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Understanding PSE students' reactions to the postplagiarism concept: a quantitative analysis

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Abstract

This study examines postsecondary education (PSE) students' perspectives on postplagiarism—a framework that reconceptualizes academic integrity in response to generative artificial intelligence (GenAI). Through a quantitative survey of 581 PSE students across five English-speaking countries, the research investigated student responses to the six tenets of postplagiarism articulated by Eaton (Int J Educ Integr 19:23, 2023a). The findings reveal a complex pattern of acceptance and resistance: while students broadly embrace the integration of GenAI in academic work, with 93.1% acknowledging the normalization of hybrid human–AI writing, significant concerns persist. Notable resistance emerged regarding the distinction between human and AI-generated content (65.92%), the potential impact of AI on human creativity (60.76%), and the retention of human agency in writing (32.7%). The study also validates a novel instrument for measuring postplagiarism perspectives, achieving acceptable internal consistency (Cronbach's alpha = 0.718) while identifying areas for refinement. These insights suggest that educational institutions must develop nuanced policies that address student concerns while facilitating ethical AI integration, particularly in areas of attribution, creative expression, and academic agency. The findings contribute to our understanding of how academic integrity frameworks can evolve to remain relevant in an AI-integrated educational landscape.

Keywords: Postplagiarism, Generative artificial intelligence (GenAI), Academic integrity, Quantitative research

Introduction

Plagiarism continues to be a significant and pervasive challenge in academia, impacting academic integrity and student learning outcomes, as evidenced by numerous studies investigating its prevalence and student attitudes (Eaton 2021; Harji et al. 2017; Morán 2022; Toprak et al. 2020). While extensive research has examined traditional plagiarism, the emergence of generative artificial intelligence (GenAI) has created new complexities in understanding and addressing academic integrity. Previous studies have focused primarily on detecting AI-generated content or developing institutional policies (Köbis and Mossink 2021; Kumar and Mindzak 2024). Despite this body of research, the definitions

and understanding of plagiarism remain contested, leaving a crucial gap in our understanding of how students perceive and navigate these evolving challenges. Yet, the definitions and understanding of plagiarism remain contested and unsettled due to varying perspectives on authorship, originality, and intellectual property—a sentiment Howard (2000) has expressed, and that has been reiterated by scholars of academic integrity. The conceptualization of plagiarism requires re-examination due to the proliferation of GenAI in postsecondary education (PSE) institutions. This technological shift challenges traditional notions of authorship, originality, and creativity in specific academic contexts, particularly where human and AI contributions intersect. A key challenge emerging in academic settings is the increasing complexity of determining authorship when GenAI tools are used in writing processes, particularly in contexts where human and AI contributions overlap.

This predicament has at least two recourses in response to these challenges facing academic integrity: One is the detection of human versus GenAI-created content, but this approach is flawed because automated detection mechanisms raise significant ethical concerns (MIT Sloan Teaching & Learning Technologies 2023) and, like manual detection methods, are prone to inaccuracies, including false positives and false negatives (Köbis and Mossink 2021; Kumar and Mindzak 2024). The second approach to addressing plagiarism is to move beyond traditional concepts and embrace a new paradigm—which Eaton (2023a) terms *postplagiarism*—presenting a fresh perspective on this long-standing challenge, suggesting that human creativity and GenAI use can coexist. Adopting this paradigm shift depends on multiple factors, including institutional policies, technological infrastructure, faculty preparedness, and crucially, student perspectives on integrating GenAI in academic work.

This study addresses two critical gaps: first, understanding how PSE students conceptualize and respond to postplagiarism in their academic work, and second, examining how demographic factors such as academic level, field of study, and geographical location influence these perspectives. The research examines student attitudes toward the six tenets of postplagiarism, investigating how different student populations view hybrid human–AI writing, creativity, attribution, and academic integrity. While students represent a key stakeholder group in academic institutions, their views on postplagiarism remain understudied. An understanding of these perspectives is not only crucial for developing effective policies and pedagogical approaches but also essential for ensuring the sustainable evolution of academic writing practices in the GenAI era.

Literature review

The emergence of GenAI has significantly altered the discourse on academic integrity, prompting scholars to reconsider traditional definitions of plagiarism. This literature review examines key contributions to the evolving dialogue, with a particular focus on the concept of postplagiarism as introduced and developed by Eaton (2021, 2023a, b).

Eaton (2021) introduced the concept of postplagiarism in her book *Plagiarism in Higher Education* that emphasized the evolving nature of authorship and creativity in the digital age, and the need to reassess traditional definitions and perceptions of plagiarism in academia:

As students, educators, and members of society think more about the normalcy of complexity and developing a tolerance for ambiguity, we will be challenged in ways that we have never seen before to define and redefine what it means to learn, work, and live ethically. It is time to contemplate what it would mean to live in a postplagiarism world (p. 222).

This early conceptualization of postplagiarism proved prescient, as following Eaton's (2021) introduction of postplagiarism, the landscape of academic integrity faced further challenges with the launch of OpenAI's ChatGPT, which spurred numerous efforts to detect GenAI-created content among researchers seeking to minimize the disruption caused by the rapid proliferation of GenAI in academic settings. The idea was that if the text could be (relatively) accurately distinguished, then the disruption caused by the proliferation of GenAI would be minimal. However, both automated and human detection methods have revealed significant flaws. For instance, studies have shown that these methods often result in false positives and negatives, raising ethical and practical concerns about their reliability and the potential consequences for students and educators (Kumar and Mindzak 2024; Ma et al. 2023; Weber-Wulff et al. 2023).

Moving beyond the limitations of detection-based approaches, Eaton (2023b) took up her own challenge and expanded on the idea of postplagiarism by posting an infographic summarizing its six tenets. She also provided a helpful definition: "Postplagiarism refers to an era in human society in which advanced technologies, including artificial intelligence and neurotechnology, including brain–computer interfaces (BCIs), are a normal part of life, including how we teach, learn, and interact daily" (Eaton 2023a, p. 2). This suggests that institutions and educators should rethink academic integrity in the context of this new normal instead of chasing the moving target of detecting GenAI-created content.

Although Ma et al. (2023) have identified various linguistic and stylistic features that can differentiate AI-generated from human-generated texts—including indicators such as writing style, coherence, consistency, and argument logistics—GenAI is getting more sophisticated and improving its ability to mimic individualized human linguistic patterns. This continuous advancement raises the stakes for educators and institutions seeking to uphold academic integrity, especially if efforts are concentrated on detection. Furthermore, the quest to reconcile content generation and detection is analogous to the continuous technological escalation between LLM technology and detection tools, and expending already meagre educational resources on detection is neither a sustainable nor scalable proposition. While technical challenges persist in distinguishing AI-generated content, Acosta-Enriquez et al. (2024) found that while Generation Z university students in Peru generally have positive attitudes toward ChatGPT, concerns about overreliance, academic integrity, and misinformation underscore the need for comprehensive ethical training and institutional guidelines. The study highlights the disconnect between favourable perceptions of ChatGPT and its effective, ethical integration into higher education, advocating for structured policies to mitigate risks while leveraging its benefits.

In another study, Espartinez (2024) employed Q-methodology to examine student and teacher perceptions of ChatGPT use in Philippine higher education institutions, identifying three primary perspectives: Ethical Tech Guardians, Balanced Pedagogy

Integrators, and Convenience-Embracing AI Enthusiasts. Baidoo-Anu et al. (2024) expanded on these themes by examining the perspectives of Ghanaian higher education students, emphasizing the interplay between perceived academic benefits, accessibility, and concerns over critical thinking and originality. Their findings underline the importance of addressing the digital divide in the global south and establishing clear institutional policies to guide ethical and effective ChatGPT usage.

Parker et al. (2023) explored undergraduate students' use of ChatGPT in academic contexts, highlighting its rapid integration into both academic and non-academic tasks. The study revealed that 65% of surveyed students used ChatGPT for academic purposes, reporting moderate improvements in their academic work. However, students exhibited diverse ethical perspectives, with some viewing its use as ethically acceptable and others raising concerns about academic integrity and critical thinking. The findings demonstrated a moderate correlation between students' ethical beliefs and their perceived academic benefits of using ChatGPT, emphasizing the need for educational policies to address ethical AI usage.

These findings align with broader international perspectives, as Farhi et al. (2023) further highlighted the dual nature of ChatGPT usage, with UAE students recognizing its potential to enhance productivity and learning while voicing significant ethical concerns. These include the risk of overreliance, diminished critical thinking, and compromised creative writing abilities, necessitating robust institutional guidelines to ensure ethical AI adoption in education.

Bhullar et al. (2024) synthesized global research trends on ChatGPT in higher education, identifying four thematic clusters: academic integrity, learning environments, student engagement, and scholarly research. Their synthesis reveals the multifaceted nature of GenAI's impact while underscoring the critical role of AI literacy and institutional strategies in promoting ethical AI integration. These findings provide a valuable framework for understanding the broader context in which postplagiarism operates, particularly regarding the balance between academic integrity and technological innovation.

The convergence of these international findings, along with the current limitations of detection methods, underscores the need for alternative approaches to academic integrity. Postplagiarism has emerged as one such approach, garnering attention in several empirical studies. In a significant contribution to this emerging discourse, Chan (2023) conducted a survey of 393 undergraduate and postgraduate students from various disciplines in Hong Kong to investigate students' understanding of traditional plagiarism. Chan identified a shift in how academic misconduct is defined and understood in an era in which AI tools are increasingly pervasive, prompting educators to reconsider the ethical frameworks and instructional strategies that guide student interactions with these technologies. Chan coined the term (and portmanteau) AI-giarism, and her work makes it clear that educational institutions need not only address the technicalities of AI-giarism but also foster an environment that emphasizes ethical engagement with AI technologies, thus encouraging students to develop a nuanced understanding of authorship, ideas, and their own intellectual contributions. Chan's investigation revealed important nuances in students' understanding of academic misconduct: while they broadly agreed that submitting AI-generated text

without acknowledgment constitutes misconduct, they expressed uncertainty about using AI tools for ideation or writing improvement. This ambivalence highlights the evolving nature of academic integrity in the digital age.

Building on these insights into student perceptions, Chan and Hu (2024) surveyed 399 students from various disciplines in Hong Kong to understand their familiarity with GenAI, along with its perceived benefits, challenges, and how it can be effectively integrated into educational settings. Their findings indicate that students' attitudes are changing. For instance, many thought GenAI tools were helpful and could make studying easier; however, students also worried that using them too much might make them lazy or less creative. Students also expressed concern about whether these tools are always accurate and whether they respect privacy and ethics. These insights reveal a complex landscape of perception whereby students simultaneously embrace the potential benefits of AI tools while grappling with the ethical dilemmas they pose.

It is evident from these few studies that what was once clear is increasingly getting blurry, and attitudes toward academic integrity are also shifting. Conceptually, however, the formulation of postplagiarism posited by Eaton (2023a) is robust and inclusive of the elements explored by Chan (2023) and Chan and Hu (2024). The concept of postplagiarism challenges scholars, practitioners, and policymakers to re-evaluate the notion of plagiarism and academic integrity in light of rapid technological advancements (Chan 2023). Such studies make a persuasive argument that contemporary understandings of plagiarism may be too rigid to yield to the unrelenting challenges posed by GenAI.

The studies reviewed thus far highlight a fundamental question in the era of GenAI: Where does human writing end and GenAI-created content begin? This question becomes particularly complex given that AI features are already embedded in many common writing tools, such as MS Word, Google Docs, and AtlasTI. This widespread integration of AI into writing processes prompted Eaton (2023a) to formulate her first tenet: "Hybrid human–AI writing will become normal" (p. 3). As GenAI capabilities improve (and they are rapidly improving), they will increasingly affirm their usefulness for reluctant writers and students.

Yet, this is not a prediction of doom and gloom. Building on the idea of hybrid human–AI writing, the second tenet of postplagiarism addresses the impact of GenAI on human creativity. Eaton (2023a) asserts that "human creativity is enhanced" (p. 4) when GenAI is used ethically and responsibly. Intellectual property rights notwithstanding, because the models are trained on human data (sometimes authorized and sometimes not), GenAI can spark creativity, inspire users (and writers), and help overcome writer's block, amongst other benefits. Would it also enhance human productivity as a result? This view is aligned with Luckin et al.'s (2016) position that AI can augment human capabilities when used responsibly. Despite critics such as Selwyn's (2019) caution that over-reliance on AI could undermine human agency, the second tenet of postplagiarism proposes that GenAI usage will not threaten nor dull human creativity. Whether that is the case or not is unknown, but much of what becomes acceptable will depend on public or stakeholder sentiment.

While the implications of GenAI for human creativity remain a subject of debate, another crucial aspect of postplagiarism emerges in the realm of linguistic accessibility. The third tenet of postplagiarism, as articulated by Eaton (2023a), addresses this

dimension by asserting that "Language barriers disappear" (p. 4); any second-language impediments will begin to matter less as GenAI formulates cogent and coherent text in any language of choice. In time, this capability will help overcome the power of language that exerts its decolonizing and oppressive role on individuals. Eaton (2023a) states, "The intention behind this tenet was to emphasize that *the availability and effectiveness of technologies to help us transcend barriers is likely to increase*" (p. 5, emphasis in the original).

While the removal of language barriers represents a significant shift, it also raises questions about the balance between control and responsibility in the writing process. This leads to the fourth tenet, which asserts that "Humans can relinquish control, but not responsibility" (Eaton 2023a, p. 5). In conventional (non-GenAI) writing, the writing process indicates control by the author of what words and phrases they use; in GenAI-assisted writing, the control of the word choice and the sentence structure is *contracted out* to GenAI. And that is the difference that Eaton is suggesting. We use rough language to pass on the idea to GenAI so that it can produce polished text. Even on such occasions, Eaton (2023a) asserts, human beings are held responsible for what they present as *their* writing, whether it was wholly written by themselves, assisted by GenAI, or totally written by GenAI; responsibility means assurance of "accuracy, validity, reliability, and trustworthiness" (p. 5) of the generated content.

As responsibility remains a central concern in the era of postplagiarism, the importance of proper attribution becomes increasingly apparent. Eaton's (2023a) fifth tenet, "Attribution remains important" (p. 5), envisions attribution as a skill as well as a temperament. It is vital for students (and anyone for that matter) to attribute the source of their ideas to the right people in the right way. Eaton (2023a) is quick to remind us that attribution extends beyond the performative citation, describing it as "knowing others' work, being able to speak to it accurately, and showing respect for others' contributions" (p. 6). Seen this way, the people we cite and to whom we attribute our contributions are our real teachers.

As we continue to attribute and recognize others' contributions, it is equally important to reconsider the very definitions that guide our understanding of plagiarism. Eaton's (2023a) sixth and final tenet asserts that "Historical definitions of plagiarism no longer apply" (p. 6). It is an appeal to policy writers to adapt their understanding and operational definitions of plagiarism in light of the access to and proliferation and ease of GenAI. As it was bound to do, GenAI has forced us to reexamine what plagiarism, attribution, and creativity mean, and calls upon educational practitioners to forego old definitions of plagiarism.

Collectively, the six tenets of postplagiarism challenge traditional notions of authorship, creativity, and academic integrity, urging educators and institutions to rethink their approaches in the face of rapid technological change. This study examines how the concept of postplagiarism offers a valuable framework for understanding PSE students' perceptions of these evolving challenges.

While postplagiarism provides a comprehensive framework for understanding the evolving relationship between GenAI and academic integrity, it exists within a broader scholarly discourse on digital literacy and ethical AI usage in education (Hobbs 2017; Luckin et al. 2016; Selwyn 2019). These complementary frameworks emphasize the

importance of equipping students with the skills to navigate an increasingly complex digital landscape while maintaining academic integrity. However, the concept of postplagiarism remains central to this study's investigation of PSE students' perceptions, as it directly addresses the emerging challenges of academic authorship and integrity in the GenAI era.

Methodology

Research design

This study sought to examine PSE students' perspectives on postplagiarism through a systematic quantitative approach. A cross-sectional survey design was selected as the most appropriate methodology to capture attitudes toward the six tenets of postplagiarism across a diverse student population in five English-speaking countries: Australia, Canada, New Zealand, the United Kingdom, and the United States.

The research employed a purposive sampling strategy through the Prolific platform, targeting PSE students based on specific inclusion criteria. This approach enabled access to a diverse pool of participants while maintaining rigorous screening standards. Participant eligibility required current enrollment in postsecondary education, ranging from technical/community college to doctoral programs, and English language fluency to ensure accurate comprehension of survey items. All participants were current residents of the five target countries, though they could be of any nationality.

The survey instrument consisted of 19 statements derived from Eaton's (2023a) six tenets of postplagiarism, with responses recorded on a 4-point Likert scale (strongly disagree to strongly agree). The decision to use a 4-point Likert scale, excluding a neutral option, was deliberate to encourage participants to take a definitive stance on each tenet of postplagiarism. This design choice aligned with the study's objective of understanding clear directional attitudes rather than neutral positions. The instrument was presented in a fixed order to maintain consistency across participants with quality control achieved through cross-validation of participant age at different points in the survey.

Data collection occurred over a 3-day period between July 30, 2024, and August 1, 2024. From the initial 600 respondents, 581 valid responses were retained after data cleaning. The design incorporated ethical considerations through informed consent procedures and clear communication about data usage and participant rights.

The design incorporated ethical considerations through informed consent procedures and clear communication about data usage and participant rights. Demographic data collection was structured to maintain participant anonymity while gathering necessary information about the educational context and GenAI experience. This approach balanced the need for comprehensive data collection with participant privacy concerns.

Instrument development

Given the novel nature of the postplagiarism concept, no pre-existing instrument was available to test its tenets empirically. To address this gap, a survey was developed specifically for this study. The survey was designed to translate the six tenets of postplagiarism, as articulated by Eaton (2023a, b), into measurable variables that participants could respond to. Each tenet was deconstructed into declarative sentences, which were then formatted as statements to which respondents could indicate their level of

agreement using a 4-point Likert scale. The survey instrument was designed with an anticipated completion time of approximately 7 min to balance thoroughness with participant engagement.

Structure of the survey

The six tenets of postplagiarism were operationalized into 19 distinct variables. These variables are referred to as postplagiarism variables (PPMs) throughout this study. The operationalization of postplagiarism tenets into measurable variables followed a systematic approach. Each tenet was translated into specific statements that captured its core meaning while maintaining clarity and measurability. Table 1 presents the mapping between tenets and their constituent variables, while Table 2 provides the detailed statements used to measure each variable.

Table 2 outlines statements pertaining to postplagiarism and their corresponding tenets.

The survey comprised two main sections. The first section collected demographic information from participants, including gender, age, primary language, and whether they regularly use GenAI tools. Additionally, participants were asked about their educational affiliation within the postsecondary sector, distinguishing between universities, which typically offer comprehensive degree programs, and colleges, which in these five countries generally refer to institutions offering vocational, technical, or pre-university programs. While this distinction remains relevant for understanding institutional contexts, it is worth noting that in some countries, particularly Canada, the scopes of these institutions are increasingly converging. This differentiation was important given the varying PSE structures across these English-speaking countries. Participants also indicated their roles within their institutions (in cases of dual or multiple roles) and their disciplinary affiliations at the faculty level. The section concluded with participants' perspectives on whether GenAI tools would continue to evolve or become more permissible in the future. This demographic information was gathered to understand participant characteristics and enable analysis of correlations between demographic variables and attitudes toward postplagiarism tenets.

The second section consisted of the 19 statements derived from the six tenets of postplagiarism. Participants were asked to respond to these statements using the 4-point Likert scale. These statements were designed to measure participants' attitudes toward various aspects of postplagiarism, including the normalization of hybrid human–GenAI writing, the enhancement of human creativity, the disappearance of language barriers,

Table 1 Tenets of postplagiarism and constituent variables

Tenet	Description	Constituent variables
Tenet 1	Hybrid human—AI writing will become normal	PPM1, PPM2, PPM3
Tenet 2	Human creativity is enhanced	PPM4, PPM5, PPM6, PPM7, PPM8
Tenet 3	Language barriers disappear	PPM9, PPM10
Tenet 4	Humans can relinquish control, but not responsibility	PPM11, PPM12, PPM13, PPM14, PPM15
Tenet 5	Attribution remains important	PPM16, PPM17
Tenet 6	Historical definitions of plagiarism no longer apply	PPM18, PPM19

Table 2 Postplagiarism statements and corresponding tenets

Postplagiarism variable	Part of tenet	Postplagiarism statement
PPM1	1	Hybrid writing, co-created by humans and AI together, is becoming prevalent
PPM2	1	Hybrid writing (co-created by humans and AI) soon will become the norm
PPM3	1	Trying to determine where the human ends and where the AI begins is pointless and futile
PPM4	2	Human creativity is enhanced by AI
PPM5	2	Human creativity is not threatened by AI
PPM6	2	Humans can be inspired by and inspire others
PPM7	2	Human creativity may be inspired by AI
PPM8	2	Humans' ability to imagine, inspire, and create remains boundless and inexhaustible
PPM9	3	One's first language will begin to matter less as AI tools will bridge the communication gap
PPM10	3	AI will make humans understand each other across many languages
PPM11	4	In the age of AI, humans can retain control over what they write
PPM12	4	In the age of AI, humans can also relinquish control to AI tools if they choose
PPM13	4	Although humans can relinquish control, they do not relinquish responsibility for what is written
PPM14	4	Humans can - and must - remain accountable for fact-checking, verification procedures, and truth-telling
PPM15	4	Humans are also responsible for how AI tools are developed
PPM16	5	It always has been, and always will be, appropriate and desirable to appreciate, admire, and respect our teachers, mentors, and guides
PPM17	5	Citing, referencing, and attribution remain important skills
PPM18	6	Historical definitions of plagiarism will need to be rewritten because of AI
PPM19	6	Policy definitions of academic integrity can - and must - adapt because of AI

the balance of control and responsibility in GenAI-assisted writing, the importance of attribution, and the need to redefine plagiarism in the context of AI advancements.

Testing and pilot study

Prior to full deployment, the instrument underwent two phases of testing. Initial validation was conducted with colleagues to assess question clarity and comprehension, followed by pilot testing with students at the researcher's institution. While the instrument was not previously validated using statistical methods, the pilot phase informed refinements to the survey structure and item wording.

Data collection and technical implementation

The survey was administered through Qualtrics over a 3-day period between July 30, 2024, and August 1, 2024. Participant recruitment occurred through the Prolific platform, with compensation standardized at $1.50 (USD) per completed survey. To ensure data integrity, both Qualtrics settings and Prolific's internal mechanisms prevented multiple submissions from the same participant.

Ethical considerations

Ethical approval was obtained from the relevant institutional review board before administering the survey. A consent form detailing the purpose of the study, participants'

rights, and the confidentiality of their responses was included as part of the survey. Participation in the survey was voluntary, and respondents were required to provide informed consent before proceeding to the survey questions.

With the survey instrument validated and ethical approval secured, the study collected and analyzed data from participants, the results of which are presented in the following section.

Preliminary findings

The development and validation of new research instruments constitute significant findings in their own right, particularly when the instruments measure novel constructs. In this study, the validation of the postplagiarism survey instrument represents both a methodological foundation and a substantive contribution to understanding how postplagiarism can be operationalized and measured. The analysis of the instrument's psychometric properties offers insights into how well the theoretical constructs of postplagiarism translate into measurable variables, while also establishing a baseline for future refinements of the instrument.

A reliability analysis using Cronbach's alpha was conducted to evaluate the internal consistency of the survey items related to the postplagiarism concept. The analysis included all 581 valid responses, with no missing data. The Cronbach's alpha for the 19 items of postplagiarism was 0.718, exceeding the minimum acceptable threshold of 0.70 (Nunnally and Bernstein 1994) for newly developed scales. This is also consistent with Tavakol and Dennick's (2011) assertion that Cronbach's alpha value above the commonly accepted threshold of 0.70 confirms that the items reliably measure the intended construct, providing confidence in the survey's internal consistency. So, while this value indicates adequate internal consistency for an exploratory study, it also suggests opportunities for further refinement of the instrument to strengthen its psychometric properties. This suggests that the items are well-aligned in measuring the overarching construct of postplagiarism as articulated by Eaton (2023a, b).

In addition to the overall reliability, a reliability analysis was conducted for each of the six tenets to assess the internal consistency of the grouped survey items. The results indicated varying levels of internal consistency across the tenets, with Cronbach's alpha values as follows: 0.530 for Tenet 1, 0.567 for Tenet 2, 0.586 for Tenet 3, 0.463 for Tenet 4, 0.429 for Tenet 5, and 0.564 for Tenet 6. These values suggest moderate to low internal consistency within tenets, indicating that the items may not be consistently measuring the intended sub-constructs. This variability highlights the need for potential refinement of items within individual tenets to enhance the reliability of these measures.

The low Cronbach's alpha values highlight potential issues with the internal consistency of the survey items within the six tenets separately. This may be due to diverse interpretations of the items or inherent variability in the constructs being measured. The lower Cronbach's alpha values for individual tenets (ranging from 0.429 to 0.586) reflect common challenges in measuring complex theoretical constructs with relatively few items per dimension (Tavakol and Dennick 2011). As scale reliability is influenced by both the number of items and the complexity of the construct being measured, these values are not unexpected for a newly developed instrument measuring multifaceted concepts with two to five items per tenet (Streiner 2003). The variability in internal

consistency across tenets may also reflect diverse interpretations of the items or inherent complexity in the constructs being measured. While these values suggest opportunities for refinement, they do not necessarily indicate fundamental issues with the instrument's conceptual framework.

Building on these insights, future research should focus on refining the survey items, particularly by increasing the number of items per tenet to enhance internal consistency while better capturing the nuances of each construct. Such refinements would strengthen the instrument's ability to accurately measure participant perceptions of postplagiarism, thereby supporting more robust findings in future studies of this emerging concept.

Having established the adequate reliability of the instrument overall while noting areas for potential refinement, the following sections present the study's main findings regarding PSE students' perspectives on postplagiarism.

Findings

While participants represented 54 nationalities, the study focused on five English-speaking jurisdictions where they currently resided: Australia, Canada, New Zealand, the United Kingdom (including England, Scotland, Wales, and Northern Ireland), and the United States. This geographical focus enabled the examination of postplagiarism perspectives within comparable higher education systems while capturing diverse international student viewpoints.

Demographic profile of respondents

The 581 respondents in the study were between ages 18 and 67 (range = 49; $\bar{x} = 28.4$; Mdn = 26) years old. It took them, on average, 5 min 29 s (Mdn = 4 min 46 s) to complete the survey. 48.2% ($n = 280$) of the participants identified as males and 51.8% ($n = 301$) identified as females. An overwhelming 91.6% of the respondents ($n = 532$) disclosed that they use GenAI tools, and only 8.4% of the 581 respondents ($n = 49$) said that they did not use GenAI. Additionally, 93.1% ($n = 541$) indicated that English was their first or primary language, while 6.9% ($n = 40$) reported that their primary language was other than English.

While all participants identified as PSE students, they were distributed across universities, colleges, and polytechnics. The majority, 71.1% ($n = 413$), were affiliated with universities, 14.3% ($n = 83$) were enrolled in colleges, and only 0.9% ($n = 5$) attended polytechnics. Additionally, 13.8% ($n = 80$) of the participants either chose not to disclose their affiliation or indicated that none of the provided options applied.

The following charts provide a visual representation of the demographic distribution of the respondents, illustrating the gender balance, age distribution, and usage of GenAI tools (Figs. 1, 2 and 3).

Table 3 shows participants' disciplinary affiliations.

The response to the statement "GenAI will evolve to be more permissible" was overwhelmingly in agreement with varying timelines. The frequencies are shown in Table 4.

This diverse demographic profile, representing a broad spectrum of educational affiliations, geographical locations, and experiences with GenAI, offers a solid foundation for analyzing the participants' perspectives on postplagiarism. This is comparable to recent

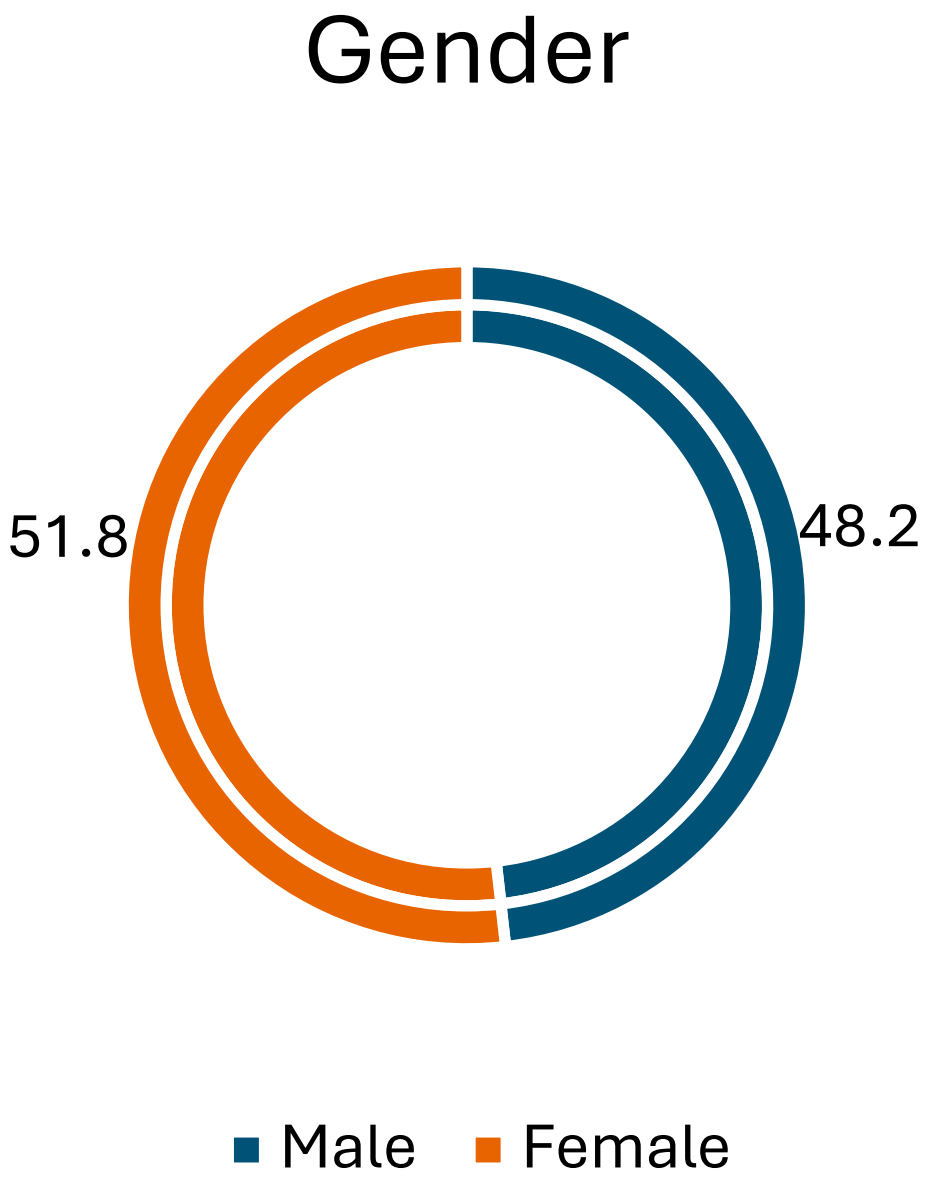

Fig. 1 Gender identification of participants

studies such as Chan and Hu's (2024) survey of 399 students and Chan's (2023) study of 393 students. However, given that UNESCO (2023) estimates the global tertiary student population at approximately 235 million, we recognize that broader generalizations would require significantly larger, more geographically diverse samples. While the sample achieves a 95% confidence level with a 4% margin of error for the studied contexts, the findings should be interpreted as indicative of trends within these English-speaking jurisdictions rather than globally representative patterns. Future research would benefit from larger, more geographically diverse samples to validate these findings across different educational systems and cultural contexts.

The majority of participants (88.12%, $n = 512$) expressed the belief that the permissibility of GenAI would increase over time, while a smaller proportion (11.88%,

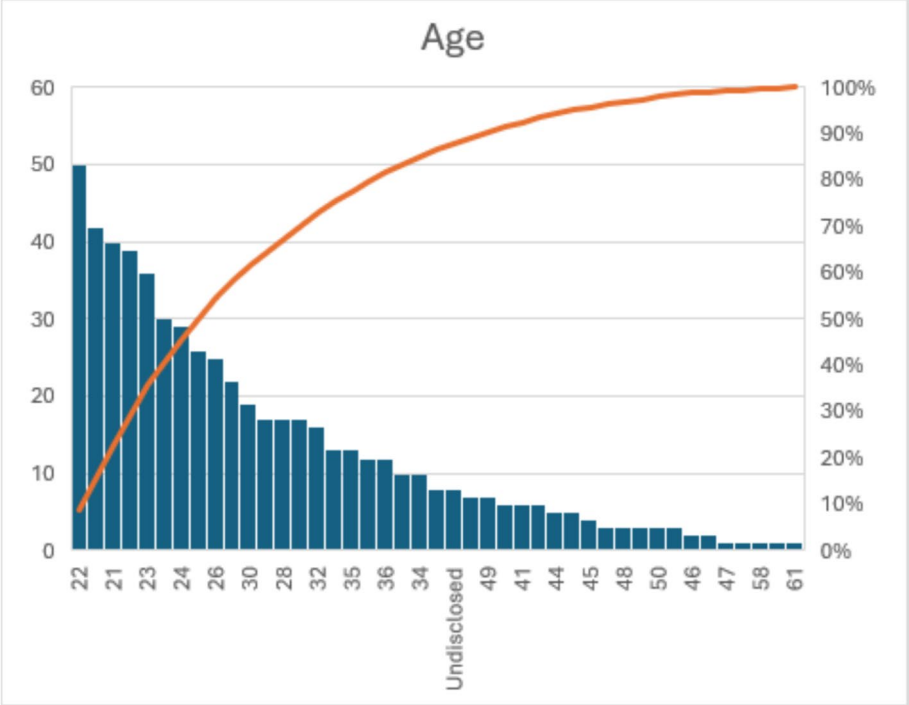

Fig. 2 Age distribution of study participants

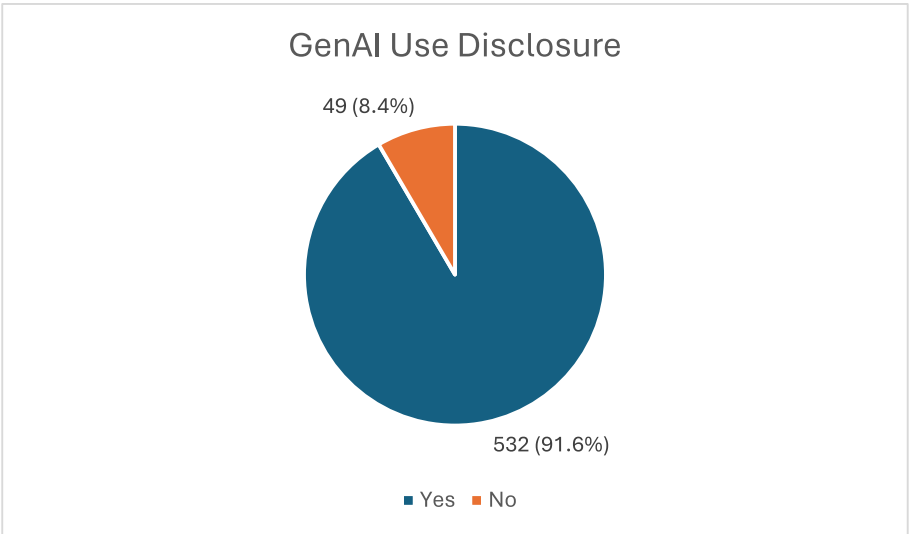

Fig. 3 Self-disclosed GenAI usage by participants

$n = 69$) remained pessimistic or uncertain about future trends in GenAI's acceptance. This finding is significant because, given the overall expectation that GenAI permissibility will rise, any deviations from this trend, particularly in relation to PPM, warrant closer exploration and discussion.

Table 3 Disciplinary affiliation of participants

Discipline	*N*	%
Administration/Management	29	5.0%
Arts & Humanities	54	9.3%
Biological Sciences, Agriculture, and Natural Sciences	45	7.7%
Business	59	10.2%
Communications, Media, & Public Relations	10	1.7%
Education	33	5.7%
Engineering	47	8.1%
Health Professions	81	13.9%
Library Services	2	0.3%
Physical Sciences, Mathematics, & Computer Science	102	17.6%
Social Sciences	54	9.3%
Social Services Professions	6	1.0%
Other Disciplines	50	8.6%
Prefer not to disclose	9	1.5%

Table 4 Responses to the statement "GenAI will evolve to be more permissible"

Responses	*N*	%
No	24	4.1%
Yes, in the short term (less than 5 years)	195	33.6%
Yes, in the medium term (5–10 years)	188	32.4%
Yes, in the long term (10 + years)	129	22.2%
Unsure	45	7.7%

Respondent perspectives on the tenets of postplagiarism

The demographic insights provide context for examining participants' perspectives on the tenets of postplagiarism. The survey presented 19 statements designed to gauge agreement with various aspects of postplagiarism, as articulated by Eaton (2023a, b). The following analysis explores participants' responses within the studied contexts, offering insights into how the surveyed PSE students engage with these emerging challenges in academic integrity.

The analysis of responses reveals varying levels of agreement across different aspects of postplagiarism. Table 5 presents the detailed distribution of responses across all statements, allowing for the examination of patterns in participant perspectives.

To facilitate the interpretation of these response patterns, the data were analyzed by combining agreement categories (strongly agree and agree) and disagreement categories (strongly disagree and disagree). This consolidation enables clearer identification of overall response tendencies while maintaining the essential meaning of participant perspectives and overlooking the intensity of agreement or disagreement. Figure 4 illustrates these combined response patterns.

Analysis of the consolidated responses suggests varying levels of alignment with postplagiarism tenets among participants in this study. While many statements received general support, several key areas emerged where participants expressed

Table 5 Responses for each statement by participants

Statement	Strongly disagree (*n* =)	Disagree (*n* =)	Agree (*n* =)	Strongly agree (*n* =)
PPM1	1.4% (8)	5.5% (32)	60.4% (351)	32.7% (190)
PPM2	2.8% (16)	14.3% (83)	55.2% (321)	27.7% (161)
PPM3	16.9% (98)	49.1% (285)	26.5% (154)	7.6% (44)
PPM4	9.1% (53)	26.7% (155)	47.8% (278)	16.4% (95)
PPM5	22.2% (129)	38.6% (224)	27.5% (160)	11.7% (68)
PPM6	0.3% (2)	1.2% (7)	33.4% (194)	65.1% (378)
PPM7	3.1% (18)	15.7% (91)	58.0% (337)	23.2% (135)
PPM8	1.4% (8)	7.1% (41)	47.2% (274)	44.4% (258)
PPM9	12.2% (71)	30.6% (178)	44.2% (257)	12.9% (75)
PPM10	2.4% (14)	14.5% (84)	57.7% (335)	25.5% (148)
PPM11	6.7% (39)	26.0% (151)	49.4% (287)	17.9% (104)
PPM12	2.6% (15)	14.6% (85)	62.3% (362)	20.5% (119)
PPM13	3.6% (21)	21.7% (126)	43.9% (255)	30.8% (179)
PPM14	0.3% (2)	2.9% (17)	31.3% (182)	65.4% (380)
PPM15	0.5% (3)	1.9% (11)	34.4% (200)	63.2% (367)
PPM16	1.0% (6)	3.1% (18)	39.6% (230)	56.3% (327)
PPM17	0.7% (4)	4.1% (24)	30.6% (178)	64.5% (375)
PPM18	2.4% (14)	17.9% (104)	50.4% (293)	29.3% (170)
PPM19	1.7% (10)	7.2% (42)	51.6% (300)	39.4% (229)

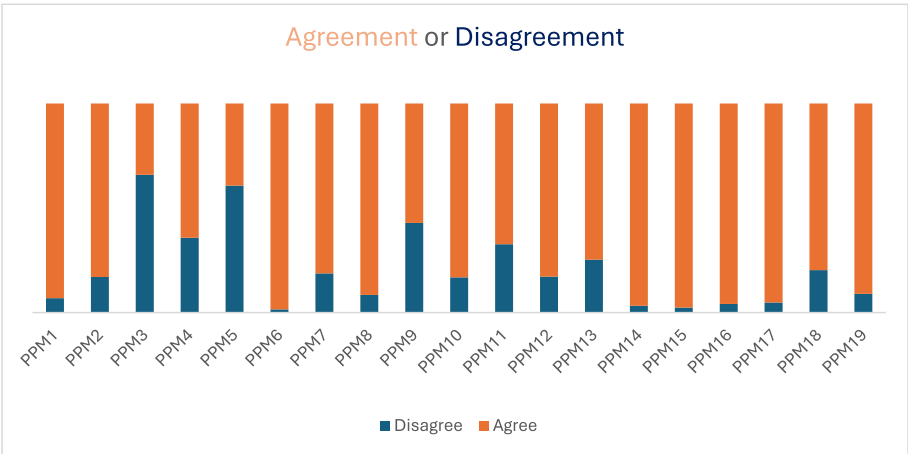

Fig. 4 Comparing agreement or disagreement with each of the statements

notable resistance or uncertainty. The analysis focuses particularly on five statements (PPM3, PPM4, PPM5, PPM9, and PPM11) where participant responses diverged notably from the general pattern of agreement, exceeding a 30% threshold for disagreement. These divergences may indicate areas where traditional academic values intersect with emerging perspectives on AI integration in academic work. Examining these areas of divergence more closely across Table 2 reveals significant insights into participants' perspectives on key aspects of postplagiarism:

- Concerning PPM3: A majority of participants (65.92%) did not believe it was futile to distinguish between human-generated text and GenAI-produced text. This result is notable, as participants had previously agreed with the other two statements related to Tenet 1—namely, that co-created content by humans and GenAI is becoming prevalent (PPM1) and that hybrid co-writing will become the norm (PPM2). The desire to distinguish between human- and AI-written texts appears to contradict the acceptance expressed in the first two statements, highlighting a potential tension in participants' perspectives.
- Concerning PPM4: 35.8% of PSE students in this study disagreed with the proposition that AI enhances human creativity. While this data does not clarify whether participants believe human creativity is diminished or simply unaffected, this ambiguity warrants further investigation. One approach could be to refine the statement for greater specificity, which would also align with the earlier recommendation to introduce more variables to each tenet, thereby increasing the instrument's internal validity. The participants' perceptions of AI's impact on human creativity are particularly intriguing, given that several scholars have argued the opposite (e.g., Ali Elfa and Dawood 2023; Wu et al. 2021).
- Concerning PPM5: 60.76% of the PSE student participants in this study rejected the proposition that AI does not threaten human creativity. This finding is particularly interesting as it implies that AI is more creative than human beings. So, one would conclude that AI is creative, and thus the responses against PPM4 should have been the opposite. This position indicates that either AI is more creative than human beings or using AI tools dulls human creativity; the veracity of either statement cannot be established. This finding suggests a prevailing concern among students that AI might overshadow or diminish human creativity, which warrants further exploration in both research and pedagogical practice.
- Concerning PPM9: 42.86% of respondents in this survey disagreed with the proposition that one's first language will become less significant as AI tools bridge communication gaps. The reasons behind this disagreement remain unclear and would be speculative without further data. A qualitative investigation may be required to understand why participants hold this view.
- Concerning PPM11: 32.7% of the PSE students who participated in this study disagreed with the notion that humans can retain full control over what they write in the age of AI. This suggests that a significant proportion of students are willing, or perhaps even content, to delegate a degree of control over the writing process to GenAI tools. Such a finding raises important questions about the evolving role of human agency in authorship and composition, as well as the broader implications for academic integrity and creativity. It also highlights a shift in perception, where students may view GenAI as a co-creator rather than a mere tool, further complicating the traditional understanding of authorship and ownership in academic work. This trend warrants deeper exploration to understand the underlying reasons for this shift and its potential impact on educational practices.

These findings and interpretations suggest that further studies are needed to understand the reasoning behind the responses.

While examining individual statements provides granular insights, analyzing responses aggregated by tenet offers a broader perspective on how participants engage with core postplagiarism concepts. Table 6 presents the mean scores for each tenet, revealing patterns in overall acceptance and resistance (with 1 meaning strongly disagree, and 4 meaning strongly agree).

Analysis of tenet-level responses reveals strongest engagement with Tenet 5, focusing on the importance of attribution. This finding warrants closer examination, as it suggests both continuity with traditional academic values and potential evolution in how attribution is understood in an AI-integrated academic environment. However, it is unclear whether participants equated attribution solely with citation or, as Eaton (2023a, b) suggests, understood it to encompass citation as a minimum requirement, along with a more profound respect for the source of knowledge. This ambiguity in interpretation raises important questions: Do students recognize the broader ethical dimensions of attribution, or do they adhere to a more conventional, citation-based understanding rooted in traditional academic norms? The strong agreement with the importance of attribution may reflect its deep entrenchment in academic practices, where giving proper credit remains a core value, even as the integration of AI technologies is challenging other notions of authorship and recognition of others' contributions in one's learning.

These findings demonstrate the complex interplay between acceptance and resistance in participants' engagement with postplagiarism concepts. Although some tenets received strong support, suggesting readiness for AI integration in academic work, areas of resistance highlight a complex picture of PSE students' attitudes toward postplagiarism, revealing both acceptance and skepticism. The implications of these perspectives are explored in the next section, which discusses how these insights could inform future educational practices and policies.

Discussion

This study investigated how PSE students conceptualize and respond to postplagiarism in their academic work, examining their perspectives on Eaton's (2023a, b) six tenets through quantitative analysis. The findings reveal a nuanced pattern of acceptance and resistance: while 12 of the 19 postplagiarism statements received over 70% agreement, significant resistance emerged regarding the distinction between human- and AI-generated content (65.92% disagreement), the impact of AI on human creativity (60.76% disagreement), and the retention of human control in writing (32.7% disagreement). These

Table 6 Tenet scores calculated as averages of PPMs

	N	Minimum	Maximum	Mean	Std. Deviation
Tenet 1 average score	581	1.00	4.00	2.8571	0.52088
Tenet 2 average score	581	1.40	4.00	2.9986	0.45622
Tenet 3 average score	581	1.00	4.00	2.8201	0.66236
Tenet 4 average score	581	1.80	4.00	3.2062	0.39159
Tenet 5 average score	581	1.50	4.00	3.5508	0.48557
Tenet 6 average score	581	1.00	4.00	3.1764	0.59548

specific areas of resistance suggest that while students are adapting to AI integration in academic practices, they maintain strong concerns about preserving human agency and creativity in their academic work. Such targeted areas of resistance provide crucial insights for developing responsive educational policies and pedagogical approaches that address student concerns while facilitating ethical AI integration in academic settings.

Before examining the broader implications of these findings, it is crucial to address the methodological foundation that enabled this investigation of postplagiarism perspectives. The development and validation of the survey instrument itself represent both a methodological contribution and an opportunity for further refinement in studying this emerging concept.

Instrument validation and implications

The survey instrument demonstrated adequate internal consistency with an overall Cronbach's alpha of 0.718 for the 19 statements measuring postplagiarism tenets. However, the variability in internal consistency across individual tenets suggests several areas where the instrument could be strengthened. Particularly, statements PPM3 (distinguishing human from AI-generated content), PPM6 (human inspiration), PPM8 (boundless creativity), PPM12 (relinquishing control), PPM14 (fact-checking responsibility), PPM15 (AI development responsibility), and PPM16 (respecting mentors) would benefit from expansion and refinement. For each of these statements, developing multiple items that capture different aspects of the underlying construct would enable more nuanced measurement and potentially improve internal reliability.

For instance, PPM3's current formulation about the futility of distinguishing human from AI-generated content could be expanded into several statements addressing different aspects of this distinction, such as the technical feasibility, pedagogical value, and ethical implications of such differentiation. Similarly, PPM15's focus on responsibility for AI development could be elaborated through statements exploring different dimensions of responsibility, including individual, institutional, and societal levels of accountability.

The relatively lower Cronbach's alpha values for individual tenets (ranging from 0.429 to 0.586) suggest that increasing the number of items per tenet while ensuring their conceptual clarity could strengthen the instrument's reliability. This refinement process should maintain alignment with Eaton's (2023a, b) theoretical framework while allowing for a more precise measurement of student perspectives on each aspect of postplagiarism.

The development of this instrument represents an initial step toward standardized measurement of postplagiarism perspectives in higher education. Future iterations could incorporate complementary qualitative components to capture the reasoning behind student responses, particularly regarding areas of significant disagreement. Additionally, the instrument could be adapted for different stakeholder groups, such as faculty and administrators, enabling comparative analysis of postplagiarism perspectives across academic roles.

The instrument's current structure provides valuable insights for institutional policy development, highlighting specific areas where student perspectives diverge from emerging postplagiarism frameworks. For example, the strong resistance to statements about AI's impact on creativity suggests that institutions need to carefully consider how

they frame and support AI integration in creative academic work. Similarly, the varied responses to statements about human control and responsibility indicate a need for clear institutional guidelines on AI use that address student concerns while promoting responsible adoption.

Further development of the instrument should focus on three key areas. First, expanding the number of statements per tenet would enhance measurement precision and reliability. Second, incorporating scenario-based questions could provide a more concrete context for abstract concepts like hybrid human–AI writing. Third, developing validated translations would enable cross-cultural comparison of postplagiarism perspectives. These refinements would strengthen the instrument's utility for both research and institutional policy development.

High acceptance of postplagiarism tenets

Analysis of the response patterns reveals two distinct trends: broad acceptance of most postplagiarism concepts alongside specific areas of resistance that merit closer examination. First, we consider the evidence for general acceptance.

The data demonstrates substantial acceptance of postplagiarism tenets among participants, with 12 of the 19 statements receiving 70% or higher agreement. This strong endorsement spans multiple dimensions, including the normalization of hybrid writing (PPM1, PPM2), the importance of attribution (PPM16, PPM17), and institutional adaptation (PPM18, PPM19). Such widespread acceptance suggests that postplagiarism principles align with students' current academic practices and their evolving understanding of AI's role in education. This alignment is particularly evident in the high agreement rates for statements about hybrid writing becoming normal (93.1% for PPM1) and the continued importance of attribution (95.1% for PPM17). The strong acceptance also correlates with participants' reported experience, as 91.6% indicated regular use of GenAI tools in their academic work. This experiential foundation strengthens the validity of their perspectives, suggesting that their agreement stems from practical engagement rather than speculative attitudes. Furthermore, the finding that 88.2% of participants anticipate increased permissibility of GenAI use in academic settings indicates that this acceptance is not merely passive adaptation but reflects active engagement with evolving academic practices. These patterns suggest that students are not only adapting to AI integration but are actively developing frameworks for ethical and effective AI use that align with postplagiarism principles, even if they may not explicitly recognize the theoretical framework by that name.

Anomalies and areas of resistance

The broad acceptance of postplagiarism principles indicates a general openness to AI integration in academia. However, the analysis of specific response patterns reveals important nuances and areas of resistance that require careful consideration.

Despite the overall acceptance, several statements revealed significant resistance or uncertainty. For example, 65.92% of participants disagreed with the idea that it is futile to distinguish between human-generated and GenAI-created text (PPM3). This resistance is surprising given the acceptance of hybrid human–AI writing as a norm (PPM1 and PPM2). Similarly, a substantial proportion of students (60.76%)

expressed concern that AI could threaten human creativity (PPM5), which contrasts with the more positive views on AI's role in enhancing creativity (PPM4). The coexistence of these seemingly contradictory perspectives—accepting AI integration while resisting specific aspects—suggests that students are actively negotiating the boundaries between human and artificial contributions in academic work, rather than passively accepting all aspects of AI integration.

These patterns of acceptance and resistance in student perspectives point to specific areas requiring attention in institutional policy and practice. The identified tensions—particularly between embracing AI integration while maintaining human agency and creativity—suggest the need for carefully calibrated institutional responses that can address both the opportunities and concerns revealed by this study.

Implications for policy and practice

The study's findings point to specific areas where institutional policies and practices need adaptation to address the complex relationship between students and GenAI in academic work. The high acceptance of hybrid human–AI writing (93.1% agreement with PPM1) suggests that institutions should move beyond binary prohibit-or-permit approaches to develop nuanced policies recognizing AI integration in student work. However, the significant resistance to specific aspects of AI use—particularly concerns about creativity (60.76% disagreement with PPM5) and human agency (65.92% disagreement with PPM3)—indicates that these policies must carefully address student apprehensions.

Three key areas emerge for policy development. First, institutions need to establish clear frameworks for appropriate AI attribution, building on strong student support for the continued importance of attribution (95.1% agreement with PPM17). Second, academic integrity policies should address the specific tension revealed in our findings between accepting AI assistance while maintaining human agency in academic work. Third, institutional guidelines should explicitly address how AI tools can support rather than suppress human creativity, responding to the significant concerns expressed by participants about AI's impact on creative processes. Further research is needed to identify how such policies can be developed practically and institutionally without advocating ideological positions of either favouring or undermining GenAI use.

The study also reveals the need for targeted educational initiatives. Because 91.6% of participants already use GenAI tools, institutions should focus on developing students' critical skills in AI integration rather than merely providing basic tool orientation. These initiatives should explicitly address the areas of ambivalence identified in our findings, particularly helping students navigate the boundary between beneficial AI assistance and over-reliance on automated content generation.

While this study provides valuable insights into student perspectives on postplagiarism, it also illuminates several areas where additional research would enhance our understanding of AI's evolving role in academic integrity.

Future research directions

The findings of this study suggest several key directions for future research. First, the notable resistance to certain postplagiarism tenets, particularly regarding human creativity and agency, warrants deeper investigation through qualitative methodological approaches. In-depth interviews and focus groups could explore the underlying reasons for student concerns about AI's impact on creativity (60.76% resistance) and their desire to maintain distinctions between human- and AI-generated content (65.92% resistance).

Second, refinement of the measurement instrument itself presents an important research direction. While the current instrument demonstrated adequate reliability (Cronbach's alpha = 0.718), the lower internal consistency values for individual tenets indicate opportunities for improvement. Future research should focus on developing additional items for specific tenets, particularly those showing complex response patterns such as PPM3 (human-AI distinction), PPM5 (creativity concerns), and PPM11 (human control). This refined instrument could provide a more nuanced measurement of postplagiarism attitudes and enable more precise identification of areas requiring institutional attention.

Third, comparative research examining faculty perspectives on postplagiarism is crucial for understanding potential gaps between student and instructor attitudes. Our finding that 91.6% of students already use GenAI tools suggests a possible disconnect between institutional policies and student practices, which requires systematic investigation. Such research could inform the development of policies that effectively bridge student practices and faculty expectations.

Fourth, longitudinal studies tracking changes in postplagiarism attitudes over time would provide valuable insights into how perspectives evolve with increased AI exposure and technological advancement. Given that 88.2% of participants anticipate increased GenAI permissibility in academic settings, understanding how attitudes shift alongside technological developments becomes crucial for responsive policy development.

Additionally, cross-cultural studies could explore how postplagiarism concepts translate across different educational systems and cultural contexts. This expansion would address the geographical limitations of the current study while contributing to a more comprehensive understanding of postplagiarism in global higher education.

Conclusion

This study provides empirical evidence of PSE students' complex relationship with postplagiarism in the age of GenAI. The findings reveal that while students broadly accept many aspects of postplagiarism, they maintain significant reservations about specific elements, particularly regarding human creativity and agency in academic work. The strong acceptance of hybrid human–AI writing (93.1%) alongside substantial concerns about AI's impact on creativity (60.76%) and the distinction between human- and AI-generated content (65.92%) indicates that students are actively negotiating the boundaries of AI integration in their academic practices.

These findings have important implications for institutional policies and pedagogical approaches. Educational institutions must move beyond binary approaches to AI use, developing nuanced policies that acknowledge both the prevalence of GenAI tools and

students' legitimate concerns about maintaining academic integrity. Three key areas require immediate attention: establishing clear frameworks for AI attribution, developing guidelines that balance AI assistance with human agency, and creating support systems that help students leverage AI while preserving their creative capabilities.

The development and validation of an instrument to measure postplagiarism perspectives represents a significant methodological contribution, though refinement opportunities exist. Future research should explore faculty perspectives on postplagiarism, examine cross-cultural variations in postplagiarism acceptance, and conduct longitudinal studies to track how attitudes evolve alongside technological advancement. Understanding these dynamics is crucial for ensuring academic integrity frameworks remain relevant and effective in an increasingly AI-integrated educational landscape.

As GenAI continues to transform higher education, the concept of postplagiarism offers a valuable framework for navigating these changes. The success of this transition will depend on institutions' ability to develop policies and practices that address student concerns while promoting ethical and effective AI integration in academic work.

Abbreviations

AI	Artificial intelligence
GenAI	Generative artificial intelligence
PPM	Postplagiarism
PSE	Postsecondary education

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Authors' contributions
R.K. conducted the entire research and wrote the manuscript.

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Data availability
Data is provided within the manuscript.

Declarations

Ethics approval and consent to participate
The data was collected in accordance with the ethics board clearance. All data was collected after the clearance was obtained and in accordance with the terms of clearance granted (REB# 23–358). The review was done by the Research Ethics Board of Brock University. The data collection process required obtaining explicit consent from every participant. Clinical trial number not applicable.

Consent for publication
The author agrees to the journal's terms for publication of the manuscript.

Competing interests
The author declares no competing interests.

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