Leveraging Artificial Intelligence In Education: Assessing The Effectiveness Of ChatGPT And Gemini AI Tools Among Youth

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ARTICLE INFO	ABSTRACT
	This research delves into examining how effective artificial intelligence (AI) tools, such as ChatGPT and Gemini AI, can be when utilized within the domain of learning. With the increasing integration of AI technologies into educational settings, understanding their impact on student learning outcomes and engagement is crucial. The research focuses on evaluating how much, in comparison to conventional approaches, these AI technologies improve students' academic performance, engagement levels, and overall learning experiences. The study employs a quantitative data analysis of student performance metrics. Participants are exposed to ChatGPT, a conversational AI model designed to provide personalized assistance and support, as well as Gemini AI, a collaborative learning platform that utilizes AI for content creation and assessment. This research paper investigates the effectiveness of AI tools in enhancing student comprehension of complex concepts, their role in facilitating collaborative learning and knowledge sharing, and the influence they exert on student involvement and drive. Additionally, the study explores potential obstacles and boundaries linked to employing AI in educational settings, including privacy apprehensions and technological obstacles. The discoveries unearthed by this study enrich the expanding reservoir of insights concerning the incorporation of AI within educational frameworks. They offer valuable perspectives on the most effective strategies for maximizing the utilization of AI tools to improve the outcome of student learning and achievements within college environments. The findings carry significance for those in academia, government decision-makers, and technology innovators aiming to leverage AI advancements to enhance the caliber of learning and educational outcomes within the realm of higher education.

Key Words: ChatGPT, Gemini AI, Artificial Intelligence, Education.

Introduction

Education stands as one of humanity's fundamental pillars, shaping minds, cultivating talents, and fostering progress (Delors, et al., 1996). However, as we hurtle through the 21st century, the landscape of education is undergoing a profound transformation, propelled by the inexorable rise of Artificial Intelligence (AI) (Liando & Tatipang, 2024). Once relegated to the realm of science fiction, AI has swiftly emerged as a disruptive force across various industries, and education is no exception (Schiff, 2021). Education is just one of the industries that artificial intelligence (AI) is rapidly changing (Chen, Chen, & Lin, 2020). AI-powered solutions, like ChatGPT and Gemini (earlier Bard) AI, have the ability to significantly improve learning outcomes by assisting teachers in a variety of ways, promoting interactive learning, and offering individualized guidance (Elbanna & Armstrong, 2023). This paper embarks on an exploration of the multifaceted impacts of AI

within the dominion of education, diving into its potential to bring about transformation, the ethical dilemmas it raises, and how learners' roles are evolving within this emerging paradigm.

Evaluation of Chat GPT and Gemini

At the heart of AI's influence lies its capacity to revolutionize traditional pedagogical methods (Seldon & Abidoye, 2018). Machine learning algorithms, neural networks, and natural language processing techniques empower AI systems to analyze vast troves of educational data, thereby customizing learning experiences to suit individual needs and preferences (Kurn, Mohammed, & G, 2023). Personalized learning, once a distant dream, is now a tangible reality, AI-driven platforms customize educational materials and adjust learning speeds to align with each student's distinct learning paths. By discerning patterns in students' learning behaviors and performance, AI algorithms can offer targeted interventions, remediation, or enrichment, fostering a more inclusive and effective educational environment (Bahroun, Anane, Ahmed, & Zacca , 2023).

AI augments the role of educators by serving as a formidable assistant in instructional design, content creation, and administrative tasks. Intelligent tutoring systems can provide real-time feedback, adaptively scaffolding students' understanding and mastery of complex concepts (VanLEHN, 2011). Automated grading and assessment tools alleviate teachers' burdens, affording them more time for meaningful interactions with students and pedagogical innovation. Additionally, AI-driven analytics furnish educators with invaluable insights into student progress, enabling data-informed decision-making and early intervention strategies to address learning gaps promptly (Mahmood, Ahmed, Al-Hayaly, Algburi, & Rasheed, 2023).

However, the integration of AI in education also raises profound ethical and societal concerns (Akgun & Greenhow , 2021). The algorithmic bias inherent in AI systems can perpetuate and exacerbate existing disparities in educational outcomes, reinforcing socioeconomic inequalities and marginalizing already vulnerable student populations (Madaio, Blodgett, Mayfield, & Dixon-Román, 2022). Moreover, the commodification of education facilitated by AI-driven edtech companies may prioritize profit margins over pedagogical efficacy, commodifying knowledge and compromising the holistic development of learners. The ethical dilemmas surrounding data privacy, consent, and algorithmic transparency loom large, necessitating robust regulatory frameworks and ethical guidelines to safeguard against potential abuses of AI in educational contexts (Oladoyinbo, Olabanji, Olaniyi, Adebiyi, Okunleye, & Alao, 2024).

As AI assumes a more prominent role in education, the traditional conception of the educator undergoes a metamorphosis, evolving from a disseminator of knowledge to a facilitator of learning and critical thinking skills (Zhao, Zhao, & Shi , 2023). In this new educational paradigm, educators must cultivate digital literacy and fluency in AI technologies, empowering them to harness the transformative potential of AI while navigating its ethical and pedagogical implications (Abulibdeh, Zaidan, & Abulibdeh, 2024). Moreover, fostering a culture of lifelong learning becomes imperative as AI-driven automation reshapes the labor market, rendering certain skills obsolete while emphasizing the importance of adaptability, creativity, and interdisciplinary thinking (George, 2023).

Simultaneously, learners are tasked with cultivating metacognitive awareness and digital citizenship, providing them with the abilities essential for maneuvering through a world that's becoming progressively intricate and interconnected. The proliferation of AI-driven educational tools necessitates a critical interrogation of their efficacy and ethical implications, fostering a culture of informed skepticism and technological agency among students (George, 2023). Moreover, as AI assumes a more pervasive presence in society, cultivating empathy, ethical reasoning, and social responsibility becomes indispensable, ensuring that learners harness AI for the collective good while mitigating its potential harms (Salim, 2020).

In the ever-evolving landscape of education, Artificial Intelligence (AI) emerges as a transformative force, offering innovative solutions to enhance learning outcomes and revolutionize traditional teaching methodologies (Kumar, 2023). Among these AI-powered solutions, platforms such as ChatGPT and Gemini AI stand out for their ability to assist teachers, promote interactive learning, and provide individualized guidance, thereby catering to the diverse needs and preferences of learners (Rane, Choudhary, & Rane, 2023).

AI-powered solutions like ChatGPT and Gemini AI excel at augmenting the capabilities of educators by serving as intelligent assistants in instructional design, content creation, and administrative tasks (S & Aithal, 2024). ChatGPT, OpenAI's language model, utilizes advanced natural language processing techniques to interact with students, engaging them in substantive discussions, addressing inquiries, and offering immediate feedback. Similarly, Bard AI, an AI-driven tutoring platform, utilizes advanced machine learning techniques to tailor learning experiences to individual students' strengths, weaknesses, and learning preferences (Rahman & Watanobe, 2023). By automating routine tasks such as grading assignments, generating personalized learning resources, and facilitating communication between teachers and students, these AI-powered solutions free up educators' time, enabling them to focus on high-value tasks such as mentoring, facilitating discussions, and designing enriching learning experiences (Alyammahi, 2020).

Moreover, AI-powered solutions like ChatGPT and Gemini foster interactive learning environments by simulating real-time dialogue and collaboration. Through natural language processing capabilities, ChatGPT engages students in dynamic conversations, prompting critical thinking, problem-solving, and knowledge synthesis (Liu, Ren, Nyagoga, Stonier, Wu, & Yu, 2023). By simulating dialogue with historical figures, literary characters, or scientific concepts, ChatGPT facilitates immersive learning experiences, igniting

students' curiosity and fostering a deeper understanding of complex topics. Similarly, Gemini AI employs interactive tutoring sessions, gamified quizzes, and virtual simulations to create engaging learning environments that promote active participation and knowledge retention (Mistretta, 2023). These platforms utilize AI capabilities to customize learning experiences, catering to individual learning styles and empowering learners to control their educational journey, allowing them to delve into concepts at their preferred speed.

Review of Related Literature

Artificial intelligence (AI) is now a reality, permeating every facet of our lives, including education, and becoming a part of our daily routines. Although the field is still in its early stages, we will be able to see how AI develops and discover its unrealized potential as time goes on (Göksel & Bozkurt, 2019). AI-powered tools offer opportunities for adaptive learning, allowing students to learn at their own pace and catering to individual learning preferences (Rane, Choudhary, & Rane, 2023). Moreover, AI-driven tutoring systems have shown promise in improving students' performance and engagement, leading to positive learning outcomes (Ahmad et al., 2023).

ChatGPT: Enhancing Student Engagement and Interaction: ChatGPT, a language model developed by OpenAI, has emerged as a versatile tool for fostering student engagement and interaction. Through natural language processing capabilities, ChatGPT facilitates conversational learning experiences, answering queries, and providing personalized feedback in real-time (Nazir & Wang, 2023)). Research suggests that ChatGPT can enhance student motivation and cognitive engagement, leading to improved learning outcomes (Alshahrani, 2023). However, concerns have been raised regarding the quality and accuracy of responses generated by ChatGPT, highlighting the importance of evaluating its effectiveness in educational contexts (Elbanna & Armstrong, 2023).

Gemini AI: Gemini AI was earlier named Bard AI. Personalized Tutoring for Effective Learning: Gemini AI stands as a cutting-edge tutoring platform driven by artificial intelligence, employing advanced machine learning algorithms to tailor learning experiences uniquely for each student. By analyzing students' learning behaviors and performance data, Gemini AI adapts instructional strategies and content delivery to meet individual learning needs (Kamalov, Calonge, & Gurrib, 2023). Research suggests that Bard AI can improve students' mastery of complex concepts and foster deeper learning through interactive tutoring sessions and targeted interventions (Salinas-Navarro , Vilalta-Perdomo, Michel-Villarreal, & Montesinos, 2024). However, challenges remain in ensuring the scalability and generalizability of Bard AI across diverse educational settings and student populations (Ray, 2023).

Hamid et al., (2023) demonstrated that during PDPBL (process-driven problem-based learning), ChatGPT increased motivation and prompted more questions while enhancing group collaboration and participation. However, several students had trouble comprehending the material provided by ChatGPT and questioned its validity. Students utilizing ChatGPT exhibited significant motivation, bolstered self-assurance, and underwent a notable positive attitude transformation, according to research on the app's impact on learning motivation among university students. They were eager to learn English and thought there was support available to them (Songsiengchai, Sereerat, & Watananimitgul, 2023). Jauhiainen & Guerra, (2023) studied that ChatGPT-3.5 and 4 possess the capability to effectively customize educational materials for school learning, enabling a diverse range of students to access tailored interactive learning environments and resources. This will increase their level of engagement with the material and produce engaging, cognitively efficient learning experiences that will push them to advance along the BLOOM taxonomy into greater knowledge. This suggests that to harness the complete advantages of generative AI, educators must be heavily involved in the design and implementation of the technology.

Ahmed et al., (2023) studied that, on one end, there is Equipped with the capability to access the extensive internet, Bard is prepared to offer us instantaneous responses to our pressing inquiries. In the meantime, ChatGPT becomes the master of language generation, able to create beautiful writing or fantastic stories at your will. These tools provide enormous possibilities for interactive learning and content creation, but they also present challenges that need to be carefully considered. AI has a lot of prospects, especially when it comes to changing people's lives. ChatGPT is an intriguing and daunting innovation that will have a big impact on collaborative human-AI collaboration in the future. It is crucial to use such technology appropriately, taking into account possible mistakes, moral quandaries, and wider implications for employment and education (Motlagh, Khajavi, Sharifi, & Ahmadi, 2023).

Theoretical Framework

Over the past few years, the infusion of artificial intelligence (AI) across different sectors has transformed conventional methods and paved the way for fresh ideas. In education specifically, AI presents vast opportunities to elevate learning journeys, tailor teaching methods, and maximize educational achievements. Among the diverse array of AI tools available, ChatGPT and Gemini AI stand out as promising platforms that offer interactive, intelligent support to students in their learning endeavors. This theoretical framework aims to explore the effectiveness of leveraging ChatGPT and Gemini AI tools in the realm of education. The primary emphasis lies in evaluating their influence on student learning achievements, involvement, and overall educational encounters.

TAM: Information systems acceptance is explained by the Technology Acceptance Model (TAM), a theory. Predicting user behavior and providing an explanation for technology adoption success are the main objectives of TAM (Davis, 1987). Within the realm of AI tools in education, assessing students' perceptions of how helpful ChatGPT and Gemini AI are in learning tasks and how easy they are to use can provide insights into their adoption.

Constructivist Learning Theory: From a constructivist viewpoint, learning is an individual journey for every learner. This theory suggests that individuals naturally seek understanding in everything they encounter, leading them to create their own interpretations and meanings from the information they receive. One of the key concepts in education is constructivism (Olusegun, 2015). . AI tools can be integrated into constructivist learning environments to support collaborative problem-solving, critical thinking, and reflection. Examining how ChatGPT and Gemini AI facilitate constructivist learning processes and promote deeper understanding among students is crucial.

Human-Computer Interaction (HCI): HCI research investigates the interaction between humans and computers, exploring how users interact with various technologies. It entails comprehending human behavior, requirements, and preferences in order to develop user interfaces and interactions that are simple to use, effective, and entertaining (MacKenzie, 2024). Assessing the usability, user experience, and accessibility of ChatGPT and Gemini AI interfaces among students can identify design improvements and enhance their integration into educational settings.

Research Questions

To what extent are students in Delhi utilizing ChatGPT and Bard AI for educational purposes?

How do ChatGPT and Bard AI compare in terms of effectiveness in supporting student learning across different subjects and academic levels?

What are the perceived benefits and challenges of using ChatGPT and Bard as AI-powered learning tools among students in Delhi?

Do ChatGPT and Bard AI contribute to enhanced research skills, problem-solving skills, and critical thinking among students?

How can the pedagogical integration of ChatGPT and Bard AI be optimized to maximize their educational benefits while mitigating potential risks?

Research Objectives:

The aim of this study is to evaluate the effectiveness of artificial intelligence (AI) tools—ChatGPT and Gemini AI, in particular—in educational environments and how they affect students' experiences and learning outcomes. The objective of this study is to evaluate how much, in comparison to conventional approaches, these AI technologies improve students' academic performance, engagement levels, and overall learning experiences. It also aims to investigate how students perceive and interact with these tools' personalization, adaptability, and usefulness in learning environments. This study intends to give educators and policymakers useful insights on maximizing the utilization of AI technology to enrich educational instruction and learning experiences by identifying obstacles, constraints, and best practices related to integrating AI technologies into education.

To assess the awareness and usage patterns of ChatGPT and Bard AI tools among students in Delhi.

To evaluate the perceived benefits and challenges associated with the use of AI tools in educational settings.

To analyze the impact of AI tools on student engagement, learning outcomes, and academic performance.

To identify factors influencing the effective integration and adoption of AI tools in educational institutions.

Methodology:

A quantitative data-collection approach and analysis methodologies were used in the research to evaluate the efficacy of ChatGPT and Gemini AI tools in teaching. This study based on a direct survey design with specific objectives and a closed-ended answer, a Google form with 32 questions on a 5-point likert scale was created for the online survey. Social media platforms like Facebook and WhatsApp were used to spread the link to the survey. The link was live for Thirty one days, from January 15, 2024, to Feb 14, 2024. The researcher has created this questionnaire keeping in mind various factors, including which AI is used the most, the challenges faced during the use of AI, the possibilities of its improvement, and its effects on various skills and habits of the students. The chain-referral sampling technique (Goswami, Anjali, Raj, Puthiyakath, & Thanvi, 2022) has been used to collect data from students.

This study exclusively focuses on gathering data from individuals between the ages of 18 and 30. A total of 176 respondents filled out the Google questionnaire in the given time. Out of those, only 170 respondents were found suitable for the research. Quantitative research methodology employs numerical data to investigate relationships, make comparisons, and identify patterns within a specific population. In this research paper, utilizing this approach, descriptive statistics serve as an initial step. Data is analyzed using measures of central tendency like mean, median, and mode to understand its main characteristics. Additionally, measures of variability such as standard deviation and range are utilized. These analyses help in drawing conclusions about the data's central values and the extent of its spread or dispersion.

Data Analysis

A large majority, 91.2% (155), of the respondents are familiar with AI tools, and a smaller portion, 8.8% (15), are not familiar with AI. The majority of the respondents in this survey have some level of understanding or exposure to AI. There is still a segment of the respondents who are not familiar with AI and may require more education or awareness-building efforts. This data suggests that AI awareness is relatively high, but there is still a need for outreach and education to ensure broader understanding and adoption. Our research is related to the use of AI and the challenges arising from it; hence, further data will be analyzed only from those respondents who have used or are aware of AI. So now N = 155.

Devices type for using AI tools.

		Laptop	Desktop	Mobile	Tab
N	Valid	155	155	155	155
Mean		3.72	2.35	4.34	2.19
Std. Deviation		1.214	1.323	1.015	1.344
Table No- 1					

According to Table 1, the highest mean value is for mobile devices (4.34), indicating that people generally perceive mobile devices as having the highest utility for AI usage. The standard deviation for mobile devices (1.015) is relatively low, indicating that perceptions about the utility of AI on mobile devices are consistent among respondents. Laptops follow with a mean value of 3.72, suggesting they are also considered quite useful for AI applications, but to a lesser extent than mobile devices. Desktops have a mean value of 2.35, and tablets have the lowest mean value of 2.19, indicating they are perceived as less useful for AI compared to mobile and laptop devices. Desktops and tablets have even higher standard deviations of 1.32 and 1.344, respectively. This suggests that perceptions about the utility of AI on these devices vary more widely among respondents compared to mobile and laptop devices.

Awareness about ChatGPT and Gemini AI tools

	Yes	No
ChatGPT	97.4%	2.6%
Gemini	51.6%	48.4%
Table No- 2		

The data reveals that respondents exhibit a strong level of familiarity with ChatGPT, with 97.4% indicating that they are aware of it. This suggests that ChatGPT has gained significant recognition and familiarity among the students. On the other hand, only a small fraction, 2.6%, of the respondents reported that they were not aware of ChatGPT.

In contrast, awareness about GeminiAI appears to be more evenly distributed among the respondents. Approximately 51.6% of the respondents indicated that they are aware of GeminiAI, while a nearly equivalent proportion, 48.4%, reported that they are not aware of it. This suggests that GeminiAI's recognition among the surveyed group is moderate, with a relatively balanced split between those who are aware and those who are not.

Purpose of using AI tool	Mean	Std. Deviation
Studying	4.03	1.075
Search anything	3.68	1.247
Assignments	3.61	1.119
Learning new concepts	3.61	1.186
Summarization	3.43	1.216
Exam preparation	3.32	1.367
Research assistance	3.32	1.268
Message Writing	3.04	1.459
Writing stories and poetries	2.86	1.387
Language learning	2.66	1.474
Coding	2.29	1.450
Table No- 3		

According to Table 3, the data presents various purposes for using AI tools; each purpose is accompanied by its mean and standard deviation scores, providing insights into the relative significance and variability of each purpose among the students. Studying has the highest mean score of 4.03, indicating that it is the most

common purpose for using AI tools among the students. This suggests that AI tools are predominantly utilized for academic purposes, such as studying. Search anything follows closely with a mean score of 3.68, indicating that general searching or information retrieval is another prevalent use of AI tools among the respondents. Assignments and learning new concepts both have similar mean scores of 3.61, indicating that they are also significant purposes for using AI tools. These purposes align closely with educational activities, emphasizing the role of AI in assisting students with assignments and learning new concepts.

Exam preparation and research assistance share a mean score of 3.32, indicating that they are moderately common purposes for using AI tools. This highlights the role of AI in aiding students with exam preparation and research tasks. Most of the college students have participated in this research, which is why the mean score for using AI tools for research work is low. Summarization follows with a mean score of 3.43, indicating that summarizing information is also a significant purpose for utilizing AI tools.

The data underscores the predominant use of AI tools for academic and information retrieval purposes, particularly studying, assignments, learning new concepts, and general searching. While AI tools also play roles in creative writing, exam preparation, research assistance, summarization, and message writing, their usage for language learning and coding appears to be less prevalent among students.

		ChatGPT	Gemini
N	Valid	155	155
Mean		3.94	2.59
Std. Deviation		1.147	1.332
Table No- 4			

ChatGPT emerges as the preferred choice among the respondents, with a mean score of 3.94, according to Table 4. This suggests that ChatGPT is highly favored for educational tasks, possibly due to its versatility and effectiveness in assisting with various academic activities like studying, assignments, and learning new concepts. Another possibility could be that fewer people know about Gemini according to Table 2, so they have not used it for education. On the other hand, Gemini has a lower mean score of 2.59, indicating that it is less preferred for educational purposes compared to ChatGPT. The standard deviation for Gemini is 1.332, which is slightly higher than that of ChatGPT (1.147).

benefits of using AI tools	Mean	Std. Deviation
Time Saving	4.26	.780
Easy to use	4.24	.782
Effort Saving	4.12	.845
Improve Content Quality	3.86	.987
Problem solving skills	3.77	1.018
Writing Skills	3.76	1.088
Research Skills	3.68	1.086
Critical thinking	3.49	1.101
Table No- 5		

According to Table 5, time savings stands out as the most valued benefit. The data presents a striking mean score of 4.26, coupled with a notably low standard deviation of 0.780. This suggests a robust consensus among participants regarding the efficacy of AI tools in time-saving endeavors, underscoring their pivotal role as catalysts for enhanced efficiency and productivity. Easy to use also receives a high mean score of 4.24, indicating that the user-friendliness of AI tools is another significant advantage appreciated by the respondents. This suggests that AI tools are perceived as accessible and straightforward to use, contributing to their widespread adoption.

Effort saving closely follows with a mean score of 4.12, reinforcing the notion that AI tools are not only time-efficient but also effort-efficient. The standard deviation of 0.845 suggests a fairly consistent agreement among the students regarding this benefit.

Improve Content Quality has a mean score of 3.86, highlighting the role of AI tools in enhancing the quality of content produced. While slightly lower than the aforementioned benefits, it still signifies a notable advantage offered by AI tools in ensuring high-quality output.

Critical thinking, Research Skills, Problem-solving skills, and Writing Skills all have mean scores ranging from 3.49 to 3.77. These scores indicate that while AI tools are recognized for their potential to assist in these areas, they are not as strongly associated with these skills as they are with time-saving, effort-saving, and ease of use.

The data underscores the perceived benefits of using AI tools, with time-saving, effort-saving, and ease of use being the most prominent advantages highlighted by the respondents. Additionally, AI tools are

acknowledged for their potential to improve content quality and assist in developing critical thinking, research, problem-solving, and writing skills, albeit to a slightly lesser extent.

Demerits of AI tools	Mean	Std. Deviation
Making people lazy	4.06	1.002
Lack of Academic Integrity	3.85	.981
Hindered Creativity	3.72	1.037
Need for fine-tuning	3.69	.937
Hindered Critical and analytical thinking	3.68	1.044
Limited Responses	3.50	1.077
Limited knowledge	3.41	1.037
Provide Inaccurate information	3.39	1.010
Biased Reponses	3.21	1.073
Table No- 6		

The highest mean score, indicating the most significant concern among respondents, was "making people lazy," with a mean score of 4.06 and a standard deviation of 1.002, according to Table 6. This suggests that many people perceive AI tools as potentially reducing human effort and promoting laziness.

In the realm of academic integrity, the rating for "lack of academic Integrity" stood at an average of 3.85, with a standard deviation of 0.981. This suggests significant apprehensions regarding the dependability and credibility of AI-generated material within academic spheres. Correspondingly, the category of "need for fine-tuning" garnered a mean score of 3.69 and a standard deviation of 0.937, underlining the perceived necessity for additional refinements or enhancements to AI technologies.

Other concerns expressed include "hindered creativity" with a mean score of 3.72 and "hindered critical and analytical thinking" at 3.68, both indicating worries about the potential limitations AI tools might impose on human creativity and analytical abilities. Additionally, the apprehension surrounding "Providing Inaccurate Information" loomed large, registering a mean score of 3.39 with a standard deviation of 1.010. This was closely followed by worries regarding "limited knowledge" and "limited responses," which garnered mean scores of 3.41 and 3.50, respectively. These findings underscore concerns regarding the breadth and depth of AI-generated knowledge and responses.

The average score for "biased responses" was 3.21, showing a standard deviation of 1.073. This indicates a noteworthy consideration regarding the potential biases that could be ingrained within AI algorithms. Overall, these findings indicate a mix of apprehensions regarding the capabilities and limitations of AI tools among respondents.

Improvements or enhancements in AI tools to better support your educational needs.	Mean	Std. Deviation
More knowledge	4.03	.953
Analytical responses	4.03	.929
Academic Integrity	4.01	.984
Accuracy	4.00	.890
Creativity	3.96	.939
Speed	3.88	.976
Behavioural Language	3.81	.917
Table No- 7		

According to Table No. 7, the top item on the list is "more knowledge," with a mean score of 4.03 and a standard deviation of 0.953. This indicates a strong desire among students for AI tools to possess a broader and more extensive knowledge base to assist with educational queries and tasks effectively.

Following closely, both "analytical responses" and "academic integrity" received identical mean scores of 4.03, with standard deviations of 0.929 and 0.984, respectively. This suggests a high demand for AI tools to deliver more insightful and academically sound responses while upholding integrity in their information and sources.

"Accuracy" followed closely with an average rating of 4.00 and a modest standard deviation of 0.890, underscoring the significance of delivering accurate and dependable information within educational environments. Likewise, "creativity" garnered an average score of 3.96 with a standard deviation of 0.939, reflecting the demand for AI technologies to provide inventive and imaginative solutions that enrich the learning journey.

"Speed" registered a mean rating of 3.88, with a standard deviation of 0.976, emphasizing the significance of swift response times in fulfilling educational requirements. Finally, "behavioral language" garnered an

average score of 3.81, accompanied by a standard deviation of 0.917, indicating a desire for AI solutions capable of mimicking natural and contextually relevant language interactions to enhance user satisfaction.

The data reveals a strong preference among respondents for AI tools that prioritize knowledge breadth, analytical capabilities, academic integrity, and accuracy while also demonstrating creativity, speed, and natural language processing skills to better support educational needs.

AI potentially contribute to the improvement of critical thinking skills	Mean	Std. Deviation
By providing direct answers to questions without any analysis	3.63	1.058
By limiting users' exposure to diverse viewpoints	3.61	1.077
By offering only one perspective on any given topic	3.57	.987
By encouraging users to think deeply and critically about various topics	3.48	1.022
Table No- 8		

Table No. 8 presented suggests interesting insights into the perceived impact of AI on the improvement of critical thinking skills. Respondents seem to be somewhat skeptical about the positive role of AI in fostering critical thinking. The highest mean score (3.63) is attributed to the belief that AI provides direct answers to questions without any analysis, indicating that this approach is viewed as less beneficial for critical thinking development. Similarly, limiting users' exposure to diverse viewpoints and offering only one perspective on any given topic also received mean scores close to the highest, at 3.61 and 3.57, respectively, suggesting that these aspects are not seen favorably in terms of enhancing critical thinking skills.

On the other hand, encouraging users to think deeply and critically about various topics received a slightly lower mean score of 3.48. While this score is still relatively high, it indicates that there is room for improvement in how AI platforms can be designed to promote deeper critical thinking. The standard deviations for each item are around 1, suggesting moderate variability in responses, indicating that opinions on the role of AI in critical thinking are not entirely uniform among the respondents. Overall, the data implies a cautious perspective on the potential of AI to positively influence critical thinking skills, emphasizing the need for AI developers to focus on enhancing features that stimulate deeper analytical thinking and exposure to diverse perspectives.

Table No. 9 presents an interesting perspective on the impact of interacting with AI on research skills. When AI provides only basic information and restricts access to additional resources, students rate its effectiveness at 3.74 with a standard deviation of 1.056. This suggests that such a limited approach might be somewhat beneficial but not overwhelmingly effective. Similarly, when AI guides users through the research process and suggests credible sources, it received a slightly lower rating of 3.68 with a standard deviation of 0.925. This indicates that while guidance is appreciated, it may not significantly enhance research skills.

Interacting with AI improve research skills.	Mean	Std. Deviation
By providing only basic information and limiting access to further resources	3.74	1.056
By guiding users through the research process and suggesting credible sources	3.68	.925
By presenting inaccurate information, thus requiring users to verify facts independently	3.37	1.105
By discouraging users from seeking information beyond what is immediately provided	3.38	1.106
Table No- 9		

Interestingly, presenting inaccurate information to encourage users to verify facts independently yielded a rating of 3.37 with a standard deviation of 1.105. This suggests that this method may not be as effective, potentially leading to confusion or mistrust. Moreover, discouraging users from seeking information beyond what is immediately provided received a similar rating of 3.38 with a standard deviation of 1.106. This implies that limiting curiosity and exploration may not be the best approach to fostering robust research skills.

While AI can play a role in supporting research endeavors, the manner in which it interacts with users appears to have varying degrees of effectiveness. Offering guidance and access to credible sources seems to be more beneficial than limiting information or providing inaccurate data.

	Mean	Std. Deviation
AI can replace humans in jobs in the future.	3.47	1.028
AI can replace the Teachers	2.70	1.245
Table No- 10		

On the topic of AI replacing humans in jobs, students have a relatively neutral stance, with a mean score of 3.47 and a standard deviation of 1.028. This suggests that while there is some level of agreement that AI could replace humans in certain job roles, there is also a fair amount of variability in opinions among the respondents. This variability indicates that people have diverse views on the extent to which AI might impact the workforce.

When it comes to AI potentially replacing teachers, the mean score drops to 2.70, with a higher standard deviation of 1.245. This indicates disagreement and neutrality among students compared to the previous statement. While some individuals may believe that AI could play a role in education, there appears to be more skepticism or uncertainty surrounding the idea of AI fully replacing teachers.

AI is better	Frequency	Percent
ChatGPT	125	80.6
Gemini	30	19.4
Total	155	100
Table No- 11		

Table No. 11 provides the results of a survey comparing the preferences between two AI models: ChatGPT and Gemini. Out of a total of 155 respondents, ChatGPT was favored by the majority with 125 votes, accounting for 80.6% of the total responses. On the other hand, Gemini received 30 votes, making up 19.4% of the total. This indicates a significant preference for ChatGPT over Gemini among the participants surveyed. The substantial difference in the number of votes between the two AI models suggests that ChatGPT is perceived to be the superior or more preferred option among the respondents.

Conclusion

Gemini, previously known as Bard AI, emerged after the introduction of ChatGPT and ignited discussions about the potential impact of this new AI technology on employment and human roles across various sectors. Its introduction posed challenges for educators as students increasingly turned to AI to streamline their learning process, potentially leading to decreased effort and engagement. One of the main concerns raised is the potential for AI to foster a sense of complacency among students, limiting their development of critical thinking and research skills. ChatGPT is more popular among students for their studies and other tasks compared to Gemini. While AI technology is still evolving and has room for improvement in areas such as knowledge depth, analytical capabilities, and accuracy, its growing presence raises questions about its long-term implications for job markets. Despite these advancements, many students maintain that AI cannot fully replace the unique value and insights provided by human teachers. While AI tools are recognized for their potential to revolutionize education and offer numerous benefits, there are also concerns and uncertainties among students. Addressing these concerns through education, transparency, and continuous improvement of AI technologies can help maximize the positive impact of AI in education.

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