



Embracing Artificial Intelligence and Safe Use of ChatBots in Academia

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Abstract

Chatbots are computer programs that simulating human conversation using natural language, leveraging online information within its domain. The introduction of Artificial Intelligence (AI) chatbots, notably ChatGPT by OpenAI, to academia has sparked varied reactions and experiences. While these tools expedite text generation through deep learning, concerns have led some countries to restrict their use in schools, highlighting potential setbacks within their intended user base.

There's a misconception in academia regarding chatbots' potential, fostering "intellectual laziness" among students and staff. Over-reliance on chatbots for tasks without critical consultation could impede critical thinking development. Ethical concerns arise as chatbots may perpetuate biases in training data, affecting educational content fairness.

ChatGPT finds applications in academia like essay writing, question generation, paraphrasing, and presentation structuring. However, caution is needed to prevent intellectual passivity and maintain critical thinking. Personalization, collaboration, assessment, and feedback are notable benefits, yet educators' central role in fostering skills remains vital.

AI chatbots complement traditional teaching methods, enhancing education's dynamic landscape. Embracing these technologies ethically can advance teaching, learning, and research while safeguarding academic integrity. Healthcare professionals must balance technological integration with nurturing critical reasoning skills, recognizing AI's support without replacing human engagement.

Keywords: AI Chatbots; ChatGPT; Academia; Critical thinking

Tam et al. (2023) defined a chatbot as a computer program that simulates normal human conversation using natural language and leverages online information or input within its domain. The recent introduction of artificial intelligence (AI) chatbots,

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especially the Chat Generative Pre-trained Transformer commonly known as ChatGPT developed by OpenAI, to students and faculty in academia has sparked diverse reactions and yielded a range of experiences. While this resource expedites the generation of substantial and precise text through its deep learning capabilities, its benefits have been accompanied by concerns, leading certain countries like Australia and Italy to impose restrictions on its use within schools (Pollicino & Gregorio, 2023; Ray, 2023). It is intriguing how a tool with such potential could encounter setbacks within its intended user base.

One could argue that within academia, there is a misconception about the potential of these resources due to fear of the unknown, potentially fostering "intellectual laziness" among both students and staff (Choi et al., 2023). An essential point highlighted by Choi et al. (2023) and the current author is that over-reliance on chatbots for tasks like essay generation and formulating objectives, without critically consulting textbooks, journal articles, or domain experts, could impede the development of critical thinking and application skills.

Furthermore, the ethical implications of AI chatbots in academia deserve closer examination. These chatbots can inadvertently perpetuate biases present in the training data (Farrokhnia et al. 2023) such as providing two different answers to the same question prompts, potentially reinforcing existing inequalities in educational content. Addressing bias and ensuring fairness in the generated content is crucial for promoting equitable educational outcomes.

Similarly, educators who delegate tasks such as manuscript preparation, lecture notes, and seminar development to chatbots might inadvertently dilute their skills and risk becoming overly dependent on AI, missing out on addressing aspects beyond the AI's comprehension. McGrath et al. (2023) underscore how universities often lag in adopting new technologies that could enhance teaching and learning practices. Nevertheless, considering the evolving landscape, AI is poised to become an integral part of various human interactions, academia included. Rather than identifying the incongruities of these tools within academia, the focus should shift towards identifying responsible methods of integrating them into educational practices.

The leading and prevalent chatbot in the field today is ChatGPT. While its capabilities continue to evolve, it finds frequent application in academia, including:

- ✧ **Essay Writing:** ChatGPT can rapidly generate extensive, intelligent text based on prompts. However, it's important to note that the generated text might lack proper citations, making it unsuitable for scholarly writing (Tam et al., 2023). While it can aid in producing lecture notes, overreliance on it for academic writing could foster intellectual passivity, devoid of critical thinking and originality.

- ✧ **Question Generation:** ChatGPT excels in producing multiple-choice questions (MCQs) and their answers at a remarkable pace. Users must exercise caution, though, as the answers provided might be incorrect (McCarthy et al., 2023; Tam et al., 2023). To ensure accuracy, users should either ask the chatbot to validate each answer or personally review them.
- ✧ **Paraphrasing:** Students and researchers can employ ChatGPT to paraphrase self-generated essays, enhancing language and coherence. However, ethical considerations come into play when submitted work includes citations (Choi et al., 2023). Overreliance on ChatGPT could potentially erode perceptual, critical thinking, and reasoning skills, necessitating controlled and judicious utilization to safeguard these essential attributes (Li & Little, 2023).
- ✧ **Presentation Structure:** Although both students and staff are increasingly using chatbots to structure presentations, the AI's algorithm might not adequately capture specialized subject areas. Consequently, this tool should be used cautiously and not overly depended upon. Users should corroborate structures with reliable evidence from published sources like textbooks and journal articles.
- ✧ **Ethical Concerns and Bias:** The ethical implications of AI chatbots in academia deserve further exploration. These chatbots can inadvertently reinforce biases present in their training data, potentially perpetuating existing inequalities in educational content. Addressing bias and ensuring fairness in the generated content is crucial for equitable educational outcomes.
- ✧ **Personalization and Customization:** AI chatbots have the potential to provide personalized and customized learning experiences for students (Cain et al., 2023; McCarthy et al., 2023). By adapting content to individual learning styles and preferences, these tools could enhance student engagement and comprehension.
- ✧ **Collaborative Learning:** Chatbots could facilitate group discussions through their sharing options of log of conversations, peer reviews, and collaborative projects, fostering teamwork and communication skills among students and staff.
- ✧ **Assessment and Feedback:** AI chatbots can play a role in providing timely feedback on assignments, quizzes, and tests. This could alleviate the workload on educators and allow for quicker feedback loops, enhancing the learning process. Though this capability might be laudable, the quality and depth of the feedback should be taken with caution and thus followed up with expert review to avoid bias.
- ✧ **Integration with Traditional Teaching Methods:** While AI chatbots offer innovative approaches, discussing how they can complement and enhance

traditional teaching methods, such as lectures and hands-on activities, would provide a more comprehensive view of their role in academia.

- ✧ **Long-Term Impact on Educators:** While chatbots can assist with certain tasks, educators remain central to fostering critical thinking, mentoring, and guiding students through complex subjects.
- ✧ **Adaptation to Changing Educational Landscape:** One can argue unequivocally that the educational landscape is ever-changing both in teaching and learning. Technologies like *immersion* and chatbots have shown this in recent times. Integrating both traditional teaching and learning practices will ultimately improve these processes in education. In addition, these technologies can extend beyond formal education settings, supporting lifelong learning and continuing education initiatives.
- ✧ **Academic Integrity and Plagiarism Detection:** One function that has not been fully explored might be the AI chatbot's ability to detect plagiarism and promote academic integrity by cross-referencing generated content with existing sources. Currently, ChatGPT 3.5 is freely available based on a subscription, unlike most plagiarism check tools. This might come in very handy for a not-too-in-depth check of essays by students thereby ensuring academic integrity. In terms of information safety, one can argue that it is important for the user to have background information from other sources or be willing to verify data from other sources. Nonetheless, it is important to have a national policy on the use of Artificial intelligence both within and outside the education realm as it exists in other countries (Pollicino & Gregorio, 2023; Ray, 2023). This will guard against false information uploaded by developers and also curtail the extent of its use by consumers.

Artificial intelligence Chatbots like ChatGPT have come to stay, and neglecting/avoiding them in academia could hinder progress. Farrokhnia et al. (2023) published a paper on the SWOT analysis of ChatGPT in the educational and research arena. Though most of the strengths in their analysis mirror what is contained in this write-up, however, these types of technologies are not without their negative impacts if not adequately checkmated. These might include intellectual laziness, decreased critical thinking, over-reliance on AI, use of incorrect/false evidence provided by AI, etc.

Notwithstanding, it is important to recognize what opportunities they might offer and safely and ethically utilize/embrace such to advance teaching, learning, and research. Professionals in fields like healthcare must continue nurturing their perceptual and critical reasoning skills alongside the use of such technologies, as they may not fully replace human engagement in these domains.

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