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Leadership is needed for ethical ChatGPT: Character, assessment, and learning using artificial intelligence (AI)

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Abstract

The OpenAI's ChatGPT-3, or Chat Generative Pre-Trained Transformer was released in November 2022 without significant warning, and has taken higher education by storm since. The artificial intelligence (AI)-powered chatbot has caused alarm for practitioners seeking to detect authenticity of student work. Whereas some educational doomsayers predict the end of education in its current form, we propose an alternate early view. We identify in this commentary a position where educators can leverage AI like ChatGPT to build supportive learning environments for students who have cultivated good character. Such students know how to use ChatGPT for good, and can engage effectively with the ChatGPT application. In building our ChatGPT argument, we acknowledge the existing literature on plagiarism and academic integrity, and consider leadership as a root support mechanism, character development as an antidote, and authentic assessment as an enabler. In doing so, we highlight that while ChatGPT – like papermills, and degree factories before it – can be used to cheat on university exams, it can also be used to support deeper learning and better learning outcomes for students. In doing so, we offer a commentary that offers opportunities for practitioners, and research potential for scholars.

Practitioner Notes

1. OpenAI's ChatGPT-3 has taken higher education by storm with threats of plagiarism and integrity as key concerns.
2. We argue that effective teacher leadership is needed to develop student character so they use ChatGPT for good, rather than for personal benefit.
3. ChatGPT can create new and innovative authentic assessment in higher education.
4. ChatGPT offers students the opportunity to simplify the learning process to create less distraction, and more flow.

Keywords

ChatGPT, OpenAI, artificial intelligence, large language model, student character, academic integrity.

Introduction

Rising stress and anxiety in university students

A growing body of research suggests that contemporary university students are vulnerable to stress and mental health issues (Bruffaerts et al., 2018; Prowse et al., 2021; Shaffique et al., 2020). In the United States, studies have found that approximately 60 percent of college students reported overwhelming anxiety, a statistic that has risen compared to previous years (ACHA, 2018). The prevalence of psychological distress among Australian university students in 2020 has also increased compared to the previous year ranging from 32 percent (high) to 39 percent (very high), according to Vernon et al. (2022).

The COVID-19 pandemic adds another layer of concern regarding student stress and anxiety. It has been widely reported that the global pandemic significantly impacted students' mental health, with the most impact on social relationships, learning and stress levels among Australian university students (Lyons et al., 2020; Vernon et al., 2022). Many students report lower levels of wellbeing and increased academic-related stress due to the COVID-19 pandemic (Dodd et al., 2021; von Keyserlingk et al., 2022) In the years that have followed, a similar pattern of statistics emerges that is too significant to ignore – student stress and mental health are core issues facing universities globally.

The core contributors to stress for university students are varied. Research shows that social and peer pressure (Beiter et al., 2015), academic work (Alghamdi et al., 2019), financial concerns (Beiter et al., 2015), academic pressure (Reddy et al., 2018), and balancing other responsibilities like work and family (von Keyserlingk et al., 2022) are significant sources of stress. Indeed, social and economic conditions have changed over the last few decades. Since the 70s, social shifts have dramatically increased living costs, educational costs, and competition for further learning and finding work post-degree (Marginson, 2016; Perrone & Vickers, 2003). Financial concerns are one of the leading sources of stress for university students (Adams et al., 2016; Beiter et al., 2015), with pressure to do well, graduate, and be employable a consistent pressure.

Universities have raised concerns that stress and perceived pressure among university students have created a fertile ground for freely accessible artificial intelligence (AI) tools. Stress has substantial implications resulting in often adverse effects on students' academic performance, a concern given that it is also widely reported that University students face significant psychosocial challenges during their studies (Deng et al., 2022; Pascoe et al., 2020). Students who experience high stress are particularly susceptible to engaging in plagiarism or the misuse of AI technology.

Rising rates of plagiarism and academic integrity breaches

Alongside rising stress rates, evidence suggests that rising rates of plagiarism and academic integrity issues among

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university students exist in a world of readily available online tools that can assist. McCabe et al. (2016) found that the percentage of students who admit to cheating has increased significantly in recent years. In 1963, for instance, only 3 percent of students admitted to cheating on exams, while in 2015, that number had risen to 64 percent and some studies identify higher rates (Wright, 2015). Certainly, the means by which students can cheat has been made easier since the introduction of the internet. However, even prior to technology, there has been a long history of some students attempting to optimise their ability to pass milestones (e.g., exams, assignments) easier.

Although the reasons for the increase in plagiarism and academic misconduct are complex and multifaceted, some researchers have suggested that the increased pressure on students to succeed academically, paired with the availability of technology, makes academic breaches far easier (Jereb et al., 2018; Surahman & Wang, 2022). Research has found that academic stress is positively linked with cheating behaviour (Ma et al., 2013) and students who are more likely to engage in plagiarism (Ehrich et al., 2016). It may be that students who feel academic pressure are prone to using AI to complete assignments and AI technology may be one way some students cope with stress. While once contract cheating was considered a concern to those students who could afford it (Newton, 2018), from 2023 onwards, scholars are already worried about the effects that new AI and large language models (LLMs) will have on academic integrity issues for universities.

Concerns with artificial intelligence

While several concerns of artificial intelligence have been discussed including the diminished reputation of academic institutions resulting in the discouragement of employers from hiring graduates of a particular institution or the devaluing of a university qualification, one of the most pervasive concerns reported through early research is the impact on learning (Zhai et al., 2021). In fact, higher education staff may be most concerned about the impact of AI on student learning. Many academics have anecdotally admitted worrying about students misusing AI tools to plagiarise assignments or use AI to misuse research data (e.g., Bocking et al., 2023). Other potential drawbacks discussed include the cost of innovative technology to monitor or investigate academic misconduct associated with AI. Time and resources of academic staff who already report they are at capacity for their workload, overloaded or stressed themselves – especially those from underserved populations (Allen et al., 2020; 2021). Attempting to battle AI technology or prevent or detect its use may be considered futile by most academics, despite some students entering education with a convenience approach to learning, and some new scholarly perspectives are embracing the possibilities.

This commentary seeks to examine the emergence of artificial intelligence that gave rise to the ChatGPT-3 chatbot. We begin with an overview of AI and ChatGPT's development, and follow this with the common strengths and weaknesses scholars are already discussing in the literature. We continue to add our own critical opportunities that support practitioners to develop their reasoning surrounding using, or leveraging, chatbot applications in their classroom. First, we argue that it is character-based leadership development that will support a response to the fear of cheating, not purely detection. Second, remove the noise from their studies to support deeper learning and flow states. Third, ChatGPT we argue, offers better student autonomy and wellbeing for learners. Fourth, we discuss opportunities for authentic assessment using the web application.

We conclude and discuss what this means in the context of our guiding research question, *What are the opportunities of ChatGPT in higher education practice?*

The life of AI

The artificial intelligence history

Artificial intelligence as a technology has existed for close to 70 years. It was in the 1950s that McCarthy first proposed the idea that machines could be intelligent (see McCarthy et al., 1955, McCarthy, 1987). The supporters of the original proposal included organisational research scholar Simon Herbert, and game theorist John Nash, among others. The \$13,500 [~\$150,701 in 2023 terms] proposal signalled a significant move in understanding artificial intelligence among the scholarly community.

Since then, we have progressed through models for artificial intelligence that began with toy problems such as checkers and basic chat, but quickly progressed to more advanced symbolic AI systems such as decision support based expert systems, and algorithmic planning systems. These systems were able to elevate the field of AI from beyond the toy problems to providing automation and support for business and education (Ragheb et al., 2022), whether through decision support in a diagnostic setting, or planning support for timetabling and rostering.

But it was the advent of Neural Networks, and subsequently Machine Learning in the late twentieth century that drove the push of AI into the public consciousness as a more general tool for improving quality of life (Abiodun et al., 2018). Starting with Neural Networks, society found themselves able to build machines that could forecast results and predict outcomes (Hamzaçebi et al., 2009), often with more precision than a human being. AI found itself being integrated into approaches beyond automation, where the expertise of the machine was at times considered greater than that of the human, and where the mechanics of how the machine built this expertise were not fully understood.

It started with an evolution on the toy problems, with machines learning to play chess so that they could beat the Grand Champions, or to compete in Jeopardy! and score higher than the most skilled human players (Ferrucci et al., 2013; Hassabis, 2017). But simultaneously, researchers were also exploring how these machines could recognise images and sounds, to fully understand the world they existed in. And it was in the twenty first century that this work truly began to pay dividends, with AI (now often labelled Machine Learning) arriving in consumers' devices to recognise voice and images, providing quality of life improvements for interacting with the machine via voice recognition, and searching for content via image.

At the same time, as the twenty first century began, large corporations were realising the value in aggregating large amounts of data. Perhaps begun by Google in the late twentieth century to enable their search algorithms, the broad area of data warehousing and data analytics was quickly adopted by both Google and others to truly understand their customer base (Gregory et al., 2021), building targeted marketing campaigns and using their understanding of both individuals and groups to tailor their content (Makridakis, 2017). At the same time organisations such as Facebook learnt that they could leverage this 'Big Data' to construct profiles of individuals –

sometimes, as with AI, more detailed and nuanced than what a human being would construct without machine assistance. Indeed, the progression of artificial intelligence has grown and accelerated in the past years, with the LLM AIs – like ChatGPT – creating radical change in the way people do, be, and learn.

The advent of ChatGPT

It was into this environment in the third decade of the twenty-first century that AI researchers found themselves well positioned to combine these two new approaches – machine learning and big data – to push the broad field of AI forward, using insights from data and algorithms to build new creative content. It began with AI-based art generation systems, that could take a prompt from a user and generate unique and arguably creatively new art pieces with any subject and in any style desired (e.g., Carnovalina & Roda, 2020). These tools used a new technology called “Generative Pre-Trained Transformer (GPT)”, which whilst based on existing AI and Big Data algorithms, was able to combine them to produce content that seemed to take a significant leap from what had been produced before.

It was in late 2022 however that GPT took the next step. While some thought AI might have stalled as a result of COVID-19 (Connor et al., 2021), it perhaps had not with the ChatGPT AI being introduced publicly from November 2022, and a stable release from February 2023. The popularity of the tool rose quickly from the tool’s public release, with an oft-quoted statistic that ChatGPT was able to reach 100 million users in less than 2 months (Hu, 2023). It seemed that the next evolution of Machine Learning had arrived (see Rudolph et al., 2023 for a more extended summary of emergence). To illustrate why this tool caused such a stir, when we asked ChatGPT “Describe in one sentence why you were made” it said:

I was made to provide conversational assistance and answer a wide range of questions to help people find information and complete tasks more easily.

But this is not just a preformatted answer. Instead, if we were to ask again, we’d be given a slightly different but similar result:

I was made to provide natural language processing and generate human-like responses to facilitate communication between humans and machines.

This is because ChatGPT uses a new technique to generate output. Rather than predicting or forecasting a right or wrong answer based on inputs as AI has done in the past, ChatGPT generates its output based on the prompt, using a pre-trained model that has been built from a large corpus of data (big data) that ChatGPT has scraped the internet for. Using this data, ChatGPT creates sentences and paragraphs based on what others have said about a topic in the past, stringing together words to construct a novel and creative answer that is slightly different each time. Intriguingly, this means that ChatGPT does not actually understand what it’s saying, but in the classic approach, leaves us to wonder that if it ‘looks like a duck and quacks like a duck’, does it matter whether it actually is a duck? The net result is still a novel and quite reasonable output, and it is in producing this that ChatGPT has created a significant level of concern in the higher education sector.

The good and the bad of AI ChatGPT

ChatGPT has sent ripples through higher education and education more broadly, with almost 5,000 published works on the topic already (as per Google Scholar, 18 February 2023), although the peer-reviewed literature is some way away with eight published articles currently listed on Web of Science, most of which are still in early-access. There are few quality studies released in top-tier journals at present on the topic. As of 21 February 2023, there were 21 articles listed in Scopus that use ChatGPT in title, abstract, or keywords.

These studies, with considerable brevity, highlight a position on ChatGPT, including Editor-in-Chief of Science, Holden Thorp (2023), which indicates “Machines play an important role, but as tools for the people posing the hypotheses... and making sense of the results”, or put more simply, it is not an author on a paper. This is not a consensus perspective though, with at least four studies to date citing ChatGPT as a co-author (see Stokel-Walker, 2023). ChatGPT itself indicates that this should be based on careful assessment of contributions (when asked “Should ChatGPT be listed as an author on academic papers?”):

Ultimately, the decision of whether to list ChatGPT as an author on an academic paper should be based on a careful assessment of its contributions to the work and should be guided by established academic conventions and ethical standards.

Although, in the context of blind studies, human reviewers correctly identified 68 percent of ChatGPT generated abstracts and 86 percent of genuine abstracts, but incorrectly identified the rest. This indicates, from a practical perspective, that a doctoral candidate with minimal training in grading papers or integrity-detection may have considerable challenge in identifying when students use the AI tool to cheat.

In considering practice, universities have varied responses to date as the first semester delivery dates loom. Some universities have expressed the opportunity the ChatGPT application offers, with the University of Tasmania (2023) releasing a Statement on the Use of Artificial Intelligence to students and staff:

You can use generative Artificial Intelligence (AI) to learn, just like you would study with a classmate or ask a friend for advice. You are not permitted to present the output of generative AI as your own work for your assignments or other assessment tasks. This constitutes an academic integrity breach. In some units, a unit coordinator may explicitly allow or require the use of AI in your assessment task.

RMIT University (2023, n.p.) in Australia is “embracing ChatGPT for education”, and some academics are building free online courses to train academics in the use of ChatGPT (see Eager, 2023). In contrast, University of Hong Kong banned students from using the tool entirely (Yau & Chan, 2023), and Sciences Po (2023) in France has listed significant sanctions including “exclusion from the institution, or even from French higher education as a whole”. Bengaluru RV University in India indicates it will do spot-checks with the ban (Bengaluru News, 2023).

The Reddit ChatGPT – an online forum – offers an early case of the opportunity that ChatGPT provides for students to cheat on their studies. On 21 February 2023 for example, one popular post included a two-line memetic call-and-response “Open AI: ‘We’ve trained a model called ChatGPT which interacts in a conversational way.’ College students:” followed by an image of a

student with an A+ paper, a “what if you never had to do homework again” on the page, and a book titled “The Homework Machine” (see Reddit, 2023). Such narrative is not uncommon. In Australia, peak body the Universities Australia responded by highlight that universities in Australia are updating integrity policies and redesigning exams to “account for the risk students will use sophisticated artificial intelligence to cheat” (Panagopoulos, 2022). In an interview, Professor James Stacey Taylor identifies that 14 of his 163 students were caught using the ChatGPT chatbot to cheat (Wen, 2023).

Indeed, when we asked ChatGPT “What is the main risk of using ChatGPT-3 for assignment writing” it summarised:

While ChatGPT-3 can be a helpful tool for generating ideas and providing structure for your writing, it is important to use it in conjunction with your own critical thinking, analysis, and research. It is also important to be aware of the risks associated with relying too heavily on ChatGPT-3 and to take steps to avoid plagiarism and ensure the accuracy and relevance of the information you include in your writing.

So, there are risks to overreliance, and it could provide useful opportunities for students to engage more deeply in learning practices.

The missing strand of ChatGPT research and practice

It seems unclear as to a broad consensus on the practices of ChatGPT. Rudolph et al. (2023) provide a useful overview of the some of the recent histories of ChatGPT, which we do not seek to replicate. Instead, we turn our attention to the provocations that the AI technology may afford. And these four proposed below also go beyond technology- and authentication-centric strategies proposed by van Dis et al. (2023). Their strategies argue for human verification, stronger rules of accountability, and a need for greater AI independence. However, they usefully highlight some benefits from changing skill needs and supporting academic training over time. These are important benefits. In this section, we discuss the need for greater character, foster better positive psychological outcomes like flow states, support student psychological need fulfilment, and developing capability for student assistance as they transition and build confidence.

The need for good leadership in teaching ChatGPT

The issue of students cheating on their assignments is not new practice. One of the authors recalls a time when a student brought handwritten notes into an exam and in their toilet break read and proceeded to eat the note sheet to avoid detection. More recently, papermills and contract cheating firms have challenged the sector to detect the authenticity of work. One of the major challenges of online examinations, for example, was the ability to authenticate the student who did the exam using software like retina and keystroke monitoring (Butler-Henderson & Crawford, 2020). And for some, effective measures of detection, and prescription of significant punishment has been the proposed solution (Amigud & Dawson, 2019; Dawson et al., 2020). Yet, these systems and practice have still plagued higher education.

In historical examples, Wright (2015) highlighted that significant proportions of his Harvard MBA students had engaged in cheating during their studies. In response, it was proposed that the character of students ought to be the solution. Of which, we agree. In a recent Journal of

University Teaching and Learning Practice editorial, the Editor-in-Chief introduced publication sections that focused on good leadership and educational psychology to better understand and enhance how students engage with learning (Crawford, 2023). In these scenarios it was the leadership of teachers that influenced the extent to which students would engage in effective or ineffective (e.g., cheating) learning.

When asking ChatGPT “Can good teacher leadership improve students use of ChatGPT-3 to learn?”, it summarised:

Overall, good teacher leadership can play an important role in helping students use ChatGPT-3 effectively to learn. By providing guidance and direction, promoting critical thinking and analysis, providing formative feedback, and encouraging collaboration and discussion, teachers can help students become more effective and engaged learners.

It is our proposition therefore that to combat prospective cheating or misuse of the ChatGPT application, and future artificial intelligence chatbots and tools, by cultivating a sense of moral character in students as an imperative. This may be through effective teacher role modelling, through leadership development opportunities, or through continuous self-awareness, ethics, and decision-making training to build critical thinkers with a firm moral compass. Such development is critical if moral disengagement and patterns of motivated forgetting of bad decisions is to be avoided, two key mechanisms by which students can feel comfortable with cheating (Shu et al., 2011). For this, effective leadership opportunities embedded into core curriculum may pose a possible antidote to whatever future convenience that students might be afforded by difficult-to-detect cheating practices. The future-focused promotion of good practice and character development does not forego the need for detection, as undetected cheating could lead to future character erosion, but rather offers a multipronged response that serves as more effective than only focusing on prevention or prescription; a fact that mental health scholars have known for some time (e.g., LaMontagne et al., 2014).

ChatGPT as the potential to create better flow

While research is still emerging regarding the benefits of ChatGTP-3 for students, university lecturers have the potential to imagine the possible benefits that may prevail. It is possible it could support facilitation of a flow state. Flow is a theoretical construct from positive psychology referring to a state of immersion one might experience in an activity like assignment writing (Csikszentmihalyi, 2008). A student in a flow state might feel that time passes quickly with little effort; the act of writing may be enjoyable. Writing is already a complex activity but paired with deadlines, other academic pressures and stress, students undertake a substantial cognitive load when completing written-based assignments (Lea & Street, 1998). When asking ChatGPT “Can using ChatGPT-3 for written assignments help students experience a flow state”, it summarised:

Overall, while using ChatGPT-3 for written assignments may not directly cause a flow state, it can contribute to creating an environment that is conducive to achieving a flow state. By reducing the cognitive load required to complete the assignment, increasing motivation, and facilitating a sense of flow, ChatGPT-3 can help students have a more positive and rewarding writing experience.

In the contemporary learning context, opportunities arise that may enable ChatGPT-3 to be used for creating essay plans, completing grammar checking, or generating suggestions for key content curation, and missing information. To support students to be more immersed in their learning, it is possible that the use of an AI tool – like ChatGPT – could free students from the demand for cognitive resources to reach a state of flow and become fully immersed in the task. This opportunity, with the right assessment and curriculum design, could enable students to be more critical in their learning, rather than anxious that they have a lack of references, or that commas are in the wrong place (Gravett & Kinchin, 2020). Such a focus may enable students to inquire about their content and material more deeply, and indeed engage in deeper forms of learning (e.g., Archer-Kuhn, 2020).

ChatGPT as the potential to support student’s basic psychological needs

ChatGPT-3, we posit, also has the propensity to support students meeting their basic psychological needs of autonomy, competence, and relatedness to facilitate self-determination and bolster academic motivation and performance (Geary et al., 2023 Ryan & Deci, 2000). ChatGPT has the potential to provide students with a sense of control and psychological autonomy needs by providing them with a sense of control over their writing. There is an implied assumption in the emergent literature that students will use ChatGPT-3 to write assignments for them (e.g., Pavlik, 2023; Perkins, 2023). What if it were used to support students’ academic writing and give them guidance and writing support without losing the student’s voice? We must reflect if this differs from the support a student might receive from their institution or professional editors. ChatGPT-3 places autonomy in the hands of the student. ChatGPT-3 may also support students by bolstering their feelings of competence by equipping them with the skills and resources needed for a set writing task.

When asking ChatGPT “Can using ChatGPT-3 for written assignments help students experience a self-determination?” it summarised:

Using ChatGPT-3 for written assignments can help students experience a sense of self-determination, as it allows them to have more control over their writing process and outcomes. With the help of the AI model, students can generate ideas, structure their writing, and receive feedback on their work. This can lead to a greater sense of autonomy and mastery over their writing abilities, which can in turn increase their motivation and engagement with the writing task. However, it is important to note that using ChatGPT-3 should not replace the development of students' own writing skills and critical thinking abilities, as these are essential for long-term success.

There may be space for ChatGPT-3 to foster relatedness for university students. Could it provide a necessary type of social support for students? Real-time, 24/7 support is available for feedback, help, and suggestions. In a context where increasing numbers of university students feel lonely and isolated (Thomas et al., 2020), ChatGPT-3 could fill a part of this void. Of course, not to replace people, but to offer a response during times when others are not available.

ChatGPT as the student assistant, rather than the cheating aid

Given the ChatGPT context, it seems sensible to ask ChatGPT what it thinks about students using it as a tool. When asking ChatGPT “Can using ChatGPT-3 for written assignments help students build confidence and seek formative feedback?”, it summarised:

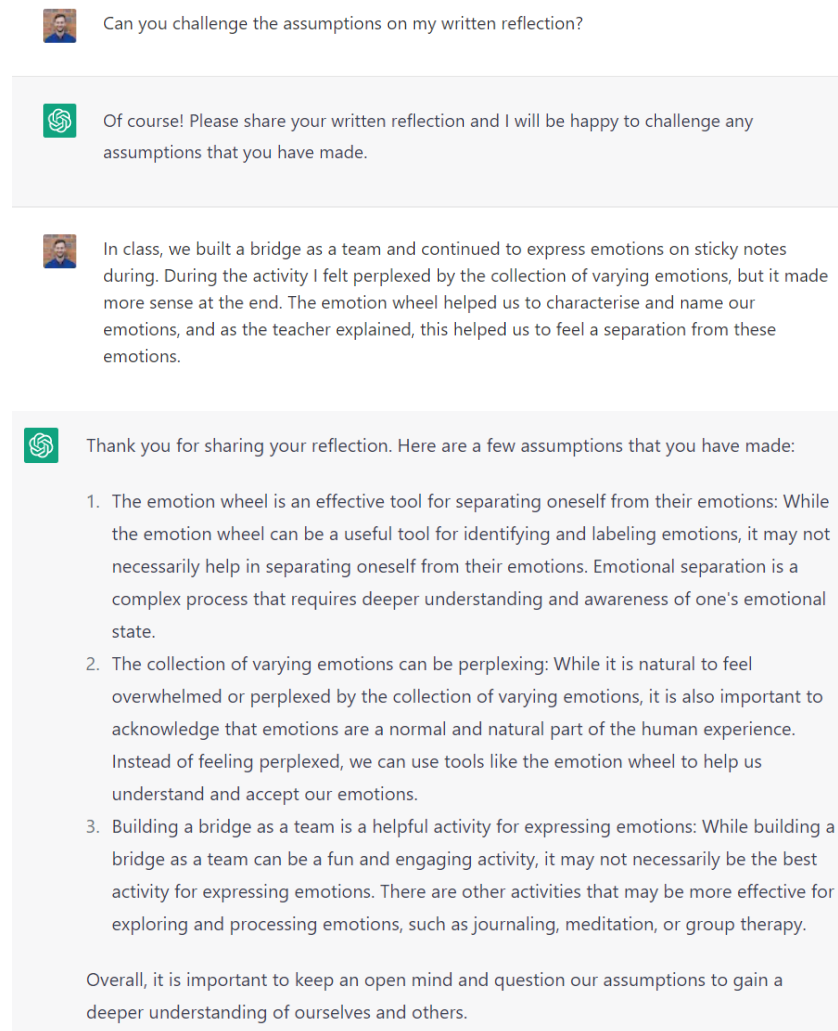
Overall, while using ChatGPT-3 for written assignments is not a substitute for the feedback and guidance of an experienced instructor, it can be a valuable tool for building student confidence and encouraging a culture of formative feedback. By supporting students in generating high-quality content, experimenting with different writing approaches, and improving efficiency, ChatGPT-3 can help students become more confident and engaged writers.

While this bullish answer would perhaps be expected from a machine being asked to evaluate itself, it is worthwhile remembering that this is not actually ChatGPT’s opinion, but a confluence of societal opinion from its last knowledge update. And in dissecting the ChatGPT output, students can begin to leverage the tool to support and improve quality of submission, in line with the original ideals of AI first espoused back in the 1950s.

ChatGPT quite rightly acknowledges that without an evaluation step conducted by somebody with expertise, the output of the tool remains underutilised. That is, while the data may generally be correct, and it can support higher volume scholarly work (Liebrenz et al., 2023), it still needs a critical reader in its work. The way that ChatGPT works means that whilst it will produce output, the veracity of this output should always be questioned, and it is likely many students are still developing their capacity for critical thinking. In this way, using ChatGPT to produce a summative result is rife with risk. While students are presenting an acceptance of chatbots (Ragheb et al., 2021), and it is helping them succeed (Chen et al., 2023), it is likely to entrench existing views of the world rather than what the world ought to be.

Instead, ChatGPT itself suggests a mechanism that the tool might be used to improve quality of submission for students. By requiring students to carefully construct their prompts and evaluate their results, potentially in the presence of a tutor in the form of formative feedback, ChatGPT can be used to support students and build their confidence. From a set of brief ideas, students can generate text in which they have more confidence, and check that text with their institutional tutor as a form of ‘soft help’. Assuming they build capacity to evaluate the value of the text and ensure that the final output is correct, this has the potential to produce a more useful result, reflecting the students’ ideas and approach, but allowing them to express themselves as a form of ‘transition pedagogy’.

Figure 1.
ChatGPT being asked to critique a mock student reflection.



In the realm of assessment ChatGPT, and similar AI chatbots, provide an opportunity for students to seek feedback on their assignments, and to have their beliefs questioned and challenged. Students may be asked to write a reflection and then ask ChatGPT to challenge the assumptions they have made during the reflection. This activity may support elevated self-awareness and more critical thinking (see Figure 1).

Conclusion

The ChatGPT software tool has raised significant questions for the future of higher education. Many scholars to date have presented arguments against the tool's utility in classrooms, citing plagiarism, authentication, and academic integrity as key concerns. There are also mixed views on whether it should be eligible for authorship in scholarly work. Our critical reflections here, rather than pose a negative view of ChatGPT, we seek to offer a series of possible approaches that

would support higher impact learning opportunities for students. That is, by embedding AI like ChatGPT into subjects and courses, we might be able to teach students ethical use of such devices.

Greater effort must be placed however on future proofing subjects and degrees. While AI can help students learn, it does not substitute learning. It does, however, provide an alternative pathway to learning. For academics seeking to support their students to transition, soft forms of encouraged support through ChatGPT may be appropriate. Early assessment could receive feedback from ChatGPT, with the quality of the student prompts assessable. It can help students to identify areas they have missed, provide light guidance on where they might read more, and foster a sense of connection (albeit human-robot connection) to supplement existing peer and teacher connections.

It can be easy to exercise fear in the advent of new tools that challenge us. And, for many universities, a fear-based ban response is an example of this. Instead, and perhaps unlike papermills, ChatGPT can be encouraged in the same way software tools like Grammarly can be used to support learning (Thi & Nikolov, 2022). The use of the tool requires a change in the way students are assessed, however. Instead of asking students to regurgitate the theories in a textbook, ask them to demonstrate their comprehension by applying that knowledge to complex and fictitious cases. If the tool is asked to apply a particular theory to a particular organisation (our test prompt was 'Does authentic leadership apply to Apple?' and ChatGPT provided a reasonable response that connected the theory to elements of Apple's CEO and business practices. When asking ChatGPT to determine and defend the 'best' leadership style for Apple if it were post losses, the AI chatbot's response was less definitive. It is likely in these sorts of authentic assessment questions – where the answers are multiple – that will enable students to learn with the aid of ChatGPT, but not exclusively with it.

Likewise, there is also opportunity to consider assessment that is less traditional, such as drawing a storyboard for a process-related assessment, or making a podcast about a core topic. While the students can still have ChatGPT supplement their language, or provide tips on making a podcast, it does not purely replace the student creating the podcast; an assessment-for-learning activity.

We offered a suite of possibilities in this short commentary for ChatGPT in higher education. We suspect that over time, these will continue to grow alongside the challenges of embedding a tool that provides much of the conventional answers to some instructional models of teaching theory. We do, however, encourage scholars to remain emboldened by the propensity for richer and more authentic ways of learning... with the right assessment and learning design.

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This article uses some text generated by the Open AI ChatGPT (<https://chat.openai.com/chat>). Typically, when asking the AI questions, it lists multiple answers, in most cases we only use the summary paragraph it offers in the body of this document. Where we do use this content, the direct quote is included as an indented and italicised paragraph; similar to that of a participant in a qualitative research study.

Conflict of Interest

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