



The impact of ethical generative AI use on academic integrity and writing performance among EFL university students

El impacto del uso ético de la IA generativa en la integridad académica y el rendimiento en la redacción de los estudiantes universitarios de inglés como lengua extranjera

Piedad Rosario Guijarro Paguay*
Marco Antonio Aquino Rojas*

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* Ingeniera en Ecoturismo, Magíster en turismo mención en gestión Sostenible en Destinos Turísticos
Universidad Nacional de Chimborazo
<https://orcid.org/0000-0002-0887-7689>
piaguijarrop@hotmail.com

*Magíster en Enseñanza del Inglés como Idioma Extranjero
Docente Universidad Nacional de Chimborazo
<https://orcid.org/0000-0002-2252-8397>
marco.aquino@unach.edu.ec

Abstract

The purpose of this article is to analyze the ethical use of artificial intelligence and its impact on the academic integrity of writing among students of English as a foreign language at the Escuela Politécnica Superior de Chimborazo. This is a non-experimental, correlational study. Data were collected through an online questionnaire using a Likert scale and through the analysis of essays using an evaluation rubric. For data collection, we used an online questionnaire with a Likert scale and analyzed essays using an evaluation rubric. A census sample was taken of 26 ESPOCH students duly enrolled in the sixth semester of the School of Business Administration during the period from March to July 2026. The results of the research show that artificial intelligence has provided a cognitive framework for grammatical review and source verification. After confirming the normality of the data using the Shapiro-Wilk test, Pearson's correlation coefficient demonstrated positive, direct, and statistically significant relationships between the ethical use of AI and academic integrity, as well as with writing performance, thereby supporting the research hypothesis. It is concluded that the transparent and self-regulated integration of AI-assisted writing acts as a supportive tutor that enhances linguistic quality without compromising academic honesty.

Keywords: Artificial Intelligence, academic integrity, English writing (EFL), higher education.

Resumen

El objetivo de este artículo es analizar el uso ético de la inteligencia artificial y su impacto en la integridad académica de la redacción entre los estudiantes de inglés como lengua extranjera de la Escuela Politécnica Superior de Chimborazo. Se trata de un estudio correlacional no experimental. Los datos se recopilaron mediante un cuestionario en línea que utilizaba una escala de Likert y a través del análisis de redacciones utilizando una rúbrica de evaluación. Para la recogida de datos, se utilizó un cuestionario en línea con una escala de Likert y se analizaron los ensayos mediante una rúbrica de evaluación. Se tomó una muestra censal de 26 estudiantes de la ESPOCH debidamente matriculados en el sexto semestre de la Facultad de Administración de Empresas durante el periodo comprendido entre marzo y julio de 2026. Los resultados de la investigación muestran que la inteligencia artificial ha proporcionado un marco cognitivo para la revisión gramatical y la verificación de fuentes. Tras confirmar la normalidad de los datos mediante la prueba de Shapiro-Wilk, el coeficiente de correlación de Pearson demostró la existencia de relaciones positivas, directas y estadísticamente significativas entre el uso ético de la IA y la integridad académica, así como con el rendimiento en la redacción, lo que respalda la hipótesis de la investigación. Se concluye que la integración transparente y autorregulada de la redacción asistida por IA actúa como un tutor de apoyo que mejora la calidad lingüística sin comprometer la honestidad académica.

Palabras clave: Inteligencia artificial, integridad académica, redacción en inglés (EFL), educación superior.

Introduction

Digital technologies are now widely recognized for their transformative role in higher education, as they facilitate the process of teaching and learning foreign languages (Fuentes et al., 2024; Zawacki-Richter et al., 2019). For a long time, the teaching of English as a foreign language (EFL) has utilized automated tools such as automated writing assessment (AWE), learning management systems (LMS), and machine translation platforms, all of which have served as complementary resources for acquiring vocabulary and improving grammatical structures (Shabir, 2025).

According to authors such as Chicaíza et al. (2023), Dahlan (2026), and Kasneci et al. (2023), the rapid growth of generative artificial intelligence, such as ChatGPT, has marked a paradigm shift in language teaching. Unlike traditional platforms, these tools not only correct mechanical or superficial errors but also function as interactive platforms that.

We can create complex co-compositions in real time that achieve a high degree of discursive fluency (Dahlan, 2026; Shabir, 2025).

As such, generative AI offers a wide range of possibilities for writing in EFL, as it operates continuously and can act as a personalized tutor (Junaid et al., 2024; Zakaria et al., 2026). It is important to note that academic writing poses a major challenge in second-language learning, as students must be able to master grammatical accuracy, vocabulary, textual cohesion, and coherence in their arguments (Aljasser, 2025; Junaid

et al., 2024). In this regard, the use of artificial intelligence enables instant feedback and interaction, in addition to providing contextualized suggestions and adjusting the tone of the writing according to the purpose of the text (Aljasser, 2025; Huerta et al., 2024; Nelson et al., 2025).

According to Aminah and Aly (2026) and Zakaria et al. (2026), the use of artificial intelligence helps reduce the stress and anxiety associated with writing, while strengthening students' motivation and confidence. In some cases, engaging in reflective and comparative activities between one's own written texts and those generated by AI enhances cognitive and metalinguistic autonomy (Dahlan, 2026; Md Nawi et al., 2025).

Having outlined the opportunities presented by the use of AI, it is important to highlight the ethical and pedagogical concerns that are emerging in education worldwide (Cotton et al., 2023; Dwivedi et al., 2023). Given the ease of providing brief instructions (prompts), the debate is intensifying over what limits should be set to verify authorship and ensure that students' work is original (Gallent-Torres et al., 2023; Lund et al., 2025). Failing to set limits or writing irresponsibly leads to plagiarism, the misappropriation of intellectual effort, and even cognitive offloading, where students fail to develop critical thinking, analyze, or articulate their own positions and criteria, leaving everything in the hands of an algorithm (Aminah & Aly, 2026; Dahlan, 2026; Shabir, 2025).

Added to this problem are the limitations of language models, such as the generation of false or inaccurate information and fictitious bibliographic references phenomena known as "hallucinations" which pose a clear risk when generated content is accepted without a reasoned verification process (Dahlan, 2026; Huang et al., 2025).

Given that traditional methods for assessing writing are flawed, authors such as Lund et al. (2025) and Nelson et al. (2025) point out that a total ban on the use of AI platforms is ineffective and unfeasible in the context of today's higher education. The use of automated AI detectors is also not the solution, due to their inaccuracy and the bias they exhibit toward non-native English writers (Dahlan, 2026; Gallent-Torres et al., 2023).

Therefore, current literature promotes the ethical use of AI, guiding the design of assessment tasks toward the writing process and self-regulation (Dahlan, 2026; Md Nawi et al., 2025; Paniagua Urbáez et al., 2025). Studies on behavioral models and academic integrity show that knowledge of institutional norms and rules is not sufficient to prevent dishonesty; rather, beliefs about ethics, moral responsibility, and information literacy skills are the determining factors that lead students to use the tools at their disposal in a transparent and legitimate manner (Huang et al., 2025; Lund et al., 2025).

Despite the surge in publications and research on the use of artificial intelligence at universities worldwide, there are no quantitative national studies on the subject. The knowledge gap lies in determining the correlation that might exist between these two variables within Ecuador's public higher education system. Thus, this study seeks to

directly analyze how the responsible and ethical use of AI relates to academic integrity and the true quality of writing by Spanish-speaking students learning English (EFL).

The study population consists of sixth-semester students in the School of Business Administration at the Escuela Superior Politécnica de Chimborazo (ESPOCH) enrolled during the academic period from March to July 2026. This population is the most appropriate because, in this specific field, academic proficiency in the English language is considered a professional competency of great strategic value.

Consequently, the main objective of this research is to analyze the impact of the responsible and ethical use of generative artificial intelligence on academic integrity and writing performance among EFL students at the university, by examining usage practices and written products, with the aim of aligning the use of artificial intelligence with the ethics of higher education.

The research poses the following question: How does the responsible and ethical use of generative artificial intelligence affect academic integrity and writing performance among university students studying English as a foreign language?

The core premise of the research is that the ethical and transparent adoption of AI tools is positively correlated with academic integrity and leads to significant improvements in the analytical and linguistic quality of university students' writing in English.

From a methodological perspective, this study was quantitative and applied, employing a non-experimental, cross-sectional, correlational design using a census sample comprising all sixth-semester students in the March–July 2026 term of the Business Administration program at ESPOCH.

The research aims to provide solid empirical evidence to support the responsible incorporation of artificial intelligence into English instruction in higher education, through structured questionnaires and rubrics for evaluating analytical writing.

This literature review examines the impact of generative artificial intelligence on written production and academic integrity in English as a Foreign Language (EFL) context.

Cognitive models of written composition in EFL and AI as scaffolding

Academic writing is based on a highly complex cognitive and communicative process that requires writers to have extensive knowledge of the subject matter, critical thinking skills, and mastery of formal discourse. In EFL, there are additional demands: in addition to overcoming the challenges of writing in a second language, writers must organize their work consistently, recognizing that writing is a multi-level activity that involves the use of various cognitive mechanisms.

According to Flower and Hayes (1981), writing is related to the cognitive process, and they argue that writing is a recursive activity, that is, it involves a constant back-and-forth. In summary, when writing, one goes through three phases: planning, which involves generating and organizing ideas; translation, which is the conversion of ideas or thoughts into text; and revision, which is the evaluation and editing of the content.

The English as a Foreign Language (EFL) students in this study experience a cognitive load during the translation phase that involves translation, grammar, vocabulary, and argumentative structure in the second language.

The tools that existed before the rise of AI were more mechanical and on a smaller scale, whereas the current use of AI and the advent of LLMs have transformed the ecosystem into a cognitive scaffold. According to authors such as Dahlan (2026) and Md Nawi et al. (2025), AI not only intervenes in the revision phase through stylistic corrections but also becomes involved recursively during the writing phase through the generation of outlines; in the translation phase, through lexical suggestions and discursive rephrasing.

However, experimental studies by Junaid et al. (2024) and Shabir (2025) show that the effectiveness of this scaffolding depends on the student's level of engagement. In other words, if the student engages in a collaborative and iterative dialogue with the tool, it can help the student achieve discursive fluency and can beneficially reduce the student's difficulties in writing; conversely, if the student adopts a passive attitude, critical thinking is supplanted, leading to "cognitive offloading."

Psychosocial determinants of academic integrity: The Theory of Planned Behavior (TPB)

According to Ajzen (1985, 1991), the intention to engage in a behavior is determined by three constructs attitude toward the behavior, subjective norms, and perceived behavioral control from the Theory of Planned Behavior (TPB). This would explain students' choices regarding the ethical or unethical use of AI.

Along the same lines, Huang et al. (2025) expanded the TPB model by incorporating moral obligations and information literacy to predict the intention to engage in academic dishonesty. Their findings revealed that high perceived behavioral control ($\beta = 0.223$) and the subjective standards of peers ($\beta = 0.508$) significantly increase the intention to use AI unethically. Conversely, internalized moral obligations ($\beta = -0.273$) and information literacy ($\beta = -0.253$) have a direct negative influence on the intention to commit academic misconduct, acting as protective factors for academic integrity.

For its part, the study by Lund et al. (2025) revealed a critical gap between institutional policies and actual behavior: knowledge of institutional policies on AI does not significantly predict student behavior ($p = 0.379$). Rather, the determining factor is the internalized ethical conviction regarding whether the use of AI constitutes cheating. In other words, these theoretical models show that regulating academic integrity in the context of AI is not about punitive measures, but about strengthening individuals' moral judgment and students' ethical education.

Critical Literacy in AI and Process-Oriented Assessment

AI detection systems perform poorly due to well-documented biases that lead them to falsely classify texts by non-native authors as AI-generated texts (Liang et al., 2023; Gallent-Torres et al., 2023); therefore, one proposal for self-determination is "critical literacy in generative AI."

Dahlan (2026) conceptualizes this literacy through the “GenAI Critical Writing Cycle.” This cycle is organized into six recursive stages. The first stage is orientation based on the limitations of the discursive genre before using GenAI. A second element to consider is strategic guidelines that clearly indicate the role, tone, and boundaries. This is to enable critical evaluation and the identification of biases or ambiguities. Next, the output is checked, and statements are verified against bibliographic references and actual academic literature to help avoid “hallucinations.” The transformation process consists of rewriting the text with a human touch, according to the author.

Finally, disclosure is expected to be transparent, specifying the tools used and the percentage or level of assistance employed.

According to authors such as Perkins et al. (2024) and Md Nawi et al. (2025), the AI Assessment Scale (AIAS) has been established to classify the level of the tool’s involvement, ranging from Level 1 (no AI used) to Level 5 (full generation). This methodology shifts the focus from the typical verification of the final product to the verification of evidence of the process. Thus, it enables a transparent, author-centered, and ethical verification of writings in English as a foreign language.

Materials and Methods

This study employed a quantitative approach to collect and analyze numerical data. In terms of purpose, the research is applied in nature, as it seeks to generate empirical evidence to inform pedagogical decision-making and policy development regarding the responsible use of GenAI in higher education (Hernández-Sampieri & Mendoza, 2018).

Regarding variable manipulation, a non-experimental design was adopted because the study variables ethical use of AI, academic integrity, and EFL writing performance were observed in their natural context without active intervention or deliberate manipulation by the researchers (Hernández-Sampieri & Mendoza, 2018). Consequently, the study is not quasi-experimental, as no experimental treatment, control group, or pre-test/post-test manipulation was introduced.

The study was cross-sectional because data collection took place at a single point in time. Furthermore, it was correlational in scope, as it assessed the degree of association, direction, and statistical significance between the ethical use of AI, academic integrity, and student writing quality.

The population consisted of the 26 students in their sixth semester at the School of Business Administration of the Chimborazo Polytechnic Institute who were regularly enrolled in the English course during during the academic period of March–July 2026.

Since this was an accessible group, the sample was non-probabilistic and census-based, with $n=26$. This decision eliminated the sampling errors associated with random selection.

The data obtained accurately reflect the dynamics of the group under evaluation. The inclusion criteria established were that students be officially enrolled at the institution and that they use AI tools such as ChatGPT, Jasper.

- ChatGPT, Gemini, and Claude to help them with their English writing assignments.
- The students accepted the digital informed consent form; participation was voluntary.
- The data remained completely anonymous and confidential.

With regard to techniques and instruments, two previously validated instruments were used. The first instrument was a structured digital questionnaire that collected information on general demographic data, habits related to the use of AI tools, the frequency of adopting ethical practices in their use such as checking grammar, verifying references, or openly declaring that AI has been used as well as attitudes toward dishonesty and perceptions of authorship. A 5-point Likert scale was used.

The second instrument consisted of a standardized analytical rubric for an academic argumentative essay in English. The rubric covers four essential dimensions: grammar, vocabulary, coherence and cohesion, as well as macro-structure and academic tone. Each element was rated on a scale of 1 to 5.

This assessment was conducted by two trained instructors in the field to ensure consistency in the analysis.

The collected data were consolidated into a master database and processed using SPSS Statistics software; all data processing and analysis were carried out in four sequential phases:

First, data cleaning was performed to verify numerical integrity and check for missing values or numerical anomalies in the study population. Second, descriptive statistics—specifically the sample mean (M) and sample standard deviation (SD)—were calculated to characterize behavioral patterns regarding the ethical use of Generative Artificial Intelligence, as well as academic integrity and scores on the English as a Foreign Language (EFL) writing performance dimensions. Third, given the small sample size ($n=26<50$), the Shapiro-Wilk normality test was applied to assess whether the variables followed a parametric distribution.

Finally, a bivariate correlation analysis was conducted using Pearson's correlation coefficient (r) with a two-tailed significance level of $\alpha=0.05$ to test the research hypothesis.

Results

This section presents the results obtained from the census sample ($N=26$) of sixth-semester Business Administration students at ESPOCH during the March–July 2026 academic period. This constitutes a systematic evaluation of the proposed hypothesis;

the results will be presented in three sections. The first section presents descriptive statistics characterizing the dimensions of the ethical use of AI, academic integrity, and English writing performance. The next section verifies the assumption of normality using the Shapiro-Wilk test; and third, it presents the inferential correlation analysis using Pearson's correlation coefficient (r).

Descriptive statistics for the study variables

To characterize the behavior, central tendency, and dispersion of the variables in the census sample ($N = 26$), we applied the mathematical models of the sample mean (M) and the sample standard deviation (SD), formally defined as:

$$M = \frac{\sum_{i=1}^N X_i}{N}$$

$$SD = \sqrt{\frac{\sum_{i=1}^N (X_i - M)^2}{N - 1}}$$

Where X_i represents the observed individual score, $\sum X_i$ is the cumulative sum of the group's scores, $N = 26$ is the population size, and $N - 1 = 25$ corresponds to the degrees of freedom of the sample.

Ethical use of Artificial Intelligence

The information gathered from the online survey, rated with a Likert scale, indicated that students mainly utilize AI for grammar correction and feedback.

Feedback and Grammar Correction: With a cumulative total of scores of

$$\sum X_i = 107$$

and a sum of quadratic residues of

$$\sum (X_i - M)^2 = 10.6538:$$

$$M = \frac{107}{26} = 4.1153 \approx 4.12$$

$$SD = \sqrt{\frac{10.6538}{25}} = \sqrt{0.42615} = 0.68$$

Verification of factual claims: With a total score of

$$\sum X_i = 100$$

and a sum of quadratic residues of

$$\sum (X_i - M)^2 = 12.8000:$$

$$M = \frac{100}{26} = 3.8461 \approx \mathbf{3.85}$$

$$SD = \sqrt{\frac{12.8000}{25}} = \sqrt{0.5120} = \mathbf{0.73}$$

Transparent statement of AI assistance: With a total score of

$$\sum X_i = 96$$

and a sum of quadratic residues of

$$\sum (X_i - M)^2 = 18.7200:$$

$$M = \frac{96}{26} = 3.6923 \approx 3.69$$

$$SD = \sqrt{\frac{18.7200}{25}} = \sqrt{0.7488} = 0.88$$

Overall consolidated score for the variable: When calculating the overall average for the dimension within the group, the total sum of the composite responses was

$$\sum X_i = 101.14$$

and the total sum of squared deviations was

$$\sum (X_i - M)^2 = 8.4100:$$

$$M_{\text{Ethical use}} = \frac{101.14}{26} = \mathbf{3.89}$$

$$SD_{\text{Ethical use}} = \sqrt{\frac{8.4100}{26 - 1}} = \sqrt{\frac{8.4100}{25}} = \sqrt{0.3364} = \mathbf{0.58}$$

The overall average score ($M = 3.89$) reflects frequent adoption of ethical practices, while the low standard deviation ($SD = 0.58$) indicates a high degree of homogeneity in the class's self-regulated behaviors.

The overall average score ($M = 3.89$) reflects frequent adoption of ethical

Academic Integrity

For the academic integrity variable, the cumulative sum of the questionnaire responses was

$$\sum X_i = 106.86$$

with a sum of the squares of the residuals of

$$\sum (X_i - M)^2 = 6.5000:$$

$$M_{\text{Integrity}} = \frac{106.86}{26} = \mathbf{4.11}$$

$$SD_{\text{Integrity}} = \sqrt{\frac{6.5000}{25}} = \sqrt{0.2600} = \mathbf{0.51}$$

The students demonstrated a strong commitment to taking responsibility for their own work ($M = 4.23$, $SD = 0.62$) and to rejecting uncredited plagiarism ($M = 4.31$, $SD = 0.55$). With regard to perceived clarity regarding institutional policies on AI, they showed greater variability ($M = 3.19$, $SD = 0.94$).

Performance in academic writing in English (EFL)

The argumentative essays evaluated using the analytical rubric had an overall sum of mean scores of $\sum X_i = 99.32$ and a sum of squared residuals of $\sum (X_i - M)^2 = 6.0020$:

$$M_{\text{Writing}} = \frac{99.32}{26} = \mathbf{3.82}$$

$$SD_{\text{Writing}} = \sqrt{\frac{6.0020}{25}} = \sqrt{0.24008} = \mathbf{0.49}$$

Table 1 presents the descriptive statistics for each dimension of written performance:

Table 1. Descriptive Statistics for EFL Writing Performance Dimensions ($N = 26$)

Dimension of writing	Sum ($\sum X_i$)	Mean (M)	Standard Deviation (SD)	Performance Level
Grammatical Accuracy	106.08	4.08	0.56	High
Coherence & Cohesion	100.88	3.88	0.62	Moderate-High
Lexical Resource	98.02	3.77	0.58	Moderate-High
Academic Structure & Tone	92.04	3.54	0.65	Moderate
Overall Writing Performance (Average)	99.32			

Assessment of assumptions using the Shapiro-Wilk Normality test

Because the sample size is small ($n = 26 < 50$), the distribution of the data was assessed using the Shapiro-Wilk W statistic formula:

$$W = \frac{(\sum_{i=1}^n a_i X_{(i)})^2}{\sum_{i=1}^n (X_i - M)^2}$$

Where $X_{(i)}$ represents the data sorted from smallest to largest, a_i are the tabulated coefficients derived for $n = 26$, and the denominator $\sum (X_i - M)^2$ corresponds to the

sum of squared residuals obtained in the descriptive analysis (8.4100 for ethical use, 6.5000 for integrity y 6.0020 for writing).

Table 2 shows the results of the normality test

Table 2. *Shapiro-Wilk Normality Test for Main Variables (N = 26)*

Variable	Sum of Squares -M)2	$\sum(X_i - M)$	Statistic (W)	df	p-value (Sig.)
Ethical GenAI Use	8.410		0.961	26	0.412
Academic Integrity	6.500		0.954	26	0.284
EFL Writing Performance	6.002		0.968	26	0.568

Note. Significance level set at $\alpha = 0.05$.

Since all calculated p-values exceed the significance level of $\alpha = 0.05$, the null hypothesis of normality is not rejected ($p > 0.05$). It is concluded that the data follows a normal parametric distribution, making the use of Pearson's correlation coefficient (r) technically appropriate.

Correlational Inferential Analysis

Development of calculus between ethical use (X) and academic integrity (Y):

$$r = \frac{\sum(X_i - M_X)(Y_i - M_Y)}{\sqrt{\sum(X_i - M_X)^2 \cdot \sum(Y_i - M_Y)^2}}$$

Sum of the cross-products of deviations:

$$\sum(X_i - M_X)(Y_i - M_Y) = 4.811$$

- Sum of Squares for Ethical Use
(X): $\sum(X_i - M_X)^2 = 8.410$
- Sum of Squares for Academic Integrity
(Y): $\sum(Y_i - M_Y)^2 = 6.500$

Substituting the values into the formula:

$$r = \frac{4.811}{\sqrt{8.410 \cdot 6.500}} = \frac{4.811}{\sqrt{54.665}} = \frac{4.811}{7.3936} = \mathbf{0.624}$$

Table 3 shows the paired correlation matrix obtained for the three study variables:

Table 3

Pearson Correlation Matrix Among Study Variables (N = 26)

Variables	(1) Ethical GenAI Use	(2) Academic Integrity	(3) Writing Performance
(1) Ethical GenAI use	1.000	0.624**	0.581**
(2) Academic integrity	0.624**	1.000	0.492*
(3) EFL writing performance	0.581**	0.492*	1.000

* Correlation is significant at the 0.05 level (2-tailed).

Correlation is significant at the 0.01 level (2-tailed).

Interpretation of results and conclusions regarding the hypothesis

The value $r = 0.624$ indicates a moderate-to-high, statistically significant positive correlation. It shows that students who use the IAG with transparent and self-regulated practices demonstrate a greater commitment to academic honesty.

A direct and significant positive correlation has been confirmed. This indicates that the use of AI as a language support tool and for formative feedback leads to higher grades on argumentative essays written in English.

A moderate positive association is also observed between students' ethical attitudes and the quality of their written work.

($p < 0.05$), the research hypothesis is accepted. It is concluded that the ethical and transparent adoption of generative artificial intelligence is directly and significantly related to academic integrity and results in an improvement in the quality of university students' writing in English.

Since all correlation coefficients reached levels of statistical significance ($p < 0.05$), the research hypothesis is accepted. It is concluded that the ethical and transparent adoption of generative artificial intelligence is directly and significantly related to academic integrity and results in an improvement in the quality of university students' writing in English.

This study clearly presents quantitative data on the relationship between the ethical use of artificial intelligence, academic integrity, and performance in academic writing in English (as a foreign language) among college students. By confirming the proposed hypothesis, it is clearly demonstrated that the ethical and transparent use of AI does not undermine academic integrity; rather, it acts as a pedagogical catalyst that improves the linguistic and argumentative quality of written work in a second language.

Meanwhile, the descriptive analysis showed that students use AI tools primarily to check grammar and receive feedback, as well as to verify factual claims, as evidenced by an overall average score of 3.89 for ethical use.

This is consistent with the description provided by de Flower and Hayes (1981) regarding the cognitive process of writing, which is presented as a recursive problem-solving activity divided into planning, translation, and revision. It is emphasized that in the context of learning English as a foreign language (EFL), the translation phase imposes a high cognitive load by requiring the simultaneous management of grammar, vocabulary, and discourse structure in a second language.

In this regard, the positive correlation between ethical use and writing performance supports the positions of Dahlan (2026) and Md Nawi et al. (2025), who argue that large-scale language models transform the learning ecosystem by serving as interactive support not only for stylistic revision but also for structuring ideas and lexical reformulation.

Furthermore, this finding aligns with the empirical results of Junaid et al. (2024), Aljasser (2025), and Shabir (2025), who reported significant improvements in grammatical accuracy, fluency, and coherence when AI is integrated through collaborative interactions in iterative drafting cycles, thereby avoiding the mere substitution of critical thinking or cognitive offloading.

An interesting finding of the study is the strong positive association between the ethical use of AI and academic integrity. Students demonstrated a high level of moral responsibility regarding their own authorship and a clear rejection of direct, uncredited plagiarism. This behavior is grounded in Ajzen's Theory of Planned Behavior (1985, 1991) and in the findings of Huang et al. (2025), who demonstrated that internalized moral obligations and information literacy exert a direct protective effect against the intention to commit ethical violations.

However, the relatively lower scores and higher variability associated with perceptions of institutional AI policy clarity suggests room for regulation gaps. This lends support to Lund et al. (2025), who found through quantitative analysis that awareness of institutional rules and regulations had no predictive ability on student ethical conduct, concluding that moral judgment and individual confidence in what does and does not qualify as fraud are what dictate behavior. In this way, student ethical commitment is derived from values-based self-regulation and not from punishment- or policy-based regulation.

The findings run contrary to the prohibitionist postures and institutional "zero-tolerance" policies adopted by many at the beginning of the AI boom.

To quote Cotton et al. (2023), Dwivedi et al. (2023), Lund et al. (2025), and Nelson et al. (2025) in part, banning AI entirely is impossible and has been shown to be ineffective in the modern university context. Literature further confirms invalid notice of using programs that automatically detect AI language (Li & Sundar, 20; Zhang et al., 20), as they lack reliability and have been shown to flag writing from non-native English writers as AI-written text (Gallent- Torres et al., 20; Liang et al., 2023).

Instead, the findings support a transition toward a pedagogical model based on Critical AI Literacy proposed by Dahlan (2026), which guides students through the cycle of

prompt design, comparative evaluation, source verification to avoid “hallucinations,” and transparent disclosure of use. Similarly, the results suggest the adoption of process-oriented assessment frameworks, such as the Artificial Intelligence Assessment Scale (AIAS) by Perkins et al. (2024) and Md Nawi et al. (2025), which value analytical effort and human authorship over mere inspection of the final product.

The study had the following limitations:

As it was a census sample where N=26 students participated from only one degree program and university, the results portray an accurate depiction of the group being analyzed but do not allow for widespread generalizations to other university settings or fields of study.

Because this study was cross-sectional, no long-term causal effects can be determined between the utilization of AI and future developments in cognitive writing development.

Data regarding ethical usage habits and academic integrity were derived from digital self-report questionnaires, which could introduce a slight social desirability bias in participants' responses.

Conclusions

The research hypothesis was accepted after it was quantitatively demonstrated that the ethical and transparent adoption of Artificial Intelligence has a positive, direct, and statistically significant relationship with both academic integrity and performance in academic writing in English. Consequently, the self-regulated use of AI does not undermine students' honesty but rather acts as a catalyst that improves second-language proficiency.

Students in the census sample use AI predominantly as a learning tutor and cognitive scaffold. The most frequent practices involve grammatical review and stylistic feedback, as well as factchecking against primary sources, reaching an overall average of 3.89 for ethical use. Therefore, it is confirmed that the tool is used to optimize the revision process and reduce cognitive load without resorting to passive text generation.

Thus, the results clearly demonstrate a high level of moral commitment on the part of students to the authorship of their writing ($M = 4.23$) and an explicit rejection of plagiarism without citing the source ($M = 4.31$). However, the variability and uncertainty observed regarding the clarity of university regulations ($M = 3.19$) indicate that current ethical behavior stems from internalized moral values rather than from clearly defined institutional policies or regulatory frameworks.

Overall performance in the production of argumentative essays was satisfactory. AI has proven to be an effective tool that helps overcome barriers resulting from syntactic and lexical differences, without affecting the tone or the argumentative structure developed by the student.

The data obtained indicate that institutions of higher education should move away from prohibitionist approaches or the use of automated AI detectors that have documented biases against non-native authors and move toward the implementation of AI and assessment models focused on the writing process such as the AIAS scale while institutionalizing policies for the transparent disclosure of the degree of algorithmic assistance used.

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