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Artificial intelligence and academic integrity: exploring plagiarism in Ecuadorian universities

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Abstract

Plagiarism in higher education has long been a concern, exacerbated by the emergence of Generative Artificial Intelligence (GenAI), which has heightened worries about academic integrity. This study examined the association between GenAI use and self-reported plagiarism among university students in Ecuador. Data were collected from 4,811 students across eight universities through a validated questionnaire ($\alpha = 0.73$) that explored academic and non-academic technology use. A binary logistic regression was applied, with plagiarism level as the dependent variable. The model explained 20.2% of the variance (Nagelkerke $R^2 = 0.202$) and identified key predictors: reporting the use of ChatGPT to instructors (OR = 1.223, $p < 0.001$) and trusting ChatGPT-generated information (OR = 1.176, $p < 0.001$) were positively associated with plagiarism, while perceiving that AI improves academic performance (OR = 0.945, $p < 0.01$) and possessing broader knowledge of AI tools (OR = 0.911, $p < 0.01$) were associated with lower plagiarism levels. Although the study's cross-sectional design limits causal inference, findings highlight the importance of ethical awareness, digital literacy, and institutional policies for responsible GenAI integration. This research contributes to understanding how GenAI use interacts with academic integrity in higher education and informs evidence-based approaches to promote ethical and transparent learning practices.

Keywords Generative artificial intelligence, ChatGPT, Plagiarism, Academic integrity, Digital literacy

Introduction

In recent years, the integration of Artificial Intelligence (AI) into educational environments has significantly transformed teaching and learning practices. These technologies have created unprecedented opportunities for personalized learning, educational inclusion, and knowledge accessibility. However, their rapid adoption has also raised ethical and pedagogical concerns related to academic integrity and the development of critical and reflective thinking skills among students (Cotton et al. 2023; Guillén-Gámez et al. 2025). Balancing innovation and ethical responsibility has therefore become a central challenge for higher education institutions in the digital age.

In this study, AI is broadly understood as computational systems capable of performing cognitive tasks that typically require human intelligence, such as reasoning, prediction, and pattern recognition. Within this field, GenAI refers specifically to technologies that produce new and original content, texts, images, code, or other media, based on user prompts and large-scale data models, as exemplified by ChatGPT. This distinction is essential because the ethical, cognitive, and pedagogical implications of GenAI differ substantially from those of traditional AI applications. As Al-Ghonmein and Al-Moghrabi (2024) note, higher education institutions increasingly face challenges associated with academic misconduct, including the inappropriate use of GenAI tools or other dishonest practices such as contract cheating, which can undermine trust between instructors and students.

The rise of GenAI has renewed debates concerning plagiarism and academic integrity in higher education. In this study, plagiarism is defined as the presentation of another person's intellectual work as one's own without proper attribution, while academic integrity encompasses the values of honesty, trust, fairness, respect, and responsibility that underpin ethical scholarly behavior. Some authors argue that plagiarism should not always be interpreted as a purely moral failing but rather as a deficiency in writing, digital, or critical literacy skills, which may be exacerbated by the easy accessibility of GenAI tools. These concerns have prompted universities to strengthen their academic policies, ethical codes, and institutional guidelines to foster more transparent and responsible academic practices (Macdonald and Carroll 2007).

Within this context, Media and Information Literacy (MIL) is defined by UNESCO as a broad set of competencies that empower individuals to critically access, analyze, use, and create information, enabling them to participate ethically and responsibly in today's media-rich and digital environment (UNESCO 2024). This conceptualization aligns with Mireles Cárdenas (2017), who highlights that MIL fosters ethical engagement with information in academic settings. In the context of GenAI, MIL is essential not only for distinguishing between legitimate academic assistance and plagiarism, but also for promoting responsible and critical engagement with artificial intelligence tools in educational contexts.

The effective integration of these technologies in classrooms requires teaching competencies that enable educators to design methodologies that leverage GenAI and ICT tools for meaningful learning. Teachers must be trained to use these technologies appropriately and to prevent unethical practices such as plagiarism, which constitute a form of academic dishonesty (Redecker 2017). Although tools like ChatGPT offer many pedagogical advantages, concerns about plagiarism remain relevant (Pudasaini et al. 2024). Moreover, AI and social media platforms can also be harnessed to promote collaboration and the sharing of educational resources (Scott et al. 2016; Zhu et al. 2023; Greenhow and Chapman 2020; Tuzel and Hobbs 2017), illustrating the dual potential of these tools as both educational opportunities and ethical risks.

Ultimately, higher education institutions face the challenge of training teachers, rethinking curricula, and ensuring equitable access to technology, all within a framework that promotes critical thinking and student self-regulation. Despite the growing literature on AI and plagiarism detection, few empirical studies have analyzed how students' use of GenAI tools relates to their academic integrity behaviors. Most research has focused on algorithmic detection rather than on user behavior, ethical awareness,

or attitudes toward plagiarism. Addressing this gap, the present study provides evidence from Ecuadorian universities, exploring the association between students' GenAI use and plagiarism levels.

Accordingly, this research aims to answer the following question:

Does the use of Generative Artificial Intelligence show an association with plagiarism levels among Ecuadorian university students?

Influence of technology on academic performance and plagiarism

The integration of technology into education has fundamentally transformed teaching and learning dynamics, directly impacting student academic performance (Yusuf et al. 2024; Balalle and Pannilage 2025). The adoption of digital and AI tools has democratized knowledge access while introducing new challenges such as comprehension and autonomous learning (Tlili et al. 2023; Balalle and Pannilage 2025). Recent studies show that although AI brings opportunities for personalization and learning support, it can also foster dependence on technology, decrease students' critical thinking, and complicate the safeguarding of academic integrity (Pudasaini et al. 2024; Yusuf et al. 2024).

To mitigate these issues, educational institutions must offer holistic student training, and teachers should fulfill their pedagogical role by designing tasks that stimulate critical reflection and ethical awareness (Lund et al. 2025). Evidence indicates that some students justify academic misconduct due to digital literacy gaps or performance pressures, emphasizing the need to strengthen education on academic integrity (Lund et al. 2025; Yusuf et al. 2024). Moreover, developing an institutional culture that values authorship and original work—not just detection and punishment—remains crucial for promoting academic honesty in AI-mediated contexts (Pudasaini et al. 2024; Balalle and Pannilage 2025).

Artificial intelligence in education

The emergence of AI and its integration into educational contexts has created unprecedented opportunities for personalized learning and accessibility, while simultaneously raising critical concerns about academic integrity and the development of essential cognitive skills among students. AI is broadly understood as computational systems capable of performing cognitive functions that typically require human intelligence, such as reasoning, prediction, and pattern recognition (Kasneci et al. 2023). Within this broad field, GenAI refers to a specific class of AI models that can autonomously create new and coherent content, such as text, images, or code, based on large-scale data and language models (Tlili et al. 2023; Yusuf et al. 2024). This distinction is essential, since the ethical and pedagogical implications of GenAI differ significantly from those of traditional AI applications, particularly in the domains of authorship, originality, and academic integrity (Lund et al. 2025; Pudasaini et al. 2024).

Among these tools, ChatGPT has emerged as the most prominent educational application of GenAI, exemplifying both its pedagogical potential and its ethical complexity. As one of the most widely adopted GenAI platforms, it has transformed how students generate and refine written content, profoundly influencing writing and assessment practices in higher education (Tlili et al. 2023; Yusuf et al. 2024). GenAI applications offer notable pedagogical benefits, including personalized feedback, linguistic support, and more inclusive learning opportunities (Tlili et al. 2023).

Nevertheless, recent studies have warned of significant ethical challenges: the unregulated use of GenAI may blur the boundaries between legitimate assistance and academic misconduct, heightening the potential for plagiarism and unauthorized reuse of AI-generated content (Balalle and Pannilage 2025; Lund et al. 2025; Pudasaini et al. 2024). These dynamics directly affect authorship, originality, and academic responsibility, raising questions about how universities can safeguard integrity within AI-mediated learning environments (Pudasaini et al. 2024; Yusuf et al. 2024). Therefore, scholars emphasize the need for clear and context-sensitive institutional policies to ensure the ethical integration of GenAI into higher education (Tlili et al. 2023; Yusuf et al. 2024; Lund et al. 2025).

As a result, the educational value of GenAI depends largely on students' ethical awareness and digital literacy. Effective integration of these technologies requires developing critical reflection and media and information literacy skills to prevent dependency and plagiarism. This shift also underscores the need for educators to design pedagogical strategies that promote critical engagement with GenAI tools.

In light of these opportunities and challenges, the next section explores the concept of academic integrity as a theoretical framework for understanding responsible GenAI use.

Academic integrity and GenAI in higher education

Academic integrity constitutes the foundation of ethical scholarship and responsible learning. According to Fishman (2016), it is based on the core values of honesty, trust, fairness, respect, and responsibility, which collectively guide academic behavior. Similarly, Bretag (2013) emphasizes that academic integrity is not merely the avoidance of misconduct but the active promotion of ethical practices within higher education communities. Upholding these values requires that both students and educators commit to transparency, accountability, and respect for intellectual labor. Plagiarism, by contrast, represents a direct violation of these principles. It involves the presentation of another person's work, ideas, or expressions as one's own without appropriate acknowledgment (Macdonald and Carroll 2007). While plagiarism is often perceived as a moral failure, some scholars argue that it can also reflect deficiencies in students' academic writing, digital literacy, or understanding of citation conventions (Cotton et al. 2023). This broader perspective reframes plagiarism not only as an ethical issue but also as a pedagogical challenge that institutions must address through education rather than punishment alone.

GenAI and particularly ChatGPT, has rapidly gained prominence in higher education. Evidence shows its growing use to support instructional tasks and learning activities, such as creating questionnaires, generating examples and feedback, or scaffolding academic writing and study strategies (Ali et al. 2024; Strzelecki et al. 2024; Ng et al. 2023; Waltzer et al. 2023). These applications point to a meaningful pedagogical potential aligned with personalization and inclusion (Tlili et al. 2023; Yusuf et al. 2024) and resonate with broader claims about opportunities and challenges of LLMs in education (Kasneci et al. 2023).

Simultaneously, the adoption of ChatGPT surfaces technical, ethical, and assessment-related risks. Studies document issues such as hallucinations, weak citation practices, over-reliance in problem solving, and difficulties discerning authorship when AI-generated text is reformulated or lightly edited (Imani et al. 2023). Institutional debates

have intensified around curriculum redesign, assessment integrity, and codes of conduct, especially where pressure and demotivation may trigger dishonest practices (Guillén-Gámez et al. 2025). In this context, unregulated GenAI use can blur the boundary between legitimate assistance and academic misconduct, heightening the risk of plagiarism and the unauthorized reuse of AI-generated content (Pudasaini et al. 2024; Lund et al. 2025).

Meeting these challenges requires a dual strategy. First, institutions need clear and context-sensitive policies that specify acceptable uses, attribution norms, disclosure expectations, and accountability mechanisms for GenAI in teaching and assessment (Lund et al. 2025; Kasneci et al. 2023). Second, programs must strengthen ethical awareness, digital literacy, and MIL so that students can critically evaluate, integrate, and cite AI-assisted outputs responsibly (Mireles Cárdenas 2017; Tlili et al. 2023; Yusuf et al. 2024). Educators play a pivotal role in modeling transparent practices (e.g., prompt disclosure, revision logs) and in designing tasks that emphasize process, metacognition, and authentic authorship.

In sum, preserving academic integrity in the age of GenAI is not about rejecting technological innovation but about aligning it with ethical vigilance, pedagogical design, and institutional guidance. Drawing on these theoretical premises, the present study examines whether students' use of GenAI is associated with self-reported plagiarism behaviors, emphasizing the importance of ethical awareness and digital literacy for responsible engagement.

Methodology

Study design

This study adopted a quantitative design with a correlational approach, aiming to analyze the relationship between the use of GenAI technologies and plagiarism among in-person university students. A binary logistic regression model was used to identify plagiarism predictors. The sample consisted of 4,811 in-person university students from eight Ecuadorian universities, selected through random sampling. No exclusion criteria were applied, and participation was voluntary following informed consent.

Data collection instrument

Data were collected using a questionnaire administered physically on each university campus, completed with a pencil, adapted from validated instruments from previous studies on technology use and academic behaviors (Torres Díaz et al. 2021). Once collected, the data were entered into a Google Forms survey, generating a CSV file. The questionnaire's reliability was assessed using Cronbach's alpha coefficient, yielding a value of 0.73, indicating acceptable internal consistency and ensuring reliable measurement of variables, including plagiarism level (Categorical Plagiarism Level) and predictors related to AI use.

The instrument consisted of a structured questionnaire comprising six sections: (1) sociodemographic information (age, gender, household income); (2) digital experience and technological access (years of online experience, smartphone ownership, data plan, and home internet access); (3) academic use of AI, including UseAIWritingTexts (AI use for writing texts), UseAIMathProblems (AI use for solving mathematical problems), UseChatGPTForAssignments (use of ChatGPT for academic assignments),

UseAIImages (AI use for generating images), and UseAIMusicGeneration (AI use for generating music); (4) general technology use, measured by LoginsToUniversityPlatformPerWeek (number of weekly logins to the virtual platform), DailySocialMediaHours (hours of social media use per day), and ReelsUploadedPerWeek (number of reels uploaded weekly); (5) perceptions of AI, including TrustChatGPTInformation (trust in ChatGPT's information), AIImprovesAcademicPerformance (perceived impact of AI on academic performance), ReportUseOfChatGPTToProfessor (reporting ChatGPT use to professors), and KnowledgeOfAITools (knowledge of AI tools); and (6) the dependent variable measured on a 0–9 scale.

Data analysis

Data analysis was conducted in two stages using SPSS version 21. In the first stage, descriptive statistics (frequencies, percentages, means, and standard deviations) were used to characterize the sample in terms of demographics, online experience, infrastructure access, and technology use.

In the second stage, a binary logistic regression model was applied to directly address the research question of whether the use of GenAI is associated with self-reported plagiarism behaviors. This statistical technique examines the relationship between the Categorical Plagiarism Level (dependent variable) and a set of independent variables reflecting students' engagement with GenAI tools, including both behavioral and attitudinal dimensions.

Nine predictors reached statistical significance ($p < 0.05$) and were retained in the final model through a stepwise elimination procedure. Model fit was assessed with the chi-square test (χ^2), Nagelkerke's R^2, and the Hosmer–Lemeshow test, while model validation was conducted through receiver operating characteristic (ROC) curve analysis. The area under the curve (AUC) with its 95% confidence interval was calculated to evaluate the model's discriminative ability, following the recommendations of Hosmer et al. (2013).

Ethical considerations

Voluntary participation and anonymity were ensured, with informed consent explaining the study's purpose and the use of data solely for research purposes. No personally identifiable data were collected.

Results

The following section presents the main findings derived from the data analysis. Descriptive statistics are reported first, followed by the results of the binary logistic regression model that examined associations between GenAI use and self-reported plagiarism behaviors.

Sample characteristics

The sample is composed of data from 4,811 students whose average age is 21.56 with a standard deviation of 3.2; the gender distribution is homogeneous, with men representing 50.9% and women 49.1%. Regarding income, more than 67% of the students are in the two lowest levels, as shown in detail in Table 1. The average number of years of online experience is 9.95 years, which reflects a digitally experienced and competent

Table 1 Distribution of students by monthly family income

Income Level (USD)	Frequency	Percentage (%)
Up to 460	1,906	39.60%
Up to 700	1,358	28.20%
Up to 1,000	773	16.10%
Up to 1,500	402	8.40%
More than 1,500	372	7.70%

population. In terms of access to infrastructure and connectivity, 98.4% have a smartphone, 41.8% have a data plan for their phone, and 97.6% have internet access at home.

This study analyzes different variables related to the use of artificial intelligence. The average number of weekly hours that students use ChatGPT is 8.59, although it is important to highlight that this variable shows high dispersion (SD = 10.19). On a scale from 0 to 9, the use of artificial intelligence for writing (UseAIWritingTexts) has the highest mean 4.87 (SD = 2.65), followed by its use for solving mathematical problems (UseAIMathProblems) with an average of 4.04 (SD = 2.9), while the use of AI for generating music (UseAIMusicGeneration) has the lowest mean 1.95 (SD = 2.7). Regarding the use of AI tools in academic matters, only 4.5% of students have not used this technology, and the preferred tool is ChatGPT with 71.3%, leaving the rest for Gemini, Copilot, Claude AI, and others.

Regarding students' perceptions, the most important ones relate to trust in ChatGPT's information (TrustChatGPTInformation), which on a scale from 0 to 9 has an average of 4.21 (SD = 2.38); the belief that artificial intelligence improves academic performance (AIImprovesAcademicPerformance) has a mean of 5.52 (SD = 2.18); and reporting to the professor when ChatGPT has been used for an assignment (ReportUseOfChatGPTToProfessor) has an average of 2.09 (SD = 2.5).

Predictive plagiarism model

The dependent variable plagiarism (PlagiarismCategorical), originally measured on a 0–9 scale, was recategorized into a dichotomous variable to address sparse data issues. Students scoring 0–1 were classified as 'no plagiarism' ($n = 2364$; 49.1%), and those scoring 2–9 as 'plagiarism' ($n = 2447$; 50.9%), resulting in a balanced distribution. This recategorization follows the recommendation of Hosmer et al. (2013), aimed at strengthening the model by reducing the high percentage of zero-frequency cells observed in cross-tabulations required for logistic regression estimation. The binary logistic regression model showed a significant fit ($\chi^2 = 788.469$, df = 9, $p < 0.001$), explained 20.2% of the variability (Nagelkerke $R^2 = 0.202$), and correctly classified 66.5% of cases (68.7% for 'no plagiarism,' 64.4% for 'plagiarism'). The Hosmer–Lemeshow test ($\chi^2 = 15.572$, $p = 0.049$) indicated an acceptable calibration. Model validation was reinforced through ROC analysis, the area under the curve (AUC) was 0.725 (SE = 0.007, 95% CI: 0.711–0.739, $p < 0.001$), reflecting acceptable discriminative ability (Hosmer et al. 2013).

The model identified nine significant predictors, which are presented in Table 2. The most influential was ReportUseOfChatGPTToProfessor (B = 0.201, OR = 1.223, $p < 0.001$), associated with a 22.3% increase in the odds of plagiarism per one-unit increase. It was followed by TrustChatGPTInformation (B = 0.162, OR = 1.176, $p < 0.001$), with a 17.6% increase in odds. Other predictors with smaller contributions were UseChatGPTForAssignments (OR = 1.064), UseAIImages (OR = 1.044), UseAIMathProblems (OR = 1.043),

Table 2 Variables in the binary logistic regression model

	B	SE	Wald	df	Sig.	Exp(B)	CI 95% for EXP(B)	
							Lower	Upper
Age	0.034	0.01	12.058	1	0.001	1.034	1.015	1.054
KnowledgeOfAITools	-0.094	0.019	24.021	1	0	0.911	0.877	0.945
UseAIMathProblems	0.042	0.013	10.462	1	0.001	1.043	1.017	1.069
UseAIImages	0.043	0.015	7.941	1	0.005	1.044	1.013	1.077
UseAIMusicGeneration	0.038	0.017	5.094	1	0.24	1.038	1.005	1.073
ReportUseOfChatGPTToProfessor	0.201	0.015	190.331	1	0	1.223	1.189	1.259
UseChatGPTForAssignments	0.062	0.018	11.652	1	0.001	1.064	1.027	1.102
AIImprovesAcademicPerformance	-0.056	0.019	8.616	1	0.003	0.945	0.911	0.982
TrustChatGPTInformation	0.162	0.019	69.249	1	0	1.176	1.132	1.221
Constant	-1.622	0.234	47.864	1	0	0.198		

and UseAIMusicGeneration (OR = 1.038). The effect of age was minimal (B = 0.034, OR = 1.034, $p < 0.05$). Conversely, KnowledgeOfAITools (B = − 0.094, OR = 0.911, $p < 0.001$) and AIImprovesAcademicPerformance (B = − 0.056, OR = 0.945, $p < 0.05$) were associated with reduced odds of plagiarism.

The average age of 21.56 years supports the effect of this variable (OR = 1.034), suggesting that with greater age the odds of plagiarism increase. The effect of the variables trust in ChatGPT's information (TrustChatGPTInformation, mean = 4.21) and reporting to the professor its use (ReportUseOfChatGPTToProfessor, mean = 2.09) is supported by the students' preference for this tool (71.3%) and by intensive use of ChatGPT in terms of weekly hours (UseChatGPTHours, mean = 8.59, SD = 10.19) and mainly by the 95.5% of students who already use AI for academic purposes.

The means of UseAIMathProblems (4.04), UseAIImages (2.15) and UseAIMusicGeneration (1.95) are consistent with the moderate effects they show in the regression model (OR = 1.043, 1.044 and 1.038). The contradiction arises when analyzing the mean of UseAIWritingTexts (4.87), which is not significant within the model, implying that its widespread use is not explained in this study.

Discussion and conclusions

This study provide empirical evidence of the complex relationship between GenAI tools use and academic plagiarism among students of Ecuadorian universities. A binary logistic regression model was employed that explained 20.2% of the variance of plagiarism (PlagiarismCategorical).

The most influential predictors were reporting the use of ChatGPT to professors (ReportUseOfChatGPTToProfessor, OR = 1.223), trust in information generated by ChatGpt (TrustChatGPTInformation, OR = 1.176), and the perception that GenAI tools improves students' academic performance (AIImprovesAcademicPerformance, OR = 0.945).

The variable ReportUseOfChatGPTToProfessor (M = 2.09) was positively associated with higher self-reported plagiarism levels (OR = 1.223, $p < 0.001$). This finding suggests that students who indicate they disclose their AI use to instructors are also more likely to report engaging in plagiarism behaviors. Rather than implying a causal belief, this pattern may reflect greater awareness or honesty in self-reporting among students who already use GenAI for academic tasks. Alternatively, it could indicate that in the absence of clear institutional guidelines, some students conflate transparency with compliance,

even when their practices may violate academic integrity norms (Pudasaini et al. 2024; Sutherland-Smith 2010). This ambiguity underscores the need for explicit university policies that clarify what constitutes ethical vs. unethical AI use in academic work.

The association between TrustChatGPTInformation and plagiarism likelihood is consistent with the findings of Guillén-Gámez et al. (2025), who warn that the ease of use of ChatGPT can normalize unethical practices, particularly in the absence of pedagogical guidance. This relationship raises a broader epistemological concern: as noted by Lund et al. (2025) and Tlili et al. (2023), uncritical reliance on GenAI outputs may foster overconfidence in AI systems and weaken students' evaluative judgment, core elements of academic integrity. Moreover, when students perceive AI as infallible, they may overlook the need to verify information or acknowledge authorship, as emphasized by Farrokhnia et al. (2023).

This evidence underscores the necessity of educational interventions that develop critical thinking and awareness of the limitations and biases of AI tools (Kasneci et al. 2023). Such behaviors are also influenced by the broader digital culture characterized by immediacy and informational abundance (Strzelecki et al. 2024). To address these challenges, institutions should embed media and information literacy throughout academic programs, fostering students' capacity to evaluate AI-generated content critically and cite sources responsibly (Mireles Cárdenas 2017). Promoting informed skepticism toward GenAI outputs should thus be viewed as both an ethical and cognitive competency rather than a purely technical skill.

In contrast to these risk-related variables, AIImprovesAcademicPerformance (OR = 0.945) and KnowledgeOfAITools (OR = 0.911) were negatively associated with plagiarism, suggesting that greater awareness and a constructive perception of GenAI may foster more responsible learning behaviors. These findings align with the theoretical perspectives of Mireles Cárdenas (2017) and Bretag (2013), who underscore the importance of MIL as a foundation for academic integrity. Such literacy, when strengthened through institutional programs that promote critical evaluation and responsible use of digital tools (Castañeda et al. 2024), encourages reflective and ethical engagement with GenAI in academic contexts. Similarly, Yusuf et al. (2024) and Balalle and Pannilage (2025) emphasize that ethical awareness and digital literacy are essential for promoting transparency and accountability in AI-mediated learning environments. Taken together, these results reaffirm that the influence of GenAI on plagiarism is shaped by how educational institutions integrate ethical, pedagogical, and regulatory frameworks into their instructional practices.

The non-significance of the variable UseAIWritingTexts, despite its high prevalence (mean = 4.87), is an intriguing result that raises important questions for future research. This finding contradicts previous studies that have linked AI text generation to plagiarism (Galindo-Domínguez et al. 2025) and contrasts with the significant association observed for UseChatGPTForAssignments (OR = 1.064), suggesting that different modes of AI use may have distinct implications for academic dishonesty. A plausible explanation is that the wording of the item may not have enabled students to clearly distinguish between ethical and unethical uses of AI in text production. As Farrokhnia et al. (2023) caution, this reflects the inherent difficulty of measuring specific AI practices and indicates that students' perceptions and contextual interpretations of AI strongly influence how these tools are employed in academic contexts.

The association between plagiarism and predictors such as using ChatGPT for assignments, using AI to solve mathematical problems, to generate images, and to generate music is consistent with contextual data showing that 98.4% of students own smartphones and spend an average of 6.48 h daily on social networks. This pattern suggests that digital distractions may be associated with academic integrity challenges. Moreover, digital culture, characterized by accelerated information consumption, may contribute to normalizing academic shortcuts (Strzelecki et al. 2024).

Although the model captures a modest portion of the variance, suggesting that unmeasured factors such as academic pressure, institutional policies, or ethics training may also influence plagiarism behaviors (Sutherland-Smith 2010), several methodological limitations should be acknowledged. The cross-sectional and correlational design does not allow causal inferences, as the observed associations indicate tendencies rather than direct cause–effect relationships. In addition, reliance on perception-based data (PlagiarismCategorical) may introduce self-report or social desirability biases, limiting the precision of the results (Mireles Cárdenas 2017). Regarding generalizability, the findings reflect the specific educational and digital context of Ecuadorian universities, where institutional policies and technology access may differ from other regions (Redecker 2017; Yusuf et al. 2024). Future studies should use longitudinal or mixed-method approaches, triangulate quantitative data with behavioral or digital evidence, and conduct cross-cultural comparisons to clarify how contextual variables shape the relationship between GenAI use and academic integrity.

These insights have practical implications for higher education. Universities should develop explicit guidelines for the ethical use of GenAI, integrate MIL into curricula (Mireles Cárdenas 2017), and establish clear policies for AI-generated content. Institutional initiatives that strengthen critical thinking, digital ethics, and academic honesty among students (Castañeda et al. 2024) are essential for promoting responsible engagement with GenAI and reducing the likelihood of plagiarism. Moreover, institutions are encouraged to promote literacy and integrity programs that strengthen students' evaluative judgment when engaging with AI systems (Yusuf et al. 2024; Tlili et al. 2023).

The study indicates a significant association between the use of GenAI tools, particularly ChatGPT and higher self-reported plagiarism levels among Ecuadorian university students. The most influential predictor was ReportUseOfChatGPTToProfessor, which was positively associated with plagiarism likelihood, possibly reflecting students' misconception that disclosing AI use automatically equates to ethical compliance. Similarly, excessive trust in AI-generated information appears linked to dishonest behaviors, whereas perceiving AI as a supportive learning resource and possessing critical knowledge of its applications are associated with more responsible academic practices. Overall, the findings suggest that the impact of GenAI on plagiarism depends largely on its pedagogical framing and the presence of institutional guidelines that promote ethical awareness and academic integrity (Lund et al. 2025; Bretag, 2013; Mireles Cárdenas 2017).

Beyond these empirical associations, the present study makes a novel contribution to current research by providing one of the first quantitative analyses of the relationship between GenAI use and self-reported plagiarism behaviors in a Latin American higher education context. Whereas most prior studies have emphasized algorithmic detection or theoretical discussions on AI ethics, this work focuses on students' behavioral and

attitudinal engagement with GenAI tools. This perspective not only broadens the understanding of academic integrity in AI-mediated learning environments but also offers evidence to inform institutional policy and pedagogical design in similar educational settings.

Abbreviations

AI	Artificial Intelligence
GenAI	Generative Artificial Intelligence
AUC	Area Under the Curve
B	Regression coefficient
CI	Confidence Interval
CSV	Comma-Separated Values
df	Degrees of Freedom
Exp(B)	Exponentiated coefficient (Odds Ratio)
ICT	Information and Communication Technologies
n	Sample size
OR	Odds Ratio
p	p-value
R^2	Coefficient of Determination
ROC	Receiver Operating Characteristic
SD	Standard Deviation
SE	Standard Error
Sig.	Significance level (p-value)
SPSS	Statistical Package for the Social Sciences
USD	United States Dollar
χ^2	Chi-square statistic
MIL	Media and Information Literacy
LLM	Large Language Model

Author contributions

J.C.T.-D. conceived and designed the study, supervised data collection, performed the statistical analysis, wrote the results, and prepared the initial draft of the manuscript. J.M.D. contributed to the study design, provided theoretical input, and critically revised the manuscript for important intellectual content. D.E.R. contributed theoretical background, drafted sections of the introduction and discussion, and critically revised the manuscript. A.M.B.-F. assisted with the literature review, contributed theoretical background, and drafted sections of the introduction and discussion. All authors reviewed, edited, and approved the final version of the manuscript.

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Data availability

The datasets generated and analyzed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate

The study was conducted in accordance with institutional and international ethical standards, including the principles of the Declaration of Helsinki. Formal approval by an ethics review board was not required, as the survey data were collected anonymously, reported only in aggregate form, and did not involve any personally identifiable information. All participants were informed about the objectives of the research, and their voluntary participation was considered as implied consent.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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