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Emerging Frontiers in Learning Spaces, Pedagogies, and Technologies

The national student survey of GenerativeAI use among Australian university students: Preliminary findings

Samantha Newell

School of Psychology, The University of Adelaide, Adelaide, Australia

Sophie Dahlenburg

School of Psychology, The University of Adelaide, Adelaide, Australia

Entrusting GenerativeAI (GenAI) to complete tasks that require critical engagement with content can have wide-spread implications to the integrity of student learning outcomes. This paper presents the preliminary findings of a mixed-methods survey of Australian university students ($n=399$) on their use of GenAI in their studies. Preliminary findings suggest student GenAI use in universities is common, with approximately one third of students using GenAI and 53% engaging with ChatGPT alone. In open-ended responses, stigma and judgement towards students utilising GenAI to complete their assignments is evident. Stigma may entrench a culture of secrecy around integrating GenAI into the student workflow, which may work against any initiatives to increase citation or transparency in the sanctioned use of GenAI. Students also discussed implications for employability, skill development, and the originality of their work, with 80% of students concerned that GenAI is devaluing their degrees. These findings require universities to critically engage with either: building a culture of engagement with, or increasing surveillance against the use of GenAI in student assessments (reflecting the GenAI stance of each university).

Keywords: artificial intelligence, mixed-methods, GenerativeAI, student attitudes, GenAI, Higher Education

Introduction

In November 2022, the emergence of ChatGPT, a GenerativeAI (GenAI), changed Higher Education. Despite GenAI touching almost every industry and workplace, concerns about GenAI use by university students was felt almost instantly. For this study, we define GenAI as “a technology that (i) leverages deep learning models to (ii) generate human-like content (e.g., images, words) in response to (iii) complex and varied prompts (e.g., languages, instructions, questions)” (Lim et al., 2023, p. 2). With an increase in online and take-home exams (Scarfe et al., 2024), students have greater opportunity to outsource their exams and assessments to GenAI.

Invigilated or in-person exams (written or oral) and assessments are a proposed solution (Newell et al., 2023). In addition to the resource/marking/time requirements for in-person examinations, this approach can be difficult to apply in online or asynchronous contexts. One important question to consider is how university students are using GenAI in their course work. Is it as widely exploited as Turnitin data suggests (Lucariella, 2024)? Or are students merely using GenAI as an extension to the built-in spelling and grammar checkers that are common in most word-processing programs?

GenAI use among university students

Research has focused on educator attitudes and institutional responses (e.g., policy change) to GenAI, but there is a need to understand how this relates to student use. Limited research has been conducted on this topic, such as Chan and Hu’s (2023) survey of ChatGPT use by university students in Hong Kong; and Salifu et al.’s (2023) investigation of ChatGPT use among Ghanian economics students. In Salifu et al.’s study, a positive *social influence* was associated with students’ use of ChatGPT. A recent publication by the Tertiary Education Quality and Standards Agency suggests that, of the estimated 10-60% of university students who use GenAI for their studies, it is still unknown what proportion use GenAI inappropriately (Lodge, 2024).

Exploring technology acceptance and use: The Unified Theory of Acceptance and Use of Technology (UTAUT)

Predictive factors underpinning the adoption of various technologies (including GenAI) have been empirically investigated. The resulting model of acceptance of Information Technology in workplaces, the Unified Theory of Acceptance and Use of Technology (UTAUT), was developed by Venkatesh et al. (2003). The UTAUT (Venkatesh et al., 2003) was adapted to explore factors that predict acceptance of mobile internet technology (their updated

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UTAUT2; Venkatesh et al., 2012). The UTAUT2 was utilised to explore the acceptance of chatbots in Malaysia (Rahim, 2022; noting that this study was published one month before the release of ChatGPT). The UTAUT2 (Venkatesh et al., 2012) was expanded upon by Polyportis and Pahos (2024) to include more factors related to attitudes and values, specifically for ChatGPT use (now called the 'Meta-UTAUT'). The Meta-UTAUT aimed to predict the acceptance of ChatGPT among university students in The Netherlands. Educators need to know if students are using ChatGPT, but we also need to explore for what purposes are they using it: what they are outsourcing, or cognitively offloading to GenAI (Lodge et al. 2023).

Addressing future directions in previous GenAI literature

This study aimed to understand the pattern of use and perceptions of GenAI amongst Australian university students via a mixed-methods survey. In light of previous research, the first aim of this study was to survey university students to understand their use of GenAI by adapting items from UTAUT2 scale (Venkatesh et al., 2012). We also addressed a future research need of Luo (2024), which was to explore whether students' perceptions of 'originality' can be impacted by explicitly bringing AI into the writing/creating process. Based on the future directions outlined by Luo, the extent to which stigma was present in students' perceptions of assessments completed with GenAI was also explored.

The second aim was to explore Australian university students' views of GenAI in response to provocative prompts, hypothetical situations, and specific use cases of GenAI in their assessment workflow. To understand the dynamic of integrating GenAI into student learning workflow, the concept of (and students' comfort with) 'collaborating with GenAI' to complete assessments was also explored. Specifically, students were asked to place themselves on a sliding scale of collaborative use cases (from Rowland, 2023). Due to the richness in the open-ended responses throughout the survey (the result of a considered mixed-method design), the appropriate methodology to engage with the talk is Reflexive Thematic Analysis (RTA; as defined by Braun & Clarke, 2021).

Method

Design

Extending our knowledge of the UTAUT, this study adapted questions from its' predecessors to explore the use of GenAI in Australian Universities. We drew upon previous iterations of the UTAUT (Venkatesh et al., 2003), UTAUT2 (Venkatesh et al. 2012), and Meta-UTAUT (Polyportis & Pahos, 2024) in our survey design. Open-ended questions were included to gain richer insights into students' survey choices. Qualitative questions were also designed to explore the perceived advantages and disadvantages of integrating GenAI in their studies.

Participants and ethics

Participants were recruited via flyers, social media, professional networks (including the Australasian Academic Integrity Network), and snowball sampling. Eligible participants were current or recently-graduated students of registered Australian universities, over 18 years old. The online survey comprised 31 items about GenAI use, literacy, and attitudes; the survey included Likert-scale questions and open-ended responses. Data were collected between April and June 2024. This study was approved by The University of Adelaide's Human Research Ethics Psychology Sub-Committee (H-2024-0024).

Results and Discussion

In total, 596 participants accessed the survey link during the time of data collection. Of these, 197 were excluded, most commonly for completing less than 10% of survey responses (n = 170). Therefore, our final sample comprised 399 participants. Participants were students from Australian universities, and included:

- 74% domestic, and 25.8% international students;
- an average student age of 23.25 years (SD 6.76; range 18 to 56);
- 73.25% female, and 22.25% male students, with 3.5% selecting *non-binary/third gender*;
- almost a third (32.5%) from 1st year, 21.5% from 2nd year, 18.8 % from third year, 10.5% in 4th year, 8.3% in 5th year, and 7.3% in postgraduate research studies; and
- The most representation from three disciplines: Medicine and Allied Health (25.5%), Psychology (12.25%), and Computer Sciences (12%).

GenAI use

Participants were asked if they used GenAI outside of their studies. Just over two-thirds of our sample (65.5%) responded either "often" (17.5%) or "sometimes" (58%) to this question. To understand what GenAI program was most used in the context of university coursework, students were asked to rate whether they have used a

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specific GenAI tool/model in their studies, with 62 options presented. Then, participants were asked to comment on the frequency of engagement with these tools.

Participants indicated whether they *do not use/have not used, have explored this, but do not use it often, or do this routinely/often*. Most students have, or are regularly using ChatGPT (53%), with 23% 'frequent' or 'very frequent' use. The next most used GenAI were Quillbot, Grammarly, Gemini, and AcademicGPT. We also explored what they were using these tools for. Table 1 displays the four most common applications of GenAI among students. With Turnitin reporting that 11% of papers submitted to their AI-checker were at least 20% GenAI-written (Lucariella, 2024) and acknowledging that 53% of surveyed students use ChatGPT (alone), we should be questioning how effectively our detection processes are working.

Table 1

Admitted GenAI Use in University Coursework

Activity/Use	Do not use	Not often use	Often use
Suggestions for rewriting text	34.99%	29.77%	35.25%
To simplify complex concepts (summary/examples)	38.38%	34.20%	27.42%
Proofreading (feedback only: spelling, grammar)	47.29%	26.37%	26.37%
To initiate ideas for the design of research studies or projects (research questions, hypotheses, identify gaps; variables, methods, or instruments)	48.04%	31.85%	20.10%

Student collaboration with GenAI: Implications for employability skills and stigma

Students were presented with a figure (Figure 1, below) from Rowland (2023), and asked to identify which level of GenAI-Human collaboration for assessments feels appropriate:

9. Entirely GenAI generated
8. Student edits AI work
7. AI as "copilot": AI as co-editor
6. Write from notes: AI asked to convert to paragraphs, structured notes provided by the student
5. Research assistance: AI used to find sources and summarise/paraphrase
4. Planning: Student uses AI to help plan a structure
3. GenAI to review and provide feedback on student draft
2. Proofreading (E.g., Grammarly)
1. Entirely human generated

Figure 1. Higher levels indicate increasing GenAI 'collaboration'. Adapted from Rowland (2023, p.36).

The mean was 3.63 (SD 1.66), with levels 3 and 4 chosen most frequently (27.78% and 27.47% respectively). Students justified their choice of level through open-ended responses, such as: 'I think A.I. can be a great tool in planning and to run ideas off. But I do not think it should be copied and pasted by any degree. Students should at least be able to write things independently...' (domestic student, 1st year), 'above level 3, I feel that students are not learning or critically thinking about the content and are...relying on AI to do it for them' (domestic student, 2nd year), and 'anything above Level 3 doesn't demonstrate the student's writing abilities' (domestic student, 1st year).

Provocations were provided by students when discussing implications for employability, where they feel GenAI is 'turning the learning process into busy work where questions only serve to force students to fetch answers from an AI' (domestic student, 3rd year). Others considered the extent to which GenAI has or will be integrated into workplaces, stating that 'applying it correctly is part of workplace competence' (domestic student, 4th year); however, we speculate that GenAI has not (yet) integrated in workplaces at scale. Students may be future-thinking and predicting complete integration into corporate workflows.

Extreme 'future-thinking' is observed in responses and reflects the perceived (or potentially real) impact of AI on the value of Higher Education. One student stated that there is 'no point running [the] education sector either, and if we are too dependent on AI, I'm not sure whether such graduates are ready for professional jobs. Either way, AI will take over our jobs in the future anyways.' (international student, postgraduate). The discussion around outsourcing work could be linked to the concept of cognitive offloading as defined by Lodge et al. (2023). In that paper, GenAI is presented as a mechanism "to take on mundane tasks freeing up the capacity for other mental tasks or extending human capabilities by enhancing them" (p.119).

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In our Australian-based study, students are expressing neutral and negative perceptions of GenAI. The negative sentiment in our sample contrasts against Chan & Hu (2023), who reported a majority positive perceptions of ChatGPT in Hong Kong universities. This could reflect different social influences (peers or teachers) or a broader difference in cultural sentiment for GenAI in these two contexts. However, some concerns expressed by Australian students align with the concerns reported by Hong Kong students. These shared concerns include an undermining of the value of university education through the use of ChatGPT to complete assessments.

When we asked students directly 'does the use of GenAI technology to complete assessments undermine the value of university education?', 80% of students showed concern, responding either *yes* (37.78%) or *maybe* (42.22%). To explore this further, we asked students 'if there has been a collaboration between GenAI and an author, is the output viewed as less valued?'. Responses broadly reflected the presence of stigma for 'GenAI collaborated' assessments, stating that 'more value [is placed] on one done without the use of A.I.' (domestic student, 1st year); 'zero value. If their work or ability had value [then] it would have been produced without the aid of Generative AI' (domestic student, 3rd year); and 'anyone can go and type things into a bot or AI, but not every human has the capacity or willingness to think critically and come up with interesting ideas' (domestic student, postgraduate research/HDR).

The presentation of Rowland's (2023) Levels of GenAI collaboration aimed to also explore students' beliefs around the originality of GenAI-collaboratively produced work. This was to address the research need outlined in Luo (2024). In response, one student expressed that the hypothetical 'student is essentially ripping off someone else's work' (domestic student, 2nd year). Another student expressed the following:

'Authenticity is key. Generating ideas to learn about new things is completely different than generating full texts through AI. It's like competing human intelligence against AI when they should rather be complementary to each other.' (international student, 4th year)

Universities wishing to integrate GenAI into the learning workflow must work to build the right culture. What other students think is important as it builds a culture of transparency, or secrecy. Yilmaz et al. (2023) explain that the social influence from peers (and the university context more broadly) does predict whether technology is used. If we want students to acknowledge their collaboration with GenAI, then the social norms of using it need to be favourable; otherwise, stigma can occur.

Stigma is evident in many student responses, such as: 'I feel as though a lot of people are using it secretly and it makes me angry' (domestic student, 1st year), and 'when I hear someone use AI for the part for formation of ideas, I am highly disappointed' (international student, 3rd year). Responses such as these signify the presence of judgement around work that has been prepared in collaboration with GenAI. Many students expressed suspicion of work produced by GenAI, sharing that they 'will not trust 100% the source of their information. I will also be bothered about the unfair advantage the AI tool offers as against a student who didn't use GenAI' (domestic student, postgraduate research/HDR), and 'we always need to double check with these tools provide us, to make sure the quality is high enough' (international student, postgraduate research/HDR). With negative sentiment broadly expressed by students, educators' perspectives could be explored in future studies to reveal if there is a pervasive desire to conceal the use of GenAI in Higher Education.

Conclusion

This paper reports on a cross-section of Australian university students and their GenAI use. With approximately one-third of students actively engaging with GenAI in their coursework, ChatGPT was identified as the most common GenAI program used. Students are using GenAI in pedagogically sound ways, such as applying these tools to simplify complex concepts. However, GenAI is also being used for more problematic applications, such as re-writing or wholly writing their work. The application of Reflexive Thematic Analysis to such a large data set is ongoing, with statements presented to provide context for the key findings. However, early analyses reveal that students are generally uncomfortable with assignments that are produced in collaboration with GenAI. In many cases, students view GenAI-generated output as of little value, and lacking originality. At the most extreme, students expressed judgement of those who use it as outsourcing their thinking/cognitive engagement with their studies.

Institutions are currently choosing sides: ban or sanction the use of GenAI. With either approach, they will still need to address the negative perceptions about the value and originality of GenAI content that was expressed by students. The strong opinions shared in this paper demonstrate the arguments that universities will need to address. Those in the 'ban' camp will need to explain that there are genuine concerns with originality and the

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value of GenAI-generated output. Universities wanting to sanction GenAI use will also need to address the strong reservations that students are expressing, before they will appreciate the potential of GenAI in Higher Education.

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