



THE ROLE OF ARTIFICIAL INTELLIGENCE IN TRANSFORMING TEACHING, LEARNING, AND ASSESSMENT

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Abstract

Artificial intelligence is an innovative approach that has been introduced into the educational process. It is suitable for students, teachers, and administrative and organizational areas. Various activities related to teaching, learning, and the assessment process. All tasks related to education become easier and faster due to the entrance of AI in education. (Hualiang Lin, n.d.) The various processes become easy and rapid through AI. It is a new aspect that changes various activities in the education process related to teachers, students, and assessment. Teachers use these AI tools to understand and apply new paradigms for effective teaching. A certain task related to teachers was performed with the help of CHATGPT. These tools must be helpful in performing routine tasks. It helps with time management and productivity. Prompting guides are tools available to teachers for their smart work. It also gives direction to think progressively with advanced technology tools.

Keywords-Teacher, Artificial Intelligence, Education, Science, Prompts

Introduction-

The term artificial intelligence was coined in 1956 at a conference sponsored by the Defence Advanced Research Projects Agency (DARPA) to imagine, study, and create machines capable of performing tasks that typically require human cognition and intelligence. (José Antonio Bowen & C. Edward Watson, 2024)

AI was introduced in the field of education in 1970. The introduction of AI in education focuses on pedagogy, organizational structure, access, ethics, equity, and sustainability. The intelligent tutoring system (ITS) is the longest application of AI in education. (Miao et al., n.d.)

Artificial intelligence (AI) has become a crucial area of development in today's society, transforming industries and reshaping our daily lives. However, its integration into education remains largely unexplored, leaving a significant gap in how future generations will be prepared for an AI-driven world. One of the main challenges is the lack of updated teacher-training programs that address AI's potential in educational contexts. To bridge this gap, it is essential to develop validated instruments that can evaluate the effectiveness of such training initiatives. There is a need to design, produce, and run AI-related training programs, contributing to the advancement of research in AI education and fostering better implementation strategies in schools. (Manuel Reina-Parrado et al., n.d.) Using the prompt as an AI tool for teachers will become more effective for the entire education process. However, there are some tips that must be considered while using these tools. The AI prompting process emphasized some points. While using AI prompting, it should be noted that the command or language used must be precise, clear, and natural.

Google's prompting guide has great importance in education. Prompts help for effective communication, stimulate critical reflection, adapt to individual needs, and promote self-determination for the user. The use of proper and prompt education should enhance the learning process and provide more personalized and modified learning experiences. (A. Muñoz, 2023) The process of writing, refining, and optimizing the prompt is called prompt engineering. It helps to evolve the high-quality desired output from AI. (Jiyeon Park, 2024) Prompt engineering technique applicable in problem solving, critical thinking, interactive design, clarity, creativity, collaboration, digital literacy, and ethical judgments for the enhancement of educational outcomes. It is a technique useful for the enlistment of foundational approaches to advanced methods. (Wan Chong Choi & Chi in Chang, 2025) If Student use AI in their learning process. They should have the freedom of choice priority. They should have a warning about the ethical use of AI. (Hualiang Lin, n.d.) The introduction of AI into education



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has brought significant changes to traditional teaching methods. AI offers personalized learning and support for diverse educational requirements, including students with special needs.

Learning prompting org the another prompting guide Learning prompting is a guide who has to communicate effectively with a person and give effective results. Prompt engineering is a practical task. This helps improve understanding and competency for efficiency in innovative and routine practices. This is a comprehensive course in engineering.

Google prompting guide: A tool used to modify and develop prompts to help increase the productivity and creativity of a person using friendly routine apps, that as Gmail, Google Docs, Google Sheets, Google Meet, and Google Slides. It helps a person to improve their writing ability. It also helps organize data scientifically. If raw data are entered in a Gmail account. It gives a response, and you will receive an automatically generated summary from Gemini in the G mail side panel. If you create outlines of a presentation, then there will be a quick response of drafted data outlines of your raw data, create original images, and summarize the information while protecting the privacy of the data.

Anthropic Prompting Guide: This prompting guide is AI safety and interpret-able, which develops a safer and trustworthy AI system. It offers practical techniques from basic prompting to advanced strategies, such as chain of thoughts and multi-shot prompting. Researchers have many benefits from using prompts in their research. It can be used in diverse applications to solve problems. An anthropomorphic promoting guide can increase the AI-driven outcomes, a scientific and fluent workflow without obstacles, and it also diminishes the new possibilities in human-computer interaction.

Artificial intelligence is fundamentally reshaping education by enhancing student learning and teacher effectiveness. Its tools provide new methods and pathways for teaching and learning, supporting the main argument that AI drives significant transformation in education. By fostering deeper understanding and diverse knowledge sources, AI leads both teachers and students toward innovative, experiential learning and knowledge construction.

The conversation is always like talking to a colleague. Be specific and provide context. Add grade, level, subject, or topic details. which gives command. The context must be brief. However, it should be explained in sufficient detail; it will not be overloaded, but the AI should not be left guessing. This should be treated as a back-and-forth chat. The refined responses are adjusted until they work. While giving the command, the researcher should tell the AI exactly what he wants. Always start with the exact verb you need for perfect feedback: For example, summaries, create, draft, list, explain, etc., researchers or academics ask for output in a specific format. like bullet points, tables, paragraphs, checklists, a script for further process, and a teacher uses their own files. For example, mention or attach a lesson plan, student work, or notes for more personalized help. When the output reaches the researcher, it should not be finalized. Please make the tool more user-friendly. Please make it in a generalized manner. Therefore, the content should be easily accessible to all students.

AI integration in the teaching and learning processes includes various conditions or rules to be followed systematically. The initial stage of AI integration in the educational process includes setting learning goals. (Nathan D. Nguyen, 2023) Researchers and teachers should clearly define learning objectives. Teachers should notify or identify the skills that will be developed among students. For example, skills such as creativity and critical thinking, according to the goal of teaching, some authentic and valid tools are selected that align with teaching goals. The tools used in this process must enhance students' understanding. These tools should engage students, provide them with proper knowledge, and help them develop skills. Tools are selected to satisfy the objectives of the learning process. Students should use AI ethically, and teachers should create an AI policy regarding this. Students should be involved in creating policies to build accountability. There is a need for current error to use the Internet and online media in the education process. Meanwhile, we see that today's generation spends a lot of time on mobile and online media. There is a turnover in our educational system to utilize that time to guide students in a good direction. Students should be trained to avoid unethical use of media, engage them in searching for study material, and use AI to develop new skills and innovative activities. This will be helpful in their future lives. Therefore, teachers should actively involve students in the teaching-learning process. Teachers must integrate AI into lessons and deeper learning. Currently, AI has introduced several apps, platforms and varied ways to use AI. In the



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classroom, teachers try to involve innovative tasks, such as brainstorming, to motivate students to think creatively. This is an initiative to draw out innovative ideas from students, and active communication among teachers and learners, as well as among peer groups, creates a lively environment in the classroom. (D. Kalyani*, & K. Rajasekaran, n.d.) It is nothing but joyful learning.

AI has also provided interesting tasks related to data analysis. (Alexandara Harry, 2023) It also develops arithmetic reasoning and numerical ability among students. Another helpful technique for AI-enhanced activities is personalized feedback. If we use an artificial intelligence tool of feedback for feedback process, it becomes more effective because the data remains confidential, and analysis of qualitative data will be done accurately, and we find the exact conclusion, which will be helpful for our improvement. (Zhai et al., 2021)

Regular assessments of learning will be conducted on the educational campus. Teachers regularly assess AI's impact on the learning process. How is it useful for effective student understanding? According to student feedback, we should be aware of ongoing adjustments based on student outcomes and feedback.

As per the needs of students, a single teacher cannot focus on each student personally. This is time-consuming and not possible due to human limitations. AI can easily assign tasks to each student according to their ability. Generally, teaching is a classroom-oriented activity for normal students. However, in the process, slow learners, as well as those students who have low intelligence quotient, could not grasp the speed of the normal students' teaching. less in IQ students have repeated or extra teaching to understand the concept. Gifted students with high IQs will also become bored or weary in that situation. AI is an excellent tool to manage and satisfy all the students in the classroom by giving separate tasks or homework to each student.

Currently, machine learning AI integration in the educational process and online learning is strongly observed in society. AI is used for teaching, learning, evaluation, and other processes. It is beneficial for primary, secondary, and even higher education. But it is argued that AI will not, should not, and cannot replace the teacher. because Humanity, feelings, and motivation are not given by a machine, robot, or AI. (Yang et al., 2024) AI learning is especially responsible for enhancing personalized learning among students. AI Tools provide creative platforms that will be helpful for students, innovative ideas, experimental learning, design projects, and visualizing data indicatively. (Huang & Qiao, 2024)

An AI-driven platform supports enhancing STEM learning through interactive simulations, virtual labs, and coding programs. These tools are beneficial for a deeper understanding and engaging students. AI provides hands-on and experiential learning opportunities to prepare students to adapt to an upcoming technology-based era. (Meng et al., 2022) AI concrete customize educational content and resources, adapting to students' needs and learning styles from the data available to it. AI can help make educational resources more accessible by automatically translating, summarizing, or adapting content for diverse student populations. (Priten Shah, n.d.)

Students' assignments and practical's have been checked, reviewed, and graded using artificial intelligence. Teaching activities have improved by using efficient and effective feedback of students through AI.it has a very excellent potential impact on education. (Srinivasa et al., 2022)

The generative AI tool CHATGPT has extraordinary abilities, with its rapid advancement speed being renowned by millions of subscribers in a short time. This AI tool has personalized and interactive learning, which also generates prompts for assessment and collects feedback to improve the teaching and learning process. (David Baidoo-Anu & Leticia Owusu Ansah, 2023) AI was invented to explore programmed human-like intelligence in the field of education. It also has advanced cognitive skills, such as learning, adaptation, and decision-making competencies. It began with computer technology and progressed to online and web-based education, and now it performs instructional tasks autonomously or collaboratively with teachers. This enhances the overall quality of the instructor. It also improves the efficiency and speed of administrative work, such as evaluation and assessment. (Ashraf Alam, n.d.) AI increases the inclusion, equality, equity, and quality of learning in education, management, and pedagogy. Ethical AI in education offers interactive, personalized, and equitable



teaching and learning experiences. This eventually developed critical thinking, improved the engagement of students,' communication skills, and experiential learning, and advanced skills among learners. (Airaj, 2024)

Google's prompting guide is of great importance in education. Prompts help for effective communication, stimulate critical reflection, adapt to individual needs, and promote self-determination for the user. The use of proper and prompt education should enhance the learning process and provide more personalized and modified learning experiences for students. (A. Muñiz, 2023) The process of writing, refining, and optimizing prompts is called prompt engineering. This helps to evolve the high-quality desired output from AI. (Jiyeon Park, 2024)

Prompt engineering techniques are applicable in problem solving, critical thinking, interactive design, clarity, creativity, collaboration, digital literacy, and ethical judgments for the enhancement of educational outcomes. It is a technique useful for the enlistment of foundational approaches to advanced methods. (Wan Chong Choi & Chi in Chang, 2025)

If students use AI in their learning process. They should have the freedom of choice as a priority. They should be warned about the ethical use of AI (Hualiang Lin, n.d.) The introduction of AI into education has significantly changed traditional teaching methods. AI offers personalized learning and support for diverse educational requirements, including those of students with special needs.

Conclusion

Artificial Intelligence has introduced a new paradigm in education by transforming teaching, learning, and assessment. It empowers teachers, enhances student learning experiences, and streamlines educational management. However, effective integration requires ethical practices, continuous teacher training, and ongoing evaluation. AI will continue to shape the future of education, not by replacing teachers, but by empowering them to create more engaging, inclusive, and innovative learning environments.

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