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ChatGPT in higher education: Considerations for academic integrity and student learning

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Abstract

The release of ChatGPT has sparked significant academic integrity concerns in higher education. However, some commentators have pointed out that generative artificial intelligence (AI) tools such as ChatGPT can enhance student learning, and consequently, academics should adapt their teaching and assessment practices to embrace the new reality of living, working, and studying in a world where AI is freely available. Despite this important debate, there has been very little academic literature published on ChatGPT and other generative AI tools. This article uses content analysis to examine news articles (N=100) about how ChatGPT is disrupting higher education, concentrating specifically on Australia, New Zealand, the United States, and the United Kingdom. It explores several key themes, including university responses, academic integrity concerns, the limitations and weaknesses of AI tool outputs, and opportunities for student learning. The data reveals mixed public discussion and university responses, with a focus mainly on academic integrity concerns and opportunities for innovative assessment design. There has also been a lack of public discussion about the potential for ChatGPT to enhance participation and success for students from disadvantaged backgrounds. Similarly, the student voice is poorly represented in media articles to date. This article considers these trends and the impact of AI tools on student learning at university.

Introduction

In November 2022, U.S. company OpenAI released ChatGPT, an artificial intelligence (AI) program that draws upon a large language database to generate responses from text-based inputs entered by humans. While AI programs had existed for several years before the release of ChatGPT, the quality and degree of sophistication of its outputs have sparked major academic integrity concerns about how students might use these tools inappropriately for university assessments. Less than two months after its release, some academics have detected up to one-fifth of students using AI programs in assessment tasks (Cassidy, 2023). The actual rate of student use may already be much higher. A survey of over one thousand university students in January 2023 reported that over one-third were using ChatGPT for assessment writing. Of these students, 75% thought it counted as cheating but did so anyway (Intelligent, 2023). These student behaviours led some universities to ban the use of ChatGPT and prompted some academics to describe such tools as a "threat" and a "plague on education" (Sawahel, 2023; Weissman, 2023).

Academic perspectives on ChatGPT to date, however, have not unanimously declared AI tools as a monumental threat to higher education. Other responses have been more nuanced, pointing out that while ChatGPT can contain factual inaccuracies and biases, it can enhance student learning. Consequently, academics should adapt teaching and assessment practices to embrace the new reality of living, working, and studying in a world where AI is freely available (Liu et al., 2023; García-Peñalvo, 2023; Rudolph et al., 2023). These tools, in short, provide an opportunity to rethink a focus on producing written tasks and instead focus on what students are doing to develop high-order critical thinking skills (Hess, 2023). They also enable students to learn complicated concepts in plain language and improve inclusion for people with communication disabilities (Hemsley et al., 2023; Starcevic, 2023). In this way, universities and their respective academics should focus on teaching students how to use ChatGPT and similar tools in ethical ways that foster critical thinking (García-Peñalvo, 2023).

This important debate necessarily requires further research into the ways that ChatGPT is being discussed in a higher education context. In broad terms, AI and its impact on learning have been researched for decades (Popenici & Kerr, 2017; Dodigovic, 2005; Garito, 1991; Frasson & Gauthier, 1990; Brown et al., 1978). More recent systematic reviews focused on AI in higher education highlight that studies tend to frame AI principally as a tool for improving assignment feedback and assisting with administrative duties rather than exploring concerns relating to academic integrity (Ouyang et al., 2022; Zawacki-Richter et al., 2019). A deeper exploration of these studies is beyond the scope of this article, as these were published before highly sophisticated generative AI tools were available and widely accessible.

At the time of writing, very little academic literature has been published on ChatGPT and other generative AI tools. One academic literature review published in January 2023 explored ChatGPT features and their implications for university teaching and learning (Rudolph et al., 2023). Another recent journal article has explored social media sentiments about ChatGPT in the context of education, finding that the public discourse has been generally positive so far (Tlili et al., 2023). In contrast, news articles about ChatGPT in higher education have not yet been explored comprehensively. These articles have dominated the publication landscape as of February 2023, which in itself necessitates further examination into the observable trends in discourse as the media contributes directly to public opinion on topical issues (McCombs & Valenzuela, 2020).

Previous studies on AI indicate that most people possess a basic level of literacy as to how these tools work. However, the general public understanding of AI is patchy across different populations and is influenced by media coverage (e.g., Nader et al., 2022; Selwyn & Gallo Cordoba, 2022; Sun et al., 2020). Coverage of AI over time has included sensationalistic portrayals (e.g., the AI apocalypse), but overall tends to position AI positively as a useful tool (Garvey & Maskal, 2019; Sun et al., 2020). That said, Ouchchy et al.'s (2020) analysis suggests that the media lack depth when discussing ethical and policy issues surrounding AI. More research is still needed to understand the patterns of media coverage for emerging technologies such as ChatGPT.

Research focus

This article provides one of the first investigations into how ChatGPT is disrupting higher education. Two broad focus areas guided this analysis: i) exploring key themes in news articles about ChatGPT in a higher education context, and ii) the extent to which these discussions frame ChatGPT as a potential tool for learning and supporting diverse students rather than an academic integrity risk. Through a content analysis of 100 media articles from Australia, New Zealand, the United States and the United Kingdom, the text was coded to explore several key themes in relation to the impact of ChatGPT on higher education, including university responses, academic integrity concerns, the limitations and weaknesses of AI tool outputs, and opportunities for student learning. This article critically analyses these results and considers the implications of AI tools on student learning at university.

Method

This research was conducted in February 2023. After first scoping the project, it was submitted for review through our university's human ethics review process and was considered exempt (REMS number: 2023-04151). We then performed a systematic search for a combination of these key terms: 'Artificial Intelligence' and 'Machine Learning'; 'ChatAI'; 'OpenAI' and 'GPT'; 'College', 'University' and 'Tertiary education', and included indexed terms where appropriate. The search covered English language newspapers and online news sources across Australia, New Zealand, the United Kingdom, and the United States using Newsbank, the ProQuest databases, Australia & New Zealand Newsstream and the US Newsstream, and hand-searched the top ten national broadsheet newspapers (identified by ranked subscription figures) from each region where they were not indexed by these databases. The timeframe for these articles

was between 2020 and February 2023.

Search results were filtered by title and first paragraph for each article, evaluating them for suitability according to our inclusion and exclusion criteria. The inclusion criteria were: (1) a discussion of ChatGPT in relation to academic integrity issues, (2) examples of usage and teaching responses to ChatGPT, and (3) university policies regarding AI tools. The exclusion criteria were: (1) non-tertiary institutions and, (2) a general discussion of artificial intelligence in education, (3) research considerations outside of teaching practice. The figures for the initial searches and filtered results are found in Table 1.

Table 1. Search result numbers by database.

Database	Indexed Terms	Raw Results	Filtered Results
Newsbank	None	557	26
Australia & New Zealand Newsstream	("Artificial Intelligence" OR "Machine Learning"); ("Colleges & Universities")	367	48
US Newsstream	("Artificial Intelligence" OR "Machine Learning"); ("Colleges & Universities")	564	93
Hand-searching*		5	5
Total articles downloaded		1493	172
Filtered for relevance			100

**Hand-searched figures are filtered on discovery.*

Potentially relevant articles retrieved by the initial search were imported into EndNote for de-duplication, and co-authors read through the full article texts for relevance. Articles were removed if they were duplicates or focused on primary and high schools or discussed AI without a specific focus on the university context. This left one hundred articles in the final corpus for analysis.

The final news articles were downloaded using the NCapture Google Chrome add-on and imported into Nvivo for analysis. Following Neuendorf et al.'s (2017) content analysis guidebook, the first author read a subset of the articles and created a preliminary codebook based on the most common themes encountered. This was then refined with another sample of articles. We also coded who spoke in the article, focusing on whether university staff, students, or ChatGPT were quoted or had a voice in the media, as Sun et al. (2020) argue that examining how stakeholders are represented in the media provides important insight into the framing of AI. The corpus was then split into sections, with each author coding one section. Following the coding, the authors discussed any codes or guidelines that were not clear for a final revision of the codebook (presented in Appendix 1). Two authors then cross-moderated the coding using the final codebook and checked the text by theme to ensure each one had internal validity and accuracy. Nvivo's Sentiment Analysis tool was used to estimate the positive and negative valence of articles towards the topic. Its Query tool was used to count examples of specific word usage.

Results

Sentiment analysis found that all articles contained both positive and negative language. These were relatively balanced in the number of times positive (n=912) and negative (n=1034) language was coded. The most common themes that arose in the data were general concerns about academic integrity (n=87) and ways that students could be discouraged from using ChatGPT (n=87). There were fewer articles that discussed how and why ChatGPT could be used productively in teaching (n=58) or that explicitly stated a university's institutional policy towards ChatGPT (n=41). A full list of code themes and article count is provided in Table 2.

Table 2. Code definitions and article count.

Code	Definition	Article count
Academic Integrity		87
Catching	Discussion of tools that can be used for detecting the use of ChatGPT	51
Concern	General concerns about cheating/contract cheating/unfair admissions	54
Educate	Addressing concerns by educating students or referring to a Code of Conduct	25
Example	Specific stories and examples about failing or penalising students for using ChatGPT	20
Subject	Some disciplines or types of assignments that might be more at risk than others	16
Avoidance		87
Adaptation	Plans to restructure assignments or courses to minimise use of ChatGPT, including examples of specific assignments or tasks that ChatGPT cannot do	62
Errors	General criticism of errors made by ChatGPT or mentioning false referencing (outside of a specific context, such as learning or adapting assignments)	50
Learning	Specific concerns about negative impacts on learning outcomes	32
Policy		41
Undecided	University is considering their policy on ChatGPT	22
No Use	University has banned or discouraged ChatGPT	18
Allowed	University has encouraged or not banned ChatGPT	10
Embrace		58
Teaching	Ideas for how ChatGPT can be usefully incorporated into teaching (e.g., using as a class activity, producing teaching resources)	45
Too hard	It is too hard to ban, for practical or other reasons	25
Workplace	Justifying the use of ChatGPT in universities by linking to real-world/workplace practice	24
Equity	ChatGPT can be used to improve/enhance/address concerns with equity or help struggling students. This does not have to be a specific equity group (e.g., reducing student stress or anxiety)	10
Voice		86
Academic	Story, quote or example of a university academic or other university staff member	79
Student	Story, quote or example of a university student	30
ChatGPT	It is acknowledged that ChatGPT wrote part of the article, or ChatGPT responses are quoted as examples in text, or a ChatGPT spokesperson.	22

Academic integrity

The primary theme raised in the articles was academic integrity concerns (n=88). Most articles included generic discussions of cheating, academic dishonesty, or misuse. For example, the "potential threat of artificial intelligence as a tool to facilitate student cheating" (AI alert: Unis fight chatbot cheating, 2022); "students can now outsource their essay writing to the chatbot" (Venkataraman, 2023); or "there is definitely a risk of increased plagiarism" (SUNY's university at Albany: ChatGPT and the future of education – A Q&A with George Berg, 2023). There were also several examples of ChatGPT being used to cheat on entrance exams to university, such as claims that "in addition to ChatGPT's ability to write college application essays, it has also passed an MBA exam … and passed tests required for medical licenses and business degrees" (Erdem, 2023). These concerns were sometimes accompanied by generic statements that students need to be educated about how AI relates to academic integrity (n=25). For example, "our priority is to educate our students and staff to use AI

appropriately" (AI is part of 'our future, we need to embrace it', 2023) and "be explicitly clear about expectations for your students … how they may or may not get help when they're preparing assignments" (Stannard, 2023).

Many articles (n=51) also discussed the ability of universities to detect when ChatGPT or AI was used to write assignments. Multiple programs were mentioned as being able to detect AI-written text, including OpenAI's Open Text Classifier, Turnitin, GPTZero, Packback, HuggingFace.co, and AICheatCheck. However, other articles claimed that "the technology to detect AI-generated content is not very sophisticated" (Shea, 2023), "is currently easily defeated" (Colbran et al., 2023) and "isn't always accurate" (Davis & Kumar, 2023). Some academics were also quoted as saying they did not need an AI detection program as they were able to detect a shift in the tone and were familiar with their students; for example, "I've read the student's other work. This doesn't sound like them" (Burkhart, 2023).

Less common sub-themes in academic integrity included a specific example of students that were caught using ChatGPT (n=20). These were normally used as a hook to introduce the article, such as "I know of a student who failed their course because they cheated with it" (Bita, 2023b) and "the student confessed to using ChatGPT" (Huang, 2023). There were some concerns that particular subjects might be more vulnerable to ChatGPT than others (n=16). However, there was disagreement regarding which disciplines were more at risk. For example, Jacobson (2023) claimed that social sciences and arts were most under threat. In contrast, an academic in another article stated that "within the English department, there's always been a sense that the kind of writing that we require really does not lend itself very well to what we understand these services are doing" (AI writing tools garner concern about academic integrity, education from faculty, 2023). Similarly, in science disciplines, one academic stated that "ChatGPT is less effective for her computer science assignments, which rely less on information recall and more on problem solving" (Taylor, 2023), while a student in another said they were using ChatGPT for "computer science and statistics classes" (Huang, 2023).

Avoidance

A theme equally as common as academic integrity concerns was ways to encourage students to avoid using ChatGPT (n=87). There were many articles (n=62) that referenced universities changing their course, syllabus, or assignments to be less vulnerable to ChatGPT outputs. Many academics and universities were portrayed as moving back to invigilated examination as the primary response (e.g., "you've got to put them in a room with no (internet) access, with a pen and paper and no technology" (Bita, 2023b), "universities in Australia have returned to pen-and-paper examinations in response" (Littleton, 2023)). However, there were also claims that "a wholesale return to exams was not the answer" (Weale, 2023) and that universities should avoid the "easy option" (AI has power to 'liberate' learning, 2023) and focus on redesigning tasks to be authentic and measure critical thinking. There were many suggestions to revise assessments that were perceived as difficult for ChatGPT to emulate (e.g., podcasts, oral presentations, laboratory activities, group work, handwritten work, participation grades, vivas, and very specific assignment prompts).

Half of all articles argued that ChatGPT should be avoided because it was likely to make errors and had inherent limitations (n=50). Many of these related to how ChatGPT works, in that "it make[s] stuff up, but it sounds plausible" (Chatbots 'spell end to lessons at home', 2023) and may produce incorrect information. Other limitations listed were that ChatGPT could not offer an opinion, is limited to events before 2021, cannot look up information in external databases, does not provide references, makes mathematical mistakes, and lacks creativity or critical thinking in its writing style. Some concerns were also raised about copyright, privacy, and security of student data.

Interestingly, fewer articles (n=32) explicitly made the link between using ChatGPT and learning outcomes. Several articles argued that the process of learning and writing are intrinsically connected, such as claiming that "writing is how we discover what we think about whatever topic we have been studying" (Goodman, 2023). Other articles and speakers claimed that AI made assignments too easy and that it was the difficult parts of content and process that enabled learning to happen. For example, "if they bypass the learning process, which is struggling with the material, by using something like ChatGPT, then they're kind of cheating themselves out of an education" (AI writing tools garner concern about academic integrity, education from faculty, 2023). It was hypothesised in multiple articles that students would lose critical thinking skills "because it implies that class work is completed with the end goal of getting a 'good grade', as opposed to actually trying to understand material" (AI writing tools garner concern about academic integrity, education from faculty, 2023).

Policy

More articles cited institutions or departments that had banned ChatGPT (n=18) than those that had allowed its use (n=10). However, the most common response quoted was that a particular university was undecided about its policy (n=22). These universities were described as 'updating', 'reviewing' and 'considering' their policies. A few universities described not wanting to 'rush into' a new policy given the fast-evolving situation. In the absence of official institutional policy, several articles stated that individual academic staff would create revised policies on a course-by-course basis. Universities that had determined ChatGPT use would not be allowed had already updated their academic integrity policy or honour code or believed that AI use was already banned under the existing definitions of contract cheating. Where universities had allowed the use of ChatGPT, this was normally followed by classifications that its use needed to follow 'stringent rules' and be disclosed or acknowledged in assignments. Two articles also clarified that although a specific university was not banning ChatGPT, individual academic staff might still choose to do so in particular assessments or units.

Embrace

Nearly half of all articles (n=45) contained some discussion of how ChatGPT could be incorporated into teaching. These included generic statements that AI should be used in teaching (e.g., "AI models should be meaningfully integrated into teaching and learning" (Kovanovic, 2022) or incorporated as part of assignment tasks (e.g., "[the academic] would like to integrate its idea generating abilities into some class assignments" (Weinreis, 2023)). However, there were also several more specific ideas to improve learning. These included using AI to personalise assignment tasks, getting an AI tool to edit or provide feedback on student work, providing simple explanations of difficult concepts, brainstorming ideas, debugging code, producing first drafts, generating exemplar assignments for class critique, creating rubrics, overcoming writer's block, and generating citations.

The two most common reasons provided for allowing students to use ChatGPT were that it was too hard to ban (n=25) and that students would need to use it in the workplace (n=24). Attempts to ban ChatGPT outright were seen as a "fool's errand" ("AI chatbot is reshaping education," 2023) because too many students were already using it, it would be too time-consuming to enforce, and blocking it on university computers would just prompt students to use a VPN. Banning AI was considered to be "neither feasible nor advisable" (Weale, 2023) and "fighting it is pointless" (Goodman, 2023). Some commentators linked the difficulty of banning ChatGPT back to the ability to detect AI writing, for example, "do tertiary institutions want to fund an ongoing war between AI-generated output and AI detection systems?" (Colbran et al., 2023). Some articles compared ChatGPT to calculators (n=13) or Wikipedia (n=9) in terms of being a disruptive technology that could not be avoided. Articles that mentioned the relevance of ChatGPT to the workplace (n=24) generally did so quite fleetingly; for example, "our students will go to work in a world where they're expected to use these tools to be more productive" (Paykamian, 2023). There was little discussion of how AI would actually be used in the workplace except for a few vague mentions of copywriting, autocompleting tasks, and drafting memos and emails. There was no mention of collaborating with industry partners or using work-integrated learning to effectively support students in learning to use AI.

There was very little commentary on using ChatGPT to improve equity outcomes for students (n=10). Four articles mentioned using ChatGPT might reduce anxiety in students who were starting an assignment, especially if they did not have a strong academic background or possess positive help-seeking behaviours. For example, "some sort of AI tutor would make students feel less 'ashamed' in getting help" (Hartpence, 2023). Three articles mentioned that non-native speakers could use ChatGPT to improve their writing skills or "level the playing field". Only two mentioned supporting students who had difficulty accessing campus, and just one mentioned disability—but only briefly and not specifically in relation to assessment: "for people with a disability, [AI] can gift the power of speech, sight and mobility" (Bita, 2023a). One article argued that ChatGPT could exacerbate inequities "between students who have knowledge of the technology and those who do not" (Hampton, 2023).

Voice

It was obvious that the primary voice being portrayed in the media was that of the university (n=79). University leaders, unit coordinators, computer scientists, academic integrity researchers, professional staff in student support and student conduct, and teaching assistants were all quoted extensively. Of the articles that cited university staff, nearly half (n=38) quoted three or more different university representatives. By comparison, student voices were only quoted in 30 articles, and only seven of those quoted more than three students. In four articles, the only student voice was that of Edward Tien, a student who invented ChatGPT Zero for detecting the use of AI in assignments; and another two articles used survey data to represent the student voice rather than individual students. In several articles (n=4), students agreed to speak to the media on the condition of anonymity. When excluding surveys and Edward Tien, the student voice was only marginally more present than that of ChatGPT itself, which was represented in 22 articles. Of these, most (n=15) used output from the ChatGPT program, while seven used information provided by an OpenAI spokesperson or company statement.

Discussion

With respect to ChatGPT, news articles published in late 2022 and early 2023 appear to focus broadly on general public interest issues relating to its use; namely, the opportunities it affords for academic dishonesty and passing traditional exams over and above the opportunities to enhance access and participation in higher education for all students (Kelly, 2023). The sentiment in news articles seems to be much more mixed than the positive discourse found on social media (Tlili et al., 2023) or in coverage of other AI tools (Sun et al., 2020; Garvey & Maskal, 2019). In other words, the media and literature need to shift rapidly to interrogate the risks and opportunities of ChatGPT for university teaching and learning more closely.

Academic integrity concerns were discussed more frequently in these articles than opportunities for enhancing learning and teaching using ChatGPT. To some degree, this was predictable; general readers of news articles are more likely to be interested in controversies about cheating rather than good teaching practices. Academic integrity researchers have observed that plagiarism stories in the media frequently occur, as they tend to attract the attention of a large audience (Eaton, 2021). It is important to reflect on the implications of such a trend. Positioning the use of ChatGPT as a tool for cheating more often than a tool for learning can influence the perceptions that general readers have on the value of a university education, academic views on other institutional responses, and student thoughts on how such tools could be used in appropriate ways. Student perceptions are especially critical, as social norms can impact the likelihood of cheating (Hutton, 2006). Students reading multiple articles about students using ChatGPT to cheat may make them more likely to engage in that behaviour themself. Universities cannot moderate the media articles that are published, but academics can redesign assessment tasks in such a way that they cannot be completed as easily by

AI tools. Large-scale research into student rates of contract cheating, for example, indicated that the perception there were frequent opportunities to cheat in assessments increased the likelihood of exhibiting cheating behaviours (Bretag et al., 2018). One strategy to miminimise this possibility could be adopting more personalised reflective tasks contextualised to subject content. This view was prevalent in our data, with the adaptation theme found in over half of the articles. However, we observed disagreement on the best way to adapt assignments and which type of assignments and subjects would be most vulnerable to being replaced by AI. It is also important to note that ChatGPT is consistently evolving, so the limitations of AI and detection software discussed in the articles may quickly be superseded.

With respect to articles that commented on university positions on AI tools and their connection to academic integrity, most suggested that revisions would be needed but stopped short of specifying how those revisions would manifest in university policies. Updating university policies take time for approval through various governance committees, so it is likely that clearer policy positions about AI tools in an academic integrity context will become more common later in 2023. Discussing exactly what practices would be acceptable and not acceptable when using ChatGPT also takes time to consider thoughtfully, as the availability and degree of sophistication of these types of tools are unprecedented. Clear guidelines will need to be established for respective university staff and students as to how ChatGPT could be used in ethically appropriate ways. As seen in the article themes, given the ease with which students can access AI tools and the scale that they are being adopted in industry, banning its use does not seem like a practical approach.

While embracing ChatGPT must contain obvious conditions (e.g., appropriate acknowledgement of its use and the possibility of AI tools producing factual inaccuracies and/or biases), the opportunities to enhance student learning are enormous. Some articles in this research explored how ChatGPT can provide plain language explanations to complex concepts, suggest organisational structures for writing an assessment task, give grammatical feedback, and develop sample practice quiz questions for test preparation. Student use of ChatGPT also has the potential to improve employability outcomes, as such tools will revolutionise the ways in which many industries operate (Mollick, 2023). The best-performing students will be those that develop the critical thinking and information literacy skills to appropriately enter inputs and analyse the outputs that ChatGPT and other AI tools produce (Hess, 2023). Although the media coverage mentioned workplace relevance, industry spokespeople were missing from the discussion, and there was very little depth in the discussion of how ChatGPT would be used in the workplace or work-integrated learning. University educators need to consider deeply how they can develop student capacity to use these tools critically so they have unique skills in the graduate employment market that cannot be performed by ChatGPT.

ChatGPT also provides unique opportunities to enhance the academic success of students from different equity groups. This was not a common theme in the coding results and needed more discussion in the literature. Through plain language outputs, ChatGPT has the potential to demystify academic conventions for non-traditional students, such as those who are the first-in-family to study at university. Students from non-native English-speaking backgrounds can use ChatGPT for grammatical feedback on their writing. There is also potential to use it as a quasi-translator, especially for complex terms that may be difficult to understand if English is not a student's native language. For students with accessibility needs, such as those with communication disabilities, ChatGPT can understand poorly written commands and pull information together in a digestible summary for those with low literacy skills (Hemsley et al., 2023). Mainstreaming accessibility technology can improve engagement for students with disabilities and reduce the stigma around seeking support (McNicoll et al., 2019). All these affordances necessarily come with the qualifier that ChatGPT does, at times, present factual inaccuracies and biases in its outputs. Still, overall, the opportunities to use ChatGPT as another tool to support diverse student needs are exciting. It will be interesting to observe how the AI space develops with regard to accessibility and inclusion over the coming years, especially as paid services are introduced and other output forms (e.g., voice) may be made more available.

A final reflection on the coded data is that the media discussion about ChatGPT focused mainly on academic and institutional perspectives, with limited discussion on student views about AI tools. It is reasonable to expect such a trend because the first step in a response must come from staff regarding assessment design and academic integrity policies. Its release also coincided with the end of the year, and as such fewer students were likely to be engaging in study during the holiday period. However, there is a need to shift the discussion about ChatGPT to a more constructive student-led discourse. The limited coded data relating to students either referred to examples in a cheating context, mentioned Edward Tien as the creator of ChatGPT Zero, or a small number of anonymous students sharing their perspectives. Only two articles listed students as authors. For the higher education sector and its respective institutions to ensure students use AI tools appropriately and ethically, they must necessarily involve students in the conversation, as including voices from all stakeholders in the media can lead to a more sophisticated discourse around AI (Sun et al., 2020). In practice, student associations and student partners can take a proactive role in collaborating with university staff in policy development, educational resources, assessment design and communication strategies (Matthews & Cook-Cather, 2021). A university-wide approach to student partnership improves student engagement and retention (Millard & Evans, 2021) and should be a key part of institutional approaches to AI.

Limitations and recommendations for future research

In this research, we analysed coverage in mainstream news databases and did not explore alternative news sources. Compared to Tilili et al.'s (2023) analysis of education bloggers' views, we observed similar themes of how ChatGPT would transform education and its propensity to produce errors and inaccuracies. However, Tilili et al. (2023) found more social media discussion of feelings and ethics that were largely absent in our news dataset. Our study covered a relatively small number of media articles (N=100). The high number of duplicates that were filtered out suggested that there is a great deal of text-sharing and reuse between media outlets in our sample (Nicholls, 2019). It is also unclear how much of the media coverage was initiated by journalists compared to media releases and PR from universities, which have an increasing influence on news coverage (Vogler & Schafer, 2020). We also only examined news coverage in select Western countries, contributing to the imbalance in academic studies of Western news, particularly news from the United States (Hendrickx & Pakvis, 2022).

The findings of this article could be expanded upon by future researchers in several different ways. Expanding the search methodology we used to incorporate non-Western sources would provide a more comprehensive global review of how ChatGPT is being positioned across all areas of the world. As the student voice was missing from almost all the articles that we coded, conducting surveys and focus groups would provide another valuable means in which to understand better the direct ways in which students are engaging with ChatGPT and similar generative AI tools. Future researchers might also consider exploring academic staff views on ChatGPT, the extent to which it is used as a teaching tool, and how assessment tasks have been modified to mitigate the risk of inappropriate student use.

Conclusion

While there has been plenty of controversy surrounding the release of ChatGPT and its implications for higher education, there are clear opportunities to enhance student learning and access. This content analysis of news articles highlighted that the public discussion and university responses about ChatGPT have focused mainly on academic integrity concerns and innovative assessment design. The literature also revealed a lack of a student voice in the conversation so far and that there is potential for AI tools to enhance student success and participation from disadvantaged backgrounds. Academics and university representatives should be aware of the frames they choose to discuss when engaging with the media, as news coverage can influence social norms towards student cheating behaviour and public perceptions of universities. This demonstrates a need for further research and discussion about the implications of AI tools, including ethical use, innovative teaching and learning practices, and ensuring equitable access to educational opportunities. As these technologies continue to advance, it is important for universities to adapt and embrace the use of AI tools in a way that supports student learning and prepares them for the challenges of an increasingly digital world.

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Appendix 1. Complete codebook with guidelines.

Code	Definition
Academic Integrity	
Catching	Discussion of tools that can be used for detecting the use of ChatGPT
Concern	General concerns about cheating/contract cheating/unfair admissions
Educate	Addressing concerns by educating students or referring to a Code of Conduct
Example	Specific stories and examples about failing or penalising students for using ChatGPT
Subject	Some disciplines or types of assignments that might be more at risk than others
Avoidance	
Adaptation	Plans to restructure assignments or courses to minimise use of ChatGPT, including examples of specific assignments or tasks that ChatGPT cannot do
Errors	General criticism of errors made by ChatGPT or mentioning false referencing (outside of a specific context, such as learning or adapting assignments)
Learning	Specific concerns about negative impacts on learning outcomes
Policy	
Undecided	University is considering their policy on ChatGPT
No Use	University has banned or discouraged ChatGPT
Allowed	University has encouraged or not banned ChatGPT
Embrace	
Teaching	Ideas for how ChatGPT can be usefully incorporated into teaching (e.g., using as a class activity, producing teaching resources)
Too hard	It is too hard to ban, for practical or other reasons
Workplace	Justifying the use of ChatGPT in universities by linking to real-world/workplace practice
Equity	ChatGPT can be used to improve/enhance/address concerns with equity or help struggling students. This does not have to be a specific equity group (e.g., reducing student stress or anxiety)
Voice	
Academic	Story, quote or example of a university academic or other university staff member
Student	Story, quote or example of a university student
ChatGPT	It is acknowledged that ChatGPT wrote part of the article, or ChatGPT responses are quoted as examples in text, or a ChatGPT spokesperson.

Code guidelines

- For 'Policy' codes, only code university or department/faculty level policy. Do not code individual academics creating policy for their own respective subjects (although they may fit under 'use' and 'avoid' categories).
- Equity includes accessibility when in the context of equity, and not when referring to how students can get to access ChatGPT (e.g., ChatGPT is accessible on the internet).
- For 'Voice' codes, only code the name of a person the first time they are mentioned in an article. Subsequent quotes or mentions of the same person do not need recoding.
- For 'Voice' codes that relate to someone that is both a student and staff member, code them based on the role in which they are acting (e.g., a PhD student marking papers is acting as a staff member, so will be coded as 'Voice Academic')
- If two articles are the same text but published in different places, choose only one of them to code. Remove the duplicate from the dataset.
- Code the title of the article if it has text that fits within a particular code.
- Do not code:
  1. References to schools or non-university contexts (if a whole article is unrelated, remove it from the dataset)
  2. General discussion about ChatGPT that is not related to university students (e.g., ChatGPT in tech or research)
  3. Other forms of cheating that are not AI (e.g., contract cheating)
  4. General descriptions of what ChatGPT features
  5. Rhetorical questions where the speaker/writer does not take a position (e.g., "Can we integrate it into our classroom? Is it academic misconduct?")