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Using Generative Artificial Intelligence in learning and teaching: An empirical analysis on academic staff's perspectives

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Abstract

The use of Generative Artificial Intelligence (GAI) in higher education has garnered significant attention from scholars and researchers since the release of ChatGPT, one of the prominent GAI tools, in late 2022. While academic communities are increasingly recognizing the potential of GAI in teaching and learning, concerns persist regarding the impact of individual backgrounds and employment statuses on attitudes toward GAI, particularly in private higher education. This paper examines the perspectives of academic staff across different disciplines and employment statuses on their familiarity with and incorporation of GAI technologies in teaching. It emphasizes how to integrate GAI technologies effectively into teaching while upholding academic integrity and ensuring the quality of education. The findings, derived from an online survey and descriptive analysis, reveal significant variation in GAI familiarity among disciplines, as well as differing approaches to integrating GAI tools into teaching practices and formulating policies to maintain academic integrity. Notably, full-time staff are generally more familiar with GAI than their casual counterparts. While most teaching staff are open to students using GAI in their studies, concerns about potential breaches of academic integrity, particularly in assessments, remain prominent. To address these concerns, we recommend developing a transparent academic integrity policy along with clear guidelines for GAI use tailored to different disciplines and employment statuses. Such measures would foster an innovative and creative learning environment while safeguarding the quality of education.

Introduction

In today's society, Generative Artificial Intelligence (GAI) has attracted much interest from scholars through its significant contributions to educational technologies for adaptive learning environments (Minn, 2022; Marrone et.al., 2022). GAI has been progressing at an accelerated pace and generated effective technologies to support education such as learning management systems, online discussion boards, transcriptions of lectures, online exams, and so on in and outside class (Chai et al., 2021; Chaudhry et al., 2023). The applicability of GAI technologies in higher education was considered positive until November 2022 when a US company, OpenAI, released ChatGPT that has caused critical concern among academics about the integrity of students in their assessments (Sullivan et al., 2023). ChatGPT refers to a Generative Pretrained Transformer, a language model developed by OpenAI, which was trained on large language databases and generates human-like responses, including providing real-time communication in response to requests of users (Chaudhry et al., 2023; Lund & Wang, 2023; Sullivan et al., 2023, Neumann et al., 2023). As a conversational tool, AI-based ChatGPT can give users relatively detailed answers to the questions asked (Van Dis et al., 2023; Chaudhry et al., 2023) that inevitably would hinder learners' performance and their academic skills for their future careers.

Recent studies showed that after releasing AI-based ChatGPT, approximately one-fifth of students utilized AI-based ChatGPT for their assessment tasks (Cassidy et al., 2023). As reported by Intelligent (2023), one-third used this tool for their academic writing in a survey of one thousand university students, albeit 75% of students in this survey recognized that using ChatGPT was cheating, but they did so. While AI-related tools are assessed as innovative, ChatGPT has arisen as a "threat" regarding the academic integrity of students in assessments (Sawahel, 2023; Weissman, 2023, Sullivan et al., 2023), which might affect learning efficiency, given that ChatGPT can be accessed by students worldwide regardless of on-campus, online, domestic, or international students.

Since 2023, the empirical literature in higher education has started focusing on ChatGPT and its effects on learning and teaching in higher education through critical review content analysis (Lo, 2023; Sullivan et al., 2023; Firat, 2023) to emphasize the importance of using ChatGPT in higher education processes. In Australia, the Tertiary Education Quality and Standards Agency (TEQSA, 2024c) has provided guidelines and resources to assist higher education providers and teaching staff to meet new challenges and benefit from opportunities afforded by advances in GAI. It can be observed that while previous studies made attempts to examine the perspective of students and teaching staff on using ChatGPT via a rapid survey, very little is known about whether teaching staff in the private higher education sector have perceived advantages and disadvantages of using GAI in learning and teaching that they are engaging with and thus encouraging private higher education institutions (HEIs) to have an appropriate strategy to mitigate the impact of GAI on the integrity of learning (TEQSA, 2024b). The potential differences in academic perspectives on using AI in learning and teaching, based on discipline and employment status, have not yet been explored.

This paper aims to address these gaps in the literature on GAI in higher education by examining the perspectives of academic staff at an Australian private HEI on the use of GAI, particularly ChatGPT, in learning and teaching and exploring whether GAI impacts the integrity of learning and, consequently, the integrity of the higher education qualifications it awards. In doing this, a descriptive analysis is used to provide overall perspectives of academic staff on GAI through an anonymous online survey at an Australian private HEI with both casual and permanent staff for three disciplines: Accounting (ACC), Business (BUS), and Business Information System (BIS). In addition, an inferential analysis is employed to examine whether there is a significant difference in academic staff's perspectives by types of disciplines and employment statuses. A case study conducted at this private HEI is expected to provide insightful information for educational managers to design appropriate learning and teaching methods for improving learning and learning efficiency in the presence of GAI and, thus, upholding the education quality of private higher education providers.

The paper is organized as follows. Section 2 presents the development of GAI in higher education with the event of ChatGPT and the requirements and guidelines of TEQSA. The research design and empirical analysis are illustrated in Section 3. This is followed by Section 4 presenting the results of the survey. Section 5 discusses the results found in the survey with academic perspectives on using GAI and academic integrity. Section 6 outlines theoretical and practical implications in designing the AI integrity policy and integrating AI in the learning and teaching process. Section 7 ends with conclusions and limitations.

Generative Artificial Intelligence in higher education

Generative Artificial Intelligence and the advent of ChatGPT

Generative Artificial Intelligence (GAI) is defined as an overarching term covering a range of technologies and methods, namely machine learning, natural language processing, data mining, neural networks or an algorithm (Baker & Smith, 2019). The use of GAI in higher education is not a new topic. It was first introduced in 1997 by the International Artificial Intelligence Education Society. However, it has only recently attracted the attention of educators, who are now exploring the potential opportunities for AI to support learning throughout students' academic journeys (Zawacki-Richter et al., 2019). In education, AI can contribute to software applications in learning and teaching in terms of three categories: personal tutors, intelligent support for collaborative learning and intelligent virtual reality (Luckin et al., 2016). Intelligent tutoring system (ITS) can run modules with thousands of students albeit online collaboration needs to be facilitated and moderated (Salmon, 2000). In addition, under intelligent virtual reality (IVR), students can engage in and be guided in authentic virtual reality and game-based learning environment, and with virtual agents acting as facilitators in virtual or remote

labs (Perez et al., 2017; Zawacki-Richter et al., 2019).

Previous studies revealed that GAI-based chatbots can enhance student interaction, motivation, engagement and improve learning process and outcomes (D'Mello et al., 2014, Winkler & Söllner, 2018, Deng & Yu, 2023). A recent study of Alotaibi et al. (2020) reported that using a chatbot significantly enhanced performance of students and their knowledge retention in a computer science course. In addition, Song et al. (2023) indicated that students perceived a chatbot as a useful tool with a positive attitude in the process of learning language. Most recently, Ahmad et al. (2024) surveyed respondents from 11 Asian and African countries and found that those who used AI tools reported significantly greater benefits than those who did not. Additionally, it is found that individuals with a master's degree perceived AI tools as more threatening than those with a diploma, and female participants reported greater AI-related threats than males. While snowball and convenience sampling methods were used in this paper, which are not randomly selected and may not fully represent the population, the authors still provided valuable insights into the strengths and threats of AI tools in learning and teaching.

While the enormous opportunities for the application of AI to support learning and teaching can be observed, the advent of ChatGPT, one of GAI-based tools, in its version 3.0, launched in late 2022 has augmented concern about its influence on HEIs, for example, academic integrity in learning and teaching while HEIs have no clue on how to respond to this new tool (Chaudhry et al., 2023). While the use of technology in learning is encouraged, it is essential to consider ethics, responsibilities, and caution (Gelman, 2023). Farooqi et al. (2024) highlighted several key points in their systematic review. First, data privacy should be a top priority, as AI systems rely on extensive data, which raises the risk of breaches and misuse. Second, there must be a robust mechanism for data protection and compliance with general data protection regulations. Another critical concern is algorithmic bias: biased training data can lead to discriminatory decisions, exacerbating inequalities in education. However, rather than restricting the use of GAI tools, HEIs should focus on exploring ways to use them safely (García-Peñalvo, 2023). As can be seen, ChatGPT has provided an opportunity to reconsider the purpose of assessment, assignment development, writing support, and reflection in AI utilization in society that can enhance the effectiveness of learning and teaching (Strzelecki, 2023, Sullivan et al., 2023, Crawford et al., 2023, van Dis et al., 2023).

While AI-based technologies have generally been seen as having a positive impact on teaching and learning, the introduction of ChatGPT in late 2022 has raised concerns about its potential to significantly affect the academic environment (Thorp, 2023). Lack of integrity and less critical thinking in problem solving in learning are inevitable when students much rely on ChatGPT. In addition, answers of ChatGPT are found to have issues in information generation and biases in data training and privacy (Baidoo-Anu & Owusu Ansah, 2023). In order to limit the adverse effects of ChatGPT, academics are required to rethink about innovative teaching methods and produce assessments that are not easily solved by AI (Firat, 2023).

Academic integrity

Academic integrity is interpreted as a proxy of the students' conduct with respect to plagiarism and cheating (Macfarlane et al., 2014). Academic integrity plays an important role in higher education aiming at displaying honesty, accountability, and credibility of learners. Integrity failures can damage the credibility and reputation of HEIs (Altbach, 2004). To ensure reputation and education quality, HEIs presently have their academic integrity policies in place to deal with academic misconducts and strengthen academic standards. These integrity policies are well communicated to students by academics on a regular basis (Chaudhry et al., 2023).

In addition, to ensure good academic conduct of learners, the role of technology is important to verify the identity and authorship, but not being intrusive of privacy by providing platforms for secure and efficient evaluation of learners' work (Macfarlane et al., 2014, Amigud et al., 2017). Some technologies, such as remote live proctoring, remote web processing, browser lockdown, keystroke pattern recognizers, and plagiarism detectors, are currently available; however, each serves a specific goal. For example, the lockdown browser can verify identity, but it cannot confirm authorship if cheating is suspected (Chaudhry et al., 2023, Smith et al., 2021). On the other hand, while online assignments can be checked for plagiarism and authorship, they cannot verify student identity (Amigud et al., 2017; Chaudhry et al., 2023). Although no technological tools currently offer a complete solution for academic misconduct, further investigation and the experience of instructors are essential when issues arise. Nevertheless, these tools have proven effective in supporting academic integrity, particularly in detecting plagiarism. For instance, tools like Turnitin and Edutie have helped educational institutions gather evidence to address instances of student misconduct (Denisova-Schmidt, 2016; Boehm et al., 2009).

However, with the advent of ChatGPT which allows quick essay generation and answers close to human-like writings, a critical question arises regarding how academic integrity can be ensured in students' work produced by ChatGPT (Ventayen, 2023). In addressing this, in April 2023, Turnitin released an AI writing detection integrated into Turnitin Feedback Studio available for HEIs to use on their online learning platform. This tool provides an overall percentage of the text that might have been generated by AI. However, students cannot see this score. Together with this, a report highlighting sections written by AI is available for instructors to view and download. While the AI report may be used, it does not mean that a student has committed misconduct. This may require the marker's expertise to evaluate both the AI-generated score and the assignment in context (Howie, 2023).

Academic perspectives on ChatGPT have not considered AI tools as a serious threat in higher education (Firat, 2023, Chaudhry et al., 2023). However, while AI tools such as ChatGPT can enhance learning, they may produce factual

inaccuracies and biases (Sullivan et al., 2023), which could impact students who heavily rely on ChatGPT for their studies. The literature suggests that with the widespread availability of AI today, teaching and assessment practices must be adapted by academics. These tools offer an opportunity to rethink how written tasks are assigned to foster higher-order critical thinking skills (Liu et al., 2023; García-Peñalvo, 2023; Rudolph et al., 2023; Hess, 2023). As a result, universities and their academic staff can encourage students to use ChatGPT and other related tools in an ethical manner that promotes the development of critical thinking (García-Peñalvo, 2023). Since the arrival of ChatGPT version 1.0 onwards, several studies have been conducted on such GAI tools; however, most recent studies focus on the impacts of the release of ChatGPT 3.0. For example, a study by Rudolph et al. (2023) explored the fundamental features of ChatGPT and its implications for university teaching and learning. On the other hand, Tlili et al. (2023) explored social media sentiments about ChatGPT in the educational context. The authors found that public discourse generally responded positively to Generative AI (GAI) tools. In terms of AI tools in assessment, Ofem et al. (2024) noted that incorporating AI-driven tools into the curriculum allows both teachers and students to benefit from timely feedback, automated scoring, and efficient assessment planning. The authors further highlighted that AI-powered assessment systems can analyse vast amounts of data, identify patterns in student performance, and offer adaptive feedback tailored to individual learning needs.

Research on Generative AI (GAI) has surged since late 2022, with 160 papers published across 50 countries (Ismail et al., 2024). Among them, Australia ranks second with 18 papers, following the United States, which has published 28 papers. However, to our knowledge, there is limited understanding of whether teaching staff are familiar with GAI technologies, or if academic perspectives on the impact of ChatGPT in learning and teaching differ by discipline (e.g., business, accounting, information systems) and employment type (e.g., casual, full-time). This gap is particularly evident in private higher education in Australia, where AI research is still limited. Additionally, there is a lack of insight into whether teaching staff are comfortable with students using ChatGPT in assessments and the potential risks to academic integrity. Addressing these questions is crucial for providing educational managers with the information needed to design integrity policies that support the effective use of GAI in the learning and teaching process. By doing so, this research aims to make valuable contribution to the literature on AI in higher education, supporting efforts to maintain the quality of education in the sector as required by TEQSA.

Tertiary Education Quality and Standard Agency (TEQSA) with GAI guidelines

In the presence of GAI, TEQSA Australian Academic Integrity Network (AAIN) Generative AI Working Group has provided GAI guidelines to students and academics (AAIN, 2023). This need has been sourced from recent advances in AI technologies with a high demand for public understanding of these technologies (Selwyn & Gallo Cordoba, 2022), especially in higher education. The guidelines aim at assisting education providers to manage better practices, ethics and policy in using GAI at their institutions.

While acknowledging the benefits of AI technologies to education such as automatic generation of outlines and summaries, support for personalized learning, and writing feedback, AAIN (2023) indicated some challenges of AI including "(1) the authentication of individual attainment for accreditation purposes, (2) potential challenges to the principles of academic integrity, (3) the need for sustainable and adaptable responses to generative AI in learning, teaching and assessment and academic integrity policies and procedures, (4) support for staff and students in understanding and using the technology" (p. 1). In order to address these challenges, AAIN (2023) aimed to provide guidelines to support existing and new guidance for students, academics, professional staff, university administrators and decision-makers.

AAIN (2023) provided nine points for teaching staff . The guidelines of the nine points for teaching staff mainly focus on the importance of clear instructions and expectation that should be provided to students regarding the appropriate use of generative AI in assessment tasks and learning activities. These instructions and expectations should be consistent with institutional guidelines and available on teaching platforms for students' reference. Teaching staff also needs to communicate to students any inappropriate uses of generative AI that may result in academic misconduct. Academics should inform students about the potential for detection software (e.g., Turnitin) to detect generative AI use and that they are risking academic misconduct if using generative AI without appropriate acknowledgement by following the referencing guidelines provided by their institution. The ethical use of GAI or indicating when not permitted should be incorporated in unit outline, course learning outcomes, assessment tasks and marking criteria. All these should align with institutional policies and any accreditation requirements.

In addition, AAIN (2023) provided other guidelines for professional staff such as librarians, learning advisors to support students to develop academic skills and academic integrity, governance officers to update and maintain policies and procedures to facilitate the investigation of potential academic misconduct. Training should be provided to academic integrity officers to maintain current, relevant knowledge on changes in policies as well as trends in the permitted use of AI tools.

AAIN (2023) also provides guidelines to higher education providers in designing policies and procedures on the ethical use of GAI across disciplines and changes should be communicated to staff and students. These policies and procedures should be treated as live documents, reviewed and updated regularly according to changes in GAI technologies. If GAI applications are required for units and courses, they should be made available for students at no additional cost to ensure equitable access.

Since the arrival of ChatGPT 3.0, TEQSA has aided higher education providers in reflecting the risks of GAI that could potentially impose on higher education in terms of teaching

and assessment, student privacy, equity considerations and academic integrity. The information about AI and the reflection of some HEIs are available on the website of TEQSA (TEQSA, 2024b). To ensure consistency in the ethical use of AI, TEQSA has requested that HEIs submit detailed and credible action plans by June 2024. These plans should provide assurance that institutions are engaging with GAI technologies and have strategies in place to mitigate the impact of GAI on the integrity of their higher education awards. Given the diversity of providers, student cohorts, and courses, it is expected that institutions will adopt varied approaches to address the challenges posed by AI technologies. This request underscores their responsibility under the Threshold Standards, ensuring that potential risks to academic activities are being effectively managed and mitigated (TEQSA, 2024c, p. 1). While the action plans of TEQSA appear to focus on students. the role of academics becomes crucial in being familiar with, understanding, and integrating GAI technologies into the teaching process to enhance students' learning experiences. However, to our knowledge, there is limited research on this aspect, presenting an opportunity for us to contribute to the literature on GAI applications in the private higher education sector by (1) exploring teaching staff's familiarity with GAI technologies across different disciplines and employment statuses and (2) examining whether staff are willing to incorporate GAI into their teaching and identifies concerns related to academic integrity in its use. The goal is to ensure the quality of teaching in the private higher education sector.

Research design and methods of analysis

Research design

This paper aims to use a quantitative research design to address the proposed research objectives. The study employs quantitative methods, including an online survey, descriptive analysis, and inferential analysis, to provide a comprehensive understanding of how academic staff perceive the impact of generative AI (GAI) on learning and teaching since the public release of ChatGPT in late 2022. The online survey (Burns & Veeck, 2020) was specifically designed to investigate academic staff's perceptions of using GAI tools like ChatGPT in teaching and assessments, focusing on their potential influence on student learning integrity. The survey questions were designed to gather comprehensive data on various aspects of GAI integration in teaching and learning. Questions covered topics such as types of GAI tools used, purposes for which they were used, and perceived benefits and drawbacks. The rationale for each question was to explore the depth and breadth of utilizing GAI technology among academic staff and to understand the challenges and concerns related to academic integrity.

The online survey, including 19 closed and open questions, was sent out to all academic staff of a private Australian HEI. This online survey was launched in November 2023, anonymous, confidential and pre-tested. Its ethics approval was obtained from the Scholarship of Learning and Teaching Committee of this HEI before being sent out to respondents. While focusing on academic staff at a single Australian private HEI may limit the ability to generalize findings to other studies, it allows for a controlled, homogeneous environment. This approach ensures a consistent comparison of academic perspectives across different disciplines and employment statuses regarding the use of GAI technologies in teaching and learning within this HEI. A total of 55 academic staff members were invited to participate in the online survey via email. At the close of the survey period, 17 responses were received, representing 31% of the total academic staff. This response rate met the required sample size criteria, corresponding to a confidence level of 0.8, a margin of error of 0.1, and a population of at least 50 for an internal survey (Nulty, 2008; Oribhabor & Anyanwu, 2019). Among 17 responses, 41% were casual staff and 59% were permanent staff. Regarding disciplines, 18% of responses were of ACC; 53% of responses were BUS and 29% of responses were BIS. All questions were answered for both quantitative and qualitative responses with high reliability. To minimize sampling errors and improve the response rate, the master list of academic staff was updated, and a friendly reminder was sent to follow up with participants invited to complete the online survey. Previous studies have shown that surveys with smaller sample sizes typically require response rates of 20%–25% to yield reliable estimates (Fosnacht et al., 2017; Wu et al., 2022). Therefore, the 31% response rate achieved in our internal survey is considered acceptable for an online survey.

Empirical strategies

In this paper, we used two methods of analysis to address our research objectives. First, the descriptive analysis was utilized to provide an overall evaluation of academics' perceptions of quantitative questions on using GAI in teaching and learning. Descriptive analysis is a method of statistical analysis that involves summarizing and interpreting data to identify patterns, trends, and key characteristics. This type of analysis helps to describe the main features of a dataset without making inferences or predictions, offering a straightforward understanding of the data's distribution in the survey (Burns & Veeck, 2020, p. 343). We used this method to answer the following questions: (1) whether academic staff are familiar with using GAI technologies, and what kind of GAI have experienced, (2) whether academic staff are comfortable with their students using GAI in their courses, and (3) how likely they think their students were to violate the policy of integrity before or after the release of ChatGPT and other GAI technologies. In addition to this, we asked academic staff about their employment status (casual or full-time) and discipline that they are teaching (e.g. ACC, BUS, BIS). The questions were designed using a 5-point Likert scale format and analysed as categorical variables for cross-tabulation. The Cronbach's alpha for the Likert scale questions was 0.96, indicating a high level of consistency in measuring the same underlying concept, which demonstrates strong reliability for our study (George & Mallery, 2003). For the open-ended questions, responses were summarized and categorized by the main themes of analysis.

The inference analysis (e.g. ANOVA, Cross-tabulation) was then used to investigate whether there is a significant difference in academics' perceptions classified by types of employment (casual or full-time) and disciplines (ACC, BUS,

BIS). The inference analysis refers to statistical procedures to generalize the results of the sample to the target population that it represents (Burns & Veeck, 2020, p. 344). The student's t-test and F-test are used, where appropriate, for hypothesis testing with small sample sizes (Levine et al., 2021). These analytical methods help explore the relationships between different categorical variables, allowing for a deeper analysis of the data. This approach simplifies the process of identifying trends and opportunities, providing valuable insights into the perceptions of academic staff, categorized by their employment status and teaching disciplines.

Results of survey

Perspectives of academics on GAI technologies

The arrival of GAI technologies, especially ChatGPT used in education have brought teachers to much attention of academic integrity (Firat, 2023, Sullivan et al., 2023). The familiarity with GAI technologies among academics can vary based on their expertise in teaching and research. The survey results revealed that 35% of teachers are very familiar with GAI technologies, while another 35% are moderately familiar. However, 18% of respondents reported being slightly familiar, and 12% indicated they were not familiar with GAI technologies at all. Additionally, the levels of familiarity with GAI were found to differ according to employment status. Figure 1 shows that the permanent teachers are more familiar with GAI technologies than their casual counterparts, 53% versus 35%. The analysis of variance (ANOVA) reveals that the difference in the level of familiarity with GAI technologies by the employment status, permanent versus casual teachers is statistically significant at the 5% level ($p = 0.0386 < 0.05$). The survey reveals that the proportion of teachers who are not familiar with GAI at all is low at 6% and the same for both casual and permanent teaching staff. This has demonstrated concerns of academic staff about the development of GAI technologies that might affect students' learning experience.

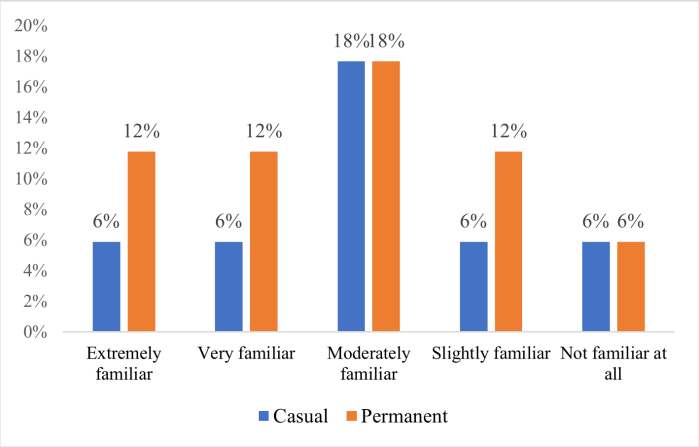

Figure 1: The level of familiarity (%) of GAI technologies by employment.

The level of familiarity with GAI technologies is then classified by disciplines. Table 1 shows that 22% of BUS teaching staff are not familiar and 33% of BUS teaching staff are slightly familiar with GAI technologies whereas teaching staff in the disciplines of BIS and ACC are familiar with GAI technologies. More specifically, 60% of BIS teaching staff are very familiar with GAI given that their expertise focuses on information technology. Although there are differences in the level of familiarity with GAI technologies across disciplines, these differences are not statistically significant at the 5% level.

Table 1: The level of familiarity of GAI technologies by disciplines.

	ACC	BUS	BIS
Extremely familiar	0%	0%	60%
Very familiar	33%	11%	20%
Moderately familiar	67%	33%	20%
Slightly familiar	0%	33%	0%
Not familiar at all	0%	22%	0%

Regarding using ChatGPT, the respondents were asked in what ways they used ChatGPT, or other GAI technologies giving respondents the possibility to choose multiple options that fit their experience. The results from Figure 2 show that using ChatGPT to conduct a conversation out of curiosity, ask general knowledge questions, technical questions or research-related activities are key reasons chosen by more than 40% of respondents. This is followed by 29% of respondents using ChatGPT to prepare materials for their units. The lowest proportion of 23.5% of respondents used ChatGPT for other activities of teaching and learning. It can be observed that 29% of academic staff did not use ChatGPT for any purposes. The respondents reveal that among different types of GAI tools, ChatGPT was chosen as the most familiar with 88% of responses. This reflects the fact that ChatGPT has influenced academic perspectives since its arrival in late 2022.

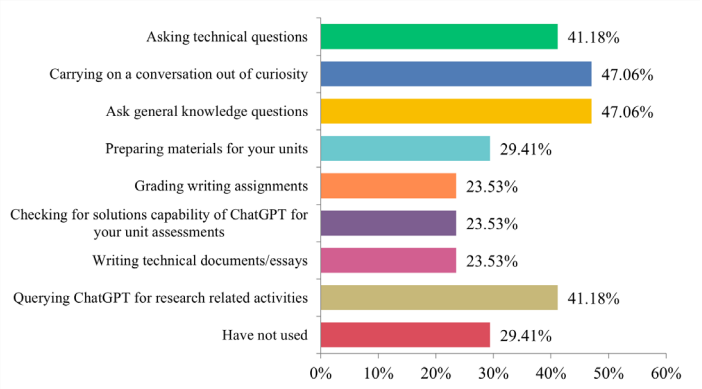

Figure 2: The ways teaching staff have used ChatGPT and other GAI technologies.

Regarding the potential benefits of GAI in higher education, 71% of respondents shared their views on using GAI in an academic environment. The majority of responses indicated that the ChatGPT tool can offer advantages to both students and academics in learning and teaching. This finding is consistent with previous literature (Chaudhry et al., 2023; Gilson et al., 2023), which suggests that ChatGPT can have a positive impact on teaching and learning when used appropriately. Specifically, respondents answered that ChatGPT could enhance the learning experience for students

in various ways such as 24-hour interactive learning services, academic writing, improving understanding of concepts, gaining general knowledge, problem-solving support and to some extent, inspiring students to think outside the box (Crawford et al., 2023). In addition, ChatGPT can also provide useful information for academic staff in creating assessments, research and general knowledge from other disciplines (Baidoo-Anu & Owusu Ansah, 2023). However, some concerns have been raised about the negative effects of ChatGPT potentially outweighing its positive impact on students' learning experiences (Chaudhry et al., 2023). This highlights the need for HEIs, particularly in the private higher education sector, to implement appropriate policies for the use of GAI.

Integrating AI-ChatGPT into learning and teaching activities
Recent studies revealed that instead of being against using ChatGPT, integrating AI in learning and teaching activities by using it safely may enhance students' learning experiences (Badam, 2023; Garcia-Peñalvo, 2023). Our survey found different perspectives by disciplines on how teaching staff feel comfortable with students using ChatGPT in their courses.

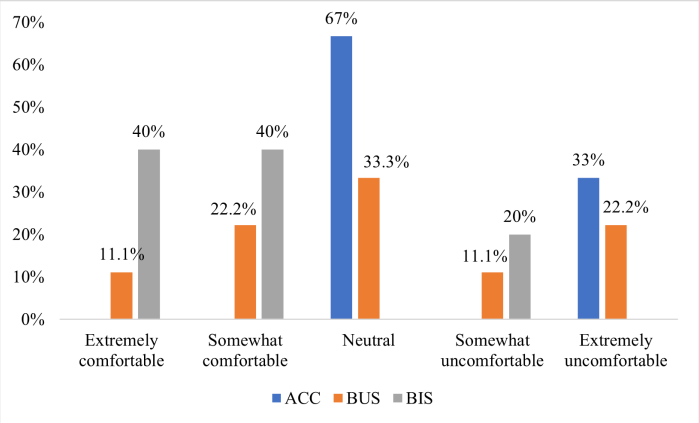

Figure 3: Teaching staff feel comfortable with students using ChatGPT in their courses.

Figure 3 reveals that 80% of teaching staff in BIS felt comfortable if their students used AI in their courses, only 20% said that they were not comfortable. Due to the nature of the BIS discipline, teaching staff find it easier to adapt the use of GAI in teaching and learning as technological development in the GAI age. In a recent study, Sullivan et al. (2023) revealed that although ChatGPT is less effective in computer science assignments as these assignments are more based on practical and problem solving, students said that they were using ChatGPT for both computer science and statistics classes.

On the other hand, teaching staff in BUS and ACC provided different perspectives. While only one-third of BUS teaching staff felt comfortable if students used AI in their study, no teaching staff in ACC discipline did. Instead, 67% of ACC staff were neutral and could not decide if they felt comfortable or not. However, 33% of ACC staff said they were extremely uncomfortable whereas 22% of BUS teaching staff said so. The prior literature revealed that social sciences and arts disciplines were most under threat (Jacobson, 2023) and students can now outsource their essay writing to the chatbot (Venkataraman, 2023). This reflects the fact that teaching staff in BUS and ACC showed their concern about using GAI by their students because this could potentially cause cheating and inevitably restrict the capacities of brainstorming and problem-solving of students.

When asked about suggestions to modify assessments to control or stop AI cheating, 71% of respondents in our survey provided a variety of suggestions such as using AI detection tools, supervised assessments with blocking access to ChatGPT, applying Viva oral assessment, and acknowledging the use of GAI in assessments with an acceptable level, e.g. 20%, and considering this as plagiarism. The AI detectors such as Turnitin, GPTZero or Copyleaks are unable to detect AI-generated text completely. Instead, the AI detector-generated reports need further testing and validation by instructors (Chaudhry et al., 2023; Howie, 2023). Blocking access to ChatGPT may be feasible for the online supervised exams but not for take-home assignments, thus banning its use seems not to be a practical approach (Sullivan et al., 2023). Redesigning innovative assessment methods where academic integrity can be ensured and clear guidelines established for staff and students as to how ChatGPT could be used in ethically appropriate ways are highly appreciated in the GAI age (Chaudhry et al., 2023, Firat, 2023; Sullivan et al., 2023).

The survey also reveals that while teaching staff are willing to engage in using GAI tools, such as ChatGPT and other GAI technologies in learning and teaching activities, there should be a threshold of GAI usage to ensure that students produce their assessments using their own knowledge, rather than much rely on GAI to submit their work (Chaudhry et al., 2023). The respondents reveal that whilst GAI can be used in practical learning of different areas, it appears to contribute significantly to the fields of information technology and business information systems such as learning coding and programming by providing real-time feedback, suggesting code improvements, and offering solutions to programming challenges (Silva et al., 2024).

Academic integrity and impact of AI-ChatGPT on learning experiences

Academic integrity is still an issue attracting much concern from academics since GAI has been released (Sullivan et al., 2023, Yusuf et al., 2024). With the ability of producing answers free of cost and in a few seconds, GAI becomes one of the most attractive tools for students to use in their studies, for example, GPT-4 could improve the model's ability to understand the meaning of a text (Okuyama & Suzuki, 2023). Our survey finds that before the release of ChatGPT and other GAI tools, 24% of teaching staff thought that their students were extremely likely to violate the integrity policy, 47% said somewhat likely and 29% of teaching staff had a neutral thought. However, after the release of ChatGPT and other GAI tools, their thoughts are significantly different. Specifically, 82% said that their students would be likely to violate the integrity policy by using these GAI technologies. Indeed, AI tools are easy to access (Chaudhry et al., 2023) whilst their generated contents are hard to assess students' true level of understanding of the material (Cotton et al.,

2024).

Having a close look at the opinion of teaching staff on violating the integrity policy by disciplines, Figure 4 showed that 100% of ACC academics said that their students are likely to violate academic integrity. This is followed by the BUS discipline with 66%. Although BIS staff are more comfortable with their students using GAI technologies than the ACC and BUS disciplines, 60% of BIS staff acknowledged that their students are likely to violate academic integrity. The literature indicates that students could potentially use GAI tools such as ChatGPT to cheat on their assignments by producing essays that are not their own work (Cotton et al., 2024). According to Yusuf et al. (2024, p.14), 46% of participants in a survey presented their firm belief that "incorporating GenAI tools in academic endeavours, whether by students or educators, constitutes outright cheating confirmed". This implies that GAI technologies could increase the number of cases violating the integrity policy (Sullivan et al., 2023, Venkataraman, 2023).

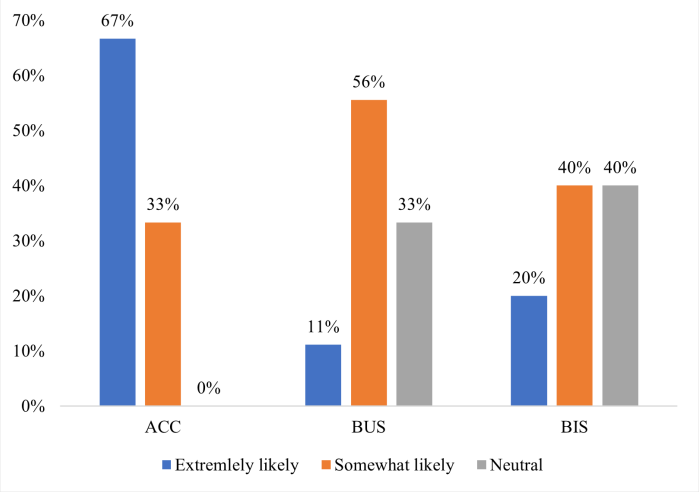

Figure 4: Teaching staff think their students are to violate the integrity policy.

However, on the other hand, our survey also finds that 76% of teaching staff think that ChatGPT is beneficial for students' personalized learning. This result is in line with the previous literature presented by Sullivan et al. (2023), Chaudhry et al. (2023), and Firat (2023) in which ChatGPT can assist to explain complex concepts in plain language, provide suggestions for the structure of an assessment task, check grammar and develop a sample quiz for test preparation. However, to use GAI effectively, the academic integrity policy should be designed appropriately with clear guidelines (Cotton et al., 2024) to ensure that students can use GAI for their study without negative influence on their learning capabilities.

Discussion

Using GAI technologies is common in today's higher education. However, how to effectively use GAI in learning and teaching, such as ChatGPT has attracted much concern from academics (Sullivan et al., 2023; Yusuf et al., 2024). Our findings through the academic survey reveal a difference in academic perspectives by disciplines in terms of familiarity with GAI tools, though this difference is not statistically significant. By nature, teaching staff in BIS are more familiar with GAI technologies than those in BUS and ACC. This could be attributed to accessibility by discipline, thus on the adoption of using GAI in teaching. This is in line with the previous literature showing that differences in familiarity with GAI tools, e.g., ChatGPT might be due to heterogeneity in accessibility, marketing and flexibility (Yusuf et al., 2024, Ipek et al., 2023, Denejkina, 2023).

Our survey reveals that the benefits of using GAI technologies have been recognized in terms of personalized learning support, learning coding, and offering solutions to programming challenges (Rawas, 2023), thus timesaving and improving efficiency (Yusuf et al., 2024). This result aligns with the findings of Ismail et al. (2024), which showed that respondents who used AI tools reported greater benefits than those who did not. However, using GAI technologies should be controlled by a transparent and effective policy to ensure that students reflect their own work in assessments, rather than with much reliance on ChatGPT, they could potentially write articles on various topics (Thorp, 2023), but have issues of misinformation generation and bias in privacy issues (Baidoo-Anu & Owausu, 2023; Yusuf et al., 2024).

Regarding academic integrity, 82% of respondents in our survey believe that students would be likely to violate the integrity policy after ChatGPT was released in late 2022. This result is in line with concerns of the literature about using GAI that could potentially facilitate academic dishonesty, namely plagiarism including inaccurate outputs, irrelevant contents and biased results (Chan & Hu, 2023, Naik et al., 2022). Respondents in our survey are not pessimistic about using GAI in learning and teaching; however, how to ensure that students use GAI effectively for their personalized learning without violating academic integrity is still a major concern of academic staff as GAI technologies have added complexity to long-term academic challenges of plagiarism detection and prevention (Ali et al., 2023). Although AI writing detection has been added to Turnitin Feedback Studio to produce an AI report if students did use AI in their assessments, this needs to have the expertise of markers to assess the AI score and assignments (Chaudhry et al., 2023, Howie, 2023). Previous studies reveal that the regulations of GAI in higher education require a subtle approach to acknowledge both potential benefits and the imperative to uphold academic integrity (Chan, 2023; Yusuf et al., 2024).

According to the Australian Academic Integrity Network (AAIN, 2023) under TEQSA, both public and private higher education institutions must address the challenges posed by GAI technologies in their learning environments. This includes developing sustainable and adaptable responses to GAI, particularly in relation to integrity policies, procedures, and support systems. Institutions should focus on helping both teaching staff and students understand and effectively use GAI technologies. As individual education providers, the private institution as a case study in our study, has the responsibility to ensure that these technologies are integrated in ways that uphold academic integrity and provide clear guidelines for their ethical use in teaching and learning. Our results reveal that academic integrity policies and procedures for using GAI technologies play

an important role in higher education to ensure education quality is secured (Sullivan et al., 2023, Yusuf et al., 2024). In addition, teaching staff, especially those who are not from an information technology background, needs to be technically supported for more understanding of using GAI in teaching activities and how to instruct students to commit to the integrity policy in the learning environment (Chaudhry et al., 2023).

Our findings show that full-time staff are more familiar with GAI technologies than their casual counterparts at the 5% level of significance. This is consistent with the literature (e.g., McComb et al., 2021; Leathwood & Read, 2022), which suggests that the employment conditions of casual staff offer limited opportunities for professional development, thus hindering their engagement in academic activities such as the knowledge development of GAI. In addition, if their teaching has traditionally not used information technology, casual staff might not consider announcements on using GAI technologies from education providers as compulsory tasks to peruse. Education providers should be concerned about this to have a more appropriate policy to get all staff to engage with and enhance ethical awareness of using GAI technologies (Yusuf et al., 2024).

Theoretical and practical implications

The findings of this study contribute to the growing body of literature on the impact of GAI on higher education. Theoretically, this research highlights the nuanced perspectives of academic staff on the integration of GAI technologies, particularly in terms of maintaining academic integrity. It provides an empirical basis for understanding how GAI tools, such as ChatGPT, are perceived across different disciplines and employment statuses (Firat, 2023; Sullivan et al., 2023; Cotton et al., 2024). Additionally, it adds to the discourse on digital ethics and academic integrity by examining the potential for GAI to influence student behaviour and academic standards (Sullivan et al., 2023; Yusuf et al., 2024). The practical implications of this research are particularly relevant for educators, policymakers, and institutional leaders in higher education. The following recommendations are based on the findings of our study:

(a) Development of clear policies and guidelines: Educational institutions should develop transparent and detailed policies regarding the use of GAI technologies in academic work (TEQSA, 2024c, Cotton, 2024). These policies should clearly define acceptable and unacceptable uses of such tools, ensuring that students understand the boundaries and ethical considerations involved.

(b) Training and professional development: Institutions should offer training programs for both academic staff and students to enhance their understanding and ethical use of GAI technologies (TEQSA, 2024a, 2024b). This training should include practical sessions on identifying AI-generated content and the responsible use of these technologies in educational settings.

(c) Assessment design: Educators should consider redesigning assessments to minimize the potential for GAI-related misconduct. This could include the development of effective frameworks for incorporating different types of assessment such as more oral examinations, project-based assessments, and assessments requiring critical thinking and personal reflection, which are less likely to be effectively completed using GAI tools alone (Grassini, 2023).

(d) Monitoring and support systems: Implement monitoring systems to detect the use of GAI in academic submissions, such as integrating AI detection tools like Turnitin's AI writing detection feature (Chaudhry et al., 2023). Additionally, support systems should be established to assist students in understanding how to use GAI technologies ethically and responsibly.

(e) Interdisciplinary collaboration: Encourage collaboration between disciplines, especially between technological and humanities disciplines, to develop interdisciplinary approaches to teaching and learning with GAI (Bahroun et al., 2023). This can help in creating balanced and comprehensive educational experiences that harness the benefits of GAI while mitigating risks.

Conclusions

The use of GAI technologies in teaching and learning has become more widespread in higher education. However, the potential differences in academic perspectives on GAI usage across disciplines and employment statuses within the private higher education sector have yet to be explored. This paper has filled the gap by examining academic perspectives on integrating GAI technologies into teaching and learning, as well as concerns about academic integrity across different disciplines and employment statuses. It contributes to the emerging literature on AI applications in higher education, particularly regarding the effectiveness of GAI in teaching and the importance of maintaining academic integrity.

Using the survey in a private Australian HEI, our paper revealed that the level of familiarity is different among academics depending on their disciplines. Academics who are teaching information system-related units are more familiar with GAI than other academics. In addition, full-time staff are more familiar with GAI technologies than their casual counterparts given the availability of information provided to them. Most teaching staff inserted that students are likely to violate academic integrity, particularly with the ChatGPT application. Because of this, academics are more prudent in integrating GAI tools in the process of learning and teaching. While teaching staff in BIS are comfortable with integrating GAI into learning activities, the survey showed that 67% of teaching staff in BUS and ACC said that they are neutral. On top of that, academics posit that using GAI tools should be limited to a threshold level that is acceptable to maintain the quality of education and academic integrity. Accordingly, an integrity policy should be transparent to both academics and students regarding ethical use, innovative teaching and learning practices, thus ensuring equitable access to educational opportunities.

Whilst our paper has contributed to the literature of GAI application by investigating academic perspectives on integrating GAI in learning and teaching and concern about academic integrity, it has faced some limitations. First, although the survey conducted in a private Australian institution aims to ensure a homogenous environment of surveyed respondents, the sample size for analysis was relatively low, thus it did not reflect all academic perspectives in private HEIs in Australia. Second, our survey focused on three disciplines—Business, Accounting, and Business Information Systems—currently offered at this institution. Future studies could expand on this by examining additional disciplines, allowing for broader generalization of our findings. Finally, education managers should be included in a separate survey to gather managerial perspectives on designing integrity policies, which are crucial for ensuring the quality of education in the private higher education sector is effectively maintained.

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