreasing their reliance on in-person interactions.

Changing Customer Behaviour

Customers are increasingly shifting their banking habits toward digital channels. They are using online banking to conduct various tasks such as fund transfers, checking balances, and paying bills, instead of visiting physical branches. This behavior is pushing traditional banks to invest in enhancing their digital platforms. They are continuously upgrading their mobile apps and online services to meet customer expectations for speed, convenience, and accessibility. Traditional banks are responding by integrating more digital services, such as mobile payments and virtual assistants, into their offerings.

Increased Speed and Convenience

Digital banking is providing customers with greater speed and convenience. Transactions are being processed instantly, and services such as loan approvals and payments are being completed in real time. Traditional banking, on the other hand, is still relying on manual processes and paperwork, which often slow down operations. To compete with digital banking, traditional banks are now working on implementing faster transaction methods and automating several of their internal processes. They are introducing real-time payment systems and mobile banking to enhance service delivery and reduce waiting times for customers.

Rising Competition from Digital-Only Banks

The rise of digital-only banks and fintech companies is intensifying competition for traditional banks. Digital-only banks are providing low-cost, innovative services, and their ability to operate without physical branches allows them to offer more attractive rates and fees. Traditional banks are currently feeling the pressure to match the offerings of these digital challengers. Many established banks are launching their own digital-only products, such as online-only accounts and mobile apps, to stay competitive and retain their customer base. This competition is forcing traditional banks to accelerate their digital transformation efforts.

Technological Innovation and Adaptation

Traditional banks are continuously adapting by integrating new technologies like artificial intelligence (AI), machine learning, and blockchain into their operations. These technologies are helping banks to improve customer service, reduce fraud, and personalize offerings based on customer data. AI-powered chatbots are assisting with customer inquiries, while machine learning is being used to detect fraud patterns in real time. Traditional banks are adopting these technologies to modernize their services and align with the advancements made by digital banks.

Security and Privacy Concerns

While digital banking offers numerous benefits, it is also raising significant concerns around cybersecurity. With the increase in online transactions, traditional banks are working hard to ensure that customer data remains secure. They are currently investing heavily in cybersecurity measures to protect against data breaches, fraud, and other online threats. Traditional banks are implementing multi-factor authentication (MFA), encryption, and continuous monitoring systems to safeguard digital banking platforms. The focus on strengthening security is becoming a major priority as cyberattacks are becoming more sophisticated.

Financial Inclusion

Digital banking is currently playing a crucial role in improving financial inclusion. It is making banking services accessible to people in remote or underserved areas where traditional banks have limited physical presence. By offering mobile apps and online platforms, digital banking is enabling individuals who previously had limited access to banking services to open accounts, transfer funds, and access credit. Traditional banks are noticing this trend and are increasingly focusing on offering digital banking solutions to expand their reach. Many are developing mobile banking apps to serve customers in rural areas who may not have easy access to physical branches.

Job Creation and Displacement

As digital banking grows, it is currently reshaping the employment landscape in the banking sector. Traditional banks are downsizing their branch staff due to automation and the reduced need for in-person transactions. However, digital banking is also creating new jobs in areas such as IT, cybersecurity, and data analytics. Banks are hiring tech professionals to develop and maintain their digital platforms and ensure the security of online transactions. While job displacement is a concern in traditional branches, digital banking is creating opportunities in new areas, requiring traditional

banks to upskill and retrain their employees to meet the demands of the digital era.

Personalized Customer Experience

Digital banking is offering personalized customer experiences by leveraging data analytics. Banks are using customer data to tailor their services and provide targeted offers, recommendations, and alerts. Customers are increasingly receiving personalized financial advice based on their spending habits and transaction history. Traditional banks are recognizing the importance of personalization and are integrating similar technologies into their operations. They are currently working on improving their CRM (customer relationship management) systems and offering more customized banking experiences to retain customer loyalty.

Digital banking is having a profound and ongoing impact on traditional banking systems. As more customers are shifting to digital platforms, traditional banks are adapting by incorporating new technologies, improving customer experiences, and enhancing security measures. Although digital banking is challenging the traditional banking model, it is also providing opportunities for innovation and growth. Traditional banks are evolving by embracing digital solutions to remain competitive, expand their customer base, and address the growing demand for convenience and accessibility in the digital age.

Conclusion

Digital banking is currently transforming the financial services sector by offering customers greater convenience, accessibility, and speed in managing their finances. As more people are turning to online platforms for banking, they are enjoying the ease of conducting transactions from anywhere. However, the rapid growth of digital banking is also bringing about several legal and financial concerns, particularly related to cybersecurity, data privacy, and the risk of financial fraud. These challenges are continuously requiring attention from regulators, financial institutions, and customers to maintain trust and security in the system.

As digital banking continues to evolve, legal frameworks are being updated to keep pace with the changes. Despite these efforts, there is an ongoing need for more comprehensive policies that focus on data protection, customer privacy, and preventing cybercrimes. Financial institutions are making strides in strengthening their security measures, but these efforts need to be further enhanced to cope with the increasing complexity of cyber threats. Moreover, while digital banking is opening doors for financial inclusion, it is also essential to address the digital divide. People without access to technology or internet services are at risk of being left behind. Additionally, traditional banking institutions are still transitioning to digital platforms, and this process is ongoing.

Some key recommendations include:

1. **Enhancing Security Measures**: Banks should continue improving cybersecurity protocols, including encryption, multi-factor authentication, and regular audits to safeguard customer data.
2. **Regulatory Frameworks**: Governments need to establish and enforce more robust laws that protect consumers' rights, ensuring the privacy and security of data in digital banking.
3. **Addressing the Digital Divide**: Efforts should be made to provide internet access and digital literacy programs, especially in rural areas, to ensure all individuals can access digital banking services.
4. **Customer Education**: Financial institutions should focus on awareness campaigns to educate customers on how to protect themselves against fraud and how to safely use digital banking services.

   By addressing these challenges and implementing these recommendations, digital banking can continue to expand securely while ensuring that its benefits are accessible to everyone. This will contribute to a more inclusive, efficient, and secure financial environment.

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The Rise of Digital Politics in India: Trends, Challenges and Implications

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Abstract:
The digital revolution has drastically transformed India's political environment, initiating a new era of communication, mobilization, and administration. This article investigates the ascent of digital politics in India by analysing emerging patterns, pinpointing significant hurdles, and assessing the wider implications for democratic participation and political processes. Due to the swift proliferation of the internet, cellphones, and social media platforms, politicians today utilise digital tools for campaigning, outreach, and citizen involvement, rendering politics more instantaneous and participatory. This digital transition also presents considerable obstacles, such as misinformation, data privacy issues, the digital divide, and algorithmic polarization. The research utilises secondary data, case studies, and recent electoral trends to assess the impact of digitalization on political participation, electoral strategy, and public debate. It additionally examines the ramifications for democratic accountability, openness, and inclusivity in governance. The article provides a comprehensive evaluation of digital politics in India, emphasizing its revolutionary potential along with the necessity for regulatory and ethical frameworks to maintain a robust digital democracy. Digitalization has revolutionized Indian politics in various dimensions, including the distribution of political information, public participation, and election campaigning. The emergence of digital politics in India has been significant, transforming the dynamics of electoral participation and government. Political parties, by utilising social media platforms and digital tools for outreach, have the opportunity to engage younger voters but also face the challenge of misinformation. This article assesses the extensive influence of digital tools and platforms on India's political scene, encompassing governance, participation, and concerns such as misinformation and spying. As political parties increasingly employ social media platforms and digital tools for outreach, they encounter both the chance to engage younger voters and the issue of countering misinformation. This article examines the principal trends, difficulties, and ramifications related to digital politics in India.

Keywords: Digital Politics, India, Social Media, E-Governance, Misinformation, Digital Divide, Political Campaigns, Democracy, Political Participation, Data Privacy

Introduction

India, with its vast population and growing internet penetration, has witnessed a significant transformation in its political landscape driven by digitalization. From traditional methods of political campaigning to the adoption of advanced digital tools, the political narrative in India has been reshaped to adapt to the digital age. The rise of digital politics is not merely a shift in medium but a change in how political communication, engagement, and governance are conducted. Digitalization profoundly impacts political science by transforming how politics is practiced, researched, and taught. It influences political behavior, citizen engagement, and the nature of political discourse, while also raising new challenges for democratic institutions and governance. Political science studies how digital technologies reshape political processes, from elections and campaigns to social movements and policymaking. Digitalization refers to the use of digital technologies to change a business model, provide new revenue and value-producing opportunities, and transform how activities are conducted. In the context of politics, it means using digital tools such as the internet, mobile technology, social media, and data analytics to perform political activities such as campaigning, communicating, policy-making, and governance. India, with its massive population and growing internet

penetration, presents a unique case study. From traditional rallies and newspapers, politics has rapidly embraced the digital space, transforming how leaders and parties engage with voters, how citizens interact with the government, and how elections are conducted. The digital revolution has profoundly transformed the landscape of Indian politics, redefining the way political actors interact with the electorate and each other. From the widespread use of social media platforms, digital campaigning, and online voter engagement to the increasing role of data analytics and AI in political strategy, digitalization has infused Indian politics with greater speed, accessibility, and outreach. Digital tools have enhanced transparency and accountability to an extent, enabling citizens to access information, raise concerns, and participate more actively in the democratic process. The rise of digital platforms has also empowered marginalized voices, giving space for alternative narratives that were often overlooked in traditional media. However, this transformation is not without challenges. The digital divide continues to marginalize large sections of the rural and economically weaker population, limiting the democratic potential of digital tools. Moreover, issues like misinformation, data privacy concerns, cyber manipulation, and the use of algorithms to polarize public opinion raise ethical and regulatory concerns. The rise of digital technology has reshaped the political environment globally, and India is no exception. With the second-largest internet user base in the world, India's political machinery has increasingly embraced digital tools to engage with the electorate, streamline governance, and enhance transparency. A Brief History of India's Digital Development and Its Growth When the Digital India campaign was first launched in 2015, it was a watershed moment in the nation's overall strategy for information technology. New channels of communication and outreach have become available to political players as a result of the growth of smartphones, the cheaper internet (for example, in th post-Jio period), and the digital infrastructure. This transformation has not only facilitated greater access to information but has also empowered citizens by enabling their participation in governance and civic activities. As a result, a more informed populace has emerged; ready to engage with the challenges and opportunities that come with rapid digital advancement.

Trends in Digital Politics:

1. **Social Media as a Political Tool:** Political parties and leaders now depend heavily on platforms like Facebook, Instagram, YouTube, and Twitter to interact with the public, advance their goals, and refute opposing viewpoints. Bypassing the filters of conventional media, social media enables direct messages and real-time contact.
2. **Digital Campaigning and Microtargeting:** To target certain voter demographics, political campaigns have used data analytics and digital marketing techniques. Personalised content, ads, and outreach based on demographic information are examples of microtargeting that has grown commonplace, particularly in metropolitan and semi-urban populations.
3. **Use of Mobile Apps:** To communicate with followers, organise volunteers, and spread information, political parties have introduced mobile applications. Apps like the BJP's NaMo App have provided platforms for participation, feedback, and real-time communication.
4. **E-Government and Digital Outreach:** Governments employ digital platforms for citizen services and governance outside of elections. By facilitating the distribution of government programs and services via mobile applications and web portals, initiatives such as Digital India have improved accessibility and transparency. This shift to e-government not only streamlines processes but also encourages greater civic engagement by allowing citizens to voice their concerns and participate in decision-making. As technology continues to evolve, the potential for enhanced interaction between governments and citizens will likely expand, fostering a more informed and active populace.
5. **Technology and Political Communication in the Digital Age:** The Role of Social Media in Political Processes It is now common knowledge that social media platforms such as Twitter, Facebook, Instagram, and WhatsApp are indispensable tools for politicians. By way of illustration, Prime Minister Narendra Modi is one of the most followed political leaders in the world. He uses social media to bypass the filters often applied by conventional media and interact directly with individuals. This direct engagement allows him to shape narratives and respond to public concerns in real time, fostering a sense of connection with his constituents. Furthermore, the ability to disseminate information rapidly enables politicians to mobilise support and rally their bases more effectively than ever before. This direct engagement allows him to shape public discourse and mobilise support more effectively. Moreover, the immediacy of social media enables politicians to respond swiftly to

events and public sentiment, further altering the landscape of political communication.

6. **Digital Media and Political Campaigns:** Since 2014, personalised messaging, digital advertising, and data analytics have become commonplace, particularly during elections. Political parties use Instagram Reels, Facebook Live sessions, and WhatsApp groups to engage young people and share narratives. These platforms enable targeted outreach and facilitate real-time interaction with voters. Consequently, campaigns can rapidly adjust their strategies based on immediate feedback and emerging trends, ensuring their messages resonate more effectively with their intended audiences.
7. **Involvement of Young People:** Young people have been encouraged to engage in political discourse through various digital channels (online platforms). Petitioning, campaigning, and political commentary on the internet have gained popularity among younger individuals, who have traditionally exhibited less interest in political activity. This shift not only enables them to express their views more freely but also nurtures a sense of community and collective action. As they utilise these digital tools, youth become increasingly capable of influencing political agendas and holding leaders accountable, thereby reshaping the landscape of civic engagement.
8. **Digitalization and Electoral Process:**

a) Online Voter Registration and Information: The Election Commission of India now allows online voter registration and provides digital information about candidates, polling booths, and voter ID status.

b) Electronic Voting Machines (EVMs) and VVPATs: Digital voting technologies have made the process faster and more secure, though debates around transparency and hacking persist.

9. **Case Studies: a) General Elections:** in 2014 and 2019 Through the use of the Modi app, NaMo TV, social media war rooms, and other digital tools, the Bharatiya Janata Party (BJP) transformed electoral campaigning. c) The Digital Campaigns of AAP The Aam Aadmi Party (AAP) successfully engaged urban voters and cultivated grassroots support using social media and crowdfunding.

b) The Digital Advancement of Regional Parties: To engage voters, regional parties like the DMK (Tamil Nadu), BRS (Telangana), and TMC (West Bengal) have also implemented digital campaigns in their native tongues. These initiatives have allowed them to resonate more deeply with local populations, fostering a sense of connection and identity. By leveraging regional dialects and cultural nuances, these parties are broadening their reach and reinforcing their political narratives among constituents. This approach enhances voter engagement and empowers communities by giving them a platform to voice their concerns in a familiar language. As a result, the political landscape is becoming increasingly inclusive, reflecting the diverse voices within these regions.

Key Areas of Effect:

- **Political Engagement and Participation:** New kinds of political engagement, like e-voting, social media activism, and online petitions, are made possible by digital technology.
- **Communication and Electoral Campaigns:** Voter mobilisation, advertising, and political campaigning increasingly rely on online platforms and social media. These tools not only enhance the reach of political messages but also foster greater interaction between candidates and constituents. As a result, traditional methods of campaigning are evolving, requiring politicians to adapt to the fast-paced digital landscape to effectively engage with the electorate.
- **Journalism and Political Discourse:** The production, distribution, and consumption of political information are influenced by digital media, which raises questions regarding disinformation and its effects on political discourse.
- **Democracy and Governance:** Digitalisation brings up issues like the use of algorithms and artificial intelligence in decision-making, as well as the possibility of censorship and monitoring. In Digital technology is altering the dynamics of global power, cybersecurity, and international diplomacy in international relations. Relations are increasingly complex, as nations navigate the challenges posed by cyber threats and the necessity for collaborative frameworks. Furthermore, the rapid evolution of digital platforms necessitates a reevaluation of traditional diplomatic strategies to ensure they remain relevant in an era characterised by instantaneous communication and information exchange.
- **Study and Education:** Data analysis, online questionnaires, and digital archives are just a few of the new instruments and approaches that digitisation brings to political science studies. Digital technologies and online resources are enhancing political science education by making it more participatory and accessible. Accessible. This shift encourages a collaborative learning environment, allowing students from diverse backgrounds to engage in discussions and simulations that reflect real-world political scenarios. As a result, graduates are better equipped to navigate the complexities

of modern political landscapes and contribute meaningfully to democratic processes.

Challenges of Digital Politics:

1. **Digital Divide**: Despite growing internet penetration, a significant digital divide persists between urban and rural areas, and among different socio-economic groups. This inequality limits equal political participation and access to digital platforms.
2. **Misinformation and Fake News**: The spread of misinformation, fake news, and propaganda through digital platforms poses serious threats to informed decision-making and public trust. The virality of unverified content can influence public opinion and manipulate electoral outcomes. The dissemination of propaganda, hate speech, and false news—particularly via WhatsApp forwards and viral social media posts—is one of the main drawbacks. Election results have been skewed, and community conflicts have resulted from this.
3. **More susceptible to manipulation:** This troubling trend undermines the democratic process and erodes trust within communities. As individuals become more susceptible to manipulation, it becomes increasingly vital for media literacy initiatives to be implemented, helping people discern reliable information from misleading content. These initiatives should focus on equipping individuals with critical thinking skills and fostering a questioning attitude towards the information they encounter. By promoting awareness and understanding of media sources, communities can build resilience against the harmful effects of misinformation and strengthen the foundations of democracy.
4. **Cybersecurity and Data Privacy:** Digital platforms and political campaigns manage enormous volumes of personal data. Strong legal frameworks are necessary to address urgent challenges, including data breaches, illegal spying, and data exploitation for political purposes.
5. **Algorithmic biases and echo chambers:** Social media algorithms often reinforce preexisting opinions by presenting users with material similar to what they already interact with, creating polarisation and ideological echo chambers. Such behaviour weakens critical engagement and constructive political conversation. Moreover, the lack of diverse perspectives can hinder democratic processes, as citizens become increasingly isolated within their own ideological bubbles. To combat this, fostering media literacy and encouraging exposure to a variety of viewpoints are essential steps towards restoring healthy political discourse.
6. **Crowdsourcing of Political Ideas:** Parties may now crowdsource manifestos and policies thanks to digital means, increasing participation in government.
7. **Troll Culture and Online Harassment:** Online harassment has also taken place on digital platforms, with a particular focus on female politicians and dissidents.
8. **Cyber security:** States and people are more vulnerable to cyberattacks and other online risks as a result of digitalisation.
9. **Digital Sovereignty:** Countries are battling for sovereignty over their own digital data and infrastructure as well as digital independence. Scholars in political science are actively investigating and theorising these potentialities and difficulties, creating new frameworks and techniques to understand the intricate connection between politics and digitalisation. This evolving landscape necessitates a multidisciplinary approach, drawing insights from technology, sociology, and law to address the challenges posed by digital governance. As researchers delve deeper into these issues, they aim to propose viable solutions that ensure security and equity in the digital realm while fostering democratic engagement and accountability among stakeholders.

Implications for Indian Democracy:

•**Greater Political Participation:** More individuals, particularly young people, are now able to participate in politics thanks to digital platforms. Debates, petitions, and online initiatives have promoted civic engagement and awareness.

• **Increased Accountability and Transparency:** Real-time monitoring of government services and easier public input have been made possible by the digitisation of governance. It is possible that this will improve responsiveness and accountability.

• **Threats to Democratic Integrity:** At the same time, there are significant worries about the state of democracy when digital technologies are abused to disseminate misinformation, sway public opinion, and compromise election integrity.

• **Traditional media's function has changed:** as a result of the emergence of digital media; it now often adopts the trends established by online conversation. This realignment has an impact on the development and dissemination of political narratives.

Case Studies: a) General Elections in 2014 and 2019 The Bharatiya Janata Party (BJP) transformed electoral campaigning by emphasising digital platforms like as the Modi app, NaMo TV, social media war chambers, etc.

b) AAP's Digital Campaigns: The Aam Aadmi Party (AAP) successfully engaged urban voters and cultivated grassroots support using social media and crowd funding.

c) The Digital Leap of Regional Parties: To engage voters, regional parties such as the DMK (Tamil Nadu), BRS (Telangana), and TMC (West Bengal) have also implemented digital campaigns in their own tongues.

Conclusion

Digital politics in India has transformed political processes, offering opportunities for increased democratic engagement and governance. However, it also presents challenges such as bridging the digital divide, safeguarding data privacy, countering misinformation, and promoting digital literacy. As India continues to evolve as the world's largest democracy, the integration of digital tools in politics will shape its future. Digital literacy campaigns aim to empower all, close the digital gap, and prevent misuse of personal information. Regulations on political advertising combat misuse, fact-checking initiatives protect against false information, and ethical AI application in politics upholds moral principles. A digitally empowered democracy must be both participatory and responsible, ensuring technology strengthens the foundational values of the Indian democratic system.

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Study on Sex Ratio of Muslim Population in Solapur District

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Abstract

The sex ratio is a crucial demographic indicator that reflects the social structure and gender balance in a population. This study analyzes the sex ratio of the Muslim population in Solapur District, Maharashtra, using the 2011 Census data. The research focuses on temporal trends, geographical distribution, rural-urban differences, and comparative analysis with the overall sex ratio in the district and state. The findings highlight the relatively higher sex ratio among Muslims in Solapur compared to other communities, emphasizing the socio-cultural and economic influences affecting demographic patterns.

Keywords – Muslim Population, Sex Ratio, Rural and Urban, - 2011

Study Area: Solapur District

Introduction of Solapur District

Solapur District is located in the southeastern part of Maharashtra, India. It is a significant district both historically and geographically, sharing borders with Karnataka. The district is known for its textile industries, religious diversity, and agrarian economy.

Geographical Location of Solapur District

Latitude: 17.10°N to 18.32°N
Longitude: 74.42°E to 76.15°E
Total Area: 14,895 sq. km

Neighboring Districts: Pune, Satara, Sangli, Osmanabad, and Kalburgi / Gulbarga (Karnataka)

Administrative Divisions of Solapur District

Solapur District is divided into 11 talukas:

1. Solapur North
2. Solapur South
3. Akkalkot
4. Barshi
5. Pandharpur
6. Mangal wedha
7. Sangole
8. Malshiras
9. Karmala
10. Madha
11. Mohol

Each taluka has a mix of urban and rural areas, influencing population distribution and socio-economic factors.

Population Distribution of Solapur District

Total Population (2011 Census): **43, 17,756.**
Urban Population: **32%** Rural Population: **68%**

Introduction

Demographic studies play a crucial role in understanding the socio-economic and cultural fabric of a region. Among various demographic indicators, the sex ratio—defined as the number of females per 1,000 males—is an essential parameter that reflects gender balance and social development. The present study focuses on the sex ratio of the Muslim population in Solapur District, analyzing its trends, geographical distribution, and variations between urban and rural areas. Solapur, located in the state of Maharashtra, has a diverse population with a significant Muslim community. The district has experienced dynamic demographic changes over the years due to factors such as migration, socio-economic conditions, and government policies. Understanding the sex ratio of the Muslim population in Solapur is crucial for assessing gender equity, healthcare access, and overall community well-being.

This research aims to provide a comprehensive analysis of the sex ratio of the Muslim population in Solapur District by utilizing census data and statistical tools. The study will explore variations between urban and rural areas, compare sex ratios with other communities, and identify underlying factors influencing these patterns. Additionally,graphical representations such as charts, maps, and statistical models will be used to enhance the visual understanding of these trends. By examining the historical and contemporary trends in the sex ratio, this study will contribute to the broader discourse on demographic changes and social development in Solapur District. The findings of this research will help policymakers, social researchers, and local administrators in formulating targeted interventions to improve gender balance and address socio-economic disparities within the Muslim community.

Objectives of the Study

1. To analyze the sex ratio of the Muslim population in Solapur District.
2. To compare the Muslim sex ratio with the overall sex ratio in Solapur, Maharashtra, and India.
3. To examine the rural-urban variations in the sex ratio of the Muslim population.
4. To study the trends in the sex ratio from 1991 to 2011.

Data Source and Methodology

The study is based on secondary data from the Census of India (2011). The data includes sex ratio statistics at the district, state, and national levels, along with tehsil-wise rural-urban segregation. The analysis includes trend analysis, graphical representation, and comparative analysis.

Analysis and Discussion

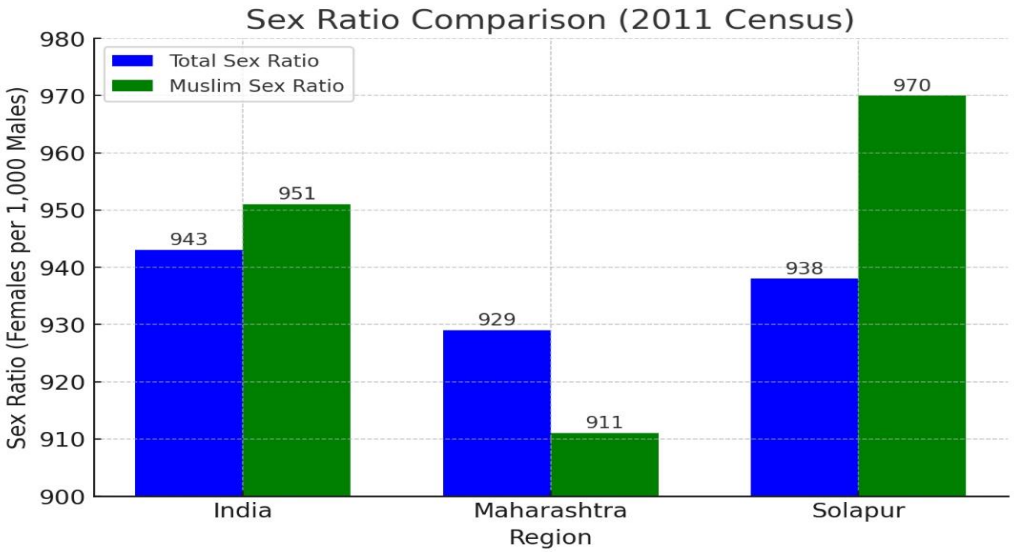
Comparative Sex Ratio of Muslim Population

India, Maharashtra, Solapur Sexratio -2011

Area Name	Total Sex Ratio	Muslim Sex Ratio
INDIA	943	951
MAHARASHTRA	929	911
SOLAPUR	938	970

Source: Census 2011

The sex ratio of the Muslim population in Solapur is **970 females per 1,000 males**, which is higher than the overall district sex ratio of **938** and the state sex ratio of **911**. Compared to the national average, which is **951**, Solapur's Muslim population has a relatively higher sex ratio.This suggests that the Muslim community in Solapur has a relatively balanced gender distribution.

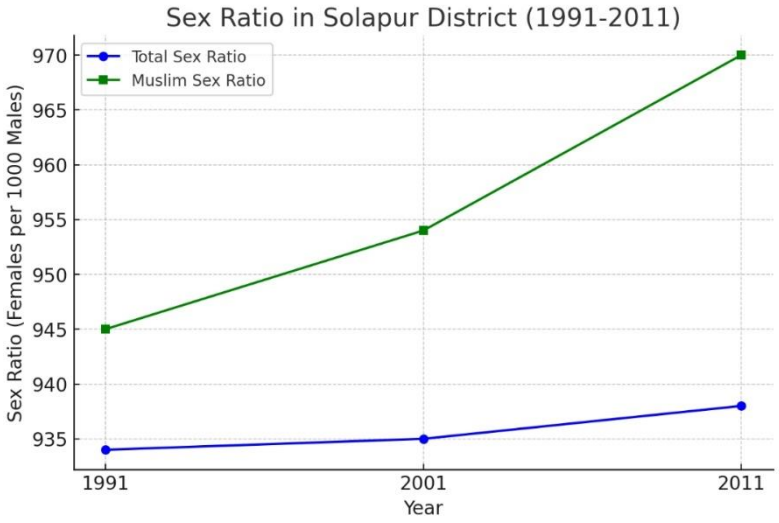


Trends in Sex Ratio (1991–2011)

Solapur District Sex Ratio 1991-2001-2011

Year	Total Sex Ratio	Muslim Sex Ratio
1991	934	945
2001	935	954
2011	938	970

Source: census 2011.



The sex ratio of the Muslim population in Solapur has shown a positive trend over three decades:The sex ratio among Muslims increased significantly from **945 in 1991 to 970 in 2011,** indicating improved gender parity within the community.

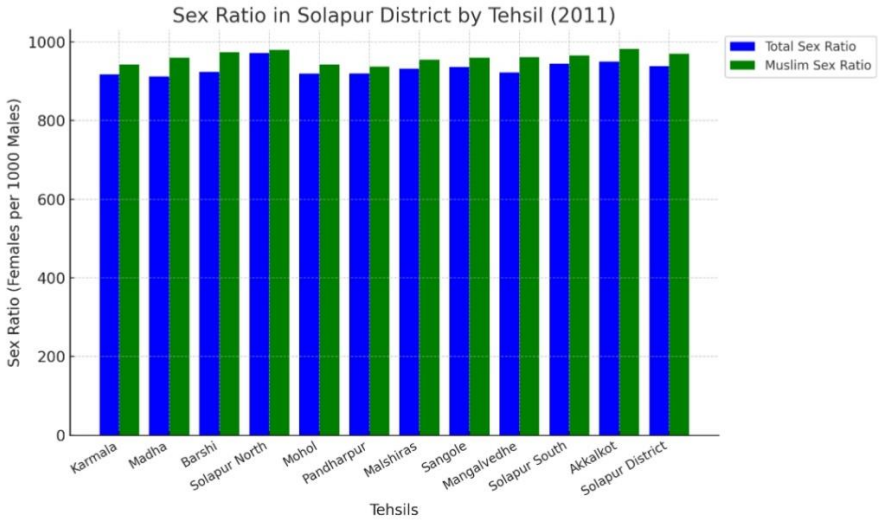
Tehsil-Wise Analysis of Muslim Sex Ratio

Solapur District Sex Ratio -2011

Tahasil	Total Sex Ratio	Muslim Sex Ratio
Karmala	918	943
Madha	912	960
Barshi	923	974
Solapur North	971	979
Mohol.	919	943
Pandharpur	937	920
Malshiras	931	954
Sangole	936	960
Mangalvedhe	922	961
Solapur South	944	966
Akkalkot	950	982
Solapur District	**938**	**970**

Source census of India - 2011

The sex ratio varies across different tehsils of Solapur District. Some tehsils like**Akkalkot (982) and Solapur North (979)** exhibit a higher sex ratio, while others, such as **Pandharpur (937) and Karmala (943),** report relatively lower values. The highest sex ratio for the Muslim population is observed in **Akkalkot (982), while Pandharpur (937)** reports the lowest.



Rural-Urban Disparities in Muslim Sex Ratio

Solapur District Muslim Rural- Urban Sex Ratio -2011

Tahasil	Total Sex Ratio	Rural Sex Ratio	Urban Sex Ratio
Karmala	943	940	949
Madha	960	952	982
Barshi	974	958	987
Solapur North	979	951	980
Mohol	943	943	0
Pandharpur	937	927	958
Malshiras	954	940	981
Sangole	960	970	938
Mangalvedhe	961	951	993
Solapur South	966	966	0
Akkalkot	982	969	1008
Solapur District	**970**	**954**	**981**

Source: census of India 2011

The rural and urban sex ratio data for Muslims in Solapur shows noticeable differences. While the overall sex ratio is higher in rural areas, some urban areas report even higher values.

The data Indicates that some urban centers, such as **Akkalkot (1008) and Mangalvedhe (993)**, have a higher female population than males, while rural areas show a more balanced ratio.

Conclusion

The study highlights the relatively higher sex ratio of the Muslim population in Solapur District compared to the overall population. The increasing trend from 1991 to 2011 suggests improved gender balance within the community. Rural-urban variations reveal that some urban areas have a higher sex ratio, possibly due to better healthcare and migration patterns. Future research can explore the socio-economic factors influencing these trends and the impact of government policies on gender balance. This research paper provides a comprehensive analysis of the Muslim sex ratio in Solapur District, contributing valuable insights for policymakers, researchers, and social organizations.

Recommendations

1. Further Research: A qualitative study on the socio-cultural factors influencing the Muslim sex ratio in Solapur.
2. Policy Interventions: Gender equity programs focusing on health, education, and employment for women.
3. Awareness Campaigns: Addressing gender disparities and promoting women's rights in the region.

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Impact of Technology on English Language

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Abstract

Language is one of humanity's greatest inventions—but like all things human, it evolves. Today, it's changing faster than ever, thanks to one major force: technology. From how we speak to the words we invent, the digital revolution is transforming language in ways we're only beginning to understand. The present research aims at shedding light on the recent changes which take place in the use of the English language that have been caused by the impact of technology represented in the extensive exploit of the internet. Hence, the ever-changing world of technology has aided a constant changing of the English language. Therefore, technology has a big role in changing the way people communicate.

To be more specific, the way people speak today is almost the same way they spoke before the internet. But there is large different is the way people write today. That is the area where technology has had the biggest impact. So, this research is devoted to highlight those changes occurred in the written English. And to show if these changes such as abbreviations, vocabulary, spelling and punctuation, and grammar used by native and foreign speakers, when communicating with each other through the various means of media, become common in formal English language.

Keywords: Technology, written language, communication

Introduction:

Language is a dynamic entity, evolving in response to sociocultural and technological shifts. The digital revolution of the 21st century has introduced unprecedented changes to language use, especially in written and spoken forms.Today the use of technology or the internet represents the newest, broadest and fastest means of exchanging information all over the world. The English language is one of the important means of exchanging various information among different communities.

Therefore, social media or electronic communication technology has revolutionized the process of composing English writing and speech. Communication technology reflects a several number of electronic communication forms. Such forms are normally associated with the internet nowadays access through both computers and mobile phones. They include e-mail, chat rooms, forums, instant messaging devices, social networking sites, gaming networks, and Web- logs (blogs).

Objective of the Study:

To find the changes taken place in the English language due to the impact of the use of technology in daily communication

Data and Methodology:

The data of the present study were collected via means of written documents. Various electronic written pieces were collected which were produced by the users of the internet.

The researcher used survey method and collected 30 written materials that were exchanged in emails, chat-groups, text messaging, and blogs of the English language.

Changes due to Technology:

Vocabulary Expansion and Neologisms

Technology introduces new terms and redefines old ones. Words like emoji, selfie, streaming, unfriend, Google (as a verb), and cloud have become mainstream. Abbreviations such as LOL, OMG, and BRB are now widely recognized, with many officially added to dictionaries. These neologisms reflect evolving digital behaviors and concepts.

Digital Communication and Language Style

Digital platforms like texting, social media, and chat apps promote informal, concise communication. Users often omit punctuation, abbreviate words, and use acronyms. This has led to the rise of "textspeak"—a digital dialect that favours speed over structure.

For example:

- "u" instead of "you"
- "gr8" for "great"
- "idk" for "I don't know"

While often criticized for weakening grammar, many linguists argue that these changes showcase creativity and efficiency in language use.

Table (1) Common acronyms used in the internet language

Acronyms	Meanings
2F4U	Too fast for you
4YEO FYEO	For your eyes only
2MORO	Tomorrow
2NTE	Tonight
AAMOF	As a matter of fact,
AFAIK	As far as I know

Grammar, Syntax, and Punctuation Shifts

Technology has influenced how English grammar is applied. Online writing tends to favor:

- Shorter sentences
- Informal tone
- Omission of articles and conjunctions
- Use of hashtags (#) and emojis ☺ to convey emotion or context

Though these practices deviate from formal writing, they create a unique hybrid of speech and text known as "written speech."

As it has been explained earlier the most general features of the internet language distinctiveness are mainly found in graphology and lexicon- the levels of language where it can easily produce innovation and deviation. In related words, grammatical variation or distinction is less frequent. Few instances have been counted in the usage of Netspeak. Particular cases which express verb reduplication take place in some chat=groups but these are not frequent or universal. For instance, a verb is used twice in immediate succession to refer to a group of functions, such as the expression of pain, happiness, pleasure and so on. -I deleted your message, Lose, lose [I'm stupid] -How about that! Win, win

The Influence of Artificial Intelligence and Translation Tools

Tools like Google Translate, Grammarly, and AI-powered chatbots are changing how people write and understand English. While they assist non-native speakers and promote language learning, they may also reduce the incentive to master grammar, spelling, or idiomatic expressions.

Furthermore, the training of AI on internet-based English raises concerns about reinforcing informal or incorrect usage patterns in mainstream language.

Sociolinguistic Impact

Technology has both unified and fragmented English:

- Unification: English serves as the dominant language online, fostering global communication.
- Fragmentation: Regional and cultural variations—like "African American Vernacular English (AAVE)" on Twitter or "Singlish" in Singapore—are increasingly visible, creating new dialects within digital communities.

This democratization of language challenges traditional linguistic hierarchies and standards.

Concerns and Criticisms

Critics argue that technology contributes to:

- A decline in reading and writing skills
- Overuse of slang and informal expressions
- Disconnection from literary English

Educators express concern over students' inability to switch between casual digital language and formal academic English, a skill known as code-switching.

Educational and Linguistic Opportunities

Rather than resisting change, schools and institutions can embrace it by:

- Integrating digital literacy into the curriculum
- Teaching students to navigate between formal and informal registers
- Using technology to enhance language learning through interactive tools

Understanding modern English as a living, evolving system allows for more inclusive and effective language education.

Conclusion:

Technology has profoundly influenced the modern English language. While it introduces challenges, such as in formalization and language shift, it also reflects the natural adaptability and global relevance of English. Rather than signalling the decline of the language, these changes may represent its evolution into a more flexible, expressive, and accessible form. Future research should continue to explore how digital trends shape communication, especially among younger generations. It is evident that the electronic communication has a remarkable influence on the use of the modern English language. This tendency of using the internet and the other various social media is expected to continue in the nearest and far future introducing new forms of language, like new graphology and net-speak which don't follow the grammatical and syntactic rules of systematic English writing.

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