



Raising Ethical Awareness of GenAI Use Through Student Self-Assessment in the Transition to Higher Education

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Abstract

Raising students' ethical awareness of generative artificial intelligence (GenAI) is critical as higher education responds to rapid technological change. This study investigates how guided reflection embedded within self-assessment can support students to engage responsibly and confidently with GenAI in learning and assessment, while maintaining academic integrity. The self-assessment, designed to foster readiness and learner agency, prompted students to reflect on their use of GenAI for critical thinking, writing, and understanding disciplinary concepts, positioning them as reflective practitioners capable of navigating ethical dimensions of AI use. Data were collected through pre- and post-semester surveys administered to commencing university students. Likert-scale items measured confidence in academic and digital literacies, and an open-text response invited reflection on the ethical implications of GenAI. Qualitative data were thematically analysed to examine ethical engagement and emerging learner agency. Findings indicate that students recognised both the benefits and limitations of GenAI, demonstrating ethical awareness and critical evaluation of its role in academic work. Reflections revealed tensions between efficiency and academic integrity, as well as uncertainty about institutional expectations. Students also reported an increased sense of personal responsibility, describing the reflective process as confidence-building during their transition to university study. The evolving role of educators involves supporting students to engage critically and responsibly with emerging technologies. Embedding GenAI-focused reflection within self-assessment reframes ethical inquiry as a pedagogical strategy. This study contributes to scholarship on ethical GenAI use and offers a scalable, student-centred approach that can be adapted across disciplines and year levels.

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Practitioner Notes

1. Likert-scale self-assessment items and an open-ended reflection prompt can raise students' awareness of ethical GenAI use.
2. Guided reflection within self-assessment fosters learner agency in AI-enabled learning environments.
3. Reflection is effective in helping students better understand and maintain academic integrity.
4. Embedding targeted ethical reflection within guided self-assessment shifts focus from compliance toward critical and self-regulated engagement with GenAI.
5. A concise self-assessment model (confidence ratings plus a short reflective question) provides a scalable approach suitable across disciplines and levels of study.

Keywords

ethical use of GenAI, reflection, academic integrity, learner agency, higher education

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Introduction

The pervasiveness of generative artificial intelligence (GenAI) is reshaping teaching and learning in higher education (Corbin et al., 2025a; Lodge et al., 2024). GenAI presents opportunities for personalised learning, academic writing support, and broader access to knowledge. Yet, its adoption also raises complex ethical concerns related to authorship, academic integrity, and equitable access. Universities, therefore, face the challenge of managing risks alongside preparing students to engage with GenAI critically, responsibly, and reflectively. To date, institutional responses have predominantly focused on governance, including policy development and the use of detection mechanisms as protective measures (An et al., 2025; De Maio, 2024). Although important, such compliance-driven approaches risk overlooking the pedagogical imperative to foster students' ethical reasoning, digital literacy and capacity for informed decision-making. Without intentional opportunities for critical engagement and reflection, students may adopt instrumental uses of GenAI that with academic values, particularly during their transition to higher education.

As Harper and Prentice (2024) argue, privileging institutional framings over student perspectives can obscure the complexity of integrity practices and reinforce reductive narratives about misconduct. These issues are particularly salient for commencing students – those in their first semester of an undergraduate or postgraduate program – who enter university with diverse digital learning experiences and limited understanding of the ethical principles underpinning academic practice. Without structured guidance, students may default to superficial uses of GenAI, missing opportunities for meaningful engagement and ethical development growth. Providing opportunities for critical engagement with emerging technologies can support students in developing the understanding and judgement needed to navigate them responsibly (Corbin et al., 2025b). This study examines the use of guided reflective prompts embedded within a self-assessment as a pedagogical approach to promote ethical awareness and learner agency in relation to GenAI. Implemented through pre- and post-semester self-assessments, the intervention invited students to reflect on their use of GenAI for learning and assessment, as well as their confidence in upholding academic integrity. Ethical use of GenAI is conceptualised as a reflexive practice encompassing epistemic, academic, and socio-ethical dimensions, including supporting learning and knowledge construction, maintaining transparency and integrity, and recognising broader implications such as bias and responsibility. This framing positions ethical GenAI use as a developmental capability rather than a matter of compliance.

The self-assessment was co-designed with students, academic staff, and professional staff as part of a broader postgraduate transition program, and has since been expanded and iteratively refined for use with all commencing students. Participants included first-year undergraduate and postgraduate students across nursing, health sciences, science, and engineering at an Australian university between 2021-2025, within a wider initiative to strengthen academic and digital literacies. Reflection is conceptualised here as a pedagogical strategy for ethical sense-making rather than formal reflective practice. While not designed as a comprehensive reflective intervention, the open-text prompt created a focused space for ethical consideration within the broader self-assessment, inviting students to examine their decision-making, responsibilities, and assumptions when using GenAI tools.

Our pedagogical approach draws on intersecting theoretical perspectives: self-regulated learning, reflective practice, and learner agency. Self-regulated learning involves students setting goals, monitoring progress, and reflecting on strategies to improve their performance (Hadwin et al., 2025; Winne, 2018; Zimmerman, 2002). Central to this process is metacognitive awareness – thinking about one’s own thinking – particularly when evaluating how tools like GenAI influence learning (Corbin et al., 2025c; Panadero et al., 2017). Reflective practice was embedded as a core pedagogical strategy to shift responsible engagement beyond rule-following. It encourages students to explore their values, decision-making, and evolving understandings of academic integrity (Boud et al., 1989; Harvey et al., 2016; Mohamed et al., 2022; Veine et al., 2020). Learner agency positions students as active contributors who shape their learning environments and act with purpose in complex and evolving contexts (Hadwin et al., 2025). In GenAI-mediated learning environments, this includes the ability to critically evaluate technologies, align their use with disciplinary values, and exercise autonomy in their decisions. Together, these perspectives frame reflection as both a metacognitive and ethical practice that enables students to act with integrity and responsibility. The following research questions guided the study:

Research Question 1. How do guided reflective prompts embedded within self-assessment shape students’ confidence and ethical awareness in relation to GenAI?

Research Question 2. What changes are observed in students’ confidence in relation to academic integrity, learning, and assessment?

Research Question 3. How do students describe the ethical implications of using GenAI through an open-text reflection?

This paper investigates how guided reflection embedded within self-assessment can support students’ ethical awareness, academic integrity, and learner agency in relation to GenAI. While traditional approaches focus on rule adherence and plagiarism prevention, recent research advocates for educative, student-centred models that build ethical reasoning and judgement (Bretag et al., 2019; Jakobsen & Sunde Mæhre, 2023; Morris & Bretag, 2016). By embedding GenAI reflection into routine pedagogical practices, this intervention offers a scalable, context-sensitive approach to supporting academic integrity as a developmental process rather than a disciplinary one. The following sections present findings from a multi-cohort study, highlighting key themes from students’ reflections and discussing their implications for teaching and learning in GenAI-mediated environments. The discussion considers implications for learner agency and ethical development, followed by recommendations for practice and directions for future research. This work also contributes to ongoing conversations about academic integrity and the evolving role of GenAI in higher education.

Literature

The rapid integration of GenAI into higher education has sparked both anticipation about its potential and concern about its risks. While AI-driven tools can support writing, summarisation, and coding, they also present ethical challenges related to authorship, academic integrity, and the fostering of critical thinking. Emerging scholarship argues that institutional responses must move beyond technical training and compliance-driven policy, and engage more directly with the pedagogical complexities introduced by GenAI (Bond et al., 2024). Concerns about plagiarism, misconduct, and the erosion of independent learning have prompted calls for more educative,

student-centred approaches (Sharma & Panja, 2025). Within this discourse, scholars emphasise that developing students' ethical reasoning is critical to sustaining academic integrity in GenAI-mediated learning environments (Bond et al., 2024; Sharma & Panja, 2025).

A scoping review by Xia et al. (2024) examining GenAI's impact on assessment across students, teachers, and institutions highlights the need to evaluate AI literacy among both students and staff in higher education, and to embed AI capabilities across disciplines. The review also calls for further research to better define what AI literacy means for educational stakeholders and how to effectively assess it. Importantly, the authors emphasise that assessment practices should evolve to foster students' self-regulated learning skills, academic responsibility, and integrity. Developing students' ethical reasoning is critical to sustaining academic integrity in GenAI-mediated learning environments (Bond et al., 2024; Sharma & Panja, 2025).

Learner Agency and Self-Regulated Learning

Learner agency, the capacity of students to act intentionally and purposefully in their learning, is a foundational concept in contemporary education (Emirbayer & Mische, 1998; Nieminen et al., 2022). In GenAI-mediated environments, agency extends beyond managing study habits to include critical engagement with digital tools and platforms (Giannakos et al., 2025; Nieminen et al., 2025). This aligns closely with self-regulated learning, which encompasses goal setting, performance monitoring, and strategic adjustment in response to feedback (Hadwin et al., 2025; Winne, 2018).

Metacognitive awareness, a core component of self-regulated learning, is particularly salient in the context of GenAI, where students must evaluate how tools such as ChatGPT influence their thinking, decision-making, and learning outcomes (Giannakos et al., 2025). However, digital inequity and varying levels of academic preparedness can limit students' capacity for self-regulated learning, particularly among equity cohorts (Pedlow & Maldon, 2024). In Australia, equity cohorts include students from under-represented or disadvantaged backgrounds, such as low socioeconomic, regional and remote, and other priority access groups. Embedding self-assessments that explicitly prompt metacognitive reflection – for example, asking students to consider how GenAI has influenced their learning choices – can help address these challenges. In doing so, these interventions enhance both learner agency and ethical self-regulation, positioning students as active participants in navigating GenAI-mediated education.

Reflection and Self-Assessment Pedagogical Strategies

Reflection is increasingly recognised as a critical pedagogical strategy for developing ethical reasoning and enhancing learner agency (Barahona et al., 2025). It enables students to question their actions, values, and underlying assumptions, helping them to identify gaps in understanding and guiding ongoing learning and development (Chang, 2019). Through reflective processes, students are encouraged to interrogate what they are learning and consider how and why they engage in particular learning behaviours (Veine et al., 2020). In digital contexts, where technology use can become habitual and unexamined, reflection assumes particular significance. Reflection interrupts this automaticity by prompting learners to articulate reasoning, evaluate choices, and surface values (Veine et al., 2020). While Boud et al.'s (1989) foundational model of reflection continues to inform higher education practice, more recent extensions emphasise the ethical and epistemological dimensions of reflective practice (Harvey et al., 2016; Mohamed et al., 2022).

Studies demonstrate that reflective prompts embedded in assessment tasks can enhance ethical reasoning (Jakobsen & Sunde Mæhre, 2023) and deepen metacognitive awareness. In the context of GenAI, reflection enables students to interrogate assumptions about authorship, originality, and intellectual contribution. It provides a mechanism to surface values and critically evaluate the implications of GenAI use in their academic work (Combrinck & Loubser, 2025). Self-assessment has been shown to enhance metacognition, promote ownership of lifelong learning, and improve alignment between intended and enacted strategies (Panadero et al., 2016). When carefully designed, question prompts can also scaffold evaluative judgement – student capacity to judge the quality and the ethical appropriateness of their work (Tai et al., 2018).

Drawing on self-regulated learning theory, reflective practice models, and academic integrity scholarship, the GenAI-focused questions in this study were designed to prompt disclosure of GenAI use, encourage critical evaluation of GenAI contributions, surface decision-making processes, and foster alignment between tool use and learning goals. Research indicates that reflective prompts are most effective when they are explicit, contextually relevant, and aligned with learning outcomes rather than generic checklists (Jakobsen & Sunde Mæhre, 2023). Likert scales can function as guided reflective prompts to facilitate self-awareness, allowing students to gauge their own learning, behaviours, and growth (Myllykoski-Laine et al., 2024). In this way, the self-assessment intervention in this study is theoretically grounded, situating reflective prompts within established pedagogical traditions.

Academic Integrity and Ethical Development

Traditional models of academic integrity have often centred on rule compliance and punitive responses to misconduct. While such approaches may be necessary in certain contexts, they can risk positioning students as potential offenders rather than developing professionals. Increasingly, however, contemporary scholarship suggests that integrity may be more effectively fostered through educative rather than surveillance-oriented strategies (Balalle & Pannilage, 2025; Bretag et al., 2019; Morris & Bretag, 2016). Educative methods can support students in understanding the rationale underpinning academic norms and in developing ethical reasoning skills relevant to both their discipline and future professional practice. In GenAI-mediated learning environments, this shift is especially important. As emerging technologies increasingly blur the boundaries between original and assisted work, students may require structured guidance to make informed, context-sensitive decisions. Research by Kelly et al. (2025; 2023) and Le (2024) indicates the value of embedding ethical decision-making within curriculum design, particularly through assessment strategies that promote transparency and dialogue around GenAI use. Student-centred approaches to academic integrity typically emphasise voice and dialogue (Harper & Prentice, 2024), and the recognition of students as ethical agents. Providing learners with early opportunities to articulate and reflect on their reasoning may help to build their awareness of ethical decision-making processes - skills that continue to develop throughout their degree. Our intervention contributes to this evolving landscape by integrating GenAI-focused reflection into self-assessment practices. In doing so, it aims to create space for students to articulate their decision-making processes in real time and to position integrity as an embedded aspect of scholarly practice rather than an externally imposed requirement or constraint.

Gaps in the Literature

Despite the growing body of research on GenAI in higher education, empirical studies that centre student perspectives, particularly first-person accounts of ethical engagement, remain limited. Much of the literature prioritises institutional and educator responses, with an emphasis on policy, governance, and detection systems (Nikolic et al., 2024). While such approaches may offer important safeguards, they can overlook how students experience, interpret, and navigate the ethical complexities associated with GenAI. Where student perspectives are included, they are often reported indirectly, commonly filtered through surveys focused on compliance behaviours or staff interpretations of student attitudes, rather than through students' own accounts. This imbalance tends to reinforce a compliance-oriented framing of integrity, potentially obscuring the developmental, educative, and relational dimensions that shape how students make ethical decisions in their learning.

Harper and Prentice (2024) caution that reductive narratives about misconduct may obscure the diversity of student experiences and risk entrenching existing inequities. Their work highlights the value of exploring how students articulate the moral and social dimensions of integrity, offering important insights that challenge assumptions embedded in policy-driven responses. However, few studies have extended this lens to the context of GenAI, where the stakes, ambiguities and uncertainties may be particularly heightened. Although reflection and self-assessment are well-established pedagogical strategies, the extent to which they have been applied to GenAI-specific ethical reasoning appears to be underexplored. Likewise, there is limited evidence regarding scalable models that normalise ethical inquiry as an integral part of academic development and that integrate AI-focused reflection into academic and assessment practices.

This study seeks to address these gaps by examining a scalable design that embeds GenAI-focused reflective prompts within existing self-assessments. The intervention encourages students to explore their values, decision-making, and evolving understandings of academic integrity through reflective practice - a central strategy for shifting ethical engagement beyond rule-following (Boud et al., 1989; Harvey et al., 2016; Mohamed et al., 2022; Veine et al., 2020). By foregrounding student voice and drawing on theories of agency, self-regulated learning, reflective practice, and educative approaches to academic integrity, this study contributes both conceptual clarity and practical guidance to the evolving field of AI-integrated higher education.

Method

Research Design

This study used a pre-test/post-test quasi-experimental design (Rogers & Revesz, 2019), underpinned by a descriptive qualitative methodology (Braun & Clarke, 2013). The design enabled examination of changes in students' confidence in academic integrity and their use of GenAI for learning and assessment across a semester, while also capturing how students made sense of the ethical dimensions of this emerging technology. Quantitative self-assessment data were used to identify shifts in confidence over time, and qualitative responses provided students' perspectives on ethical reasoning and decision-making. This mixed-methods approach supported complementary analysis of findings, offering a nuanced understanding of changes in confidence and ethical awareness while remaining attentive to students' lived experiences and the contextual complexity of diverse cohorts.

Participants and Context

Convenience sampling was used to recruit commencing undergraduate and postgraduate students across nursing, health sciences, engineering and science courses at Edith Cowan University (ECU) in their first semester of study. ECU has a large international student population and supports learners from diverse educational and professional backgrounds. Both undergraduate and postgraduate cohorts included high numbers of international and mature-age students, many returning to study after extended periods in the workforce. This diversity contributed to varied levels of academic preparedness and digital literacy, highlighting the need for structured support and opportunities for reflection. The pre-self-assessment was administered during Senior Learning Adviser-led workshops in Orientation and Weeks 1-2 of semester, with students accessing the survey via a QR code. The post-self-assessment was distributed by the university's central student administration team via email, which included a Qualtrics survey link, in Weeks 12-13 of semester. A total of 697 students voluntarily completed the pre-self-assessment, while 67 students voluntarily completed the post-self-assessment (see Table 2). Ethical approval for the study was granted by Edith Cowan University (Ethics ID: 2021-02657-MALDON), and participation was voluntary and anonymised.

Intervention: The Self-Assessment

The intervention centred on self-assessment surveys administered at the beginning (pre-test) and end (post-test) of the semester between 2021-2025. Originally designed in 2021 to support reflection on academic and digital literacy skills, the self-assessment included questions around academic misconduct to help students evaluate their preparedness and identify areas for development (Pedlow & Maldon, 2024). GenAI-specific questions were added in 2023 to invite reflection on its role in learning, assessment preparation, and ethical decision-making. The self-assessment was reviewed and refined in consultation with the nursing and midwifery teaching team, teaching and learning support team, and a subset of students. Feedback indicated that the self-assessment was clear and appropriate for the intended cohort. Minor wording adjustments and additional items were incorporated to strengthen clarity, relevance and alignment with student experiences. The pre-self-assessment was administered to commencing students at the beginning of Semester 1. Students then participated in a range of embedded learning support interventions throughout the semester. Quantitative and qualitative data were collected via the Qualtrics platform during Orientation and Weeks 1-2 (pre-test) and Weeks 12-13 (post-test) of semester.

The self-assessment combined Likert-scale items measuring students' self-reported confidence in academic and digital literacies – including GenAI use – with an open-ended prompt for reflective responses. GenAI items asked students to articulate their motivations, perceived benefits and risks, and decision-making processes when using tools like Copilot and ChatGPT in their academic work. The self-assessment addressed four key domains: (1) confidence in academic integrity practices, (2) confidence in using GenAI for assessment preparation, (3) confidence in using GenAI for learning activities, and (4) ethical reflection on GenAI use. Domains 1-3 included multiple topics rated on a four-point scale, from 'I am confident about this' to 'I don't use it / not applicable.' The ethical reflection component was open-ended, enabling students to express concerns, values, and strategies in their own words. Table 1 provides an overview of the self-assessment items and response scales. Both pre- and post-self-assessments used identical

questions. Responses to Likert-scale items were analysed descriptively to identify patterns and shifts over time, while open-ended responses provided deeper qualitative insights into students' beliefs, experiences, and decision-making processes, with particular attention to ethical reasoning and emerging learner agency. Although pre-test response rates were consistently high, post-test completion rates were more variable, reflecting common attrition challenges in voluntary survey-based research (Boyas et al., 2012; Smith et al., 2019). Nevertheless, depth and consistency of themes across the open-ended reflections enabled meaningful exploration of students' engagement with GenAI.

Table 1

GenAI and Academic Integrity Self-Assessment Items

Self-Assessment Focus	Question	Topics	Response Scale
Academic Integrity	How confident are you with academic integrity?	<ul style="list-style-type: none"> ▪ Acting with academic integrity ▪ Paraphrasing from journal articles or texts ▪ Referencing using APA 7 and/or referencing managers ▪ Avoiding plagiarism and academic misconduct 	<ul style="list-style-type: none"> ▪ I am confident about this ▪ I need more practice ▪ I need to get help with this ▪ I don't use it / not applicable
GenAI – Assessment Use	If you use GenAI when preparing your assessments, how confident are you about using it for:	<ul style="list-style-type: none"> ▪ Breaking down assignment tasks and understanding rubrics ▪ Brainstorming and planning ▪ Written English (e.g., grammar, spelling, punctuation) ▪ Acknowledging and referencing GenAI use in your work ▪ Keeping records of your prompts and drafts 	<ul style="list-style-type: none"> ▪ I am confident about this ▪ I need more practice ▪ I need to get help with this ▪ I don't use it / not applicable
GenAI – Learning Use	If you use Generative AI tools to assist your learning, how confident are you about using them for:	<ul style="list-style-type: none"> ▪ Thinking critically about the quality and integrity of GenAI outputs ▪ Understanding concepts ▪ Summarising unit content and/or articles ▪ Getting feedback on your writing 	<ul style="list-style-type: none"> ▪ I am confident about this ▪ I need more practice ▪ I need to get help with this ▪ I don't use it / not applicable
Ethical Reflection	Have you considered the ethical implications of using GenAI? If yes, how?	<ul style="list-style-type: none"> ▪ Open-ended reflection 	<ul style="list-style-type: none"> ▪ Free-text response

Process Evaluation and Data Preparation

Survey items were measured using a four-point confidence scale (1 = 'I need to get help with this', 2 = 'I need more practice', 3 = 'I am confident about this'). An additional response option, 'I don't use it / not applicable' was treated as missing and excluded from analysis. Data were screened for non-numeric entries and missing values prior to analysis, and analyses were conducted using available responses for each item. Table 1 provides an overview of the self-assessment items and response scales. Framed as a metacognitive exercise, the self-assessment aimed to prompt students to critically evaluate their use of GenAI within the broader context of their learning and assessment practices. Embedding these reflection questions within a digital literacy framework sought to normalise ethical inquiry as an integral part of academic development. In doing so, the intervention positioned reflection as a scaffold for learner agency and ethical self-regulation, enabling students to connect practical skills with considerations of academic integrity and disciplinary values.

Data Analysis

Quantitative self-assessment data provided the foundation for identifying shifts in students' self-reported confidence across academic integrity, using GenAI for learning, and using GenAI for assessment domains. Descriptive statistical analyses were conducted to examine patterns of change in students' confidence between the pre- and post-self-assessments (Ruel, 2018). Means, standard deviations, and variance were calculated for each item. Internal consistency of the full scale was examined separately for the pre- and post-self-assessment datasets. The instrument demonstrated excellent reliability at both time points (pre-self-assessments Cronbach's $\alpha = .94$; post-self-assessments Cronbach's $\alpha = .93$), indicating a high level of internal consistency and suggesting that the items measured a coherent underlying construct (Ruel, 2018). Given this high reliability, analyses were conducted at both the individual item level to identify specific patterns and at the composite scale level to examine overall changes in confidence.

Qualitative responses to the open-ended ethical reflection question were analysed using inductive thematic analysis (Braun & Clarke, 2013) six-phase framework: familiarisation, initial coding, theme development, review, definition, and reporting. Two members of the research team conducted the coding manually using an inductive approach to identify emergent themes, with regular peer debriefing sessions ensuring credibility and intercoder consistency. Responses from the pre- and post-surveys were reviewed iteratively to identify patterns in students' perceptions of the ethical implications of GenAI use. Initial codes were generated and subsequently grouped into broader themes reflecting students' concerns, reasoning, and evolving approaches to responsible use. These qualitative findings were used to provide contextual explanation and interpretation of the quantitative results. In addition to descriptive analyses, matched responses were identified for participants who completed both the pre- and post-self-assessments ($n = 25$). Paired-samples t-tests were conducted to examine within-person changes in confidence over time. Two-tailed p-values were used, with statistical significance set at $p < .05$. This analysis provided a more conservative estimate of change by controlling for differences in sample composition between the pre- and post-survey datasets.

Sample

Response counts varied substantially between the pre- and post-self-assessment administrations and across GenAI-related items, reflecting both differential completion and ‘not applicable’ responses where students did not use GenAI tools (Table 2). Analyses were conducted using available data for each item and scale. Such variation in response rates is common in voluntary educational research, and lower follow-up participation should be interpreted with caution, as potential bias depends more on the representativeness of respondents than on response rate alone. Accordingly, findings are reported using descriptive statistics to identify overall patterns of change, supplemented by paired-samples analyses of the matched subsample to examine within-person change over time, with these inferential results interpreted cautiously.

Table 2

Self-assessment responses as at end of Semester 1, 2025

	Pre-Semester Self-assessment	Post-Semester Self-assessment
Postgraduate Students	206	26
Undergraduate Students	491	41
ALL Students	697	67

Results

Mean confidence scores increased across all domains between the pre- and post-self-assessments for the combined sample of undergraduate and postgraduate students (Table 3). The largest gains were observed in academic integrity practices, while confidence in using GenAI for learning and assessment showed more modest improvement and remained lower overall.

Table 3

Mean confidence scores (SD) for the combined student sample

Domain	Item	Pre M (SD)	Post M (SD)	Change (Δ)
Academic integrity	Acting with integrity	2.49 (0.67)	2.77 (0.46)	+0.28
	Paraphrasing	2.14 (0.68)	2.52 (0.59)	+0.38
	Referencing	1.92 (0.75)	2.40 (0.64)	+0.48
	Avoiding plagiarism	2.34 (0.74)	2.62 (0.55)	+0.28
GenAI for learning	Critical evaluation	1.70 (1.03)	2.00 (1.13)	+0.30
	Understanding concepts	1.88 (1.02)	2.17 (1.06)	+0.29
	Summarising	1.86 (1.01)	2.15 (1.07)	+0.29
	Writing feedback	1.73 (1.02)	1.98 (1.05)	+0.25

GenAI for assessment	Task breakdown	1.75 (1.03)	2.12 (1.12)	+0.37
	Brainstorming	1.90 (1.02)	2.15 (1.06)	+0.25
	Written English	1.94 (1.02)	2.12 (1.03)	+0.18
	Acknowledgement	1.73 (0.99)	2.08 (1.06)	+0.35
	Record keeping	1.86 (1.00)	2.10 (1.01)	+0.24

When examined by study level, postgraduate students generally reported higher baseline confidence than undergraduates across most domains, particularly in academic integrity and assessment-related uses of GenAI (Table 4).

Table 4

Postgraduate mean confidence scores (SD) by study level (pre-post)

Domain	Item	Pre M (SD)	Post M (SD)	Change (Δ)
Academic integrity	Acting with integrity	2.55 (0.64)	2.95 (0.21)	+0.40
	Paraphrasing	2.23 (0.66)	2.55 (0.51)	+0.32
	Referencing	1.92 (0.74)	2.50 (0.60)	+0.58
	Avoiding plagiarism	2.45 (0.69)	2.64 (0.49)	+0.19
GenAI for learning	Critical evaluation	0.91 (1.16)	1.27 (1.28)	+0.36
	Understanding concepts	1.20 (1.27)	1.45 (1.34)	+0.25
	Summarising	1.16 (1.24)	1.45 (1.34)	+0.29
	Writing feedback	1.08 (1.19)	1.36 (1.26)	+0.28
GenAI for assessment	Task breakdown	1.01 (1.17)	1.55 (1.37)	+0.54
	Brainstorming	1.01 (1.22)	1.41 (1.37)	+0.40
	Written English	1.15 (1.24)	1.36 (1.22)	+0.21
	Acknowledgement	0.97 (1.14)	1.45 (1.34)	+0.48
	Record keeping	0.93 (1.11)	1.50 (1.34)	+0.57

However, undergraduate students reported gains in their confidence in academic integrity and decreased confidence in their use of GenAI for learning and assessment (Table 5).

Table 5

Undergraduate mean confidence scores (SD) by study level (pre-post)

Domain	Item	Pre M (SD)	Post M (SD)	Change (Δ)
Academic integrity	Acting with integrity	2.47 (0.67)	2.61 (0.67)	+0.14

	Paraphrasing	2.10 (0.68)	2.51 (0.64)	+0.41
	Referencing	1.92 (0.76)	2.34 (0.66)	+0.42
	Avoiding plagiarism	2.30 (0.75)	2.61 (0.59)	+0.31
GenAI for learning	Critical evaluation	1.44 (1.12)	1.37 (1.36)	-0.07
	Understanding concepts	1.88 (0.99)	1.66 (1.33)	-0.22
	Summarising	1.89 (0.97)	1.63 (1.34)	-0.26
	Writing feedback	1.68 (1.04)	1.39 (1.28)	-0.29
GenAI for assessment	Task breakdown	1.45 (1.14)	1.29 (1.36)	-0.16
	Brainstorming	1.87 (1.03)	1.71 (1.29)	-0.16
	Written English	1.89 (1.05)	1.80 (1.29)	-0.09
	Acknowledgement	1.61 (1.04)	1.71 (1.25)	+0.10
	Record keeping	1.92 (0.99)	1.80 (1.17)	-0.12

Note: Table 4 and 5 values represent mean self-reported confidence scores. Change (Δ) reflects post-pre differences. Undergraduate pre $n = 491$, post $n = 41$; Postgraduate pre $n = 206$, post $n = 22$. Analyses are based on available cases.

This pattern suggests that the intervention had a stronger developmental impact for students with lower initial confidence, while postgraduate students showed more modest but consistent improvement from a higher starting point. In contrast, undergraduate students appear to be realigning their understanding of GenAI use, becoming more aware of its limitations, complexities, and ethical considerations.

Academic Integrity Confidence

Descriptive statistics were calculated for four academic integrity confidence items (Q5-Q8) as shown in Table 3: acting with academic integrity, paraphrasing from sources, referencing using APA 7 and/or referencing software, and avoiding plagiarism and academic misconduct. At pre-intervention, mean confidence scores indicated moderate self-reported capability across academic integrity practices (M range = 1.92-2.49). Students reported the highest confidence in acting with academic integrity (M = 2.49, SD = 0.67), followed by avoiding plagiarism and academic misconduct (M = 2.34, SD = 0.74). Lower confidence was evident in paraphrasing (M = 2.14, SD = 0.68) and referencing (M = 1.92, SD = 0.75), suggesting greater uncertainty in procedural aspects of academic integrity.

At pre-intervention, postgraduate students reported slightly higher confidence than undergraduates across all academic integrity items (Table 4), with the key differences observed in acting with academic integrity and avoiding plagiarism. Undergraduate confidence was lowest for referencing (M = 1.92), consistent with the overall pattern of uncertainty in procedural aspects of academic integrity (Table 5). Post-intervention, mean confidence increased across all items (M range = 2.40-2.77). The highest post-intervention confidence was reported for acting with academic integrity (M = 2.77, SD = 0.46) and avoiding plagiarism and academic misconduct (M = 2.62, SD = 0.55). Confidence also improved for paraphrasing (M = 2.52, SD = 0.59) and

referencing (M = 2.40, SD = 0.64), although referencing remained the lowest-scoring domain. Standard deviations were smaller at post-intervention, suggesting reduced variability and more consistent confidence across students.

Both undergraduate and postgraduate groups demonstrated increased confidence across all academic integrity practices. However, gains were more pronounced among undergraduates, particularly for paraphrasing and referencing (Table 5), indicating stronger development in procedural aspects of academic integrity. Postgraduate students maintained higher overall confidence at post-intervention (e.g., acting with academic integrity M = 2.95), but changes were smaller, likely reflecting higher baseline confidence (Table 4). Overall, the pattern suggests that the intervention was effective in strengthening foundational academic integrity capabilities among undergraduate students, while reinforcing already established confidence among postgraduates.

Uncertainty and fear

Pre-intervention reflections were characterised by risk aversion and uncertainty, with concerns clustering around plagiarism, the authenticity of learning, and challenges with referencing. Several students described avoiding GenAI due to fear of breaching academic standards: *“I have never used GenAI as I’m too scared of breaching academic integrity.”* Students also highlighted broader risks such as *“bias, misinformation, [and] intellectual property”* and described outputs as unpredictable: *“It plagiarises at will and you may not know when.”* These responses suggest that ethical concern was closely tied to procedural uncertainty, consistent with lower confidence in paraphrasing and referencing.

Increased ethical awareness and decision-making

Post-intervention responses reflected more defined strategies for ethical engagement, particularly around disclosure and accountability. Students increasingly articulated consequences of non-disclosure: *“If not acknowledge the use of GenAI, [there could be an] impact on grade as well as academic misconduct.”* Others emphasised transparency and vigilance in evaluating outputs: *“It was trained on other people’s work... so the information could be plagiarized or biased.”* Students also described resisting over-reliance: *“I am concerned that I may get used to using it and potentially get lazy or fall to the easiness of cheating.”* Overall, reflections suggest greater ethical clarity, alongside persistent uncertainty around technical conventions such as referencing.

Together, the quantitative and qualitative findings suggest growth in students’ confidence in academic integrity, particularly in relation to ethical awareness and decision-making. However, continuing concerns about referencing and acknowledgement practices indicate that procedural complexity remained a constraint, even as ethical understanding strengthened.

GenAI Use for Learning

Descriptive statistics were calculated for four items assessing confidence in using GenAI to support learning (Q9-Q12) as shown in Table 3: critically evaluating GenAI outputs, understanding concepts, summarising unit content/articles, and obtaining feedback on writing. At pre-intervention, confidence was low across all tasks (M range = 1.70-1.88). The lowest confidence was reported for critically evaluating the quality and integrity of GenAI outputs (M = 1.70, SD = 1.03). At pre-intervention, confidence in using GenAI for learning was low for both groups; however, postgraduate students reported lower confidence than undergraduates across all items

(Table 4). For example, confidence in critically evaluating GenAI outputs was notably lower among postgraduates (M = 0.91) compared with undergraduates (M = 1.44), indicating greater initial uncertainty about the educational use of GenAI (Table 5).

Post-intervention, mean confidence increased modestly overall (M range = 1.98-2.17), with the highest confidence reported for understanding concepts (M = 2.17, SD = 1.06) and summarising content (M = 2.15, SD = 1.07). However, study level patterns differed. Postgraduate students demonstrated consistent increases across all four items from a low baseline (Table 4), indicating meaningful relative gains in confidence. In contrast, undergraduate mean scores showed little change or slight decreases across several items (Table 5), remaining within a relatively low confidence range.

Standard deviations remained steady across both groups, indicating wide variation in students' confidence and uneven capability development in GenAI use for learning to support critical evaluation. Collectively, these results suggest that while the intervention supported postgraduate students in developing confidence in using GenAI for learning, it did not produce the same pattern of improvement among undergraduates. Given the smaller post-intervention study level sizes, these trends may be interpreted with some caution.

Scepticism about reliability and authenticity

Pre-intervention responses reflected doubt about the legitimacy of GenAI as a learning tool and concerns that it could undermine authentic learning. As one student noted: *"It's to be used as a tool to boost your learning, not as a tool to take away from your learning."* Others questioned reliability and ownership: *"Whether or not the information I am receiving from GenAI is relevant and reliable... it is not my own work,"* and *"I just won't fully trust the information given..."* These reflections align with low pre-intervention confidence, particularly in critical evaluation.

Towards intentional and ethical engagement

Post-intervention reflections showed more nuanced reasoning about benefits and limits, with students describing GenAI as useful for idea generation and support, but requiring boundaries to avoid dependence. One student observed: *"Initially we just try to use it for grabbing some idea... unconsciously we end up getting bound by the idea given by the GenAI."* Students also linked ethical use to professional identity: *"What kind of professional would I be if I do everything through artificial intelligence?"* Several raised intellectual property concerns: *"the original authors... may not have been fairly referenced or compensated."* Others highlighted integrity and originality, with one student concluding: *"Using GenAI means there is a degree of inoriginality [sic] to my work, even if it's just to brainstorm. I only want to use it to enhance my learning and make it more effective. Not just to 'make it easier.'"* These responses suggest movement toward deliberate, bounded engagement, while also explaining continued uncertainty for higher-order tasks (e.g., critical evaluation and writing feedback).

Quantitative results show modest gains in confidence for GenAI-supported learning, and qualitative responses suggest students were transitioning from scepticism to strategic use, moderated by concerns about authenticity, trustworthiness, and over-reliance.

GenAI Use for Assessment Preparation

Descriptive statistics were calculated for five items assessing confidence in using GenAI for assessment preparation (Q13-Q17) as shown in Table 3: task breakdown, brainstorming and planning, written English, acknowledging and referencing GenAI use, and record keeping. At pre-intervention, confidence was moderate across items (M range = 1.73-1.94), with lower confidence for acknowledging/referencing GenAI use (M = 1.73, SD = 0.99) and task breakdown (M = 1.75, SD = 1.03).

At pre-intervention, postgraduate students reported consistently lower confidence than undergraduates across all assessment-related uses of GenAI (Table 4). The largest differences were observed in task breakdown, brainstorming and planning, and acknowledgement practices, where postgraduate means were substantially lower (Table 5), indicating a pronounced initial gap in confidence between the two groups. Post-intervention, overall mean confidence increased across all items (M range = 2.08-2.15), suggesting modest improvement in students' perceived capability to use GenAI for assessment preparation. However, standard deviations remained relatively consistent, indicating continued variability in confidence across the cohort.

Study level patterns revealed important differences. Postgraduate students demonstrated increases in confidence across all five items from their lower baseline (Table 4), indicating meaningful gains in their perceived ability to use GenAI to support assessment preparation. In contrast, undergraduate results were more variable (Table 5). Confidence increased slightly for acknowledging and referencing GenAI use, but showed little change or declined across other areas, including task breakdown, brainstorming and planning, written English, and record keeping. The variability across both groups further suggests that students were still developing clarity around appropriate, effective, and academically acceptable uses of GenAI in assessment contexts. These patterns should be considered in light of the smaller post-intervention study level sizes.

Perceiving GenAI as 'cheating'

Pre-intervention reflections were strongly framed by academic integrity and fairness concerns in assessment contexts. Some students described GenAI use as *"cheating"* or *"a form of plagiarism,"* while others highlighted inequity: *"It can be unfair to use GenAI against other students who may not be using it."* Students also questioned authenticity: *"Because is it really your work if you're getting prompts and help from AI...?"* and raised reliability concerns: *"sometimes it steals information... or makes it up, so it's important to double check..."* These responses align with lower confidence in assessment-related GenAI practices, particularly those involving acknowledgement and documentation.

Balancing confidence with ongoing concerns about reliability

Post-intervention responses retained ethical concern but increasingly described boundary-setting and rule-informed decision-making. One student explained: *"I considered the limits between me doing the job and the AI doing the job for me... following the ECU rules."* Students also emphasised authorship and ownership: *"all works that are referenced by GenAI have been created by another individual who has ownership..."* Fairness concerns persisted: *"it gives that person an unfair advantage..."* alongside ongoing vigilance about hallucinations: *"GenAI is prone to hallucinations and I need to fact-check every output..."* These reflections help explain why

confidence improved yet remained variable, and why accountability practices (acknowledgement and record-keeping) continued to be challenging.

Across the pre- and post-self-assessments, assessment preparation elicited the strongest boundary concerns. Quantitative gains suggest increased confidence in preparatory uses (e.g., planning, task interpretation), while qualitative data indicate that students continued to negotiate the ethical limits of acceptable use, particularly in relation to disclosure, fairness, and reliability. Across domains, students reported increased confidence over time, with the strongest gains in academic integrity and more modest gains in GenAI capability. Qualitative themes suggest this pattern reflects students moving from uncertainty and risk aversion toward more deliberate boundary-setting, disclosure, and critical vigilance. However, persistent concerns about referencing, acknowledgement, fairness, and reliability indicate ongoing need for explicit teaching and institutional guidance to support responsible GenAI use. These patterns differed by study level, with undergraduates showing the strongest gains in academic integrity skills and postgraduate students demonstrating larger relative improvement in assessment-related GenAI practices, particularly from lower initial confidence. Notably, undergraduate students also demonstrated a recalibration in their confidence, with decreases in their use of GenAI suggesting the development of more critical and ethically informed understandings of its application.

Broader Moral and Societal Concerns

In addition, themes from the pre-self-assessment revealed broader moral and ethical tensions that extended beyond learning, teaching, and assessment, with students expressing wider ethical and philosophical concerns prior to their exposure to GenAI-supported learning during the semester. Some expressed apprehension about the displacement of human creativity and purpose. One student remarked: *“GenAI has the capability to take a lot of jobs and remove a human element, if it were to happen. It would. I will keep my human element because it gives some purpose.”* Others raised concerns about bias and manipulation, noting that *“AI can be used to push agendas and filter responses, be vague with facts.”* Intellectual property was another key issue, with one student observing: *“It is trained off other people’s work without permission so in a way it is like stealing.”* Environmental sustainability also shaped student attitudes, as one explained: *“I understand that there are environmental concerns and only use GenAI when I need support understanding a topic.”* A student framed their reflection in explicitly moral terms: *“Questioning the ethical moral consequences of using this tool and determining the right way to use it based on rules and my morals.”* Collectively, these pre-semester reflections indicate that students were already positioning GenAI within a broader ethical and societal context, considering not only what GenAI is capable of, but also what it ought to be used for.

Within-person change (matched sample)

To examine individual change over time, paired-samples analyses were conducted for participants who completed both the pre- and post-self-assessments (n = 25). Results indicated improvements in key academic integrity items, particularly acting with academic integrity and referencing, with additional gains observed for acknowledging GenAI use and for brainstorming and planning in assessment contexts. Changes in GenAI for learning items were positive but did not reach statistical significance. These findings support the descriptive trends, indicating that the strongest development occurred in academic integrity and responsible use of GenAI, with more

modest gains in confidence for learning-related applications. Detailed paired-sample statistics are provided in Table 6.

Table 6

Paired-samples t-test results for matched pre–post responses (n = 25)

Domain	Item	Pre M	Post M	p (two-tailed)
Academic integrity	Acting with integrity	2.32	2.80	0.00041
	Paraphrasing	1.96	2.40	0.01842
	Referencing	1.68	2.28	0.00028
	Avoiding plagiarism	2.08	2.52	0.02449
GenAI for learning	Critical evaluation	1.80	2.28	0.06933
	Understanding concepts	2.28	2.48	0.25958
	Summarising	2.16	2.40	0.20713
	Writing feedback	1.84	2.24	0.05694
GenAI for assessment	Task breakdown	1.80	2.16	0.24921
	Brainstorming	1.96	2.52	0.01304
	Written English	2.00	2.44	0.05347
	Acknowledgement	1.92	2.44	0.00647
	Record keeping	2.12	2.36	0.22798

Note: Values represent paired-samples t-tests for participants who completed both pre- and post-self-assessments (n = 25). p-values are two-tailed.

Discussion

This study demonstrates that guided reflection on GenAI use embedded within a self-assessment can play an important role in developing students' ethical awareness and learner agency. The findings indicate that reflection itself may function as a catalyst for heightened ethical awareness and emerging student agency. By incorporating reflective prompts about GenAI use in both learning and assessment into the self-assessment process, students were encouraged to evaluate their own skills while considering how their choices aligned with broader principles of academic integrity and responsible technology use. However, differences by study level suggest that students entered the semester with distinct developmental needs, and that the intervention functioned as a levelling mechanism rather than producing uniform gains. Notably, even prior to exposure to GenAI within the curriculum, many students were already situating their engagement within wider ethical and societal debates. Pre-self-assessment reflections raised concerns related to plagiarism and fairness, the displacement of human creativity, environmental impact, and whether GenAI use might constitute 'stealing' others' intellectual work. These concerns were particularly salient for postgraduate students, who reported higher initial confidence in academic integrity but lower confidence in using GenAI for learning and assessment, indicating greater caution about appropriate academic use. Baseline perspectives may help to explain why

subsequent reflections on learning and assessment were characterised by caution, boundary-setting, and contested understandings of legitimate use. Undergraduate students, by contrast, began with lower confidence in core academic practices, particularly referencing and paraphrasing, yet over time demonstrated the strongest gains in academic integrity. While postgraduate students showed greater relative improvement in assessment-related GenAI practices, including planning, acknowledgement, and documentation, suggesting that students with lower initial confidence in specific domains experienced the greatest developmental benefit. Findings across the four domains – academic integrity, GenAI for learning, GenAI for assessment, and ethical use of GenAI – highlight both areas of progress and ongoing challenges in supporting students to critically and ethically navigate GenAI-mediated higher education environments.

Academic Integrity

Students' self-reported confidence in understanding academic integrity highlights the transformative potential of reflection in fostering critical self-awareness. Quantitative data revealed gains across integrity-related domains, particularly in paraphrasing and acting with integrity, although referencing remained an area of persistent uncertainty. These gains were most pronounced among undergraduate students, who entered with lower initial confidence, while postgraduate students began from a higher baseline and demonstrated smaller incremental change. This pattern suggests that guided reflection was particularly effective in strengthening foundational academic integrity capabilities among less experienced learners. Qualitative responses further illustrate how students grappled with moral questions. Pre-semester reflections often expressed anxiety, such as *"I have never used [GenAI] as I'm too scared of breaching academic integrity"* or concerns that *"it plagiarises at will and you may not know when."* In contrast, post-semester responses described some concrete strategies for ethical use, including disclosure, acknowledgement, and fact-checking: *"Disclosing its use in the text and fact-checking every output"* and *"If not acknowledged, it could be misconduct."* This transition suggests that guided reflection provided a space for students to shift from uncertainty to agency, reframing integrity as an active, values-driven practice rather than a set of imposed rules. For educators, this underscores the importance of embedding ethical reflection into academic integrity education to engage students as active partners in navigating emerging ethical landscapes.

These findings align with calls to reconceptualise academic integrity as an educative and developmental practice rather than a compliance exercise (Balalle & Pannilage, 2025; Bretag et al., 2019; Morris & Bretag, 2016). They also extend the insights of Harper and Prentice (2024), whose work highlights the importance of student perspectives in disrupting reductive narratives about cheating. While their study revealed tensions between 'we' and 'they' framings of misconduct, our findings suggest that reflection can provide a more constructive pathway for students to grapple with the ethical complexities of integrity in GenAI-mediated contexts. Research has shown that ethical reflection enables students to engage more deeply with the moral dimensions of learning, cultivating integrity as an active process of judgement rather than rule-following (Barahona et al., 2025; Jakobsen & Sunde Mæhre, 2023; Tai et al., 2018). Our results are also consistent with other works emphasising the need to embed opportunities for reflection into higher education, particularly in relation to new technologies that complicate conventional notions of misconduct (Harvey et al., 2016; Veine et al., 2020). By positioning students as reflective agents navigating the uncertainties of GenAI use, this study contributes to

emerging discussions about how academic integrity frameworks must evolve to meet the ethical challenges of GenAI in higher education (Sharma & Panja, 2025).

GenAI for Learning

When reflecting on GenAI as a learning tool, students demonstrated more cautious and incremental growth. Quantitative data showed modest gains in confidence, with many students still reporting a need for more practice. Differences by study level were also evident, with postgraduate students reporting lower initial confidence in using GenAI for learning and demonstrating gradual improvement over time, while undergraduate confidence remained relatively stable, with slight declines observed. These patterns indicate that uncertainty about the pedagogical value of GenAI may be especially pronounced among more experienced students navigating shifts in established study practices. However, qualitative reflections revealed the tensions students experienced between opportunity and risk. Pre-semester responses often framed GenAI as a potential shortcut or even a threat to authentic learning: *“If we don’t use AI properly we aren’t going to learn much”* and *“Is using AI cheating, doing the work for you?”* By the end of semester, reflections revealed more nuanced evaluation, such as *“I need to fact-check every output and not rely solely on it”* and *“In the prompts I used, I considered the limits between me doing the job and the AI doing the job for me.”* These accounts suggest an emerging capacity for critical engagement, where students moved beyond scepticism and began to articulate boundaries between support and over-reliance. In this sense, guided reflective prompts facilitated learner agency by enabling students to practise ethical judgement in their use of GenAI. For educators, this highlights the importance of facilitating students’ reflective inquiry into how and when GenAI can meaningfully support learning without undermining self-regulation. This includes providing students with scaffolded opportunities to develop prompt literacy and evaluative skills throughout the curriculum (Corbin et al., 2025b).

These findings echo recent literature emphasising both the promise and the challenges of integrating GenAI into higher education (Yao & Zhenjie, 2024). While studies highlight the potential of GenAI to enhance learning, motivation, and feedback (Corbin et al., 2025c; Giannakos et al., 2025), they also caution against uncritical adoption and stress the importance of scaffolding students’ evaluative practices (Bond et al., 2024; Nikolic et al., 2024). Research on self-regulated learning similarly underscores the need to strengthen learners’ agency in critically appraising digital tools, linking reflection to the development of autonomy and evaluative judgement (Hadwin et al., 2025; Winne, 2018; Zimmerman, 2002). Our findings contribute to these discussions by demonstrating how guided reflection within self-assessment can help students negotiate the tensions between support and dependency, fostering ethical engagement with GenAI in ways consistent with broader calls for transparency, guidance, and ethics-informed pedagogy (Giannakos et al., 2025; Kelly et al., 2023).

GenAI for Assessment

Assessment emerged as the most challenging domain for GenAI use, with student confidence remaining low and ethical concerns most pronounced. Study-level patterns further highlighted this challenge: postgraduate students reported the lowest baseline confidence in assessment-related GenAI use but showed the largest relative gains, particularly in planning, acknowledgement, and documentation practices. In contrast, undergraduate students showed more modest shifts, with

minor decreases across some areas, suggesting differing developmental needs across cohorts in negotiating acceptable assessment use. Quantitative data indicated minimal improvement in tasks such as referencing and documenting GenAI use, with many students still reporting 'need more practice'. Qualitative reflections reinforced this hesitancy. Pre-semester, students often equated GenAI with misconduct or unfair advantage, describing it as "*cheating*" or "*a form of plagiarism*" and warning that "*it can be unfair to use GenAI against other students who may not be using it.*" Others expressed concerns about dependency and learning value: "*If I let GenAI do the work, what am I actually learning?*" and "*over-reliance means you're not demonstrating your own understanding.*"

By the end of semester, reflections showed greater nuance but sustained caution. Students acknowledged limited value "*only to brainstorm, not to make it easier,*" and emphasised clear boundaries around authorship and disclosure: "*Generative AI is not my own work... I only want to use it to enhance my learning.*" Broader concerns also surfaced, including fairness (an "*unfair advantage*") and uncredited sources: "*The original authors may not have been fairly referenced or compensated.*" These reflections underscore a persistent tension: while GenAI can improve efficiency, it also complicates notions of authorship, originality, and fairness. For educators, this signals the need for clearer institutional guidance and for pedagogical approaches that shift integrity from a compliance issue to a process of ethical reasoning. Students are moving beyond asking, 'Am I allowed?' to interrogating, 'What does responsible use look like in my discipline and context?'

These challenges align with broader scholarship identifying assessment to be where GenAI poses the greatest disruption, particularly regarding authorship, originality, and fairness (Corbin et al., 2025a; Corbin et al., 2025c). Unclear policies and compliance-driven approaches exacerbate uncertainty (Bretag et al., 2019), reinforcing perceptions of GenAI as a source of misconduct rather than a legitimate learning support (Sharma & Panja, 2025). Calls for assessment reform emphasise that addressing these tensions requires structural and pedagogical shifts that make transparent the boundaries of ethical GenAI use (Le, 2024; Nikolic et al., 2024). Our findings extend this work by showing how guided reflection can help students move beyond rule-based compliance towards critical ethical reasoning, aligning with broader theories of student agency in feedback and assessment contexts (Nieminen et al., 2022; Nieminen et al., 2025). Embedding opportunities for reflection about ethical GenAI use may therefore provide a pathway to reducing uncertainty, building confidence, and strengthening integrity in assessment practices.

Persistent Uncertainty and Ethical Tensions

These findings highlight the potential of guided reflection embedded within self-assessment as a scalable pedagogical strategy for raising students' ethical awareness of GenAI. Across domains of academic integrity, learning, and assessment, students shifted from uncertainty and fear toward strategic use, critical engagement, and ethical reasoning. This progression was uneven across cohorts: undergraduate students showed the strongest development in foundational integrity practices, whereas postgraduate students demonstrated greater growth in navigating assessment-related GenAI boundaries. Reflection helped reposition GenAI from an external threat to a tool that students can engage with critically and responsibly, enabling them to act as active agents in shaping their learning (Combrinck & Loubser, 2025). This aligns with longstanding conceptualisations of reflection as a process that transforms experience into

learning (Boud et al., 1989; Mohamed et al., 2022) and with recent work positioning reflection as a core pedagogical activity in higher education (Harvey et al., 2016; Veine et al., 2020). It also supports calls to shift academic integrity education away from detection and policing to empowerment, ethical deliberation, and student partnership (Barahona et al., 2025; Jakobsen & Sunde Mæhre, 2023; Morris & Bretag, 2016).

For educators, this shift entails moving from arbiters of compliance to facilitators of ethical inquiry. Embedding reflection into assessment design, classroom dialogue, and self-evaluation tasks enables students to articulate responsible GenAI use while reinforcing disciplinary values and expectations (Corbin et al., 2025c; Kelly et al., 2025). These approaches align with broader frameworks of self-regulated learning and student agency, which emphasise reflection, evaluative judgement, and responsibility as central to lifelong learning (Nieminen et al., 2022; Panadero et al., 2017; Zimmerman, 2002). In the context of GenAI, guided reflection within self-assessment offers a critical scaffold for navigating integrity and assessment challenges, and preparing students to act with ethical awareness and autonomy in learning and professional contexts.

Practical Implications

The findings highlight the value of embedding guided reflection within self-assessment as part of institutional approaches to digital literacy and academic integrity. By explicitly linking GenAI use to academic integrity, self-regulated learning, and disciplinary values, reflection can bridge technical proficiency and ethical awareness. Although students reported increased confidence, ongoing variability across domains and cohorts indicates that ethical GenAI capability develops unevenly and requires sustained, scaffolded support rather than one-off instruction. Effective GenAI support must therefore be scalable and inclusive, ensuring equitable opportunities for students across diverse cohorts. Differences between undergraduate and postgraduate students indicate distinct developmental needs, reinforcing the importance of differentiated scaffolding that addresses both foundational academic practices and more advanced boundary-setting in assessment contexts. This includes integrating reflection into pedagogical frameworks, providing discipline-specific exemplars, and equipping staff to facilitate reflective conversations that move beyond compliance toward critical judgement. At an institutional level, policy clarity is essential. Students frequently expressed uncertainty about legitimate use, particularly regarding acknowledgement, authorship, and assessment boundaries. This underscores the need for guidance that moves beyond prohibitive messaging toward transparent, educative frameworks that model responsible practice. Collectively, these implications call for coordinated action across policy, curriculum design, and learning support to cultivate ethically aware, agentic learners capable of exercising informed judgement in GenAI-mediated environments.

Limitations

While this study offers valuable insights into how guided reflection within self-assessment can foster students' ethical awareness of GenAI, several limitations should be acknowledged. The findings are drawn from a single institution and specific student cohorts, which may limit generalisability across disciplines and institutional contexts. Response rates differed substantially between the pre- and post-self-assessments, with a notable decline at follow-up and only a small subset of students ($n = 25$) completing both administrations. Although paired analysis of this matched subsample provides a stronger indication of individual change by controlling for

differences in sample composition, the small sample size limits statistical power and the generalisability of within-person findings (Ruel, 2018). Voluntary participation may also have introduced self-selection bias, as students who were more engaged, confident, or positively disposed toward learning support may have been more likely to complete the post-survey (Smith et al., 2019). Accordingly, findings from the matched-sample analysis should be interpreted as indicative patterns rather than precise estimates of effect size.

Future research should aim to improve follow-up participation, refine the self-assessment tool, embed the approach across a wider range of disciplines, and collect larger matched pre-post samples to strengthen the reliability of longitudinal analysis. Broader multi-institutional implementation would also enable examination of how disciplinary cultures shape students' ethical engagement with GenAI. Despite these limitations, the study demonstrates that reflective approaches are feasible at scale and represents a promising mechanism for fostering students' ethical engagement with GenAI within digital learning practices.

Conclusion

This study contributes to emerging scholarship on GenAI in higher education by demonstrating how guided reflection within self-assessment can raise ethical awareness, strengthen digital literacy, and support learner agency. Integrating quantitative and qualitative findings, the results showed increased confidence in academic integrity and more critical engagement with GenAI for learning, although uncertainty persisted in high-stakes assessment contexts. By foregrounding student voice, the study challenges reductive narratives of misconduct (Harper & Prentice, 2024) and illustrates how reflection can support students in navigating the ethical complexities of GenAI. Reflection functioned as a catalyst, enabling students to articulate values, recognise risks, and develop strategies for responsible use. As higher education continues to respond to the challenges posed by GenAI, reflection emerges as a critical pedagogy for cultivating ethically aware, self-regulated learners. Supporting student agency requires institutions to move beyond compliance-driven approaches by embedding reflection within digital literacy frameworks, curriculum design, and policy. Clear expectations and practical guardrails can help students understand the implications of their choices, act with confidence, and reduce the risk of misconduct over time. In doing so, institutions can better prepare graduates to engage critically, responsibly, and ethically with GenAI in academic and professional contexts.

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