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Impact of Artificial Intelligence on Human Interaction

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Abstract - The present study is intended to see the relationship between Artificial Intelligence (AI) usage and human interaction among students. The increasing use of AI in daily communication can influence the quality of interpersonal relationships and reduce direct social interaction. Excessive reliance on AI may lead to reduced face-to-face communication, feelings of social isolation, and decreased emotional connectedness among individuals. The primary objective of this article is to investigate the relationship between Artificial Intelligence (AI) usage and human interaction, contextualized within the modern technological era. The study was conducted in an academic setting. The sample will consist of 80 participants aged between 17 to 21 years. Through a comprehensive literature review, appropriate psychometric tests will be selected. Subsequently, the collected data will undergo meticulous scoring and statistical analysis. The expected outcome of the study is to reveal a significant negative relationship between AI usage and human interaction, indicating that as AI usage increases, the level of human interaction tends to decrease. The findings of this study reveal a negative correlation between AI usage and human interaction. Consequently, this research contributes to enhancing our understanding of how Artificial Intelligence (AI) usage influences human interaction among students in contemporary society.

Key words: Artificial Intelligence, Human Interaction

I. Introduction

Artificial Intelligence (AI) refers to the ability of machines to perform tasks that typically require human intelligence, such as learning, reasoning, and communication. According to McCarthy (2007), AI is defined as "the science and engineering of making intelligent machines, especially intelligent computer programs." The concept of AI began to take shape in the 1950s and was formally introduced during the Dartmouth Conference in 1956. Since then, AI has evolved from basic computational systems to advanced technologies that support human activities, particularly in communication and information exchange.

In the present technological era, AI-based systems are increasingly integrated into daily communication. Students frequently use AI-enabled platforms for academic purposes, social interaction, and information access. While these technologies offer convenience and efficiency, they also influence patterns of human interaction. Communication that traditionally occurred through direct, face-to-face contact is gradually being replaced or supplemented by technology-mediated interactions.

Human interaction is an essential component of social functioning and interpersonal relationships. It involves direct communication, emotional exchange, and social engagement between individuals. However, increased reliance on AI-based communication tools may reduce opportunities for such direct interaction. Overdependence on technology can limit real-life social engagement and may affect the quality of interpersonal relationships among students.

Previous research suggests that excessive use of digital technologies is associated with reduced face-to-face communication and increased social withdrawal (Turkle, 2011). Similarly, studies on internet usage indicate that higher levels of online engagement may influence social interaction patterns and interpersonal behavior (Young, 1998). These findings highlight the importance of examining the role of AI usage in shaping human interaction.
Therefore, the present study focuses on understanding the relationship between Artificial Intelligence (AI) usage and human interaction among students. By adopting a correlational approach, the study aims to examine how variations in AI usage are associated with levels of human interaction in an academic context.

II. Literature Review

2.1. Artificial Intelligence (AI) Usage

Artificial Intelligence (AI) usage refers to the extent to which individuals engage with AI-based technologies for communication, information, and daily activities. With rapid technological advancement, AI systems such as virtual assistants and automated tools have become widely used. Research indicates that while these technologies improve efficiency, excessive use may increase dependency and reduce real-world engagement (Russell & Norvig, 2021; Young, 1998). Recent studies also suggest that increased use of AI and digital technologies is associated with changes in user behavior and interaction patterns (Dwivedi et al., 2024).

2.2. Human Interaction

Human interaction involves direct communication and social engagement between individuals and is essential for emotional and social well-being. According to Baumeister and Leary (1995), the need for belonging is a basic human motivation. However, excessive use of digital technologies may reduce face-to-face interaction and affect relationship quality (Turkle, 2011). Recent findings indicate that higher technology use is linked with reduced in-person interaction and increased feelings of social disconnection (Keles et al., 2024).

2.3. Artificial Intelligence (AI) Usage and Human Interaction

Studies examining the relationship between technology usage and human interaction suggest that increased reliance on digital tools may reduce direct social engagement. Caplan (2003) found that preference for mediated communication is associated with lower interpersonal interaction. Similarly, research indicates that overdependence on technology can substitute real-life interaction and affect social connectedness (Turkle, 2011). Recent studies further support that increased AI and digital usage may negatively influence the quality of human interaction, especially among young individuals (Dwivedi et al., 2025). However, limited research has specifically examined this relationship among students, which the present study aims to address.

III. Theoretical Framework

The present study is based on theoretical perspectives that explain the relationship between Artificial Intelligence (AI) usage and human interaction.

Displacement Theory, proposed by Nie (2001), suggests that increased time spent on technology may reduce the time available for direct human interaction. As students engage more with AI tools for communication and information, opportunities for face-to-face interaction may decrease.

Social Presence Theory, developed by Short, Williams, and Christie (1976), explains that technology-mediated communication provides lower levels of social presence compared to direct interaction. AI-based communication often lacks emotional depth and non-verbal cues, which may reduce the quality of interpersonal relationships.

Uses and Gratifications Theory, introduced by Katz, Blumler, and Gurevitch (1973), states that individuals use technologies to satisfy their needs, such as convenience and quick access to information. While AI fulfills these needs efficiently, overdependence may gradually replace real-life social interaction. Based on these theories, the study assumes that higher levels of Artificial Intelligence (AI) usage may be associated with lower levels of human interaction among students.

IV. Objectives

1. To assess the level of Artificial Intelligence (AI) usage among students
2. To evaluate the level of human interaction among students
3. To determine the relationship between AI usage and human interaction

V. Hypotheses

H_1: There is a significant relationship between Artificial Intelligence (AI) usage and human interaction
H_2: Artificial Intelligence (AI) usage is negatively correlated with human interaction

VI. Research Design

The study employed a **correlational research design** to examine the association between Artificial Intelligence (AI) usage and human interaction. A **survey method** was used to collect data through standardized questionnaires, allowing for systematic assessment of the variables.

VII. Sampling:

In the present study, a **convenience sampling method** was used. Participants were chosen based on their availability and willingness to participate. The sample included 80 students aged between 17 to 21 years from an academic setting. This method was selected because it allows data to be collected in a simple and practical way.

VIII.

8.1 Socio demographic data sheet: The socio-demographic datasheet has been prepared. Inquiries were conducted regarding individuals' names, ages, genders, educational backgrounds, social media details, and domicile.

8.2 The Internet Addiction Test (IAT) developed by Kimberly Young was utilized to assess technology usage patterns. It consists of 20 items rated on a 5-point Likert scale. The scale demonstrates high internal consistency (Cronbach's alpha ranging from 0.90 to 0.93) and satisfactory validity.

8.3 The **Social Interaction Anxiety Scale (SIAS)** developed by Richard G. Heimberg was used to assess social interaction tendencies. The scale includes 20 items and shows strong reliability (α = 0.88–0.94) and good validity.

IX. Procedure

Participants were informed about the purpose of the study, and informed consent was obtained. The questionnaires were administered, and responses were collected systematically. The data were scored according to standard scoring procedures. Pearson's correlation analysis was conducted to examine the relationship between the variables.

X. Results and Interpretation

Table 1: Showing correlation analysis of Artificial Intelligence (AI) usage and Human Interaction

Correlations

		AIU	HI
AIU	Correlation Coefficient	1.000	-0.450**
	Sig. (2-tailed)	.	.000
	N	80	80
HI	Correlation Coefficient	-0.450**	1.000
	Sig. (2-tailed)	.000	.
	N	80	80

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

After reviewing the data presented in the table, it is evident that there exists a **significant negative relationship** between Artificial Intelligence (AI) usage and human interaction. The analysis shows a **correlation coefficient of –0.450**, indicating that as AI usage increases, the level of human interaction decreases among students. Furthermore, the p-value is **.000**, which indicates that the result is **statistically significant**.

XI. Discussion

The findings indicate that increased use of Artificial Intelligence (AI) is associated with reduced human interaction among students. This supports **Displacement Theory**, which suggests that time spent on technology may reduce opportunities for direct social interaction. The results are also consistent with **Social Presence Theory**, as AI-based communication may lack emotional depth and non-verbal cues, affecting the quality of interpersonal relationships. Additionally, **Uses and Gratifications Theory** explains that although AI fulfills needs such as

convenience, excessive reliance on it may gradually replace face-to-face communication. Overall, the findings suggest that overuse of AI may negatively influence human interaction.

XII. Conclusion

The study concludes that there is a **significant negative relationship** between Artificial Intelligence (AI) usage and human interaction. While AI offers several advantages, its excessive use may reduce opportunities for direct social engagement. Therefore, it is important to maintain a balance between technology use and real-life interaction to ensure healthy social functioning.

XIII. Suggestions for Future Research

- Conduct studies with a larger sample size
- Include participants from different age groups and backgrounds
- Examine long-term effects of AI usage
- Compare results across different demographic groups

The psychology discussion is strengthened by learner-attitude, classroom-leadership and attention-dynamics perspectives [15]-[18]. This literature supports the paper by linking behavioural outcomes with educational context, digital tools and human-centred AI use. International references on psychological practice, generative AI and mental health are added for wider support [19]-[21].
The study indicates that AI and digital tools can influence learning behaviour, motivation and psychological engagement. However, technology should be used with human guidance, emotional sensitivity and ethical limits so that learner development remains balanced and socially responsible.

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