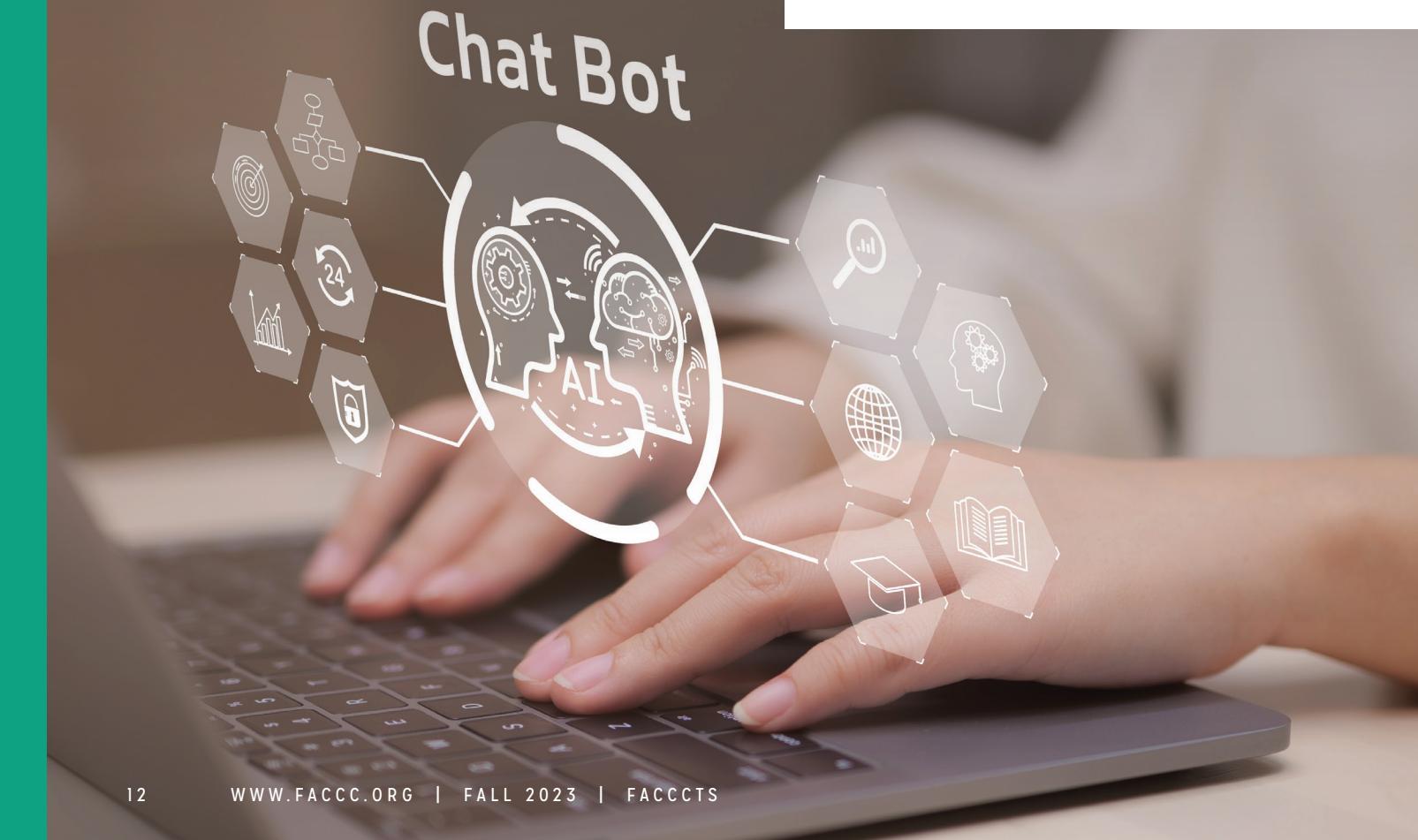


# The AI Revolution: ChatGPT's Influence on Education and Integrity

by David E. Balch, PhD,  
Professor, Rio Hondo College

## Abstract

This article highlights the history and development of chatbots and artificial intelligence (AI), as well as potential positive and negative applications of ChatGPT in academia.



While some academics see ChatGPT as a potential avenue for diminishing critical thinking and ingenuity, others see it as a tool for brainstorming and creating first drafts. This article delves into the prospect of misuse and counterfeit scholarly articles, alongside recommendations for educators, such as using ChatGPT as a supplement and not a replacement for critical thinking, promoting digital literacy, and emphasizing the importance of human engagement and creativity in the writing process. In essence, the article stresses the importance of embracing emerging technologies like ChatGPT while also considering their potential impact on education and academic integrity.

ChatGPT, released in December 2022, is a computer program that simulates and processes human conversations, both written and oral. It is the result of a series of developments in chatbots, or chatter robots. Chatbots have been around since the 1950s, when they were created as a response to the Turing test, which questioned if a machine could engage in a conversation with a human without detection as a machine. The first chatbot, ELIZA, was created in 1966 to mimic a conversation with a psychotherapist. Today, the field of chatbot development is rapidly evolving with new chatbots being created regularly, compared to just the one 57 years ago.

## The Development

ChatGPT marks a notable advancement in AI-driven writing, showcasing a broader spectrum of capabilities compared to

alternative AI systems such as predictive text applications. Although both predictive text programs and ChatGPT harness the power of machine learning, the construction of ChatGPT entails a multi-stage journey of machine learning and refinement. However, the quality of input remains a crucial issue as the output can only be as good as the data it is trained on. One major concern in the use of artificial intelligence programs is "hallucinating," or making up facts. In one study by Arthur AI, a platform that monitors the productivity of machine-learning models, GPT-4 performed the best of all the models tested. The debate over misinformation by AI programs is more debated than the 2024 U.S. presidential election.

The principle of GIGO, "garbage in, garbage out," still applies to AI-generated writing, highlighting the importance of ensuring high-quality input data.

## The Impact

ChatGPT has both positive and negative impacts on education. Some educators view it as a danger to the full spectrum of learning, arguing that students will not develop the necessary skills for original ideas and critical thinking. Others see it as a useful tool for brainstorming, overcoming writer's block, and creating first drafts. Furthermore, they believe that incorporating these technologies into education is necessary to prepare students for a world where they are commonplace. Regardless of personal views, it is essential for academics to acknowledge the impact of ChatGPT, including other AI programs, and not ignore its presence in education.

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## Potential Abuse

The concern over the potential misuse of ChatGPT is significant, as demonstrated in an instance in which a research paper authored by ChatGPT successfully passed peer review as if it had been written by a person. Academic journals, like *Springer-Nature*, are implementing policies that do not allow the use of ChatGPT (or other AI programs) to be listed as an author. Additionally, ChatGPT has demonstrated its ability to create academic abstracts that achieve peer review acceptance, even when reviewers are informed that some of these abstracts are fabricated.

While programs can reduce proofreading drudgery, ChatGPT produces texts that students might submit, and recent studies have shown that it can fool scientists nearly one-third of the time. However, AI detection tools like the GPT-2 Output Detector have proven effective in distinguishing between authentic and ChatGPT-generated text.

The discourse surrounding the use of AI-generated writing in academia is still in its early stages, and educators should not only coexist with this innovation but also integrate it into their teaching methods. In 2023, *The Chronicle of Higher Education* reported on the outcome of a virtual forum attended by 1,600 people on how ChatGPT affects education, with recommendations including communicating with students, being cautious about detection tools, using other methods to bolster academic integrity, utilizing ChatGPT as an educational aid, emphasizing the importance of digital literacy skills and, most importantly, starting a conversation on campuses or in disciplines about the use of AI-generated writing.

At the global scale, UNESCO has adopted a position regarding AI. As highlighted in a recent report titled *Generative Artificial Intelligence in Education: Exploring Opportunities and Challenges*, it's evident that AI is exerting transformative influence on the world. In response, educational institutions must reconsider their approaches to learning,

aiming to equip students with essential skills like critical thinking, creativity, collaboration, and a sound understanding of ethical AI. Adapting educational paradigms to the AI era becomes imperative in ensuring that students are suitably prepared for what lies ahead.

## Applications

The release of ChatGPT in December 2022 has revolutionized how we interact and record information. While AI has exerted beneficial as well as detrimental effects on the educational process, educators must integrate this technology into their teaching methods.

ChatGPT serves as a versatile instrument, facilitating brainstorming, aiding in writing and research, fostering digital literacy, and upholding academic integrity. Nevertheless, it also carries potential drawbacks, including the risk of diminishing critical thinking and creativity, susceptibility to misuse, and an excessive dependence on technology.

To transform these negatives into positives, educators have the opportunity to promote the utilization of AI-generated writing tools as supplementary aids. They can establish guidelines that prohibit the incorporation of AI-generated content in academic research or publications, provide instruction on discerning the reliability of information produced by AI, underscore the importance of human involvement and innovation in research and writing, and encourage the use of technology to be viewed as a tool, but not a replacement, for human abilities. ■

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