ChatGPT and the rise of generative AI: Threat to academic integrity?

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ARTICLE INFO

ABSTRACT

The emergence of OpenAI's ChatGPT has put intense spotlight on Generative AI (Gen-AI) systems and their possible impacts on Academic integrity. This paper provides an overview of the current arguments around ChatGPT and Academic integrity and concludes that although these technologies are capable of revolutionising academia, the way ChatGPT and other generative AI systems are used could surely undermine academic integrity. However, to ensure that the risks to academic integrity are mitigated for greater maximisation, institutional and multi-stakeholder efforts are required.

1. Introduction

The emergence of OpenAI'sChatGPT[1] has put intense spotlight on Generative AI (Gen-AI) systems and their possible impacts on Academic integrity. Generative AI systems are designed to generate content or output (such as Text, images, audio, simulations, video and codes) from the data they are trained on. Whereas ChatGPT is neither the first Gen-AI system ever developed nor is it the first by OpenAI, it represents a breakthrough in Generative AI technology. In many academic quarters, concerns on academic integrity have been raised (Stokel-Walker, 2022). This is fascinating considering that this is not the first AI powered text generator. A number of AI text/content generators for diverse contents are available including but not limited to: Rytr,[2] Jasper,[3] CopyAI,[4] Writesonic,[5] Kafkai,[6] Copysmith,[7] Peppertype,[8] Articoolo,[9] Article Forge[10] and Copymatic.[11] The question then is: what is different about ChatGPT that raises serious concerns?

For clearer perspectives, let us understand what ChatGPT is. ChatGPT is a large language model (LLM) that uses deep learning to generate human-like texts in response to prompts. It was released on the 30th of November 2022 as OpenAI's latest iteration of their large language models capable of having 'intelligent' conversations. This is part of the Generative Pre-trained Transformer (GPT) models from the California based company. Before now, there has been GPT-1 launched in 2018 (Radford et al., 2018), GPT-2 (Radford et al., 2019) and GPT-3 (Brown et al., 2020). In 2021, OpenAI released DALL.E 2, a Gen-AI system for generating images from text. However, ChatGPT is different from the previous models in many ways. Most importantly, it is different from GPT-3 that is designed to perform a wide range of natural language processing (NLP) such as language translation, text summarization, and question answering, generation of creative writing (such as poetry or fiction), generation of high quality long or short form copy (such as blog posts). On the other hand, ChatGPT is built from the GPT-3 language model and has unique use cases (such as generation of responses in dialogues/conversation, explanation of complex subjects, concept or themes, generation of new codes or fixing of existing codes for errors). Overall, ChatGPT has more use cases than GPT-3 and as with many other technologies it has logical malleability which means that it can be fine-tuned for a variety of language tasks. ChatGPT's capabilities have

been hailed as 'scary good' by proponents or described as "prolific and highly effective and still learning'' (Gleason, 2022). Additionally, it is freely available to all users unlike many AI powered content generators. The inherent capabilities of ChatGPT have been demonstrated in reports that it has successfully passed a Law school exam (Choi et al., 2023) and Master of Business Administration (MBA) exam (Terwiesch, 2023). A judge in Colombia has also admitted that a court decision[12] was informed by ChatGPT.

However, critics have pointed out that as a large language model, ChatGPT is "'not particularly innovative' and 'revolutionary''' because similar systems have been developed in the past. Others have observed that despite its fluent and persuasive texts, the system still "lacks the ability to truly understand the complexity of human language and conversation'' (Bogost, 2022). To be fair to the developers, a number of limitations of the system are made clear to users. It is clearly presented that it can occasionally generate incorrect information, produces harmful instructions or biased content and has limited knowledge because of the data it was trained on. Amidst a number of issues that ChatGPT raises, this commentary only explores whether it undermines academic integrity. It also provides recommendations on how academia can be proactive in responding to the challenges ChatGPT and Gen-AI systems raise.

2. Threat to academic integrity?

So far, experiences of academics with ChatGPT is that it correctly answers questions often asked undergraduates and postgraduate students (Lock, 2022) including questions requiring coding skills (Scharth, 2022). The general fear is that students as well as researchers can start outsourcing their writing to ChatGPT. If some early responses to university level essay questions are anything to go by, professors and lecturers should be worried about the future of essays as a form of assessment. According to Stokel-Walker (2022), some of the responses "are so lucid, well-researched and decently referenced''. Although it has its limitations and ethical shortcomings (Birhane & Raji, 2022) like so many other language models (Eliot, 2022; Weidinger et al., 2021), it is a tool with broader implications for academic integrity.

According to the International Centre for Academic Integrity (2021), academic integrity is defined as a commitment to six fundamental values: honesty, trust, fairness, respect, responsibility and courage. As such, when a person uses ChatGPT to generate essays or other forms of written texts that are then passed off as original work, it violates the core principles of academic integrity. ChatGPT raises similar concerns as the well documented commercial 'contract cheating' in higher education (Newton, 2018). The only difference is that ChatGPT is free and easily accessible to all users. It also offers users the opportunity of interaction. Users can tweak their queries to know how different the responses can be. This means that there are possibilities of generating different texts/essays and the user can pick the best out of the lot. One academic was quoted in a Nature commentary recently (Stokel-Walker, 2022) saying that "at the moment, it's looking a lot like the end of essays as an assignment for education". The concern in academia however is not limited to its open and free availability, it is also rooted in the lack of availability of tools to detect people using this viral chatbot. Turnitin, Unicheck, PlagScan, Noplag and other plagiarism checker tools are often used to maintain academic integrity. This gap is and should be a source of concern that needs attention. It is also critical to reflect on whether using ChatGPT for academic paper or assignments can constitute plagiarism in the moral sense of "theft of intellectual property''. Whose intellectual property is stolen when ChatGPT is passed off as original work? Who is damaged by this act? While I agree that using ChatGPT

without proper acknowledgement goes against the fundamental values of academic integrity, the whole plagiarism debate is a little more complex.

I also admit that the hype around ChatGPT and its real-life capabilities can either alarm or excite people in academia. The concern in academia goes beyond whether it is bad or good technology. ChatGPT is a definition of a disruptive technology. It is here and it is about to disrupt both the ontology and epistemology of academia, science and teaching. That means that academia is about to reconsider what constitutes knowledge and how it can be acquired. The challenge then becomes; how is this technology embraced and applied effectively, safely and responsibly? Whether ChatGPT is a morally neutral technology or an existential part of the normative moral order is not the focus of this commentary. This does not mean that ChatGPT does not raise other ethical issues beyond issues of academic integrity, or that these concerns do not matter. There are a number of ethical issues surrounding large language models already identified in literature (Bender et al., 2021). The emerging stories of the human cost of building ChatGPT raise great concern (Perrigo, 2023). However, these are not the focus of this essay. What is clear from what we know about this technology so far is that it could be used in ways that could undermine academic integrity. The question then is: what can academia do about this?

3. What can academia do?

There are a number of things academia needs to do including but not limited to considerations of the opportunities and challenges ChatGPT and other LLMs present; understanding ways of maximising these opportunities while mitigating challenges to academic integrity.

3.1. Consider academic opportunities and challenges of ChatGPT

Academia needs to take ChatGPT seriously. By academia, I mean the ecosystem that facilitates the pursuit of research, teaching, and scholarship in general. This includes academic and research institutions, academic publishers and funders. ChatGPT and other generative AI systems are revolutionary and academia needs to be ready to be part of that revolution. It is not sustainable to ban, reject or dismiss it. This is a technology that presents opportunities for teaching, research and innovation. Using ChatGPT can become an efficient and time saving way of carrying out academic activities. From lesson plan design, task creation, writing to provision of inspiration and ideas, ChatGPT can help both teachers and students to improve teaching and learning experiences. It can also be used to improve research. For instance, it can be a tool for quick and easy generation of data for many types of research. It can also be used as an analysis tool as well as a writing assistant for research reports.

However, the responsible use of ChatGPT in academia faces significant challenges, particularly owing to potential misuses that constitute threats to academic integrity. First, its usage without appropriate acknowledgement is currently not reflected in the academic integrity policies or statements of academic institutions and publishers. This needs to change. In addition to this, many people in academia; researchers, teachers and students still do not know how to optimally use the system, not to mention using it responsibly. There is a great need for education.

Second, a harmonised and responsible way of acknowledging the use of ChatGPT is yet to be established. A number of research papers have listed ChatGPT as authors (Stokel-Walker, 2023). However, both Nature (Nature, 2023) and Science (Thorp, 2023) journals have made their stance clear that no LLM can be accepted as a credited author in their journals. The current lack of guidance for users on how to acknowledge the use of ChatGPT raises a lot of concerns.

Third, a tested, validated and accepted tool to identify dishonest use of AI text generators in academia is not yet available. That means that it is still easy to pass off an output from ChatGPT as an original work

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[12] https://www.theguardian.com/technology/2023/feb/03/colombia-judge-chatgpt-ruling#:~:text=A%20judge%20in%20Colombia%20has,costs%20of%20his%20medical%20treatment.

without detection. To address this challenge, OpenAI has developed a free tool (AI text Classifier[13]) trained to distinguish between AI-written and human-written texts. Unfortunately, this has been described as an 'imperfect tool' by OpenAI who warned that it should not be used as a primary decision-making tool. How academic institutions and publishers will implement OpenAI's imperfect tool or develop better tools remains unclear.

Fourth, it is important to note that there is a greater concern for institutions in Low-and-middle-income countries where Turnitin and other plagiarism tools are yet to be integrated as measures for academic integrity. Technical integration of these tools costs money which many of the institutions in these countries do not have. ChatGPT could thus exacerbate an already documented problem of cheating in these places (Farahat, 2022). It presents a global challenge that requires a solution that can work for everybody - a less expensive, safe, sustainable and responsible solution.

3.2. Consider actionable steps to achieve responsible use of ChatGPT and other Gen-AI systems in academia

Responsible use of generative AI systems in academia entails the development of implementation approaches that maximise their capabilities while mitigating threats to academic integrity. I believe the first thing for academia to do is to identify the use of AI generated texts without acknowledgement as part of academic dishonesty. Whereas it is implied in current academic integrity policies, it needs to be made clearer for staff, students and in the case of journals, potential authors, what values are violated when AI generated texts are used as original work. Furthermore, there are many ways ChatGPT and other AI text generators can be integrated into academic activities from assessment, research to teaching. Knowledge of these approaches remains very low in academia. Generative AI systems are changing the world students are being prepared for. It is therefore the responsibility of the same academic institutions to prepare students for a world that is effectively being revolutionised by LLMs.

Capacity development, for both staff and students, on the diverse use cases of ChatGPT is therefore necessary in relevant institutions. On the part of staff who are expected to identify dishonest uses of the tool, they should be able to know how it works.

Furthermore, for universities to preserve the current assessment methods based on written essays, there is a need to create a reliable tool that can detect AI generated texts. However, designing such a tool and incorporating it into effective or reliable assessment approaches will require a lot of funding and the support or buy-in of OpenAI or other creators of these language models. It may also take time to develop whereas in the meantime, AI generated texts may already be part of academic assessments. On the other hand, this may be an opportunity to reconsider the future of essay writing as a form of assessment as Donald (2018) has suggested. There are already calls to fundamentally change assessment methods - a change from accessing finished essays to assessing critical thinking involved in the process. Teaching students who become good essay writers is important, but is understanding the process not more important than the finished product? The integration of ChatGPT in teaching students critical thinking and writing should be a viable consideration. Where essays are absolutely necessary, oral exams can be used more to supplement for better assessment.

This is not a problem limited to academic essays and students. There are also risks of this happening within the wider academic life: journal and conference papers, reports, blogs, dissertations, books and other forms of academic writing. However, there is an argument to be made that the system could allow people to play to their strengths and increase the quality of their academic outputs. With all its limitations and imperfections, ChatGPT can become an effective learning companion. For

instance, it can generate great ideas and texts that can in turn be perfected by users. It is not an authoritative academic voice and neither is it 100% accurate but it can be a good academic assistant. Devising ways of referencing its use or application is therefore a necessity to ensure its responsible use in academia. For users who want to maintain the tenets of academic integrity before technical tools for identifying cheating are developed, referencing ChatGPT could involve documenting date of generation, prompts used for generation and limiting the use of direct quotation to one paragraph.

Additionally, the possibility of ChatGPT writing or correcting codes calls for the reimagination of technical coding assessments. So far, it has proven to be capable of writing functioning codes with custom prompts which could help students answer basic data structures and algorithm questions. I therefore suggest that including oral interview as part of the assessment should not be a supplementary but a major part of the assessment. This will give an opportunity of testing the students' knowledge of the codes and their functions.

4. Conclusion

I argue that the way ChatGPT and other AI powered text generators are used could surely undermine academic integrity. They are also capable of revolutionising academia. It is the responsibility of all of us humans to ensure that the risks to academic integrity are mitigated for greater maximisation. This needs a multi-stakeholder effort; from the technical developers, policy makers in academic institutions, publishers, professors, lecturers to students. Academic writing, essay assignments and technical coding assessments may not be dead but it is time to reimagine critical changes to ensure sustainable integrity in academia.

In summary, academic institutions need to do a number of things:

- Embrace ChatGPT as an essential part of pedagogy and research.
- Establish ChatGPT training and capacity building for both staff and students for optimal maximisation and to ensure responsible use. Providing necessary support and resources to both staff and students can help to mitigate possible risks to academic integrity.
- Review their academic integrity policies and make necessary changes to reflect current AI trends and possibilities.
- Work with relevant bodies (including but not limited to journal editors and publishers) to co-create effective ways of acknowledging the use of ChatGPT and other AI tools in academic texts.
- Work towards developing cost effective and trusted tools for identifying possible dishonest use of AI tools in academia globally.

Finally, OpenAI and other large language model creators should be willing to work with academia to achieve responsible use of AI powered text generators in academia. OpenAI's move to develop the 'imperfect' classifier is a welcome development but not sufficient to address academic integrity concerns. The company's current engagement with educators in the US is also commendable. However, such engagement should be extended to stakeholders in academia in other parts of the world, particularly ones from low-and-middle-income countries. A multi-stakeholder endeavour is needed to co-create solutions to maintain academic integrity. This may include redefinition of what constitutes academic achievement, impact and novel ways of measuring them.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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