Generative AI in education: To embrace it or not?

Samuel Ariyo Okaiyeto[1], Junwen Bai[2], Hongwei Xiao[1*]

(1. *College of Engineering, China Agricultural University, Beijing 100083, China;*
2. *School of Food and Biological Engineering, Jiangsu University, Zhenjiang 212013, China*)

Generative Artificial Intelligence (AI) has gained immense popularity, but it has also brought forth new challenges and concerns in academia. One major worry is AI-assisted cheating, where students use Generative AI to complete assignments and exams, leading to some U.S. schools banning its usage on campus[1]. However, the developers of ChatGPT, OpenAI, assured the public that they never intended ChatGPT to be used deceitfully in schools or elsewhere. They are already working on mitigations to make it easier for anyone to recognize text produced by that system[2]. Open AI went ahead to state that they were looking forward to working with educators on practical solutions, and other ways to help teachers and students benefit from AI[1].

Recently, the Russell Group, a consortium of 24 leading UK universities, including prestigious institutions like Oxford, Cambridge, and Birmingham, published new principles for the responsible use of generative AI tools on campus[3]. These guiding principles were to ensure that students and staff are well-versed in AI amidst the growing use of generative AI. The goal is to embrace the opportunities that AI presents while upholding academic standards and integrity. Rather than imposing outright bans, these universities will focus on educating students on proper AI usage in their studies, while also raising awareness about potential risks of plagiarism, bias, and inaccuracies associated with generative AI. There is a need to strike a balance between addressing potential risks, such as cheating and plagiarism in academia, and harnessing the benefits of generative AI to improve productivity and promote equitable outcomes in professional settings. The adoption of guiding principles by UK universities further reflects a shift towards finding a responsible approach to integrating generative AI in educational environments.

Recently, Noy and Zhang[4] from MIT conducted an experiment using college-educated professionals to assess the productivity effects of generative AI technology, specifically ChatGPT to carry out a mid-level professional writing task. Results showed that ChatGPT users were more effective, efficient, and enthusiastic about their writing tasks. Interestingly, ChatGPT had the most significant benefits for participants with lower skill levels, suggesting that AI could potentially help bridge productivity gaps and reduce productivity inequality. According to the study, the generative writing tool improved the output of workers with lower abilities and decreased the amount of time that workers of all abilities spent on tasks. This research has policy implications for the broader implementation of AI in various fields and highlights the importance of properly generative AI technologies in education and workplaces to maximize their positive impacts while addressing potential challenges. The significant increase in productivity due to Generative AI adoption, as seen in Noy and Zhang's study, can lead to potential disruptions in the academic job market. Some mid-level professional writing positions may become obsolete or require different skill sets, impacting graduates' employability. Universities should collaborate with industries to identify emerging trends and offer programs that prepare students for the changing job landscape.

Generative AI is a product of human historical development and evolution. It represents the culmination of humanity's efforts to create intelligent machines, improve communication, and push the boundaries of technology. Understanding Generative AI's role in the broader context of human history helps us appreciate both the possibilities and the challenges that lie ahead as we move further into the age of artificial intelligence. From the university's point of view, the findings on the productivity effects of generative AI technology like ChatGPT in the context of mid-level professional writing tasks raise both opportunities and challenges. As AI technologies like ChatGPT become more prevalent in professional settings, universities may face challenges in ensuring that their writing and communication curricula remain relevant and up-to-date. There is a need to continuously evaluate and update course content to equip students with skills that complement AI rather than being replaced by it. The use of Generative AI in professional writing tasks also raises ethical considerations related to attribution, plagiarism, and the potential for AI-generated content to be presented as original work. Therefore, universities need to promote and enforce academic integrity policies that address these concerns and educate students about responsible AI use.

To adequately prepare students for the future, universities should incorporate AI-related coursework and workshops into relevant disciplines, including writing and communication programs. This approach will help students develop an understanding of Generative AI s capabilities, limitations, and ethical considerations in professional contexts. While Generative AI can enhance productivity, it is crucial to emphasize human skills like critical thinking, creativity, and problem-solving through project-based learning and interdisciplinary approaches to foster well-rounded graduates. Additionally, mandatory courses or modules focused on AI ethics and responsible AI use should be introduced to ensure that students are aware of the ethical implications of generative AI, like ChatGPT, in both the workplace and academia, thereby better equipping them to navigate these challenges.

Within the first few years of introducing new technology, there is often a lot of excitement and hype surrounding its potential. People tend to overestimate its immediate impact, believing that it will revolutionize various aspects of society and bring about rapid change. However, during this early stage, the technology may still be in its early development phase, and it may face a series of challenges and limitations that could prevent it from reaching its full potential. This pattern can be observed in various technologies throughout history, such as the internet, mobile phones, and others. It is essential to consider this hype cycle when evaluating the potential impact of emerging technologies such as generative AI and to maintain a balanced perspective on their development and adoption. Therefore, universities should actively encourage research on the impact of Generative AI on education, the workforce, and society based on historical perspectives in order to provide the foundation for evidence-based policy-making and enable universities to adapt to the changing landscape effectively. We hope that universities can proactively prepare their students for a future where AI technologies like ChatGPT play an integral role in the workplace, and the graduates remain competitive and adaptable in the evolving job market.

Citation: Okaiyeto S A, Bai J W, Xiao H W. Generative AI in education: To embrace it or not? Int J Agric & Biol Eng, 2023; 16(3): 285–286.

[References]

[1] Korn J, Kelly S. New York City public schools ban access to AI tool that could help students cheat. http://stylemagazine.com/news/2023/ jan/05/ new-york-city-public-schools-ban-access-ai-tool-co/.   Accessed   on [2023-01-05]

[2] Jungwirth D, Haluza D. Artificial Intelligence and the Sustainable Development Goals: An Exploratory Study in the Context of the Society Domain Journal of Software Engineering and Applications, 2023; 16(4): 91–112. doi: 10.4236/jsea.2023.164006.

[3] Sally W. UK universities draw up guiding principles on generative AI. https://www.theguardian.com/technology/2023/jul/04/uk-universities-draw-up-guiding-principles-on-generative-ai. Accessed on [2023-05-04]

[4] Noy S, Zhang W. Experimental evidence on the productivity effects of generative artificial intelligence. Science, 2023; 381: 187-192. doi: 10.1126/science.adh2586.