

**THE USE OF ARTIFICIAL INTELLIGENCE IN MEDICAL EDUCATION AND SKILL LEARNING****Gulyamov Y.B.,  
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**Abstract:** The integration of Artificial Intelligence into medical education offers promising solutions to numerous challenges, particularly the need for substantial resources to effectively train students in competencies like communication, clinical reasoning, and procedural skills. AI tools offer scalable, low-resource alternatives that can help bridge these gaps.

**Keywords:** Artificial Intelligence, ChatGPT, medical-practical skills, generative language learning model, emergency medicine, procedure simulations.

**Introduction:**

The stethoscope and the scalpel have defined medical training for centuries, but a new tool is rapidly entering the medical student's toolkit: Artificial Intelligence (AI). The question is no longer if AI belongs in undergraduate medical education, but how it can revolutionize the acquisition of essential clinical-practical skills.

When ChatGPT was launched on November 30, 2022, it was considered an unprecedented technological revolution. The chatbot model was developed by OpenAI and attracted over one million users in just five days, generating widespread attention and discussion globally.

ChatGPT (Generative Pre-trained Transformer) is a large language model (LLM) based on the GPT-4 architecture. It operates using the logic of “big data + big computing power + algorithm = intelligent model,” allowing it to extract valuable information from massive text data. (8)

Through training, it can generate complex, humanized works and output answers and feedback in text form, thereby enabling multi-round human-computer dialogue using natural language.

Compared to conventional search engines and basic intelligent chatbots that offer mechanical responses solely based on keyword matches, ChatGPT breaks free from the limitations of existing indexing, retrieval, and sorting models. It does this by accurately understanding the semantic meaning and intent of questions, providing organized and coherent human-like feedback, and modifying answers based on user input. (6)

**Possibilities:**

By utilizing AI technology, educators can incorporate ChatGPT as a diversified teaching tool to achieve a more interesting and innovative teaching experience. Additionally, students can use ChatGPT for self-inquiry, further exploring knowledge points and helping to construct a truly intelligent educational system. Therefore, many voices support the application of this intelligent tool in education, citing several key benefits:

**Development of Personalized Learning Plans:** Generative AI illustrates its utility in medical education evaluations by analyzing each student's strengths and weaknesses to generate unique formative and summative assessments (11).

**Clinical reasoning:** Diagnostic and intervention decision-making requires iterative exposure to varied scenarios. Static case-based learning often fails to engage learners dynamically. GPT-4o generates interactive, context-rich cases tailored to learner actions, promoting experiential learning (5) and hypothetico-deductive reasoning (12).

**Procedural skills:** Skill acquisition in procedures relies on hands-on practice, detailed feedback, and in-person, one-on-one observation and assessment. GPT-4o's ability to produce realistic simulations and analyze video inputs offers scalable solutions for performance evaluation.

Creation of Learning Materials: Language models can analyze a student's performance and generate personalized learning materials that address specific areas of weakness—for example, providing additional resources or exercises if a student struggles with a particular medical concept (7).

Providing Real-time Feedback: By serving as a virtual teaching assistant, ChatGPT can be leveraged to provide students with instant and personalized feedback on their work (9).

Communication Skills Training: Several studies showcase innovative teaching methods using generative AI. For instance, Webb discussed the potential for generative AI to enhance communication skills for emergency medicine physicians, particularly for delivering difficult news. This is achieved by simulating patient reactions and dialogues during the disclosure of a new cancer diagnosis (10).

Clinical Image Generation for Learning: Text-to-picture AI systems are a developing and promising tool. By using images of 'non-existent people,' we can, with a clear conscience, provide visual material whose dissemination does not violate patient privacy (11).

Literature Review/Summarization: Medical researchers can use GLMs (Generative Language Models) to quickly scan and analyze vast amounts of medical literature, identifying relevant studies and summarizing their findings. This can significantly reduce time spent on literature reviews, allowing researchers to focus more on primary research work (13).

Global accessibility: Due to GPT-4o being cloud-based, it does not require costly infrastructure, making it accessible to both learners and educators in low-resource settings. This helps democratize medical education and training and results in a more even distribution of health care expertise globally (1).

### **Discussions:**

It is well known that revolutions bring new problems alongside their progress. As an AI technology, the application of ChatGPT in education has attracted the attention of scholars who express concerns about its feasibility and potential negative impacts.

Scholars such as Alshater point out that ChatGPT faces various challenges, including dependence on data quality, limitations on knowledge scope, exacerbation of ethical issues, and risks of technical dependence and misuse (2).

Others, like Baidoo-Anu, believe that the application of ChatGPT in education may lead to problems such as a lack of human communication, limited understanding ability, inaccurate training data, lack of innovation in student work, insufficient understanding of context, and privacy leakage (3).

### **Conclusion:**

Overall, AI has brought numerous benefits to the medical education field, promoting its transformation and equitable improvement. However, when promoting the application of AI in education, it is necessary to strengthen technical research, development, and management standards to ensure its safe and reliable use in educational practice.

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