

## The Rise of ChatGPT and Generative Artificial Intelligence: A Challenge to Academic Integrity?

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### Abstract

The advent of ChatGPT, developed by OpenAI, has generated considerable public concern regarding generative artificial intelligence (Gen AI) systems and their potential implications for academic integrity. This paper aims to provide a comprehensive review of current discussions concerning ChatGPT and academic integrity, concluding that the deployment of ChatGPT and other similar generative artificial intelligence systems may compromise academic integrity. In light of this, effectively mitigating threats to academic integrity necessitates greater institutional-level efforts and multi-stakeholder collaboration.

### Full Text

## The Rise of ChatGPT and Generative Artificial Intelligence: A Challenge to Academic Integrity?

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### Abstract

With the introduction of ChatGPT developed by OpenAI, the public has shown great concern about generative artificial intelligence (Gen AI) systems and their potential impact on academic integrity. This paper aims to review the current discussions on ChatGPT and academic integrity, and concludes that the application of ChatGPT and other similar generative AI systems may damage academic integrity. Given this, greater efforts at the institutional level and collaboration among multiple stakeholders are needed to effectively mitigate the threats to academic integrity.

**Keywords:** ChatGPT; Large Language Models; OpenAI; Academic Integrity; Generative Artificial Intelligence

## Introduction

The emergence of OpenAI’s ChatGPT has attracted significant public attention regarding generative artificial intelligence (Gen AI) systems and their potential implications for academic integrity. Generative AI systems are designed to produce content—such as text, images, audio, simulations, video, and code—from their training data. Although ChatGPT is neither the first generative AI system ever developed nor OpenAI’s first, it represents a breakthrough in generative AI technology [1]. Concerns about academic integrity have been raised across many academic fields. Given the existence of numerous AI text/content generators with varying capabilities, the question arises: why has ChatGPT garnered such intense attention?

To gain clearer perspective, we must first understand what ChatGPT is. ChatGPT is a large language model (LLM) that uses deep learning to generate natural language responses to user queries. Released on November 30, 2022, it represents OpenAI’s latest iteration of a large language model capable of “intelligent” conversation. It is part of the Generative Pre-trained Transformer (GPT) model family developed by the California-based company. Prior versions include GPT-1 (released in 2018), GPT-2, and GPT-3. In 2021, OpenAI released DALL·E 2, a second-generation AI system that generates images from text. However, ChatGPT differs from previous models in several important ways. Most significantly, unlike GPT-3, which was designed to perform a broad range of natural language processing (NLP) tasks—such as language translation, text summarization, and question answering, as well as generating creative writing (like poetry or fiction) and high-quality long or short-form text (such as blog posts)—ChatGPT is built upon the GPT-3 language model with unique use cases, including conversational responses, explanations of complex questions, concepts or topics, and generation of new code or debugging of existing code. Overall, ChatGPT has more application scenarios than GPT-3, and like many other technologies, it possesses logical extensibility, meaning it can be fine-tuned for various language tasks. Its capabilities have been praised by supporters as quite remarkable, described as advanced, efficient, and still learning. Furthermore, unlike many AI-driven content generators, it is free for all users.

ChatGPT’s inherent capabilities have been demonstrated in reports showing its successful passage of law school exams [2] and MBA exams [3].

However, critics note that as a large language model, ChatGPT is not particularly innovative or revolutionary, as similar systems have been developed in the past. Others observe that while the system’s text is fluent and persuasive, it still lacks genuine understanding of the complexities of human language and conversation. To be fair to the developers, certain limitations have been made explicit to users: it occasionally produces incorrect information, generates harmful instructions or biased content, and has limited knowledge based on its training data. Among the many issues raised by ChatGPT, this commentary focuses specifically on whether it undermines academic integrity. This paper

also proposes recommendations for how academia can actively respond to the challenges posed by ChatGPT and generative AI systems.

## 2. The Challenge to Academic Integrity?

In academic circles, ChatGPT has proven effective at responding to common undergraduate and graduate student inquiries, including those requiring programming skills. However, a widespread concern exists that students and researchers may be inclined to delegate their writing tasks to ChatGPT. Based on its responses to early university-level essay questions, educators should reconsider the future of essays as an assessment method.

The International Center for Academic Integrity (2021), in its third edition of *The Fundamental Values of Academic Integrity* [4], explicitly states that academic integrity requires individuals to uphold six core values: honesty, trust, fairness, respect, responsibility, and courage. Therefore, any act of using automated text generation tools like ChatGPT to produce essays or other texts and misrepresenting them as original work constitutes a violation of the fundamental principles of academic integrity. ChatGPT raises concerns similar to well-documented commercial “contract cheating” in higher education [5], with the only distinction being that ChatGPT is free and easily accessible to all users. It also provides users with interactive opportunities, allowing them to adjust their queries to understand variations in generated content. This means it is possible to generate different texts or articles from which users can select the best. A critical question is whether using ChatGPT for academic papers or assignments constitutes “intellectual property infringement” in the moral sense of plagiarism. When ChatGPT is treated as original work, whose intellectual property is violated? Who is harmed by this action? While using ChatGPT without proper citation violates the fundamental values of academic integrity, the entire plagiarism debate is more complex.

The hype surrounding ChatGPT and its actual capabilities may shock or excite academics. The concern in academia extends beyond whether the technology is good or bad. ChatGPT has become synonymous with disruptive technology. This innovation promises to fundamentally transform the basic theoretical and cognitive frameworks of academia, science, and education. This foreshadows that the intellectual community will have to re-examine the nature of knowledge and how it is acquired. The consequent challenge is how to ensure this technology is integrated and utilized effectively, safely, and responsibly. The focus of this commentary is not to discuss whether ChatGPT is a morally neutral technology or part of standard moral order. This does not mean that ChatGPT does not raise other ethical issues beyond academic integrity, or that these concerns are irrelevant. Numerous ethical issues surrounding large language models have been identified in the literature [6]. Significant concerns have been raised about the human cost of building ChatGPT. Although this paper does not focus on that, based on current understanding of this emerging technology, its potential applications may pose serious threats to academic integrity. This raises a

critical question: how should academia respond to this challenge?

### 3. What Can Academia Do?

In the academic realm, researchers need to attend to numerous considerations, including not only exploring the potential opportunities presented by large language models like ChatGPT but also addressing the challenges they may bring. Researchers must master how to efficiently leverage the advantages these technologies offer while simultaneously mitigating their potential negative impacts on academic integrity.

**3.1. Considering Opportunities and Challenges of ChatGPT in Academia** Academia needs to take ChatGPT seriously. The academic community is a comprehensive environment dedicated to advancing research, education, and scholarly inquiry, encompassing higher education institutions, research centers, academic journal publishers, and funding agencies. Generative AI technologies like ChatGPT, along with other similar intelligent systems, are leading a major technological revolution. Academia must adapt to and integrate this transformation. Simply banning, rejecting, or denying the existence of these technologies is not a viable long-term strategy. This is a technology that offers opportunities for teaching, research, and innovation. Using ChatGPT as an auxiliary tool for academic research can significantly improve work efficiency and save considerable time. The tool's applications in education are broad, including but not limited to curriculum design, learning task development and assignment, academic writing assistance, and creative idea stimulation. ChatGPT's intervention can enhance teaching quality for instructors and enrich learning experiences for students. Moreover, its potential in academic research should not be underestimated, as it can help improve research methods and processes. For example, it can quickly and easily generate data for many types of research. Additionally, the tool can serve as an analytical instrument to assist in writing scientific research reports.

In academia, ensuring the responsible use of AI tools like ChatGPT is an increasingly important issue. In particular, we must be vigilant against potential misuse that could pose serious threats to academic integrity.

First, in the academic domain, properly citing others' research is key to maintaining academic integrity. Nevertheless, the correct use of some academic tools has not yet been covered by the integrity policies of academic institutions and publishers. Meanwhile, many members of the academic community—researchers, educators, and students—still know little about how to effectively utilize these tools and how to operate them responsibly. Therefore, providing education and training becomes crucial. Relevant institutions need to provide training for instructors and students on the different application scenarios of ChatGPT. Instructors who expect to identify the use of academic dishonesty tools should first understand how these tools work.

Second, no unified and responsible method for citing ChatGPT has been established. Many research papers list ChatGPT as an author [7]. However, *Nature* and *Science* do not permit large language models to be recognized as authors. The current lack of guidance on how users should cite ChatGPT raises many concerns.

Third, in the academic field, there is not yet a fully tested, validated, and recognized mechanism for identifying improper applications of AI text generation technology. Consequently, in an environment lacking effective oversight, it remains relatively convenient to mistakenly submit text generated by AI tools like ChatGPT as original content. To address this challenge, OpenAI has developed a free tool trained to distinguish AI-written text from human-written text (an AI text classifier). Unfortunately, OpenAI describes it as an “imperfect tool” and warns that it should not be used as a primary decision-making instrument. Academic institutions and publishers remain uncertain whether to use OpenAI’s imperfect tool or develop better ones.

**3.2. Considering Feasible Steps for Responsible Use of ChatGPT and Other Generative AI Systems in Academia** Responsibly using generative AI technology in academia is crucial, with the key being how to balance its advantages against potential risks to academic integrity. The primary task should be to clearly define that using AI-generated text in academic work without explicit attribution should be considered academic misconduct. Although this is implied in current academic integrity policies, there is a need to make clearer to instructors, students, and potential authors which values are violated when AI-generated text is used as original work. Furthermore, ChatGPT and other AI text generators can be integrated into academic activities ranging from assessment and research to teaching. Academia still knows little about these methods. Generative AI systems are reshaping the world landscape that students experience. Therefore, academic institutions have a responsibility to prepare students for a world where large language models are effectively transforming society.

Furthermore, if universities wish to maintain their existing assessment systems based on written assignments, there is an urgent need to develop effective software to identify AI-written content. However, designing such a tool and incorporating it into effective, reliable assessment methods will require substantial funding and acquisition of support from OpenAI or other creators of these language models. Development may also take time, while AI-generated text may already have become part of academic assessment. On the other hand, this may be an opportunity to reconsider the future of essay writing as an assessment form. Some scholars have proposed that the assessment system needs thorough reform, shifting focus away from merely the final written product and placing greater emphasis on critical thinking skills demonstrated during the writing process. Teaching students to become good writers is important, but isn’t understanding the process more important than completing the work? Integrating AI tools like ChatGPT into student critical thinking and writing training is a

strategy worth considering. If essays are absolutely necessary, defenses could be used more as a supplement for better assessment.

This is not an issue limited to academic papers and students. This situation also risks occurring in broader academic activities: journal articles, conference papers, research reports, online blog posts, dissertations, and books. However, one viewpoint suggests that the system can allow people to leverage their strengths and improve the quality of academic output. Despite its various limitations and flaws, ChatGPT can be an effective learning partner. For example, it can generate great ideas and text that users can then refine. It is not an authoritative academic voice, nor is it 100% accurate, but it can be an excellent academic assistant. Therefore, designing citation methods for ChatGPT usage is a necessary condition for ensuring its responsible use in academia. For users who wish to maintain academic integrity principles before technological tools for identifying cheating are developed, citing ChatGPT may involve including the date of content generation, the prompt used for content generation, and limiting direct quotation use to within one paragraph.

Moreover, ChatGPT's ability to write or correct code requires reimagining technical coding assessment. To date, it has proven capable of writing functional code with custom prompts, which can help students answer basic data structure and algorithm questions. Therefore, using defense as part of assessment should not merely be supplementary but should be a primary component of evaluation. This would provide opportunities to test students' mastery of code and its functionality.

The ways in which ChatGPT and other AI text generators are used can undermine academic integrity, but they also have the power to transform academia completely. Everyone has a responsibility to minimize their risks to academic integrity to the greatest extent possible. This process requires active participation and collaboration among numerous stakeholders, including but not limited to technology R&D experts, decision-makers in higher education institutions, academic publishers, educators such as professors and lecturers, and learners such as students. Academic writing, essay assignments, and technical coding assessment may not be dead yet, but it is time to reimagine key changes to ensure sustainable integrity in academia.

In summary, academic institutions need to do many things:

- Accept ChatGPT as an important component of education and research.
- Establish ChatGPT training for instructors and students and ensure responsible use. Providing necessary support and resources to faculty and staff can help reduce potential risks to academic integrity.
- Review academic integrity policies and make necessary changes to reflect current AI trends and possibilities.
- Collaborate with relevant institutions (including but not limited to journal editors and publishers) to jointly create effective ways to cite the use of ChatGPT and other AI tools in academic texts.
- Commit to developing cost-effective and trustworthy tools to identify dishonest use of AI tools in global academia.

Finally, OpenAI and other large language model creators should be willing to collaborate with academia on the responsible use of AI-driven text generators in academic settings. OpenAI's initiative to develop an "imperfect" detector is a welcome development but insufficient to address academic integrity issues. The company's current collaboration with American educators is also commendable. However, this engagement should be expanded to include stakeholders from academia in other parts of the world, particularly those from low- and middle-income countries. Maintaining academic integrity requires collaborative efforts from all parties to design effective strategies to safeguard scholarly integrity. This may include redefining what constitutes academic achievement and impact, and developing new methods to measure them.

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