

DOI: <https://dx.doi.org/10.18203/2319-2003.ijbcp20233203>

Letter to the Editor

Maximizing learning efficiency: exploring the impact of ChatGPT in pharmacology assessment for undergraduates

Sir,

Pharmacology, as a core discipline in healthcare education, plays a pivotal role in shaping competent and responsible healthcare professionals. The traditional methods of pharmacology assessment, such as written exams and multiple-choice questions, have long been the norm for evaluating students' understanding of drug interactions, mechanisms, and clinical applications. However, as technology continues to advance, integrating artificial intelligence (AI) into education has emerged as a transformative approach to enhance learning efficiency and improve student engagement.

ChatGPT is an AI language model, created by the San Francisco-based tech-company OpenAI that employs deep learning algorithms to engage in dynamic, real-time conversations with users.¹ Initially developed as a language model to generate human-like text responses, it has found applications beyond conversational chatbots, including education. The dynamic nature of the ChatGPT allows it to provide personalized and the interactive learning experiences, catering to individual student needs as well as the promoting active engagement in the learning process.

One of the most significant advantages of ChatGPT in pharmacology assessment is its ability to provide personalized learning experiences. Unlike static textbooks or pre-recorded lectures, ChatGPT engages with students in real-time, responding to their queries and addressing their doubts.² This interactive learning approach encourages students to actively participate in the learning process, promoting deeper understanding and critical thinking. For instance, students can inquire about drug interactions, mechanisms of action, or adverse effects, and ChatGPT can respond with detailed explanations, fostering a two-way educational dialogue.

Pharmacology is not solely about memorizing facts; it requires the application of knowledge in real-world scenarios. ChatGPT's capacity to simulate clinical cases with complex drug interactions allows students to apply their theoretical knowledge in practical situations.³ By presenting case-based questions involving multiple medications, students can develop their clinical reasoning skills, analyse drug interactions, and propose appropriate management strategies. This case-based learning approach bridges the gap between theory and practice, preparing

Students for the challenges they may encounter in their future healthcare careers.

Assessment is an integral part of the learning process, providing students with feedback to gauge their progress and identify areas of improvement. ChatGPT's real-time feedback capabilities enable students to receive immediate responses to their answers and explanations of correct solutions.⁴ This instant feedback helps reinforce learning, allowing students to rectify misconceptions promptly. Educators can also use ChatGPT to track students' progress and assess their understanding of pharmacological concepts, aiding in targeted interventions and personalized support.

Pharmacology is a rapidly evolving field, with new drug discoveries and treatment modalities continually emerging. ChatGPT can be regularly updated with the latest pharmacological information, ensuring that students have access to current and evidence-based knowledge.⁵ This adaptability allows students to stay abreast of advancements in pharmacology, fostering a culture of lifelong learning, a critical attribute for future healthcare professionals.

While integrating AI-driven assessment tools like ChatGPT is promising, it is essential to consider ethical implications carefully. Educators must ensure that the use of AI complements traditional evaluation methods and upholds the principles of fairness, transparency, and accountability. Moreover, ethical considerations extend to the responsible use of technology to preserve the integrity and reliability of the assessment process.

It is essential to recognize that ChatGPT should not replace traditional teaching methods but rather complement them. While AI can enhance learning efficiency and student engagement, it cannot replace the unique insights and guidance provided by educators. A balanced approach that combines the strengths of AI-driven assessment with face-to-face interactions and practical experiences can create a well-rounded educational environment.⁶

The integration of ChatGPT in pharmacology assessment for undergraduate students holds tremendous potential to maximize learning efficiency and enrich the educational experience. By providing personalized, interactive, and case-based learning opportunities, ChatGPT empowers students with the knowledge and skills needed for competent and patient-centered pharmacological practice.

Ethical considerations play a crucial role in AI-driven assessment, emphasizing the responsible and balanced use of technology to augment traditional teaching approaches.

In conclusion, ChatGPT is an invaluable tool that has the potential to reshape pharmacology education, optimizing learning efficiency, and empowering students to become proficient and compassionate healthcare professionals.

Sabahat Hasan*

Department of Pharmacology, MLN Medical College,
Prayagraj, Uttar Pradesh, India

***Correspondence to**

Dr. Sabahat Hasan,
E-mail: drshs2019@gmail.com

REFERENCES

1. ChatGPT. Available at: <https://openai.com/chatgpt>. Accessed on 25 August, 2023.
2. Tsang R. Practical Applications of ChatGPT in

- Undergraduate Medical Education. *J Med Educ Curric Dev.* 2023;10:238212052311784.
3. Juhi A, Pipil N, Santra S, Mondal S, Behera JK, Mondal H. The Capability of ChatGPT in Predicting and Explaining Common Drug-Drug Interactions. *Cureus.* 2023;15(3):1-7.
4. Ali K, Barhom N, Marino T, Duggal M. The Thrills and Chills of ChatGPT: Implications for Assessments of Undergraduate Dental Students. 2023;(2).
5. Nisar S, Aslam MS. Is ChatGPT a Good Tool for T&CM Students in Studying Pharmacology? *SSRN Electron J.* 2023;1-16.
6. Lo CK. What Is the Impact of ChatGPT on Education? A Rapid Review of the Literature. *Educ Sci.* 2023;13(410).

Cite this article as: Hasan S. Maximizing learning efficiency: exploring the impact of ChatGPT in pharmacology assessment for undergraduates. *Int J Basic Clin Pharmacol* 2023;12:879-80.