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Students' negative perceptions of the use of artificial intelligence in academic writing: didactic implications for Higher Education

Percepciones negativas del alumnado sobre el uso de la IA en la escritura académica: implicaciones didácticas para la educación superior

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ABSTRACT

Artificial intelligence (AI) is gaining ground in higher education writing. Its use fosters a global and pluricultural vision in teaching, as well as enhancing scholarly communication and research dissemination. However, these benefits cannot be evaluated without considering students' perspectives. This study analyzes the negative aspects students identify when using AI in their university work. A total of 314 undergraduate and graduate students in the field of education were surveyed. The data collection instrument was an online self-administered questionnaire composed of two parts: a sociodemographic section and a free association exercise, which explored students' spontaneous representations regarding the effects of AI use in academic writing. The results were examined using the Reinert method of descending hierarchical classification. The analysis, carried out through the IRaMuTeQ software, identified six lexical classes that were subsequently grouped into three overarching thematic categories. The first category relates to academic ethics, including students' perceptions that AI is not a reliable source of information and that its use may negatively affect academic grading. The second category refers to the development of transversal skills, particularly the loss of creativity, personal ideas, and reflective thinking, as well as the promotion of passivity and disengagement. The third and final category concerns the lack of development of academic writing competence, highlighting how AI use may hinder students' abilities in argumentation, coherence, and authorship. Based on these results, the study reflects on the didactic implications and the measures that higher education institutions could adopt to promote a responsible and profitable use of AI in educational contexts.

Keywords: student attitudes, writing competence, perceived drawbacks, higher education, artificial

RESUMEN

La inteligencia artificial (IA) está ganando terreno en la redacción en la educación superior. Su uso fomenta una visión global y pluricultural en la enseñanza, además de impulsar la comunicación académica y la difusión de investigaciones. Sin embargo, no pueden evaluarse estos beneficios sin tener en cuenta la opinión de los estudiantes. Este estudio analiza los aspectos negativos que el alumnado identifica al utilizar la IA en sus trabajos universitarios. Se encuestó a 314 estudiantes de grado y posgrado en el ámbito de Educación de una universidad pública. La recolección de datos se realizó mediante un cuestionario online autoadministrado, que incluía una sección sociodemográfica y un ejercicio de asociación libre. Las respuestas fueron analizadas a través del método Reinert, utilizando el software IRaMuTeQ, y complementadas con un análisis de similitud léxica para explorar la organización de las representaciones estudiantiles. Los hallazgos revelan que los aspectos negativos señalados por el estudiantado se agrupan en tres grandes subgrupos: el primero está relacionado con la ética académica, e incluye percepciones sobre la falta de fiabilidad de la información generada por IA y su posible repercusión negativa en las calificaciones; el segundo se vincula al desarrollo de competencias transversales, en concreto la pérdida de

creatividad, ideas propias, capacidad de reflexión y el fomento de la dejadez y la pasividad; el tercero hace referencia al no desarrollo de la competencia escritora académica. Fruto de estos resultados, se reflexiona acerca de las implicaciones didácticas del estudio y de las medidas que podrían adoptarse desde las instituciones de educación superior para promover un uso responsable y provechoso de la IA en el ámbito educativo.

Palabras clave: actitudes del alumnado, competencia escritora, desventajas percibidas, educación superior, inteligencia artificial

INTRODUCTION

Artificial intelligence (hereafter, AI) is rapidly transforming the landscape of higher education, especially in the field of academic writing. Recent years have witnessed a significant increase in the adoption of AI-based tools for text creation and editing in university settings (Alharbi, 2023; Fryer et al., 2019). This phenomenon has sparked intense debate in the academic community about its implications for teaching, learning, and academic integrity (Bearman et al., 2022).

Integrating AI in academic writing promises numerous benefits. There seems to be agreement that it brings a more global and multicultural perspective to education as it allows students to access a broad spectrum of knowledge and writing styles (Malik et al., 2023). In addition, it has the potential to enhance scholarly communication and research dissemination through tools that can help them express their ideas more clearly and effectively (Friederich & Symons, 2023). However, as these technologies become more prevalent, there is a critical need to examine their impact from the perspective of the primary users: students (Ou et al., 2024).

In this context, the present study focuses on the negative aspects that students identify when using AI in their university work. This perspective is necessary to develop a balanced and ethical approach to integrating AI into higher education. By understanding the concerns and challenges faced by the student body, it will be possible to work toward solutions that maximize the benefits of AI while mitigating its potential disadvantages. To address this question, the opinions of 314 undergraduate and graduate students in the field of education were analyzed. Employing the Reinert method, a lexical analysis of the results was carried out, and, subsequently, we have reflected on the didactic implications of these results.

With this objective in mind, this paper presents a review of the negative aspects associated with artificial intelligence in the field of writing and, specifically, in writing in higher education. Subsequently, the methodological framework is presented, which sheds light on the profile of the participants, as well as the procedure for data collection and analysis. Finally, the results are presented, discussed with those obtained in previous studies, and their implications are explored.

THEORETICAL FRAMEWORK

AI tools have brought about a teaching revolution in higher education (Rodriguez et al., 2023). Among its benefits is, for example, the personalization of learning, which has led to greater efficiency in teaching processes. Through AI systems, it is possible to adapt both educational materials and methods to the specific needs of each student and thus optimize their academic performance (Chicaiza et al., 2024). Likewise, implementing these technologies has increased teaching efficiency by automating routine tasks and favoring a more individualized approach to student attention (Garcés et al., 2024).

These benefits have also been identified in academic writing. However, their regular use for university-level writing presents several challenges (Malik et al., 2023). One of the first contentious issues concerns ethical and academic integrity considerations (Kasneci et al., 2023; Lund & Wang, 2023; Ray, 2023). In academia, originality and authorship are essential. If a paper is AI-assisted, the question arises to what extent the author is responsible for its content. AI cannot author papers because it cannot take responsibility for the claims it yields (Dergaa et al., 2023; Thorp, 2023). AI generates texts from statistical word predictions without applying any rhetorical intelligence. Therefore, it does not know what it is writing and what it means (Bedington et al., 2024).

Similarly, individuals should not take credit for what they have generated with the help of AI (Friederich & Symons, 2023), because it is not their intellectual product. In this sense, institutions should establish some guidelines; otherwise, the student body will continue to develop divergent and eclectic views on decisions that pertain to this dimension and norms about academic collaboration (Ou et al., 2024).

Linked to this are problems with originality and authenticity (Nguyen et al., 2024). Despite the transformative potential of AI for education, there are criticisms regarding the excess of optimism and conceptual ambiguity in the texts generated by these tools, especially regarding the weak connections with theoretical perspectives (Humble & Mozelius, 2022). In fact, in academia, there is already research that has corroborated the existence of fake abstracts (Dergaa et al., 2023), which only highlights the problems with authenticity and credibility.

Although AI can easily generate texts, analyze data, and review studies, it can also generate errors. According to the study by Van Dis et al. (2023), analysis of responses generated by language models such as ChatGPT has revealed the presence of inaccuracies and misrepresentations of information. Current AI tools tend to generate responses based on previous patterns, which can lead to superficial analysis or overgeneralizations. AI-generated texts may lack critical depth, reflection, or original interpretation, essential elements in academia. These shortcomings can

be attributed to a variety of causes, including the absence of relevant literature in the model's training corpus and/or an inherent inability to discern between high and low credibility sources of information.

In addition, there is a clear need to develop effective strategies to counteract the proliferation of what might be termed digital pseudoscience or fake science. This phenomenon, enhanced by the ability of language models to generate seemingly plausible but factually incorrect content, represents a significant challenge to the integrity of science communication in the digital age (Ansar & Goswami, 2021). Users may rely too heavily on the results, which could affect the quality and accuracy of their scholarly work. To mitigate these issues, the scientific community must maintain a posture of epistemological and methodological vigilance. This implies the implementation of rigorous data verification and validation protocols, which should be carried out by specialists in the corresponding fields.

This integrity also means considering that AI feeds on ideas automatically reproduced, including biases such as racism or other discriminatory behaviors. AI tools train on large volumes of data that may contain cultural, political, racial, or gender biases. This can lead to AI-produced texts reflecting such biases, which could compromise the fairness and validity of academic papers. Moreover, not all voices are equally represented in these training data (Bedington et al., 2024). In this regard, Friederich and Symons (2023) raise the question of who should take responsibility in this context

It is also necessary to focus on the development of the skills of AI learners-users. Thanks to digital technologies, thinking itself has become technologized and is in the process of becoming industrialized. A multitude of tools are now available to support, augment, extend, or even replace human thinking. The proportion of automatically processed writing subtasks is increasing, transforming writers into tool users who know which button to press to carry out a complex thinking activity (Kruse & Anson, 2023).

Consequently, it is considered that the advent of these tools has contributed to the abandonment of tasks that require intellectual effort - be it research or structuring arguments, among others - which can lead to a loss of fundamental critical and analytical writing skills. The same is true for critical thinking. Students need to be able to evaluate the quality and reliability of content generated through AI. This will also be linked to over-reliance on such automated tools (Tlili et al., 2023) and analytical skills (Nguyen et al., 2024).

Similarly, overuse of AI may inhibit personal creativity, as users may opt for automatically generated solutions rather than developing their own ideas. Thus, there is a risk that academic papers will become dehumanized, as machine-generated texts lack the experience, emotions, and context that enrich the work of humans.

Another transversal competency in the academic field at risk is the communication of knowledge. Knowing how to communicate is not a functional skill, but a required competence in all disciplines (Nguyen et al., 2024). The use and overuse of these tools can lead to the loss of communication skills. Digital technology not only modifies basic linguistic and formatting skills, such as hyphenation, spelling, grammar, and typesetting, but also higher-order processes, such as translation, argumentation, and summarization (Kruse & Anson, 2023).

Digital writing technology may have detrimental effects on the development of certain thinking skills, because automatic computer support, such as spelling, grammar, hyphenation, collocation, style or register choices, etc., may lead to a loss of the respective linguistic and cognitive skills that are no longer needed when the machine takes over. In this regard, Kruse and Anson (2023) point out that it is not yet clear how to respond to these losses and whether they can and should be replaced by new technological skills.

Another challenge brought about by using AI for writing is the digital divide between users in different countries. This highlights the need for equitable distribution of technology and training opportunities and access to resources (Malik et al., 2023). In high-income countries and privileged backgrounds -especially in the West - they have more opportunities to exploit these resources in ways that accelerate their research and further widen inequalities. In this regard, users' mother tongue can also be a determining factor. Territories with minority languages do not have access to the same tools and services as those with majority languages, especially English (Dergaa et al., 2023).

Likewise, it cannot be ignored that the future of AI systems is unknown in the short term. There are no studies available to measure the long-term impact of these tools, which are in continuous development. Floridi (2019) suggests that, in the future, AI may even surpass human capabilities in more key aspects of analytical reasoning.

Ultimately, AI tools offer promising possibilities for optimizing the transmission of knowledge in academia and broadening the scope of scientific studies. These technologies could assist those in academia in more accurately and effectively articulating their concepts (Friederich & Symons, 2023). However, as these systems gain ground, it becomes imperative to analyze their effects from the point of view of those who will use them most: the student body (Ou et al., 2024). The students' perspective will also serve to reflect on how to achieve adequate training and education on the effective and responsible use of AI in writing (Chan, 2023; Tlili et al., 2023). This is precisely the focus of this study, which is part of a broader investigation that seeks to understand the perceptions of both students and teachers and thus obtain a complete perspective of the educational ecosystem.

METHOD

This article is part of a larger study on the uses, perceptions, and relationships between academic writing and AI. To achieve the objectives outlined for this project, both qualitative and quantitative data have been systematically collected through online questionnaires designed for this specific purpose. These surveys incorporate open-ended and closed-ended questions to ensure comprehensive and detailed responses from participants.

The general objective of this study is to explore the university students' perceptions about the possible negative effects of using AI tools in academic writing, at a time of increasing integration of these technologies in educational environments. Specifically, we seek to describe how students conceptualize these effects, examine whether there are differences according to gender, degree, or academic year, identify ethical, cognitive, and pedagogical concerns, and analyze the degree of awareness of possible technological dependence.

Based on these objectives, the following research questions were formulated:

1. How do college students perceive the negative effects of AI use on academic writing?
2. Are there different perceptions according to gender, degree, or course?
3. What ethical or educational concerns does the use of AI raise from the perspective of the learner?
4. Does the student body identify any risk of AI dependency and its impact on learning?

Given the exploratory nature of this study, no specific hypothesis is proposed, in line with the methodological principles that indicate that, in the initial phases of research on emerging phenomena, it is more appropriate to investigate without prior theoretical conditioning. As Agee (2009) points out, in qualitative or exploratory studies, open-ended questions allow access to meanings and social representations not yet defined in the literature and facilitate an inductive understanding of the study phenomenon.

Sample

The sample consisted of 314 students in Education at a public university in Spain. Considering that the approximate total population amounts to 1700 students, the sample size reaches a margin of error of ±5.00% with a confidence level of 95%, which is considered adequate for an exploratory study. The mean age of the participants was 20.47 years (sd=3.80). As for gender distribution, most of the sample identified themselves as women, 74.07%, while 21.30% identified themselves as men and

1.54% as non-binary, proportions that largely reflect the characteristic feminization of the degrees analyzed.

In terms of degrees, the largest proportion of students were enrolled in Early Childhood Education (43.95%), followed by Primary Education (36.94%), Social Education (16.56%) and the master's degree in Teacher Training for Compulsory Secondary Education and Baccalaureate, Vocational Training and Language Teaching (2.55%). Concerning the academic year, the distribution was as follows: 43.63% were first-year students, 26.43% were second-year students, 22.61% were third-year students, 4.78% were fourth-year students, and 2.55% were master's degree students.

Procedure and instrument

Before data collection, approval was obtained from the university ethics committee (approval M10_2023_166). All participants volunteered in the study and received comprehensive information about the research procedures. Informed consent was obtained from each informant before participation. The questionnaire was completely anonymous: no identifiable personal data were collected, and no information was requested that would allow the responses to be linked to the identity of the students. The study was assessed as minimal risk by the ethics committee, and all the ethical and legal guarantees in force were complied with. Recruitment was carried out using a non-probabilistic snowball sampling method. Data were gathered between March 18, 2024, and June 8, 2024, using a self-administered online questionnaire. This was disseminated through different digital channels, such as institutional virtual platforms, social networks, and emails from university accounts by the research team. This strategy allowed broad and flexible access to the questionnaire, guaranteeing voluntariness, anonymity, and the non-intrusive nature of participation.

The online questionnaire consisted of two distinct sections. The first section included four closed-ended questions for the collection of sociodemographic data: age (open-ended numerical response), gender (female, male, non-binary person), degree, and current academic year. The second section consisted of a structured free association exercise following the Grid Elaboration Method (Joffe & Elsey, 2014) to examine participants' perceptions regarding the use of AI in academic text composition. This methodology, previously applied in studies investigating the collective representations of young people on various topics (Idoiaga-Mondragon, 2021; Idoiaga-Mondragon et al., 2024), was selected for its effectiveness in eliciting spontaneous responses. Specifically, participants were asked to list the first three negative aspects that came to mind regarding the use of AI for writing academic texts (papers, presentations, etc.) in a university context. They were then asked to

explain the words or ideas chosen, to elaborate extensively on their meaning. These explanations served as the basis for the subsequent analysis.

Data analysis method

The present study used the Iramuteq software, developed by Ratinaud (2009) and refined by Ratinaud and Marchand (2012), to carry out a comprehensive lexical analysis of the corpus of collected responses. It comprised two different methodologies: the Reinert method and the lexical similarity analysis.

The Reinert method (Reinert, 1983, 1990) was implemented using Iramuteq software to scrutinize the reasoning behind the positive or negative aspects associated with using AI in academic writing, as articulated by university students. This method, known for its application in open-ended question analysis (Legorburu et al., 2022; Boillos et al., 2024), ensures the reliability and validity of textual analysis (Klein & Licata, 2003). From a top-down hierarchical cluster analysis format, the Reinert method facilitated the identification of classes and statistical indicators, such as typical words and text segments (Idoiaga & Belasko, 2019), with high chi-square values signifying significant repetition among participants' responses.

Consistent with precedent methodologies (Camargo & Bousfield, 2009), raw data were entered into Iramuteq software, and key vocabulary items within each class were selected based on specific criteria. These included an expected word frequency greater than 3, evidence of significant association according to the chi-square statistic ($\chi^2 \geq 3.89$, $p = .05$, $df = 1$), and predominant occurrence within class (≥50%). Subsequently, text segments associated with each class were identified and ranked according to their respective chi-square values.

These lexical universes were then linked to passive variables (independent variables), resulting in a comprehensive description of the lexical worlds. In this case, the passive variables were gender, degree, and current academic year. In addition, a systematic process was adopted to label each class, in which two researchers independently proposed labels based on words and associated quotations, followed by consensus approval by both researchers.

During the analysis, the corpus was segmented into 537 context units (CTUs), of which 81.32% were successfully classified by the algorithm, indicating a high stability and robustness of the classification model. It should be noted that the calculation of chi-square (χ^2) values and the assignment of typical words to each class were performed automatically by the software, which significantly reduces the risk of interpretive bias or external interference during data segmentation and clustering. The interpretation of the resulting classes was subsequent, based on semantic criteria and the analysis of the most representative words of each lexical universe.

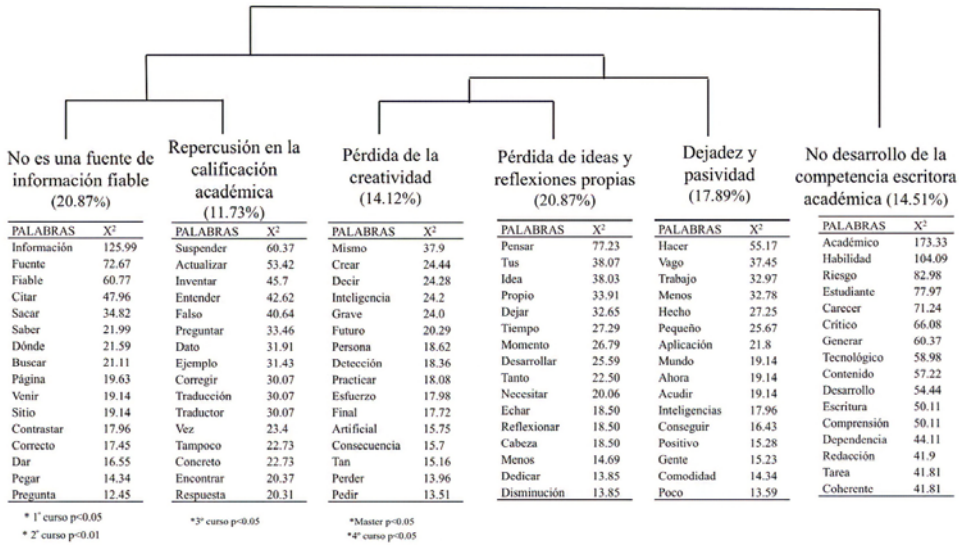
Subsequently, a lexical similarity analysis was performed with the Iramuteq tool. For this purpose, the corpus was considered a unified entity, independently of the participants' responses. This analysis elucidated the structural organization of the textual content through the identification of word co-occurrences, and visual representations of the social representation under scrutiny were generated (Marchand & Ratinaud, 2012).

RESULTS

The Reinert method, using a top-down hierarchical analysis, was used to identify participants' main negative ideas about using AI for writing academic texts. Each theme or concept is encapsulated by a collection of characteristic words and text segments referred to as a class. The analysis segmented the corpus into 537 sections, resulting in six distinct classes, as illustrated in Figure 1.

Figure 1

Top-down hierarchical dendrogram showing the most frequent words and those with the highest association χ2 (1), p < .001 extracted by the Reinert method



The results are grouped into three subgroups: the first is related to academic ethics, where it is mentioned that AI is not a reliable source of information and the impact that its use can have on the academic grade; the second is related to the development of transversal competencies, specifically the loss of creativity, own

ideas and reflective capacity and the promotion of laziness and passivity; finally, the third is linked to the non-development of academic writing competence.

The first idea extracted from the hierarchical grouping dendrogram, weighting 20.87%, is that AI "is not a reliable source of information". The student body remarked that the information sought through AI should be contrasted, since many times it is not correct, and it is not known from which sources it comes. This idea was mostly mentioned by first ($p< .05$) and second-year students ($p< .01$). The most significant sentences linked to this idea, i.e., those with the highest chi-square sum for this class, are presented below:

1. You have to know how to formulate the question, you have to check if the information is reliable. Articles and quotes do not usually come out because depending on how you formulate the question, you will get one information or another or the information will be sorted. There are no sources or where the information was taken from ($\chi2 = 359.82$; female, second year of primary education).
2. You often don't know if the information is reliable because you don't get it from reliable sources ($\chi2 = 343$; female, first grade of Primary Education).
3. These are not texts you have done and are not reliable sources ($\chi2 = 339.56$; Male, first grade of Primary Education).

The second negative aspect of using AI for writing academic texts, mentioned by the students, with a weight of 11.73%, refers to the "Impact on the academic grade". Students know that using these resources for their work can be a reason for failing, both because the teachers may notice it and because the information presented in the academic work is not correct. Third-year students mentioned this idea more ($p<0.05$). The most significant sentences used by the participants to explain this idea were:

4. Plagiarism can lead to failure. Sometimes too much information leads to not solving the paper completely or not finding a good answer. Sometimes they make references to bibliographic references that do not exist or that are hard to find ($\chi2 = 182.96$; female, first year of early childhood education).
5. Teachers can catch you out. Sometimes they don't write in the best way, two different pages can give you different things. Sometimes many people copy the texts provided by these tools and without knowing it, teachers can catch you for plagiarism and you can be suspended ($\chi2 = 161.90$; female, third year of early childhood education).
6. The translator may be fine for translating a few things, but if you want to translate a complete text it is better not to rely on its help as its translations may be wrong. If artificial intelligence is used repeatedly in university papers you will be failed ($\chi2 = 321.56$; male, first year of primary education).

The third negative aspect of using AI for writing academic texts, which accounts for 14.12% of the weight, exposes the students' concern linked to the "Loss of creativity". Specifically, the student body believes that the fact that there are numerous facilities for using AI means that there are fewer and fewer productions of their own. This could have consequences for future generations, as they will have fewer professional skills to solve difficulties. This idea was mostly mentioned by master's ($p<.05$) and fourth year ($p<.05$) students. The most significant sentences used by the participants to explain this idea were:

7. Since it is so easy, it is very possible to fall into laziness to create the content ourselves, since this creates it for us without any effort. By not creating the texts ourselves, we do not learn in the right way, since a good use brings things, but a bad one will only stop us from learning ($\chi2 = 117.18$; female, master).
8. It is not something created by yourself so that identity is somehow lost, everything that we are told in it we believe without doubting anything, it seems to me that we are too hasty, losing our reasoning ($\chi2 = 112.17$; female, fourth year of infant education).
9. Lack of habit, lack of originality, little self-demand. I believe that artificial intelligence is a useful tool to help us in some areas, but if we use it constantly, we will lose the habit of doing things by our own hands ($\chi2 = 92.78$; male, first year of primary education).

The expressed fourth negative aspect of the use of AI for writing academic texts is its link with the "Loss of ideas and own reflections". This idea was one of the most mentioned, with 20.87% of the total weight, and referred to equally by the students of all courses. The most significant sentences used by the participants to explain this idea were:

10. You don't have the opportunity to develop your own skills. You don't learn, we don't spend time thinking about our ideas ($\chi2 = 257.08$; female, second year of Social Education).
11. You are not using your own ideas when making a reflection, so it is not quite reflection, you are not thinking for yourself ($\chi2 = 233.02$; female, first year of Early Childhood Education).
12. When you get used to using Artificial Intelligence, if at some point you do not have access to a certain source of information, it will be very likely that your inability to reflect, argue or develop your discourse ideas will be banal and scarce ($\chi2 = 182.30$; female, fourth year of Social Education).

The fifth negative aspect of using AI for writing academic texts, which accounts for 17.89% of the total weight, is associated with the students' belief that it encourages "Laziness and passivity". The participants express that the repeated use of AI makes them feel increasingly lazy when thinking or writing by themselves. This

idea was mentioned by students in all courses. The most significant sentences used by the participants to explain this idea were:

13. Since there are now all kinds of artificial intelligences, you don't have to put yourself and spend a lot of time on the work. So, you become lazier when it comes to doing a job, you put less effort into the work, since you get everything done ($\chi 2 = 252.28$; female, first year of primary education).
14. You don't learn much, you become lazier when it comes to doing work and you put less effort into doing it. As you use the applications, you are not doing or using your positive points to generate the work, so you do not learn anything since you get everything done ($\chi 2 = 163.02$; female, first year of primary education).
15. It makes you think and work less, so you become lazier. With artificial intelligence you lose originality, since you are copying something that a machine has created and not you yourself ($\chi 2 = 158.43$; female, first year of primary education).

Finally, the last negative aspect of using AI for writing academic texts, with 14.51% of the total weight, is that using them affects the "Non-development of academic writing competence". The students focus on the loss of academic writing ability or competence with all that this implies: search for sources, synthesis of information, critical analysis, etc. They also reflect on the capacity for critical thinking or analysis, which, according to them, decreases with these tools. The most significant phrases used by the participants to explain this idea were:

16. Over-reliance on artificial intelligence for text writing may result in the loss of writing and critical thinking skills among students and teachers if technology is relied upon to automatically generate academic content ($\chi 2 = 842.57$; female, first grade Early Childhood Education).
17. Limitations in contextual understanding. Despite its ability to produce coherent text, artificial intelligence may not fully understand the context of a topic or lack the ability to perform deep critical analysis, which may affect the quality and depth of the academic content generated ($\chi 2 = 782.40$; female, third grade of primary education).
18. Technological dependence and possible loss of writing skills among students and professionals who use artificial intelligence to write academic texts. This implies that lack of practice in manual writing may limit their ability to communicate effectively and develop independent arguments ($\chi 2 = 705.69$; female, third year of elementary education).

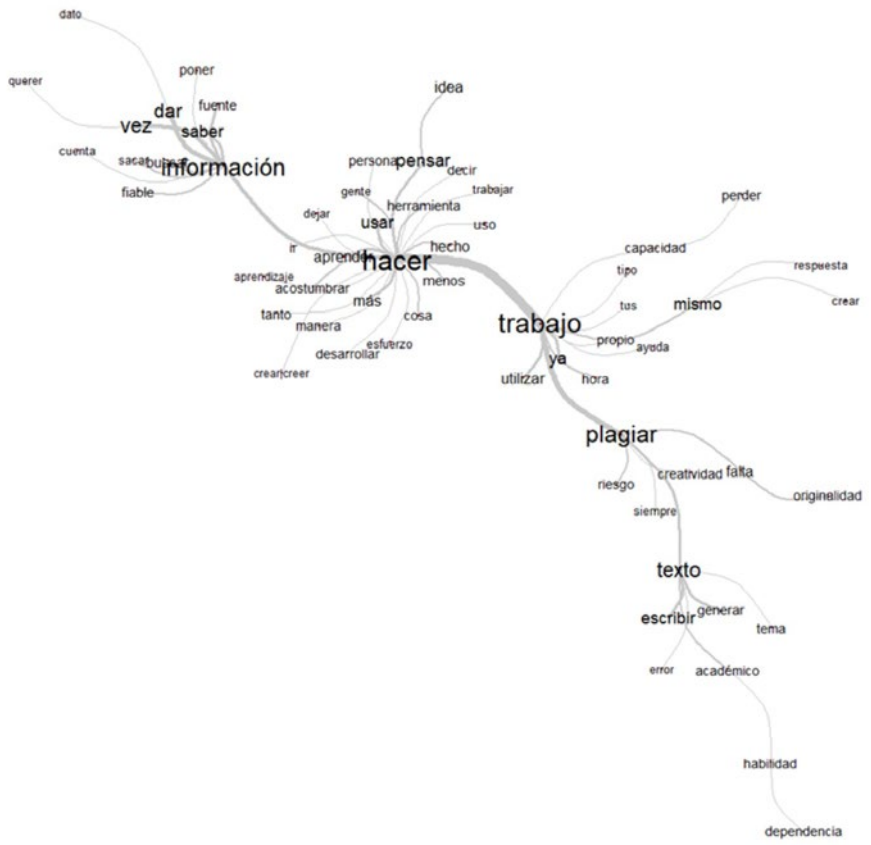
Complementarily, a lexical similarity analysis was performed to generate a picture reflecting the co-occurrences among all the words in the corpus beyond their division into classes. Its objective was to analyze how the words in the corpus were interconnected on a common plane. For this purpose, the lexical similarity

analysis was performed only with those words with a frequency higher than 25 (eliminating the word artificial intelligence since it is the elicitor), the results of which can be seen in Figure 2.

The results revealed that the corpus is divided into five cores. The first core, starting at the top, deals with the reliability of information and sources. The second core deals with what AI does and how people are increasingly accustomed to using it. The third core deals with the ability to work and the loss of the ability to work for oneself. The fourth core focuses on plagiarism linked to a lack of creativity and originality. Finally, the fifth core is identified with the dependence generated towards AI for writing academic texts.

Figure 2

Graphical representation in the form of kernels of the co-occurrences with the highest frequency (> 25) of the study



DISCUSSION AND IMPLICATIONS

Studies agree that computer-assisted writing tools positively influence students' writing proficiency and self-efficacy (Gayed et al., 2022). Authors such as Bedington et al. (2024) group the potential uses of AI for academic writing into four types as listed in Table 1.

Table 1
Potential uses of AI for the writing process. Translated from Bedington et al. (2024).

Creation	Editorial processes
Generate and explore ideas Develop ideas and propose research directions Participate in preliminary investigations Summarize texts, articles, websites, etc.	Provide an outline from inventive notes. Create a draft from notes Write (quickly) several drafts Show possible genres and styles Provide writing tips
Check	**Text editing**
Show ways to reformulate and recast writing. Provide evaluative feedback Offer counterarguments	Providing corrections and explanations of editions Offer choices of words, phrases and sentences

However, the inexorability of technological progress demands a critical and participative approach from the academic community and society in general. In this context, the purpose of this work is to know university students' perceptions about using these tools for constructing academic texts and, therefore, the genesis of new knowledge, specifically in the field of Education. It has been of interest to identify the negative aspects to carry out pedagogical interventions that reverse these positions towards a constructive use of these tools.

Resistance to the adoption of new technologies is fruitless and potentially detrimental to the advancement of knowledge. In particular, the study and implementation of AI requires a holistic and interdisciplinary approach that transcends isolated technical analysis. It is necessary to contextualize AI within a broader framework that includes four fundamental aspects: (I) the interrelationship with other emerging and established technologies; (II) the rhetorical and discursive context in which it is developed and applied; (III) the ethical implications of its implementation and use; and (IV) the various epistemological paradigms that inform and are informed by AI (Bedington et al., 2024). However, to achieve this goal, the guidance of teachers remains essential, and, to this end, the results obtained in this study must be considered.

First, it is worth considering that the participants have identified AI tools as substitutes for their production. On the contrary, the aim is to understand them as resources to assist in writing. Their nature is to complement the work of the scribe and, therefore, AI-human collaboration is essential (Molenaar, 2022; Nguyen et al, 2024). That is, academic practices with AI must be understood as an experience of social interaction (Ou et al., 2024). Human intervention and decision-making must be present throughout the whole process. It will be people who provide rhetorical intelligence and who are responsible for ensuring that there is effective and empathetic communication (Bedington et al., 2024). Therefore, it will be the job of the teaching staff to create practices in which AI tools are introduced not as substitutes, but as supporting resources. For example, they can be used for creating texts that students will later have to critically review and correct.

This way of proceeding would also impact on the negative aspect identified by the students in this study, who considered that AI could lead to the loss of critical thinking skills. This fear coincides with the work of Tlili et al. (2023) and Nguyen et al. (2024), who warned that students delegated tasks involving intellectual effort or analytical skills to AI. However, training learners to use these tools in a proactive, adaptive, and critical manner would place considerable demands on the user's executive functions. But to achieve this goal, it will be necessary for technology to be integrated into the educational landscape, always with a prior understanding of its meaning and effects (Nguyen et al., 2023). This balance is crucial to ensure that, while AI brings efficiency and analytical capacity, it does not overshadow creativity and critical thinking inherent in human intelligence (Khalifa & Albadawy, 2024).

Another concern expressed by the participants in this study is an inversely proportional relationship between the use of AI for the construction of academic texts and the development of written communicative competence. Kruse and Anson (2023) already pointed out that digital writing could have detrimental effects on the development of skills associated with this competence, such as the loss of linguistic skills, register identification, lexis, etc.

From a pedagogical point of view, it seems a possible solution to rethink the methodology with which the tools are integrated to generate tasks that require critical thinking and problem solving; that is, tasks that go beyond what AI can do (Dergaa et al., 2023). In this sense, studies have shown that AI can offer a reductive view of reality. Thus, novel and enriching ideas that lead to novel results and arguments should be rewarded in the classroom. In other words, it is essential to seek novelty and discourage redundancy (Friederich & Symons, 2023) and to generate educational challenges in which it is necessary to have skills for the communication of knowledge. It will be the teacher's task to check whether the tasks they propose prepare for the development of the competencies or whether, on the contrary, they can be performed automatically.

Another aspect that acquires relevant weight in the results of this study has to do with academic ethics. As previous studies (Kasneci et al., 2023; Lund & Wang, 2023) have shown, issues associated with ethics, originality, integrity and authorship come to the fore when talking about these tools. Ethical and transparent use of AI is paramount. Students must be committed to using these tools in a way that maintains the integrity and originality of their text and avoid any misuse that may undermine academic standards (Khalifa & Albadawy, 2024). This will require faculty to raise awareness of productions with little or questionable credibility (Ansar & Goswami, 2021).

University faculty play a key role in all these initiatives. Therefore, in addition to training this staff, it would be worthwhile investigating teaching staff perceptions about AI tools for academic writing. As previously mentioned, this study is part of a broader investigation that also contemplates this objective.

CONCLUSIONS

This study focused on analyzing the negative aspects identified by undergraduate and graduate students specialized in the field of Education, in relation to the use of AI for writing academic texts. For this purpose, the opinions of 314 students were collected, and a lexical analysis of their contributions was carried out.

The results have yielded consensus in identifying five axes grouped into three subgroups. The first is related to academic ethics. The participants value issues associated with authorship and originality and identify these practices as fraudulent that could impact their grades. The second subgroup is linked to developing transversal competencies such as critical thinking or creativity. It is considered that the use or abuse of these tools may result in a loss of skills necessary at the educational stage they are in. Thirdly, it is noted that AI can negatively affect the development of academic writing competence in general, as well as its associated subcompetencies.

This study also aimed to reflect on the didactic implications derived from these results. First, it has been observed that, although the benefits of AI for academic writing are numerous, teaching intervention will be necessary to maximize these potentialities and avoid the risks identified by students. Secondly, it seems key that the tools are used proactively and always as resources to help and not to replace them. To this end, it will be necessary that the tasks requested of students require skills such as creativity or critical thinking. Likewise, ethics is an important issue that should be expressly addressed in the classroom but should also be orchestrated by higher education institutions.

In short, these results show that it is necessary for the university to be aware of the concerns of the student body to implement policies aligned with them (Ou et al., 2024). This paper seeks to contribute to this direction.

Finally, it should be added that this study has some limitations that should be considered when interpreting the results. Firstly, the sampling used was non-probabilistic using the snowball technique, which implies a possible self-selection bias, given that the participants were accessed voluntarily through contact and dissemination networks. This type of sampling may reduce the heterogeneity of the sample and limit the generalizability of the results to the entire student population. In addition, the overrepresentation of first-year students and certain degree programs may have influenced the perceptions collected, especially about experience and familiarity with academic writing. Finally, the cross-sectional design of the study allows us to describe perceptions at a particular point in time but does not allow us to establish causal relationships or observe changes over time. Future research could address these limitations by incorporating random sampling, longitudinal designs, and methodological triangulation.

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