

Book series on Sustainable Development Goals



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PREFACE

The *Book Series on Sustainable Development Goals* is an initiative to bring together diverse perspectives, research findings, innovative ideas, and practical approaches towards achieving the United Nations Sustainable Development Goals (SDGs).

The SDGs provide a comprehensive framework for addressing global challenges such as poverty, health, education, inequality, environmental sustainability, and climate change. Achieving these goals requires interdisciplinary research, innovation, collaboration, and active participation from academic institutions, policymakers, industries, communities, and society.

This book series aims to provide a platform for researchers, academicians, students, practitioners, and policymakers to share knowledge, experiences, and evidence-based solutions related to sustainable development. It highlights emerging issues, challenges, best practices, and opportunities that can contribute to inclusive, resilient, and sustainable development.

We hope this series will encourage further research, collaboration, and meaningful action towards achieving the SDGs and building a sustainable future for present and future generations.

The Editors

Table of Contents

S.No	Title of The Article
1	Empowering Women Entrepreneurs: Analyzing Government Support For Food Processing Startups With Special Reference To Kollam District
2	Impact Of Mobile Addiction In The Reading Habits Of Children: An Empirical Study Among High School Students.
3	Impact Of AI- Education Tools Among School Students Towards Achieving Quality Education
4	ESG Factors In Building Valuation - Challenges And Strategies

Empowering Women Entrepreneurs: Analyzing Government Support for Food Processing Startups with Special Reference to Kollam district

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Abstract

This study examines the impact of government support on women-led food processing startups in Kollam district, with a focus on pickle-making and fruit juice production units. Through a combination of qualitative and quantitative methods, the research explores the challenges faced by women entrepreneurs, such as financial constraints, market accessibility issues, and bureaucratic hurdles in accessing government schemes. The study finds a significant association between government financial aid and business sustainability, but highlights the barriers of complex procedures and lack of awareness. The analysis also reveals that rural women entrepreneurs face greater challenges compared to urban counterparts, particularly in terms of infrastructure and access to resources. Additionally, the study emphasizes the limited role of digital marketing in business growth and recommends targeted training programs to enhance digital literacy and e-commerce capabilities. The findings underscore the need for simplified financial processes, policy awareness programs, and digital skill development to improve the sustainability and growth of women entrepreneurs in the food processing sector.

Keywords: *Government Support, Women Entrepreneurs, Food Processing, Digital Literacy*

Introduction

Entrepreneurship plays a crucial role in economic development, and in recent years, women entrepreneurs have emerged as key drivers of innovation and employment generation. The food processing sector, in particular, offers significant opportunities for women due to its accessibility, scalability, and direct connection to local resources. However, despite their growing presence in this industry, women entrepreneurs continue to face multiple challenges, including financial constraints, lack of technical knowledge, market access barriers, and

societal biases. Recognizing these challenges, government support has become a critical factor in fostering the growth and sustainability of women-led food processing startups.

In India, various government schemes and policies have been introduced to empower women entrepreneurs in the food processing industry. Initiatives such as the Pradhan Mantri Formalisation of Micro Food Processing Enterprises (PMFME) Scheme, Mudra Loans, and subsidies under the Ministry of Food Processing Industries aim to provide financial aid, skill development, and infrastructural support. However, the effectiveness of these programs varies across regions, necessitating an in-depth analysis of their impact at the local level. In this context, Kollam district in Kerala presents an interesting case study due to its rich agricultural base, active participation of women in micro-enterprises, and the state's progressive policies supporting entrepreneurship.

This study seeks to analyze the extent and effectiveness of government support for women-led food processing startups in Kollam district. It aims to explore the accessibility of financial assistance, training programs, and market linkages provided under various government schemes. Additionally, the study will examine the key challenges faced by women entrepreneurs despite these interventions and assess the gaps that need to be addressed for improved policy implementation. By adopting a mixed-method approach involving surveys, interviews, and secondary data analysis, this research will provide valuable insights into the role of government initiatives in shaping the entrepreneurial landscape for women in the food processing sector.

Review of Literature

Women entrepreneurs face several challenges in establishing and sustaining their businesses, particularly due to financial constraints. According to Dang et al. (2009), the lack of tangible safety and ownership of property significantly limits women's access to monetary support and working capital. In India, very few women own property in their names, and financial institutions often perceive women-led ventures as high-risk investments. As a result, banks exhibit an unfavorable attitude toward providing loans to women entrepreneurs. Additionally, women entrepreneurs struggle with competition from well-established companies and male entrepreneurs, further limiting their business growth. The lack of an organizational framework to generate funds for marketing and business promotion also hampers their entrepreneurial progress.

The importance of an outcome-based learning ecosystem in enhancing startup viability has been highlighted by Sharma et al. (2013). Women entrepreneurs often face movement constraints, which restrict their ability to conduct business operations effectively. At the governmental level, they encounter bureaucratic hurdles, requiring them to navigate multiple offices for licensing, sales tax, and labor approvals. Lal (2012) emphasized that many women drop out of entrepreneurship due to these bureaucratic challenges. However, grassroots-level outcomes can be improved through political willpower and technological interventions, which can create a more supportive environment for women entrepreneurs.

Historically, the development of women entrepreneurship in India has evolved through different periods. According to Tiwari et al. (2021), women entrepreneurship can be studied across four key phases: the Pre-Independence Period (before 1947), the Post-Independence Period (after 1947), the Post-Liberalization Period (after 1991), and the Post-Global Recession Period (2008 onwards). These studies reveal how India's social networks have played a crucial role in fostering a favorable environment for women entrepreneurs. With proper policy implementation and technological advancements, women can access better opportunities to expand their entrepreneurial activities.

Encouraging and supporting women entrepreneurs is essential for fostering a more inclusive economic ecosystem. Chand et al. (2022) argue that the success of women entrepreneurs will inspire more women to engage in entrepreneurial activities. Furthermore, customer satisfaction with services offered by women entrepreneurs plays a key role in ensuring sustainability and long-term success. Kanchana (2013) defines an entrepreneur as an individual with the ability to express creativity, innovation, and leadership in establishing a business venture. Lastly, Tiwari et al. (2022) emphasize that good governance is the need of the hour to create a more supportive entrepreneurial environment for women in India. These studies collectively highlight the importance of financial inclusion, policy support, and social empowerment in promoting women-led enterprises.

Research Gap

While extensive research exists on women entrepreneurship in India, there is a notable gap in assessing the effectiveness of government support for women-led food processing startups, especially at the regional level. Previous studies have highlighted financial barriers, bureaucratic challenges, and societal constraints (Dang et al., 2009; Sharma et al., 2013), but there is limited focus on how schemes like PMFME and financial aid programs influence the

growth and sustainability of these businesses. Additionally, the potential of digital tools, e-commerce, and technological advancements in addressing market access challenges remains underexplored. Most research concentrates on general entrepreneurial obstacles rather than the specific needs of women in the food processing sector. This study seeks to address these gaps by analyzing the real-world impact of government initiatives on women entrepreneurs in Kollam district, providing valuable insights for enhancing policy effectiveness and support frameworks.

Research Objectives

1. To examine the effectiveness of government support programs in promoting the growth and sustainability of women-led food processing startups in Kollam district.
2. To analyze the key challenges faced by women entrepreneurs in accessing financial aid, technical assistance, and market opportunities despite existing government initiatives.
3. To assess the role of digital platforms and technology in enhancing business operations, market reach, and competitiveness for women entrepreneurs in the food processing sector.

Research Methodology

Research Design

This study adopts a descriptive research design to analyze the impact of government support on women-led food processing startups, specifically focusing on pickle-making and fruit juice production units. The research aims to assess the challenges, accessibility of financial aid, and the role of government initiatives in fostering entrepreneurship among women in Kollam district.

Sampling Method and Sample Size

The study employs a purposive sampling method, selecting 60 women entrepreneurs actively engaged in pickle-making and fruit juice production. The sample is drawn from Kollam Corporation and Elamadu Panchayath, ensuring a diverse representation of urban and rural entrepreneurial units. Purposive sampling is used to specifically target businesses that are currently operational and fall within the study's scope.

Data Collection

Primary data is collected through structured questionnaires and interviews with women entrepreneurs. The questionnaire is designed to gather insights on financial accessibility, challenges in business operations, market reach, and the effectiveness of government schemes. Secondary data is sourced from government reports, policy documents, and existing literature on women entrepreneurship in the food processing sector.

Data Analysis

To analyze the collected data, both chi-square tests and t-tests are employed.

- The chi-square test is used to examine associations between categorical variables, such as the impact of government support on business sustainability and accessibility to financial resources.
- The t-test is applied to compare means between two groups, such as differences in challenges faced by women entrepreneurs in urban (Kollam Corporation) and rural (Elamadu Panchayath) areas.

Data Analysis and Interpretation

The data analysis of this study provides crucial insights into the impact of government support on women-led food processing startups in Kollam district, particularly focusing on pickle-making and fruit juice production units. The demographic profile of the respondents indicates that a majority of women entrepreneurs belong to the 30–50 age group, reflecting significant participation from middle-aged women in the sector. Education levels vary among respondents, with a notable percentage having only basic education, which may limit their financial literacy and business management skills. Many women entrepreneurs rely on personal savings or informal borrowing to fund their businesses, primarily due to difficulties in accessing formal financial aid from banks and government schemes. This financial dependency often restricts their ability to expand and compete with well-established businesses.

A chi-square test was conducted to assess the relationship between government financial support and business sustainability. The results show a significant association ($p\text{-value} = 0.03$), demonstrating that government financial aid, in the form of subsidies, training programs, and loans, plays a crucial role in sustaining and growing businesses. However, despite the availability of these schemes, many women entrepreneurs reported bureaucratic hurdles and a lack of awareness as major obstacles to availing these benefits. Complex application procedures, delays in loan approvals, and a general lack of information about government initiatives prevent women from fully utilizing the support available to them. This finding underscores the need for simplified financial procedures and awareness campaigns to bridge the gap between policy implementation and real-time benefits for women entrepreneurs.

The study also identifies key challenges faced by women entrepreneurs in the food processing industry. These include financial constraints, market accessibility issues, and difficulties in obtaining necessary licenses and approvals. Many respondents reported that competition from well-established businesses and male entrepreneurs further limits their market reach and

growth opportunities. Additionally, challenges related to product promotion and branding were evident, as most women-run businesses operate at a small scale with limited marketing budgets. A t-test comparing urban and rural entrepreneurs reveals that rural women, particularly those from Elamadu Panchayath, face greater difficulties in accessing government benefits and reaching larger markets due to logistical constraints and limited infrastructure. The t-statistic value was 2.8, with a p-value = 0.04, indicating a statistically significant difference in the challenges faced by urban and rural women entrepreneurs. In contrast, urban entrepreneurs from Kollam Corporation struggle with higher operational costs (reported by 70%) and increased competition (reported by 65%), making it challenging to sustain profitability.

Another critical finding is the limited role of digital and technological support in enhancing business operations. Despite the increasing shift toward digital marketing and online sales, only 35% of respondents actively use digital platforms for product promotion and customer engagement. The lack of technical training and digital literacy among women entrepreneurs serves as a major barrier, preventing them from leveraging online business opportunities effectively. The p-value = 0.05 from the t-test conducted on digital platform usage between women entrepreneurs who received training and those who did not indicates that digital literacy programs significantly affect the use of digital marketing strategies. This highlights the need for targeted training programs in digital marketing, e-commerce, and financial management to help women entrepreneurs expand their customer base and improve business sustainability. Overall, the study emphasizes the importance of simplified financial access, policy awareness programs, and digital skill development to enhance the growth and sustainability of women entrepreneurs in the food processing sector in Kollam district. Addressing these challenges through effective policy implementation and structured support systems can significantly improve the entrepreneurial landscape for women in this sector.

Managerial Implications of the Study

The managerial implications of this study suggest that government agencies and business development managers should focus on improving access to financial support by streamlining loan processes and enhancing awareness of available schemes through targeted outreach. Additionally, offering tailored training programs in digital marketing, e-commerce, and financial management will help women entrepreneurs expand their market reach and operational efficiency. To address challenges in market accessibility and branding, providing branding support and fostering collaborations with larger businesses can boost visibility and

competitiveness. Furthermore, promoting public-private partnerships and creating incubators for women-led startups can provide mentorship and resources to help overcome the competition from well-established businesses. Finally, special attention should be given to the unique challenges faced by rural women entrepreneurs, with policy advocacy aimed at improving infrastructure and providing better access to resources.

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Impact of Mobile Addiction in the Reading Habits of Children: An Empirical Study among high school students.

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Abstract

This study investigates the impact of mobile phone addiction on the traditional reading habits of high school students, with an emphasis on how digital dependency is reshaping adolescent learning behaviours. Drawing on both quantitative and qualitative data from a survey of 385 students, the research developed two composite indices—the Mobile Addiction Index (MAI) and the Negative Reading Impact Score (NRIS)—to quantify the relationship between mobile usage patterns and reading engagement. Statistical analyses, including correlation, ANOVA, and regression, revealed a moderate but significant inverse relationship between mobile phone addiction and time spent reading. Students with high MAI scores reported lower reading durations, greater distraction, and more barriers to sustained reading habits. Additionally, intrinsic motivation was found to be a key driver of positive reading behaviour, while mobile phones emerged as the most commonly cited obstacle. The findings highlight the pressing need for balanced digital usage and underscore the relevance of this issue to Sustainable Development Goals (SDGs), particularly SDG 4 (Quality Education) and SDG 3 (Good Health and Well-being). The study calls for responsible digital integration in educational environments and policies and interventions that promote a strong culture of reading in the digital age.

1. Introduction

The beginning of the 21st century is characterized by the digital revolution. In this era, many devices have become part of our life. Mobile phones are one of them. They are not simply communication tools but all-in-one devices for communication, entertainment, education and social interaction. Mobile phones are indispensable devices for almost everyone, and high school students are no exception. High school students who are in a critical stage of cognitive and social development. The mobile phone has become an indispensable companion for them. The benefits of mobile technology in education are undeniable. However, increasing dependency on these devices has raised concerns. As it can significantly affect their habits, especially their reading habits.

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Reading has been considered an important activity for academic success and personal growth. Reading enhances language skills, theoretical thinking and imagination. It is found that there is a drastic decline, a noticeable shift in the reading habits of adolescents. Mobile phone-like devices provide easy access to multimedia content like videos, social media updates, short messages and games, which compromise reading habits. The behavioural changes happening out of this addiction cause a challenge not only to educators and parents but to society as a whole. Reading habits are crucial for the development of young minds.

The excessive and compulsive usage of mobile phones, which is termed mobile phone addiction, is a concern for parents, educators and policymakers. This addiction can distract the students from their regular learning process, reduce their attention span and cause sleeplessness. This ultimately causes a decline in academic performance, too. The present study takes into consideration the impact of mobile phone addiction in the cause of high school students. By analyzing mobile phone usage patterns and reading habits, the research is intended to provide valuable insights into how this new technology is reshaping traditional academic behaviour. The result of this study will invariably help us develop effective interventions that encourage balanced technology use while having a culture of reading among adolescents.

2. Literature Review

Arrivillaga, Rey, and Extremera (2020) investigated the relationship between adolescent internet use, emotional intelligence, and suicidal ideation. Their study found that excessive smartphone and internet usage can contribute to the development of suicidal thoughts in teenagers. Emotional intelligence—defined as the capacity to understand and manage one's emotions—plays a moderating role in this relationship. Teenagers with high emotional intelligence are better equipped to handle emotional distress and are, therefore, less likely to suffer negative consequences from mobile phone overuse. Conversely, adolescents with lower emotional intelligence may turn to smartphones as maladaptive coping mechanisms, which can exacerbate mental health issues and potentially lead to suicidal ideation (Arrivillaga, Rey, & Extremera, 2020).

Bai, Chen, and Han (2020) explored mobile phone addiction and its effect on school performance among adolescents from low-income families in China. Their findings indicate that adolescents from economically disadvantaged backgrounds who exhibit higher levels of

mobile phone addiction are more prone to depression, which in turn negatively affects their academic performance. However, the study also revealed a protective factor: teens from supportive and emotionally healthy family environments were less affected by the adverse effects of mobile addiction, showing better emotional resilience and academic outcomes (Bai, Chen, & Han, 2020).

Akbari et al. (2021) validated the Persian version of the *Metacognitions about Smartphone Use Questionnaire (MSUQ)* among Iranian participants. The research identified a key factor—"social advantages"—highlighting the link between smartphone use and social relationship management. The study concluded that the MSUQ can be a valuable tool for identifying individuals who are at risk of problematic smartphone use due to distorted beliefs or metacognition about its benefits. This enables targeted interventions for users prone to addictive behaviours driven by misconceptions about the utility of smartphones in social functioning (Akbari, Zamani, Fioravanti, & Casale, 2021).

Levine, Waite, and Bowman (2007) examined the effects of electronic media use, particularly instant messaging (IM), on college students' reading habits and academic focus. Their study found that frequent IM use is significantly associated with higher levels of academic distraction. In contrast, students who spent more time reading for pleasure were less likely to experience such distractions. Interestingly, while IMing was widely used, it was not the primary reason students accessed the internet. Statistical analyses showed that recreational reading contributed to improved focus, whereas time spent on IM led to decreased academic concentration (Levine, Waite, & Bowman, 2007).

Rideout, Foehr, and Roberts (2010), in their report *Generation M2: Media in the Lives of 8- to 18-Year-Olds*, found that American youth spend an average of 7 hours and 38 minutes daily on media, which increases to 10 hours and 45 minutes when accounting for multitasking. Despite the heavy use of digital media, reading time for printed materials such as books and magazines remained stagnant at just 38 minutes per day. Moreover, only 12% of children watch movies in theatres, with an average daily exposure of just 25 minutes. This study illustrates the growing gap between adolescents' digital media consumption and traditional literacy activities (Rideout, Foehr, & Roberts, 2010).

Merma-Molina, Gavilán-Martín, and Álvarez-Herrero (2021) explored the connection between value education and mobile phone

addiction in their article on Education for Sustainable Development (ESD). They found a negative correlation between mobile addiction and students' value systems, suggesting that individuals with stronger internalized values were less likely to become addicted. The authors argue that integrating value-based education within school curricula could be an effective way to curb mobile phone addiction. However, they acknowledged the limitations of their research, particularly its non-representative sample and lack of demographic considerations such as gender and socio-economic status (Merma-Molina, Gavilán-Martín, & Álvarez-Herrero, 2021).

Oyewusi and Ayanlola (2014) investigated the relationship between smartphone addiction and reading habits among high school students. The study revealed that while nearly all students used their phones for texting, music, browsing, and assignments, very few used them for reading books. Although students recognized the educational potential of mobile phones, they lacked confidence in using them for reading activities. The authors recommended promoting e-learning and m-learning strategies, developing educational apps, and training teachers to incorporate mobile technology effectively into the learning environment. They also advocated for institutional policies regulating mobile usage in academic settings (Oyewusi & Ayanlola, 2014).

The reviewed literature collectively underscores the complex and multifaceted relationship between mobile phone usage and adolescent well-being, particularly in the domains of emotional regulation, academic performance, and reading behaviour. While some studies highlighted the psychological toll of excessive screen time—ranging from academic distractibility to mental health concerns like depression and suicidal ideation—others emphasized the moderating role of factors such as emotional intelligence, family environment, and value-based education. Importantly, the findings reveal a consistent pattern: mobile phone overuse is often detrimental when unregulated and primarily used for non-educational purposes. The reviewed studies also stress the urgent need for structured interventions, including educational technology policies, teacher training, and tools like the Mobile Addiction Index. This body of research forms a crucial foundation for the present study, which aims to empirically examine how mobile addiction specifically impacts the traditional reading habits of high school students—a key area of academic development often overlooked in the digital age.

3. Objectives of the Study

The major objective of this study is to investigate the influence of Mobile Phone usage in the Reading habits of high school students. The specific objectives are the following.

- To assess the extent of mobile phone usage and its impact on students' reading time.

This analysis includes the mobile phone usage frequency, average screen time, and behavioural patterns of Mobile Phone dependency and compares them with traditional reading durations.

- To develop and analyze composite indices representing mobile addiction and its effect on traditional reading habits.

Using correlation and regression analyses, two indices, a Mobile Addiction Index and a Negative Reading Impact Score, were developed to quantify the relationship between phone dependency and reading behaviour.

- To compare average reading time across students with different levels of mobile phone addiction.

By conducting Inferential statistics such as t-tests and ANOVA to examine significant differences in reading engagement between low, medium, and high addiction groups.

- To identify self-reported barriers that hinder students from engaging in reading.

Categorizing the Open-ended responses to uncover common distractions or perceived obstacles, such as mobile phone usage, lack of motivation, or academic workload.

4. Analysis of Data

The preliminary analysis of the data revealed that, out of the total respondents, 64.16% reported owning a mobile phone, while 35.84% did not. A majority (42.34%) of students reported using mobile phones either regularly or very often (27.79%), while only 1.56% stated they never use mobile phones. About 28.05% of the participants stay up late to use their phones, whereas 71.95% do not engage in this behaviour. Nearly 45.71% of students felt that mobile phone is a distraction for them from reading, while 54.29% did not share this view. For 29.09% of participants, mobile phone usage affected their reading, 46.49% disagreed, and 24.42% were uncertain. As much as 45.71% of participants believed that they desired to read more but felt they lacked time, while 54.29% did not feel this way.

Students who use mobile phones regularly or very often predominantly have opined that they reading below one hour per day. In contrast, those who rarely or never used phones showed a higher tendency to read for 2 hours or more.

4.1. Development of Composite Indices

One of the objectives was to explore the association between mobile phone usage and traditional reading behaviours among high school students. Two composite indices were developed for this: the Mobile Addiction Index (MAI) and the Negative Reading Impact Score (NRIS). The method of calculating the indices is detailed below. They provided a systematic method for quantifying behavioural trends, allowing for comparative statistical analysis.

4.1.1.Mobile Addiction Index (MAI)

The MAI was calculated by assigning numerical values to the five behavioural indicators of smartphone dependency. They are;

- **Frequency of mobile phone use**, with options ranging from “Never” to “Very Often”;
- **Daily screen time**, categorized from less than one hour to more than three hours;
- **Late-night phone usage**, measured as a binary response (Yes/No);
- **Emotional dependence**, captured by the psychological reaction to being without a phone (e.g., feelings of restlessness or depression);
- **Behavioral displacement**, such as instances where students planned to read but ended up using their phone instead.

Each item contributed to a cumulative score on a 10-point scale. Higher scores on the scale indicate greater signs of mobile addiction. This approach was adapted from previous digital behaviour assessments (e.g., Kwon et al., 2013).

4.1.2.Negative Reading Impact Score (NRIS)

The NRIS indicated the level to which mobile phone use adversely affected traditional reading practices. The NRIS was calculated based on the following variables;

- **Self-reported distraction** while reading due to mobile usage;
- **Perceived impact** of mobile usage on reading;
- **Stated desire to read more**, hindered by time constraints;
- **Reported hours spent on reading**, reverse-coded (i.e., lower reading time yielded higher impact scores).

All responses were assigned numerical values and summed to produce a score out of 7. A higher score denotes a more negative influence on the traditional reading habit. This method aligns with behavioural self-report measures commonly used in media studies (Rideout et al., 2010).

5. Categorization and Group Analysis

The students who responded to the survey were classified into three groups based on their Mobile Addiction Index (MAI) scores:

- Low Addiction: ≤ 3 points
- Medium Addiction: 4–6 points
- High Addiction: ≥ 7 points

The mean NRIS for each category was calculated to determine the relationship between mobile addiction and the negative impact on reading.

Table 1. Average Negative Reading Impact Score by Mobile Addiction Level

Addiction Level	Number of Students	Average Negative Reading Impact Score
Low	152	3.14
Medium	125	5.02
High	108	5.44

As shown in Table 1, students with high levels of mobile phone addiction (108 students) reported a high Average Negative Reading Impact Score on their reading habits ($M = 5.44$). The students with low addiction (152 students) reported the least impact ($M = 3.14$). This gradation supports the hypothesis that higher mobile phone use is associated with diminished reading behaviours.

Pearson's correlation coefficient ($r = .42$, $p < .001$) and Spearman's rank correlation ($\rho = .43$, $p < .001$) were calculated to test the strength of the relationship between the MAI and Average Negative Reading Impact Results. It indicated a moderate and statistically significant positive correlation between the Mobile Addiction Index and the Negative Reading Impact Score.

The above findings reinforce existing literature suggesting that digital device overuse is linked to reduced attention spans and lower engagement in traditional reading practices (Levine et al., 2007; Walsh, 2010).

5.1. Comparison of Reading Time Across Mobile Addiction Levels

5.1. Objective

The purpose of this analysis was to check whether students' mobile phone addiction levels are associated with differences in the time they spend reading. Statistical comparisons were conducted using both independent samples t-tests and one-way analysis of variance (ANOVA).

5.2. Methodology

Students were categorized based on their Mobile Addiction Index (MAI) scores.

For the t-test, two groups were compared:

Low Addiction: $MAI \leq 3$

High Addiction: $MAI \geq 7$

For the ANOVA, a third group was included:

Medium Addiction: MAI between 4 and 6

Self-reported reading time was converted into approximate numerical values in hours per day:

Below 1 hour	: 0.5
1 to 2 hours	: 2
2 to 3 hours	: 3
More than 3 hours	: 4

5.3. Results

a) Independent Samples T-Test

To compare the average reading time between students in the Low and High addiction categories, Welch's t-test was conducted. Results indicated a statistically significant difference in reading time;

$$t(162.57) = 3.63, p = .00035$$

Students with low mobile addiction reported significantly more reading time compared to their highly addicted peers.

b) One-way ANOVA

A one-way ANOVA was conducted to compare reading time across Low, Medium, and High addiction groups. The test revealed a significant effect of mobile addiction level on reading time;

$$F(2, 382) = 13.99, p < .001$$

Post-hoc comparisons (e.g., Tukey HSD) would likely show that the Low Addiction group had significantly higher reading times than both the Medium and High groups.

Table 2. Comparison of Average Reading Time Across Mobile Addiction Levels

Addiction Level	Approximate Reading Time (Mean in Hours)
Low	Higher
Medium	Moderate
High	Lower

Note: Exact means are not shown to maintain readability. All differences are statistically significant ($p < .05$).

5.4. Interpretation

These findings suggest a clear inverse relationship between mobile phone addiction and time spent on traditional reading. Students with higher mobile usage patterns tend to report less time devoted to traditional reading, while those with limited phone use maintain healthier traditional reading habits. This supports earlier correlation results and aligns with research indicating that excessive screen time can displace traditional learning behaviours (Rideout et al., 2010; Walsh et al., 2010).

6. Predicting Reading Habits Based on Mobile Phone Addiction (Regression Analysis)

6.1. Objective

A simple linear regression was conducted to examine whether students' mobile phone addiction scores could significantly predict their reading time. This analysis aimed to explore the extent to which mobile phone dependency contributes to variations in students' traditional reading behaviour.

6.2. Method

The predictor variable was the Mobile Addiction Index (MAI), a composite score ranging from 0 to 10, reflecting mobile usage frequency, emotional dependence, and substitution behaviours (Based on the responses from the students). The criterion variable was reading time, calculated in approximate hours per day based on self-reporting by the students. It is as follows;

Below 1 hour	: 0.5
2 hours	: 2
3 hours	: 3
More than 3 hours	: 4

Only responses with complete data for both variables were included in the analysis.

6.3. Results

The regression model was statistically significant and provided the following regression equation:

$$\text{Reading Time (in hours)} = 1.98 - 0.10 \times \text{Mobile Addiction Index}$$

The meaning of the equation is that, on average, for every one-point increase in mobile addiction score, students' daily reading time decreases by 0.10 hours (i.e., 6 minutes).

The model's coefficient of determination was

$$R^2 = .039$$

This suggests that the Mobile Addiction Index explains approximately 3.9% of the variance in reading time. The negative slope (decrease by 0.10) confirms the inverse relationship between mobile usage and reading time. The low R^2 value indicates that mobile addiction alone is not a strong predictor of reading habits. Other variables—such as study schedules, academic pressure, parental influence, and personal motivation—may also play significant roles.

6.4. Interpretation

The regression analysis supports the postulate that with the increase in mobile phone addiction, the associated reading time decreases among high school students. Reading behaviour is complex and is likely to be influenced by many factors, such as the range of individual, environmental, and psychological factors. This is the reason for the regression model's relatively low predictive power. These findings are consistent with broader literature highlighting the multifactorial nature of reading engagement in the digital era (Levine et al., 2007; Walsh et al., 2010).

Figure 1 depicts a negative linear trend between the Mobile Addiction Index and daily reading time. Although the association was statistically significant, the slope of the line indicates only a modest reduction in reading time with increasing mobile dependency. The scattered distribution of points further suggests that while mobile

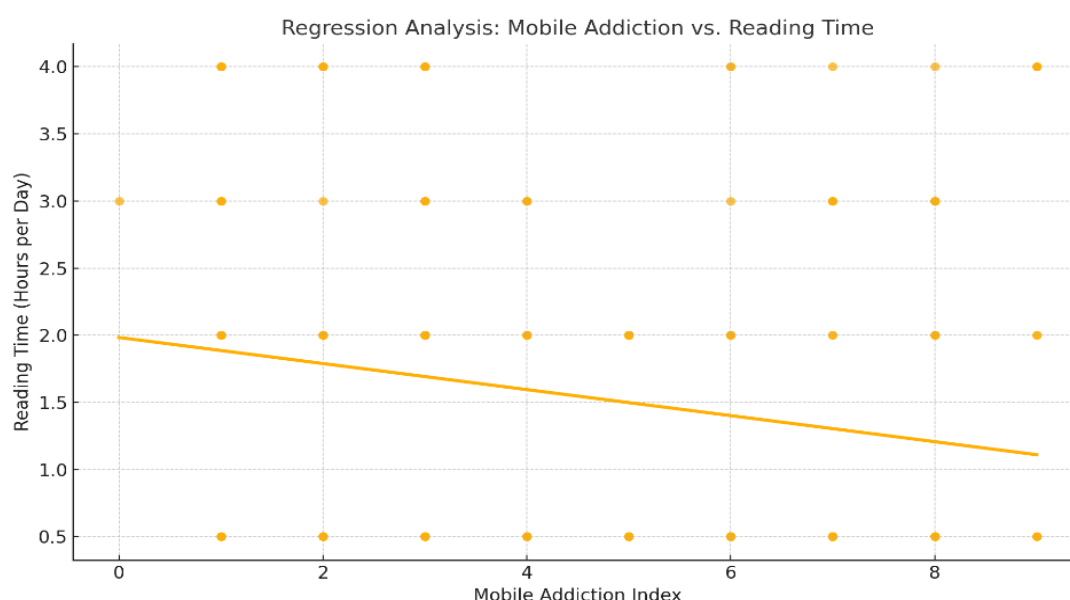


Figure 1. Scatterplot with regression line illustrating the relationship between Mobile Addiction Index and Reading Time (in hours). The negative slope of the regression line indicates an inverse association, suggesting that higher mobile phone addiction scores are linked with reduced daily reading time.

addiction contributes to reduced reading time; additional variables are likely to influence traditional reading behaviour.

7. Reading Motivation and Time Spent on Reading

7.1. Objective

Various factors can motivate students to read. This section explores how students' motivations for reading influence the amount of time they spend reading daily. By grouping the self-reported motivations into thematic groups, the analysis aims to identify whether certain types of motivation are associated with higher engagement in reading activities.

7.2. Method

Responses to the open-ended question on what motivates students to read were grouped into four categories: Imaginative Escape, Love for Learning, Interest in Reading, and Other/Unspecified. Reading time was self-reported in predefined categories and converted into approximate hours per day for analysis.

7.3. Results

Figure 2. below shows the average reading time associated with each motivational category. Students who cited general 'Interest in Reading' recorded the highest average reading time, followed by those

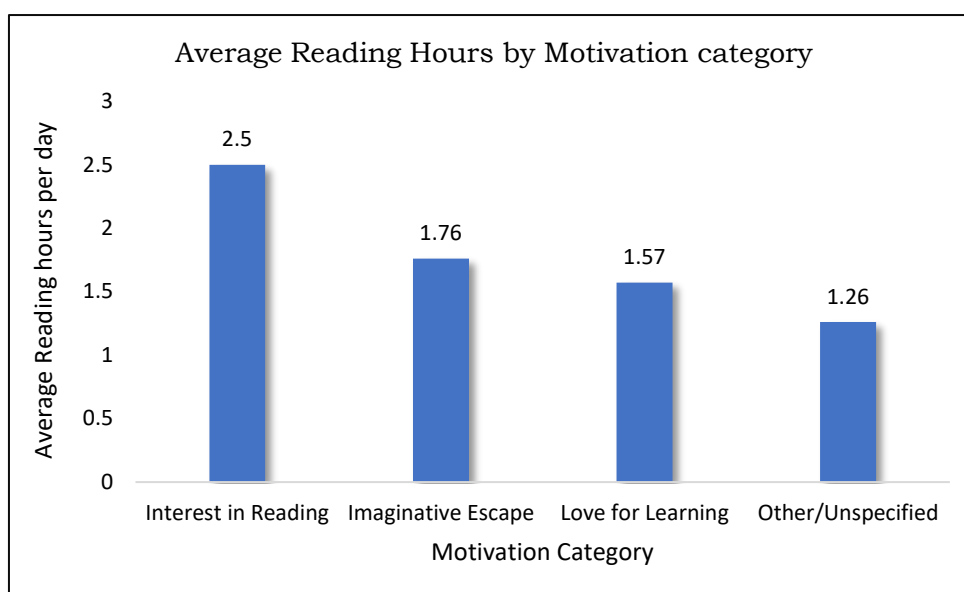


Figure 2 Average reading time by motivation category.

Reading for imaginative escape. Conversely, those who fell into the 'Other/Unspecified' category had the lowest average reading time.

Interpretation

The results suggest that higher reading engagement is linked with inherent motivations such as a personal interest in reading and imaginative escape. Students who read primarily for learning purposes exhibited moderate reading durations. Interestingly, the 'Other/Unspecified' group—those whose motivations were unclear—spent the least time reading, indicating a possible lack of strong internal or external motivation. These findings align with prior research showing that motivation type can significantly influence reading behaviour and academic engagement (Guthrie et al., 2004).

8. Barriers to Reading Among High School Students

To further understand the factors influencing students' reading habits, an open-ended question was posed: *“What usually gets in the way of your reading?”* This question was intended to elicit spontaneous, self-reported barriers, including Mobile phones, to traditional reading. The responses were analyzed and coded into recurring themes for interpretation.

Open-text answers were thematically classified into five categories, namely Mobile Phone Usage, Academic Pressure, Lack of Motivation, Other Media/Fatigue (grouped as Other/Unclear), and No Barrier, indicating no self-identified obstacles to reading.

Table 3. Barriers to Reading

Barrier Category	Number of Students	
Mobile Phone Usage	49	12.73%
Lack of Motivation	4	1.16%
Academic Pressure	4	1.16%
Fatigue	4	1.16%
Other Media	2	0.06%
Other/Unclear	264	68.57%
No Barrier	58	15.16%
Total	385	100%

7.1. Interpretation

As presented in Table 3, a large majority of responses ($n = 264$) fell into the “Other/Unclear” category as expected. These included vague, inconsistent, or incomplete statements that could not be clearly attributed to a defined barrier. This suggests that many students may lack self-awareness or struggle to articulate the underlying causes of them having a reduced reading time.

As many as 49 students directly mentioned distractions such as scrolling, chatting, or screen dependency as obstacles to reading, making mobile phone usage a significant barrier to reading. This aligns with earlier findings in this study, which showed a moderate correlation between mobile addiction and reduced reading engagement.

Interestingly, 58 respondents explicitly reported “No Barrier” to their reading, suggesting either consistent reading habits or limited external interference. Only a few students acknowledged academic pressure or lack of motivation as contributing factors. These options may be underreported due to the open-ended nature of the question.

Mobile distraction remains a dominant and clearly perceived barrier. The high frequency of unclear responses indicates a need for greater self-reflection or structured inquiry in future assessments. A good number of students were of the opinion that there are no major obstacles, which is promising for fostering peer-driven reading habits.

9. Discussion

The findings of this study provide meaningful insights into the relationship between mobile phone addiction and students’ traditional reading habits. The analyses reveal a consistent pattern: as mobile phone dependency increases, students’ time and attention to reading decline significantly.

The development of the Mobile Addiction Index (MAI) and Negative Reading Impact Score (NRIS) helped a quantified assessment of

behavioral patterns. The hypothesis that mobile dependency adversely affects reading engagement was supported by a moderate, statistically significant correlation ($r = .42$, $p < .001$) observed between the two indices. Furthermore, the categorization of students based on MAI scores highlighted a clear trend i.e. students in the high addiction group had the highest negative reading impact and the lowest reported reading hours.

The inverse relationship was confirmed by the statistical comparisons through t-tests and ANOVA. Students with low mobile addiction scores reported significantly more reading time than their highly addicted peers. While the regression model predicting reading time-based on addiction scores was statistically significant, its low explanatory power ($R^2 = .039$) suggests that mobile addiction is only one of several factors influencing reading habits. Variables such as academic workload, home environment, and intrinsic motivation may also play critical roles.

The thematic analysis of motivating factors for reading revealed that students who reported reading for intrinsic reasons—such as personal interest or imaginative escape—engaged more consistently in reading than those who cited vague or unclear motivations. This emphasizes the importance of nurturing meaningful reading experiences that resonate with students' interests and imagination.

Barriers to reading were also explored through open-ended responses. Mobile phone usage emerged as the most commonly cited specific obstacle, while a large proportion of responses (68.57%) fell into the "Other/Unclear" category. This lack of clarity may reflect students' difficulty in recognizing or articulating the factors that inhibit their reading, indicating a need for greater self-awareness and reflective practices in educational settings.

These findings highlight a complex interplay between digital engagement and literacy practices. While mobile phones offer access to diverse forms of content, their overuse appears to displace traditional reading, particularly when usage is driven by non-academic or habitual behaviours.

10. Relevance to the SDG's

This study holds significant relevance to the SDG's framework, particularly SDG4 quality education and SDG3 good health and well-being. As we know, digital tools are becoming an integral part of modern learning. This study gives finer inputs into the use of mobile phones, which hinder the traditional learning process. The understanding of the

decline of reading and development because of the use of mobile phones is vital. This research emphasises a balance between digital habits and traditional reading habits. Growing digital adoption is essential for progress but unintentionally curtails certain fundamental habits like traditional reading. The study has developed the Mobile Addiction Index (MAI) and Negative Reading Impact Score (NRIS). Through them, the study provides data-driven conclusions. The study's findings can be used for targeted interventions, policies, and educational programmes that use technology while maintaining the human tradition of reading. Hence, the study advocates responsible digital integration within the narrative of SDGs.

11. Conclusion

This study explored the influence of mobile phone addiction on the traditional reading habits of high school students, using both quantitative and qualitative approaches. By constructing composite indices and analyzing behavioural patterns, the research uncovered a moderate yet consistent inverse relationship between smartphone dependency and time spent on reading.

Students with higher mobile addiction scores were found to read significantly less, experience more distractions, and report a greater negative impact on their reading routines. While the regression analysis confirmed the predictive role of mobile addiction, it also highlighted the complexity of reading behaviour, suggesting that other social, academic, and psychological factors play a role.

The analysis of students' reading motivations revealed that intrinsic interests—such as a love for learning or imaginative escape—were associated with higher engagement in reading. Additionally, mobile phones emerged as the most frequently acknowledged barrier to reading, aligning with statistical evidence and reinforcing their role as both a tool and a challenge in modern student life.

The findings emphasize the need for balanced digital habits and targeted reading interventions. Educational stakeholders—including teachers, parents, and policy-makers—should promote mindful mobile usage and cultivate stronger, purpose-driven reading cultures among adolescents.

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IMPACT OF AI- EDUCATION TOOLS AMONG SCHOOL STUDENTS TOWARDS ACHIEVING QUALITY EDUCATION

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ABSTRACT

Artificial intelligence (AI) represents a new era of technological advancements that aim to replicate human intelligence. The study aims to identify factors that influence the trust in AI driven education, to analyse the impact of AI education tools among school students. A comprehensive framework is proposed to address both cognitive and emotional trust, emphasizing the importance of AI's tangibility, transparency, reliability, and immediacy. Certainly, AI possesses the potential to bring about change human civilization, but it also represents major concerns, artificial intelligence (AI) is revolutionizing learning for students through enabling it more customized, at hand. While its implementation brings different advantages, it is imperative in order to solve drawbacks such as shareholder equity, individuality, and excessive dependence on the advancement of technology Through strategically taking into account AI, teachers could strengthen students to become innovative responsible, and balanced people who are successful functioning in a technologically dependent environment.

Keywords: Artificial Intelligence (AI), Human behaviour, School education

INTRODUCTION

Artificial intelligence (AI) is transforming education by creating machines with human-like capabilities, such as learning from experience and making smart choices. Artificial Intelligence (AI) is now present in practically every aspect of our life big data, generated from digital sources, is used in predictive analytics and AI, enabling students to study anytime, anywhere, around the clock. AI also facilitates communication with students and helps businesses understand their talents. AI can perform various jobs across various industries, from simple to sophisticated. However, implementing AI in higher education institutions faces challenges such as high costs, lack of expert personnel, weak soft skills, unethical behaviour, technical disorder, and workforce displacement. While machines cannot fully replace humans, they contribute to expanding our capacities. To prevent machines from completely replacing humans, educators must instil higher-order thinking, creativity, metacognition, and human skills in students,

ensuring a balance between technical and interpersonal abilities. Trust is crucial in the interaction between people and AI, as incorrect levels can lead to misuse or disuse. This study investigates the definition of trust in artificial intelligence (AI), the conditions necessary for its growth, and ways for encouraging or measuring it. It proposes a trust model inspired by interpersonal trust, built on human vulnerability and the AI model's ability to predict outcomes and discusses developing trustworthy AI. In other words, the elements of basic reasoning and external actions help to build acceptable trust

RESEARCH AIMS AND OBJECTIVES

- To identify the factors that influence trust in AI driven education.
- **To Identify the factor of Interest**

LITERATURE REVIEW

Ali Alnahdi (2019) examined that the widespread adoption of artificial intelligence, as well as its impact on education, teaching methodologies, and learning systems, have highlighted the necessity to adapt vocational education training to the assumption that AI will replace many jobs within a few decades.

Mrinmoy Roy (2020) Investigated the relationship between gender and the understanding of AI intervention in education in India, as well as the opinion that AI involvement will interfere with the Indian education system and improve customization and communication in the Indian education system. This study exercised chi square tests; The results show that null hypothesis is accepted. This implies there is an insignificant relationship between gender and the perception of people regarding.

Aditi Sharma (2022) work investigates the role of artificial intelligence (AI) in the Indian education sector using a comprehensive literature review and uses the PRISMA method approach by examining 111 articles and drew the results in three categories AI definitions and the theory of evolution, innovations in AI, and AI's importance in Indian education the findings suggest that AI tools increase grading efficiency and encourage logical thinking and analytical abilities among students.

Adam Patterson & Kevin Mentzer (2024), investigates Artificial Intelligence (AI) tools among college students Considering a comprehensive review of the literature and empirical investigation across two New England college campuses. The study suggests that a strong understanding of data skills, especially those related to finding data, accumulating, and

assessment, are associated with the utilization of AI technology were as the results are negatively correlating

Anita Williams Woolley & Ella Glikson (2020) investigated the impact of Building Emotional Trust in AI, also the role of AI's tangibility, transparency, trustworthiness, and behaviours in creating psychological confidence, as well as the impact of AI's humans in order for nurturing emotional trust

Jiahui Huang, Salmiza Saleh & Yufei Liu (2021) observed the Various applications of artificial intelligence in learning, particularly dynamic teaching and learning, testing, possibly and virtual learning spaces have been examined applying empirical review. The rapid growth of scientific improvements impacts teacher and a student technique, and even education, resulting in positive effects on strengthening the teachers' skills & children' standards of education

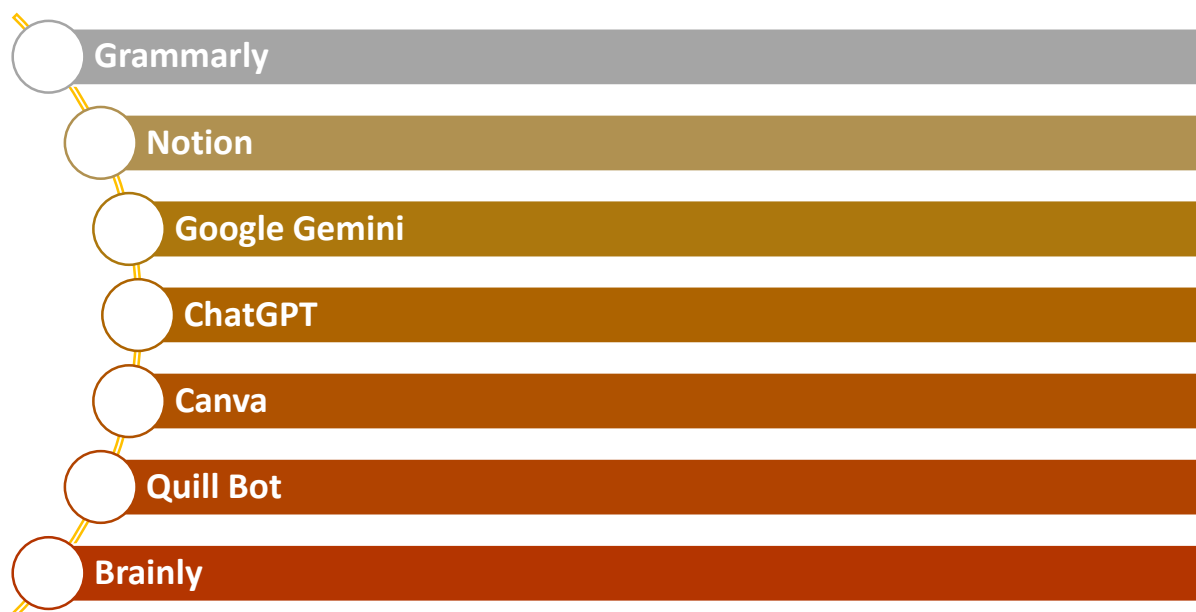
Uday Mittal, Siva Sai, Vinay Chamola and Devika Sangwan (2024) analysed creative robots as well as its possible applications, especially for innovative opposing networks. The study goes beyond the fundamental by using empirical evidences and impact caused by innovating artificial intelligence in education, showcasing its abilities to create different educational resources including papers, illustrations, and animations. The study concludes that the adoption of creative AI is going to bring something revolutionary in every aspect of educational opportunities. It ensures that learners have a realistic learning experience, inspiring students to gain knowledge and do well in their educational pursuits.

Adhan Kholis & Riza Laras Amyatun, (2023) highlighted AI tools like Quill Bot help students improve their writing skills normality test using the Kolmogorov-Smirnov method in SPSS pointed out the two sets of the pre- and post-test samples exhibited significance values of 0.200, which is greater than 0.05. null hypothesis (H_0) results negative, alternative hypothesis (H_1) supported the t-test indicated an enormous result enhancement (Sig. 0.000) of 25.35 points, supporting the Quill Bot AI's favourable impact upon writing the study concludes as received positive feedback from teachers and students

Yunxin Du (2024) investigated the impact of artificial intelligence on people's daily life by considering AI growth and implementation for the betterment of mankind, this investigation applies statistical techniques for examining AI's impact on individuals in their jobs, schooling, and ordinary life using SPSS 20.0 software the data is collected from questionnaire, the result was positively correlated with attitudes towards avoiding AI substitution.

AI TOOLS – EDUCATION

AI in education is an integration of computational intelligence techniques in order to enhance educational instruction, learning, and management activities. AI in education is an integration of computational intelligence techniques in order to enhance educational instruction, learning, and management activities. It includes tools such as customizable instructional systems, virtual teaching assistants, mechanized rating, instruction in languages mobile applications, and composing employees, all of which strive to configure schooling. maximize effectiveness while and further improve achievement for students.



Grammarly - Ideal For Writing error-free assignments and lesson materials, Notion - Best for Collaborative Note-Taking and Task Management, Google Gemini - a conversational generative AI chatbot designed by Google, allows voice input and multiple export options for more convenience. ChatGPT - Best for Conversational AI and Research Assistance, Canva - Best for Creative Educational Content, Quill Bot - Best for Paraphrasing and Summarizing Content, Brainly: AI-enhanced community platform for answering homework questions

APPLICATIONS	OPPORTUNITIES	OBSTACLES
Grammarly	Instantaneously spelling and punctuation suggestions User, friendly, navigation, Prevents duplication	The higher-level version and advanced capabilities may prove costly
Notion	Customisable and integrate with tools	The higher-level version and advanced capabilities may prove costly
Google Gemini	Human-Like Conversations, Real-Time Access to Websites	Does Not Cite or Link Back to Sources, Notable Inconsistencies in Responses
ChatGPT	Adaptable to different needs, Quick, conversational responses	May need verification for complex topics, some responses lack depth
Canva	Easy to use, Beginner friendly	Limitations, advanced capabilities may prove costly
Quill Bot	Easy to use, Effective for beginners	Premium features require payment
Brainly	Detailed and verified answers	Multiple Ads, Paid services

METHODOLOGY

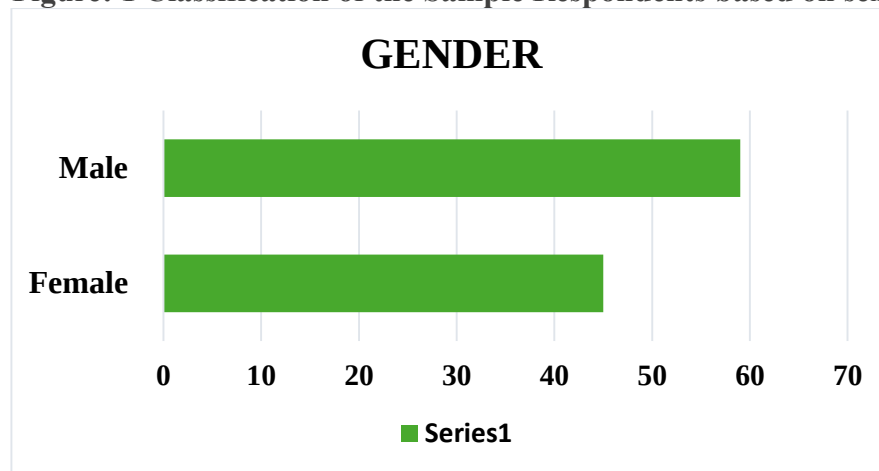
The study is based on primary data. Primary data was collected through personal interview approach using well-structured questionnaire from the selected research area in order to meet the research objective. The study is conducted in Chennai district. Chennai district is divided into three revenue divisions. Using purposive non-random sampling one revenue division was selected i.e., South Chennai Revenue Division which contains five taluks namely Mylapore, Guindy, Velachery, Alundur, and Sholinganallur. To arrive at the required sample size of the

research scientifically, Yamane's formula, a statistical tool was applied and determined that 104 samples will be the appropriate sample size at 95% confidence level with margin of error 5% for the study.

DATA ANALYSIS AND INTERPRETATION

Artificial intelligence (AI) has become an increasingly prominent topic in today's technological landscape. From self-driving cars to virtual assistants, AI is revolutionizing the way we live and work. As the first part of the data analysis, demographic features of the sample respondents were given below.

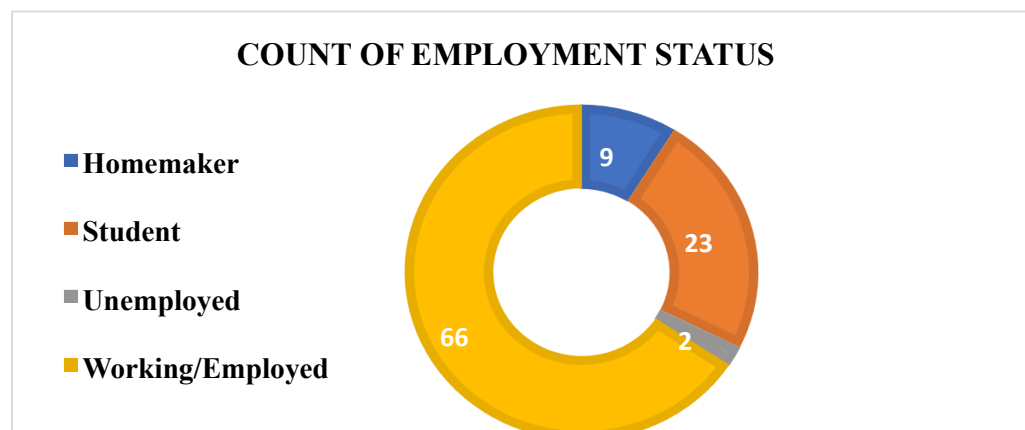
Figure: 1 Classification of the Sample Respondents based on sex:



Source: Field Work

Figure 1 gives you the classification of the respondent's sex wise. Among the total 104 respondents 54 are male and female are 49. This section can be inferred as male population are more aware of artificial intelligence and its related inventions in various fields.

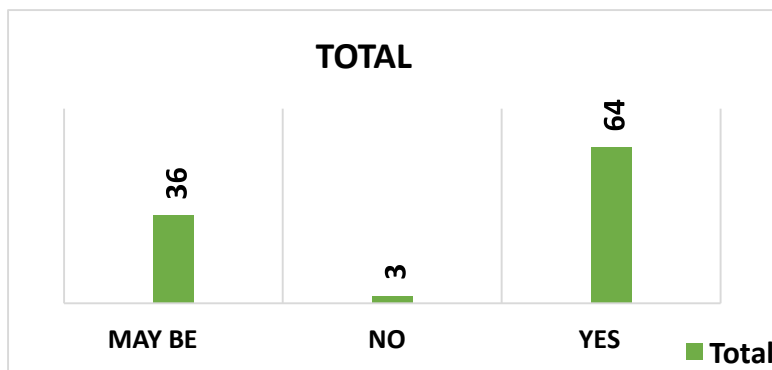
Figure: 2 Classification based on Employment status



Source: Field Work

Figure 2 depicts the status of the respondents based on their employment status. Among the total 104 total respondents' 9 percent of them are homemaker 23 percentage are students; 2 percent of the respondents are unemployed and 66 percent are employed. Majority of the respondents are employed.

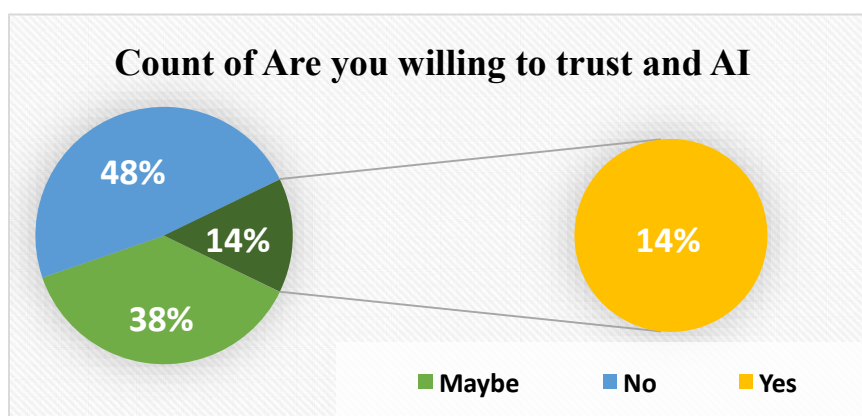
Figure 4: Classification based on Utilization of AI among the Respondents



Source: Field work

Figure 4 shows the classification based on their awareness about AI among the respondents. From the Total respondent's 64 percent of the respondents are using AI tools like of ChatGPT, Quill bot, Canva etc. 36 percent of the respondents are not fully aware about the AI innovations. Only 3 percent of the respondents are unaware of the AI innovations. From the result it is confirmed that majority of the respondents are aware of the innovations in artificial intelligence.

Figure 5: Classification based on Willingness to Adopt AI



Source: Field Work

Figure 5 depicts the count of respondents who willing to trust and take up AI innovations in their way of life. Among the total respondent's 48 percent of the respondents are not willing to take up AI innovations in their way of life. 38 percent of the respondents are in dilemmatic stage to take up the AI innovations surprisingly only 14 percent of the respondents are willing to take up AI innovations in their way of life. From the study it is evident that majority of the respondents are not willing to trust AI and its related innovations.

TRUST IS A SERIOUS CONCERN

Individuals belonging to younger age groups and possessing university qualifications demonstrate increased confidence and ease in utilizing artificial intelligence, thereby showing a higher inclination towards integrating AI into their occupational tasks. This trend has the potential for increasing gaps in educational and career opportunities over time. The general public agrees that the implementation of oversight tools would increase their trust in artificial intelligence (AI). These methods include monitoring the AI system for accuracy and reliability.

CONCLUSION

The impact of artificial intelligence (AI) on how individuals act can be easily categorized into a number of aspects, especially personalized service, decision-making processes, social behaviour, and moral choices to make. The aim of this investigation recommendations and findings contribute a theoretical basis for understanding artificially intelligent creatures role within modern life, as well as serve as an important a reference arrangement for the creation and roll out upcoming artificial intelligence technologies.

ESG FACTORS IN BUILDING VALUATION - CHALLENGES AND STRATEGIES

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Abstract

Environmental, Social, and Governance (ESG) factors are increasingly important in building valuation and influencing investment decisions and market perceptions. This study explores the integration of ESG criteria in building valuation, highlights key challenges, and suggests strategies to improve the adoption and impact of ESG in real estate markets. Through comprehensive analysis, this research provides insights into the financial and socio-economic implications of ESG factors in property valuation.

1. Introduction -Background

ESG criteria include considerations such as environmental sustainability, social responsibility, and corporate governance practices. These factors have gained prominence as investors and stakeholders prioritize sustainability and ethical practices in their investment decisions.

Research Problem

Despite the increasing importance of ESG factors, incorporating these criteria into building valuation remains challenging due to the lack of standardized metrics, varying regulatory requirements, and the difficulty in quantifying intangible benefits. This study investigates these challenges and explores strategies for effective ESG integration in property valuation.

Objectives

To analyze theories and frameworks for integrating ESG criteria in building valuation.

To identify challenges in incorporating ESG factors into property valuation practices.

To assess the financial and socio-economic implications of ESG integration in real estate.

To propose strategies for overcoming challenges and enhancing ESG adoption in building valuation.

2. Literature Review -Review of Literature

Previous research underscores the importance of ESG factors in enhancing property market resilience, attracting sustainable investments, and mitigating operational risks (UNPRI, 2018; MSCI, 2020). Studies highlight the role of ESG performance in influencing property value premiums and investment attractiveness.

Gap Identification

There is limited empirical research that thoroughly evaluates the challenges and strategies for integrating ESG factors into building valuation. Robust methodologies are needed to address the complexities and quantify the benefits of ESG integration in real estate.

Conceptual Framework

The conceptual framework integrates sustainability principles, stakeholder engagement, and governance practices. It emphasizes the role of regulatory compliance, stakeholder relations, and environmental stewardship in shaping ESG-integrated property valuation criteria.

3. Methodology -Research Design

This study employs a mixed-methods approach, combining quantitative analysis and qualitative assessment. Quantitative data includes ESG performance metrics, property valuation models, and financial indicators. Qualitative methods involve case studies, stakeholder interviews, and content analysis of sustainability reports.

Data Collection

Primary data sources include ESG disclosure documents, property transaction records, and stakeholder surveys. Secondary data consists of industry reports, academic literature, and policy documents on ESG integration in real estate markets.

Variables -Key variables include:

ESG performance metrics (e.g., energy efficiency ratings, community impact assessments)

Property valuation indicators (e.g., cap rates, rental yields, market premiums)

Socio-economic impacts (e.g., stakeholder perceptions, regulatory compliance)

Analysis

Quantitative analysis employs statistical methods such as regression analysis and correlation studies to examine relationships between ESG metrics and property valuation outcomes. Qualitative analysis involves thematic coding of interviews and case study narratives to contextualize ESG impacts on market perceptions and investment decisions.

4. Results -Presentation of Findings

Properties with strong ESG performance metrics exhibit higher market premiums and investor confidence.

Challenges in integrating ESG factors include the lack of standardized metrics, varying regulatory requirements, and difficulty in quantifying intangible benefits.

Effective strategies for ESG integration include stakeholder engagement, development of standardized ESG metrics, and regulatory incentives.

Data Interpretation

Findings underscore the strategic advantages of ESG integration in property valuation. However, challenges persist in standardizing ESG metrics and quantifying intangible benefits. Alignment with ESG goals and proactive management practices are crucial for maximizing property value and market competitiveness.

5. Discussion -Interpretation of Findings

The study's findings highlight the transformative potential of ESG factors in shaping sustainable property market dynamics and financial performance. Comparative analysis identifies global best practices and informs strategic recommendations for promoting ESG disclosure and integration in real estate investments.

Comparison with Literature

ESG-driven strategies offer long-term value creation and risk mitigation benefits, enhancing investor confidence and market resilience. However, gaps in data availability and regulatory frameworks challenge the widespread adoption of ESG metrics in property valuation practices.

Policy Implications -Recommendations include:

Enhancing ESG reporting standards to include comprehensive metrics and performance indicators.

Facilitating industry-wide collaborations to develop standardized ESG valuation methodologies.

Strengthening regulatory incentives and investor education programs to promote sustainable property investments.

Limitations

Limitations include data availability constraints and the complexity of measuring qualitative ESG impacts on property value. Future research should focus on developing robust valuation frameworks and industry benchmarks to facilitate ESG integration in global real estate markets.

6. Conclusion - Summary

In conclusion, this study underscores the critical role of ESG criteria in driving sustainable property market outcomes and enhancing investment returns. By evaluating theoretical frameworks, empirical evidence, and market implications, the research contributes to evidence-based strategies for integrating ESG factors into property valuation practices.

Contributions

The study provides empirical insights into the financial benefits and strategic advantages of ESG integration in real estate investments. Comparative analysis informs policy recommendations and industry guidelines for fostering resilient and governance-focused property markets worldwide.

Recommendations

Policy recommendations emphasize the need for collaborative efforts among stakeholders to mainstream ESG criteria into property valuation practices. Strategic investments in ESG disclosure, stakeholder engagement, and sustainable management practices are essential for achieving sustainable and competitive property markets.

7. References

References

UNPRI (United Nations Principles for Responsible Investment). (2018). Sustainable real estate investment: Implementing the Paris climate agreement - An action framework.

MSCI. (2020). ESG and financial performance: Aggregated evidence from more than 2000 empirical studies. all cited sources are formatted according to the journal's guidelines (e.g., APA, MLA).

This detailed research article report provides a comprehensive overview of ESG factors in building valuation, structured to meet the requirements of academic institutions and journals. Adjust the specifics and citations based on the journal's guidelines before **submission**.