

THE INFLUENCE OF CONVERSATIONAL AI ON STUDENT LEARNING BEHAVIORS AND OUTCOMES

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ABSTRACT

The integration of Artificial Intelligence (AI) into education has introduced new opportunities and challenges in shaping the learning process. Among the most influential innovations is conversational AI, including tools such as ChatGPT, Google Gemini, and Bing Chat, which provide instant, interactive, and personalized support to students. This paper explores the dual impact of AI on education, with particular focus on student learning behaviors. AI enhances motivation, promotes self-directed learning, and enables learners to access information and feedback in real time. These tools also support adaptive learning environments that adjust to individual progress, fostering autonomy and engagement. On the other hand, the growing reliance on AI also presents significant concerns. Students may misuse AI to complete tasks dishonestly, leading to academic integrity issues and weakening essential skills such as critical thinking, problem solving, and creativity. Furthermore, the possibility of inaccurate or misleading AI generated content may negatively affect students' understanding and decision making. This paper highlights the importance of ethical implementation, digital literacy, and the redesign of assessment methods to ensure that AI supports rather than undermines meaningful learning. Ultimately, the impact of AI on student learning behaviors depends on how responsibly and strategically it is integrated into educational contexts.

Keywords: Artificial Intelligence (AI), ChatGPT, OpenAI, Chatbot, learning behaviors

Introduction

Artificial Intelligence (AI) refers to the ability of a computer system or machine to perform tasks that typically require human intelligence. These tasks include learning, reasoning, problem solving, understanding language, recognizing patterns, and making decisions. The rapid development of AI has transformed a number of sectors, including education. AI technologies are increasingly integrated into learning environments, offering innovative ways to support students and teachers. Among these technologies, conversational AI, such as chatbots, has gained significant attention for its potential to enhance the overall learning experience. Tools like ChatGPT by OpenAI, Google Gemini (formerly Bard), and Bing Chat by Microsoft are now widely used by students for instant feedback, explanations, and personalized guidance. (Kasneci et al., 2023) noted that AI chatbots provide a free judgment environment where students can ask questions without hesitation, improving motivation and engagement. Similarly, (Schmid et al., 2024) found that chatbot assisted learning can lead to improved knowledge retention and academic performance due to the instant feedback and adaptive responses

these systems offer. Besides that, AI conversational provide a real time responses, enabling students to learn at their own pace and seek assistance outside traditional classroom hours.

Artificial intelligence integration, specifically ChatGPT, is becoming increasingly popular in educational contexts (Bettayeb et al., 2024). ChatGPT, was launched in November 2022 and is capable of generating cohesive and informative human like responses to user input (Lo, 2023). ChatGPT is a powerful tool that has the potential to transform the way we interact with technology, enabling more natural and intuitive communication between humans and machines (Božić & Poola, n.d.). This powerful language model fosters dynamic and evolving learning environments by transcending traditional search engine constraints.

Despite its success, ChatGPT has introduced new challenges and threats to education. With its ability to provide specific answers to user questions, it can be used to complete written assignments and examinations on behalf of students, leading to concerns about AI-assisted cheating (Lo, 2023). While (Sok & Heng, 2023) also stated that there are risks related to academic integrity issues, unfair learning assessment, inaccurate information, and over-reliance on AI. In some instances, the information generated by ChatGPT may exhibit factual errors. While ChatGPT is designed to provide accurate and relevant information, it is not infallible and may generate inaccurate responses (Pokkakillath & Suleri, 2023).

Positive impact of AI on educations and students learning behaviors

According to (Pokkakillath & Suleri, 2023), AI technologies contribute positively to education through the following areas as shown in Table 1:

Table 1: Positive Impacts of AI

No	Aspect	Descriptions
1	Adaptive Learning	This pedagogical approach utilizes AI technology to dynamically adapt the content and difficulty level of a learning experience in response to a student's progress or performance.
2	Personalised recommendation/individual instructions/early identification of learning needs	Using AI technology, the school can analyze students' learning styles and interests to provide recommendations for content and resources.
3	Grading and assessment	In 1990, an intelligent essay assessor (IEA) was developed to evaluate the quality of essays written by students and provide feedback on their writing

		skills. Over the years, AI has been used in grading/marking and assessment, such as scoring objective questions, multiple choice tests, essay evaluation and others.
4	Creating assessment	It provides an innovative and flexible approach to generating assessments, offering real-time formative feedback. This process involves developing open-ended question prompts that align with the learning outcomes, reducing the workload and time required for teachers to prepare quizzes and tests. Additionally, ChatGPT can assist in brainstorming ideas for research projects, facilitating idea development and gathering.
5	Virtual personal tutoring	This offers students round the clock feedback and support for tasks, including mathematics problem-solving. However, clear guidelines from educational institutions are necessary to ensure students are well-informed about efficient and responsible utilization of these resources.
6	Enhanced pedagogical practice	This assists educator to design interactive classroom activities and develop comprehensive lesson plans, presentations and teaching materials

Negative impact of AI on educations and students learning behaviors

Table 2 shows the summary of the negative impacts of AI especially ChatGPT on education which specifically focusing on student learning, academic integrity, and teaching practices:

Table 2: Negative Impacts of AI

Aspect	Impact	Explanation
Academic Integrity	Plagiarism & cheating	Students may submit AI generated work as their own, especially in online exams or assignments.
Critical Thinking	Decline in analytical and original thinking	Overuse of AI can discourage students from thinking deeply or solving problems independently.
Creativity	Reduced creativity and ideation	Students rely on AI for content generation, which may limit their own ability to generate new or original ideas.

Factual Accuracy	Inaccurate or misleading information	ChatGPT may generate incorrect or fabricated content that sounds believable but lacks factual reliability.
Overreliance on AI	Passive learning habits	Students may become dependent on AI tools, bypassing personal effort, exploration, or study.
Assessment Validity	Challenges in evaluating genuine student work	AI-generated text can be difficult to distinguish from original work, affecting fairness and reliability of grading.
Bias & Ethics	Ethical concerns and AI bias	AI may reflect bias in training data; unclear ownership and usage responsibility raise concerns.
Educational Practices	Need to revise assessment methods	Traditional assessments may be ineffective; push for oral exams or handwritten tasks is increasing.
Misuse by Students	Use of AI without understanding its limitations	Students may trust AI blindly or misuse it for academic shortcuts, leading to shallow or incorrect learning.

Conclusion

As a conclusion, Artificial Intelligence (AI), particularly in the form of conversational AI like ChatGPT, has emerged as a transformative tool in education. It offers significant benefits by enhancing personalized learning, improving student engagement, and supporting teachers in instructional design and assessment. These tools have directly influenced student learning behaviors, encouraging self-directed learning, promoting curiosity, and increasing confidence in seeking knowledge independently. AI enables students to access support anytime, helping them manage their learning pace and improve academic outcomes. However, these advantages are accompanied by notable challenges. Overreliance on AI tools can reduce students' motivation to think critically, reflect deeply, or develop original ideas. This may lead to passive learning habits, where students depend on AI generated answers rather than actively constructing knowledge. Issues related to academic dishonesty, misinformation, and ethical concerns further complicate the integration of AI into education. As AI becomes more embedded in educational settings, it is essential for educators, institutions, and policymakers to establish clear guidelines, promote ethical usage, and redesign assessment strategies that prioritize student accountability, critical thinking, and creativity. The future of education in the AI era will depend on a balanced approach that embraces technological innovation while safeguarding the development of meaningful and responsible learning behaviors.

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