Journal of Management and Business Education

JMBE

www.journaljmbe.com ISSN: 2605-1044 Published by Academia Europea de Dirección y Economía de la Empresa.

Perception and ethical use of artificial intelligence by university students

Percepción y uso ético de la inteligencia artificial por parte del estudiante universitario

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Ciudad-Gómez, A. (2025) Perception and ethical use of artificial intelligence by university students. *Journal of Management and Business Education*, 8(1), 18-36. https://doi.org/10.35564/jmbe.2025.0002
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Language: English
Received: 20 Jun 2024 / Accepted: 27 Dec 2024

Funding. The author received no financial support for the research, authorship, and/or publication of this article.
Ethical Statement. The authors confirm that the research obtained informed consent from participants, explaining the treatment of the provided data.
Declaration of conflicting interests. The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.
CRediT author statement. All authors have contributed equally to all parts of the work.

ABSTRACT

Faced with the new challenges of the accounting profession and Higher education, generated by the interruption of Artificial Intelligence (AI), we propose to systematically integrate it, with an ethical vision, in our educational process. Therefore, with this work, which is included within a broader one, we intend to explore the use of AI by university students and their perception of their experience, the future impact, ethical aspects and potential risks, both in the higher education as well as in the profession related to Accounting and Finance, what they consider their level of training to be, as well as what their training needs are. We have used an exploratory quantitative methodological approach, using a survey with α= .922 (Cronbach's Alpha) and a non-probabilistic sample of 145 students. The results reveal that they use AI little due to lack of knowledge and preferring traditional methods, concentrating their experience on the general search for information through ChatGPT, estimating a moderate future impact both at the educational and professional levels. Furthermore, it is evident that their training in use, ethics and risk prevention is limited, which shows the need to create training programs, providing greater ethical awareness.

Keywords. Accounting, Higher Education, Ethics, Artificial Intelligence, Sustainability, AI, students

RESUMEN

Frente a los nuevos retos de la profesión contable y educación Superior, generados por la interrupción de la Inteligencia Artificial (IA), nos proponemos integrarla sistemáticamente, con visión ética, en nuestro proceso educativo, por lo que con este trabajo, que se engloba dentro de

uno más amplio, pretendemos explora cual es el uso de la IA por parte del estudiante universitario y su percepción sobre su experiencia, el impacto futuro, aspectos éticos y potenciales riesgos, tanto en la educación superior como en la profesión relacionada con la Contabilidad y Finanzas, cual consideran que es su nivel de formación, así como, cuáles son sus necesidades formativas. Hemos empleado un enfoque metodológico cuantitativo de tipo exploratorio, utilizando una encuesta con α= .922 (Alfa de Cronbach) y muestra no probabilística de 145 estudiantes. Los resultados revelan que utilizan poco la IA por falta de conocimiento y por preferir métodos tradicionales, concentrando su experiencia en la búsqueda general de información a través del ChatGPT, estimando un impacto futuro moderado tanto a nivel educativo como profesional. Además, se evidencia que su capacitación en uso, ética y prevención de riesgos es limitada, lo que muestra la necesidad de crear programas de formación, aportando mayor conciencia ética.

Palabras clave. Contabilidad, Educación Superior, Ética, Inteligencia Artificial, Sostenibilidad, IA, estudiantes

INTRODUCTION

In the past, we observed how Higher Education was required to abandon evaluation systems based on memorisation and traditional methodologies. This can be attributed to the technological revolution, social transformation and changes in economic structures, along with the adaptation of the Spanish university system to the European Higher Education Area (EHEA). Instead, formative evaluation systems and student-centered methodological models were adopted. These focused on active and meaningful learning. This context led us to take on new methodologies and initiate the virtualization of our teaching in the field of accounting.

However, we are now facing a new challenge. The inclusion of Artificial Intelligence (AI), particularly generative AI, in accounting and educational contexts, is beginning to have a significant impact. We are seeing transformations in both the labor market and the educational sphere, generating opportunities and ethical dilemmas.

In the labor field, authors such as García Moreno & Sanchez Balcázar (2023) or Manosalvas Mafla et al. (2024) have examined both the positive and negative implications of AI application in accounting. Their studies show that AI is transforming practices and providing powerful tools to improve the quality of financial information, optimize decision-making and offer more accurate advisory services.

In education, while some see AI as having immense potential to improve learning, others express concerns about its ethical use, data privacy, bias, the dehumanization of learning and the loss of independent and critical thinking in students. This has sparked a significant debate about AI integration in education, the evolving role of teachers and its effects on student learning. Education cannot remain on the sidelines of this debate; we must remain attentive to the opportunities these tools provide to maximize learning potential for both teachers and students (García-Peñalvo et al., 2024). Generative AI can help students learn while simultaneously assisting educators in teaching in new ways (Flores et al., 2022; García-Peñalvo, 2023), similar to what is occurring in Higher Education in Accounting.

In this new context, the challenges posed by AI adoption in the accounting profession and Accounting Higher Education, make it imperative to master its use as soon as possible. AI must be systematically integrated into teaching and learning processes through innovation. Simultaneously, ethics, sustainability, security, and legal aspects should be addressed. This will inevitably alter the way students learn and consequently, the way teachers instruct. Our goal is to achieve high-quality student learning and equip students with the necessary competencies for

future employment in the AI era. As highlighted in the "Artificial Intelligence Index Report 2023," there is a growing demand for jobs that require or are related to, AI skills (Maslej et al., 2023).

To cater to new needs in Higher Education, an evaluation was conducted. This included a review and reflection process following a "Design-Based Research" (DBR) strategy (Kennedy-Clark, 2013; Reeves, 2006; Wademan, 2005). The study was initiated with an exploratory phase. This occurred before designing and applying educational innovation in the classroom using the "flipped classroom" methodology and incorporating AI-driven content creation tools with an ethical approach. The primary goal was to gain an introductory understanding of the current situation. This will be followed by a more in-depth study in which AI-driven activities will be integrated into our courses to enrich them and promote appropriate use of the applications. This transition will require, now more than ever, a shift from the traditional summative evaluation system to a formative one.

Thus, the general objective of this study, which is part of a broader research project, is to assess the necessity of including AI in the teaching-learning process. The aim is to explore how university students currently use AI applications in their learning processes, their perception of this experience, and the future impact AI could have on Higher Education. Ethical aspects are also analysed along with potential risks and AI's influence on the accounting and finance professions. Furthermore, the students' level of training in AI application is examined as well as their ethical use, risk prevention and their training needs or interests.

The following specific objectives were derived from this general purpose:

OE-1. Analyze the current use of AI applications in learning, particularly for completing academic tasks and assignments, among university students.

OE-2. Examine students' perceptions of their experience using AI applications for academic work in their learning process.

OE-3. Assess students' perceptions of the future impact of AI applications in Higher Education, including ethical considerations and potential risks.

OE-4. Analyze students' views on the impact of AI applications on the future of the accounting and finance profession.

OE-5. Investigate students' perceptions of their preparedness in AI application, ethical use and risk prevention in both academic and professional settings, as well as their training needs and interests.

CONCEPTUAL FRAMEWORK

The rapid growth of Artificial Intelligence (AI) is increasingly transforming how people interact, communicate, live, learn, and work (Chiu, 2021; Chiu et al., 2021; Xia et al., 2022; Pedró et al., 2019). It is likely to have not only social and economic consequences but also impacts on climate, biodiversity and ecosystems worldwide (Van Wynsberghe, 2021). Thus, some studies on AI's effect on the corporate sector focus on sustainability (Di Vaio et al., 2020; Galaz et al., 2021; Lin et al., 2024), emphasizing the need for regulation and oversight to ensure viable development. Failing to do so could lead to deficiencies in transparency, security, and ethical standards (Vinuesa et al., 2020).

AI has also made a strong entrance into academia, proving to be a valuable tool for analyzing complex data, identifying patterns and making predictions through trained AI models. This capability allows, for instance, for the quantification of relationships between competencies and professional performance, measuring how training influences career success (Gómez-Martínez, Purswani & Prado-Román, 2020). It can also help identify student motivations and personalize learning experiences accordingly (Gómez-Martínez, Medrano-García & Aznar-Sánchez, 2023), as well as predict student satisfaction and their likelihood of recommending a master's degree program (Gómez-Martínez, Medrano-García & Aznar-Sánchez, 2023). Three major technological

innovations are currently challenging Higher Education learning processes: interactive digital transformation, AI, and content personalization (Bigne, 2020).

However, AI 's application in academia remains controversial. There is a lack of consensus on its definition and implications (Duan et al., 2019). Some consider the situation to be digital transformation (García-Peña et al., 2020; García Peñalvo, 2023; Ocaña-Fernández et al., 2019), while others view it as a digital disruption (Área & Adell, 2021; Cotton et al., 2023). The debate stems from concerns about academic fraud, plagiarism (Díaz-Arce, 2023; Román Acosta et al., 2024; Susnjak, 2022) and ethical challenges that must be addressed (Flores-Vivar & García-Peñalvo, 2023).

For Flores-Vivar & García-Peñalvo (2023), the strong yet "silent" disruption of AI in education, alongside other established technologies such as virtual campuses and academic social networks, can support teaching in various ways. These include detecting student emotions, serving as an intelligent tutoring system, acting as a teaching assistant, automatically grading exams, and monitoring forums. This enhances education by emphasizing project-based, flexible, collaborative and self-regulated learning, ultimately improving overall educational quality. Additionally, Chen et al. (2022) highlight AI's role in early detection of learning difficulties. AI can also increase accessibility to education for all students, including those with disabilities and those lacking access to high-quality educational resources (González-González, 2023). This necessity is driving educators to rapidly master AI use in higher education. As proposed in the European Commission's White Paper on AI (European Commission, 2020), education and training systems must adapt to the digital era, promoting Europe's capacity for AI innovation while ensuring ethical and reliable adoption.

In Accounting Higher Education and the accounting profession, AI is modernizing professional practices and transforming the role of accountants. This necessitates updates in accounting education to integrate AI-related knowledge. AI is becoming a valuable tool for improving accounting education and learning (Manosalvas Mafla et al., 2024). Accounting practices are evolving through automation of routine tasks, improved data analysis and the generation of personalized recommendations. These advancements enhance efficiency, reduce errors, and allow for the processing of large volumes of information swiftly and accurately. However, ethical and social concerns are also emerging relating to: data privacy, algorithmic bias, and employment impact. This is leading to discussions on responsible and ethical AI implementation (García Moreno & Sanchez Balcázar, 2023).

The complex relationship between AI and education along with its opportunities and challenges, was addressed in the document "Beijing Consensus on Artificial Intelligence" (UNESCO, 2019). This document provided recommendations on how to best leverage AI technologies to achieve Sustainable Development Goal (SDG) 4, "Quality Education," under the Education 2030 Agenda. It proposed 44 recommendations grouped into the following areas: AI planning in educational policies; AI for the management and delivery of education; AI to support teaching and teachers; AI for learning and assessment; developing values and competencies for life and work in the AI era; AI for lifelong learning opportunities for all; promoting equitable and inclusive AI use in education; AI for gender equity and AI for gender equality; ensuring the ethical, transparent, and verifiable use of educational data and algorithms. These aspects were later explored in more detail in "Artificial Intelligence and Education: Guidance for Policymakers" (UNESCO, 2021). Subsequently, recommendations were approved in the "Recommendation on the Ethics of Artificial Intelligence" (UNESCO, 2022), which placed special emphasis on ethical implications. The challenge was also set to ensure AI is designed and used ethically and responsibly to prevent its misuse or the exacerbation of existing social inequalities. More recently, UNESCO developed a guide on ChatGPT, outlining when to use this tool and when not to. An overview was provided of its functionality and use in higher education, along with its primary challenges and ethical implications (Sabzalieva & Valentini, 2023).

METHODOLOGY

Sample

The type of sampling used was non-probabilistic, aiming to obtain the most representative sample possible. Convenience sampling was chosen, meaning that the selection of individuals depended on accessibility. This implies that the results obtained may not be generalizable to the entire population of university students.

The statistical universe (table 1) consists of students enrolled in the 2023-2024 academic year in the courses "Financial Accounting III" and "Advanced Financial Accounting" at the Faculty of Business, Finance, and Tourism (UEx).

Table 1. Technical data sheet of the study

Population Universe	Students enrolled in the Advanced Financial Accounting (CFA) course of the Finance and Accounting Degree (FICO), Financial Accounting III course of the Business Administration and Management Degree (ADE) and two double degrees: ADE-Tourism (ADE-TUR) and Law-ADE (DCHO-ADE) at the University of Extremadura.
Geographic scope	Faculty of Business, Finance and Tourism-University of Extremadura
Population	26 students (Group FICO) 125 students (Group ADE- ADE-B: 60 and ADE-A: 65) 48 students (Group LAW-ADE) 21 students (Group ADE-TOURISM) 220 students in total
Sample size	15 students (Group FICO) 85 students (Group ADE) 35 students (Group LAW-ADE) 10 students (Group ADE-TOURISM) 145 students in total
Response rate	57,7 %s (Group FICO) 68,0 % (Group ADE) 72,9 % (Group LAW-ADE) 47,6 % (Group ADE-TOURISM) 65,9 % in total
Data collection method	Questionnaire created in Google Drive and hosted on the Moodle platform
Date of fieldwork	2nd semester of the 2023-2024 academic year
Data processing	SPSSv29.0.1.0

The sample (n = 145), representing a 65.9% participation rate, consists of university students who responded to the survey, structured as shown in table 2.

Table 2. Characterization of the sample

ÍTEM		N	%
Asignatura	Advanced Financial Accounting	15	10,3%
	Financial Accounting III	130	89,7%
Degree	ADE	85	58,6%
	ADE-TOURISM	10	6,9%
	LAW-ADE	35	24,1%
	FICO	15	10,3%
Course	1º	15	10,3%
	2º	95	65,5%
	4º	35	24,1%
Gender	Female	77	53,1%
	Male	68	46,9%
	Nonbinary	0	00,0%
Age	18	7	4,8%
	19	42	29,0%
	20	25	17,2%
	21	31	21,4%
	22	21	14,5%
	23	10	15,3%
	+24	9	2,1%

Data collection

For data collection, a questionnaire was designed and provided to students through the virtual classroom of the course (Moodle platform), with a link to the Microsoft Drive application. All students were invited to respond to the questions at the beginning of the second semester of the 2023-2024 academic year, in February 2024. This allowed us to gather data and quantifiable information for subsequent statistical analysis.

The questionnaire included closed-ended questions, using multiple-choice options for four questions, while the rest were structured using a 6-point Likert scale. It comprised 84 items, with an additional 5 items related to personal data (course, degree, academic year, gender, and age).

Students participating in the study were informed that their participation in the survey was strictly voluntary. They were told that their data would be treated confidentially and that it would not be used for any purposes outside of the research.

To validate the questionnaire, two experts in the field of Financial Accounting in Higher Education participated in evaluating and validating the instrument's questions. The idea was to ensure that questions were relevant, coherent, and appropriate for measuring the variables of interest.

The reliability of the questionnaire was measured using Cronbach's Alpha, obtaining a result of $\alpha = .922$ for the study population, which is considered excellent according to George & Mallery (2020).

Components and data analysis

We employed a quantitative exploratory methodological approach, with the dependent variable (DV) being "Student experience and perception of AI use, its future impact on the labor market and higher education and student training needs (E&P_IA)." This variable was divided into five dimensions, with their operationalisation presented in TABLE 3, TABLE 4, and TABLE 5. Once data collection was completed, the descriptive analysis was conducted using SPSS 29.0, providing valuable insights for the conclusions.

The first dimension focused on identifying the current use of artificial intelligence applications by university students in completing their academic tasks and assignments. The second dimension centered on understanding students' perceptions of their experience using AI.

Table 3. Variable «E&P_IA». Dimensions 1 and 2

SPECIFIC OBJECTIVES	Dimensions	Indicators	Measurement level
SE-1	F1. Experience: Current use of AI in higher education	F1.1.1.IA_Life_Use	Six-point Likert scale
		F1.1.2.IA_Academic_Use	
		F1.2.1.Reason Not Used_None_If Used	
		F1.2.2.Reason Not Used_Lack of Knowledge	
		F1.2.3.Reason Not Used_Best Traditional	
		F1.2.4.Reason Not Used_Ethics	
		F1.2.5.Reason Not Used_Economic Limitations	
		F1.2.6.Reason Not Used_No I know	
		F1.3.1.App_Adobe.animate.audio	
		F1.3.2.App_Adobe.Express	
		F1.3.3.App_Bard	
		F1.3.4.App_Beatoven	
		F1.3.5.App_Bing	
		F1.3.6.App_ChatGPT.3.5	
		F1.3.7.App_ChatGPT.4	
		F1.3.8.App_ChatPDF	
		F1.3.9.App_Claude	
		F1.3.10.App_Copilot	
		F1.3.11.App_Dall.E	
		F1.3.12.App_DeepL	
		F1.3.13.App_Gemini	
		F1.3.14.App_Luzia	
		F1.3.15.App_Microsoft.Designer	
		F1.3.16.App_Perplexity	
		F1.3.17.App_Presentations.ai	
		F1.3.18.App_Slidesai.io	
		F1.3.19.App_TutorAI	
		F1.3.20.App_Water.Mark.Remove	
		F1.3.21.App_WonderCraft	
		F1.4.AI more Used	multiple choice
		F1.5.1.Task_Data_Analysis	Six-point Likert scale
		F1.5.2.Task_Scientific_Literature_Search	
		F1.5.3.Task_General_Information_Search	
		F1.5.4.Task_Text_Generation	
		F1.5.5.Task_Concept_Understanding	
		F1.5.6.Task_Podcast_Creation	
		F1.5.7.Task_Presentation_Creation	
		F1.5.8.Task_Academic_Work_Elaboration	
		F1.5.9.Task_Generation_ audios	
		F1.5.10.Task_Generating_images	
		F1.5.11.Task_Generating_music	
		F1.5.12.Task_Generating_text_summaries	
		F1.5.13.Task_Generating_video_summaries	
		F1.5.14.Task_Generating_animated_videos	
		F1.5.15.Task_Generating_ideas	
		F1.5.16.Task_Problem_solving	
		F1.5.17.Task_Reviewing_texts	
		F1.5.18.Task_Translator	
		F1.6_Task Most Performed with AI"	multiple choice
		F1.7_Confidence	Six-point Likert scale (*)
SE-2	F2. Perception Experience: Current use of AI in higher education	F2.1_Perception_learning*	Six-point Likert scale (*)
		F2.2_Perception_time*	
		F2.3_Perception_quality*	
(*) With the possibility of marking the option 0 You have never used AI (lost cases)			

The third dimension aimed to determine university students' perceptions of the future impact of AI on higher education, its ethical aspects and potential risks. Meanwhile, the fourth dimension focused on understanding students' perceptions of the future impact of AI use in the labor market.

Table 4. Variable «E&P_IA». Dimensions 3 and 4

SE	Dimensions	Indicators	Measurement level
SE-3	F3. Perception: Impact of AI use in the future of higher education, ethical aspects and potential risks	F3.1_Perception_impact_Educational_Process	Six-point Likert scale
		F3.2_Perception_impact_Learning	
		F3.3_Perception_impact_Time	
		F3.4_Perception_impact_Quality	
		"F3.5_Perception_Ethics_Unethical"	
		F3.6_Opinion_Ethical_citeAI	
		F3.7_Perception_Risks_Errors	
		F3.8_Perception_Risks_CriticalThinking	
		F3.9_Perception_Risks_Biases	
		F3.10_Perception_Risks_Privacy	
		F3.11_Perception_Risks_Dehumanization	
SE-4	F4. Perception: Impact of future AI use in the accounting and financial profession	F4.1_Perception_Revolution_AccountingProfession	
		F4.2_Perception_Impact_AccountingProfession	
		F4.3_Perception_Impact_OtherProfessions	
		F4.4_Perception_Risk_AccountingProfession	
		F4.5_Perception_Job Opportunities_AccountingProfession	

Finally, the fifth dimension sought to assess university students' perceptions of their current training and preparedness in using artificial intelligence applications, both in the academic and professional fields, as well as their training needs and interests.

Table 5. Variable «E&P_IA». Dimension 5

SE	Dimensions	Indicators	Measurement level
SE-5	F5. Perception: AI preparation and its training needs: Ethical use and risk prevention	F5.1.Perception_ready_Apply_Academic_Field	Six-point Likert scale
		F5.2.Perception_ready_Ethical_Use_Academic_Field	
		F5.3.Perception_ready_Prevent_Risks_Academic_Field	
		F5.4. Perception_ready__Apply_Work	
		F5.5. Perception_ready__Ethical_Use_Work	
		F5.6.Perception_ready_Prevent_Risk_Work	
		F5.7_Do_You_Consider_Training_Use_Important_Academic_Field	
		F5.8_Do_You_Consider_Training_Use_Important_Work	
		F5.9_Do_You_Consider_Training_Ethical_Use_Important	
		F5.10_Do_You_Consider_Training_Risks_Important	
		F5.11.Perception_Training IA_Job Advantage	multiple choice
		F5.12.Interested_training_Use IA_Academic Field	Six-point Likert scale
		F5.13_Interested_Training_Use IA_Job Field	
		F5.14_Receive_Training_Prepared_Controls	
		F5.15_Subject_Include AI	multiple choice

RESULTS

The results obtained in dimension F1, "Experience: Current AI Use in Higher Education" (TABLE 6), indicate that:

a) Students currently use AI very little or only slightly. However, they use it more frequently for academic tasks and assignments (Mean F1.1.2 = 3.20) than in their daily lives (Mean F1.1.1 = 2.26).

b) Regarding the reasons for not using AI more extensively in their learning process, the primary reason is a preference for traditional methods or conventional approaches in completing academic tasks and assignments (Mean F1.2.3 = 3.57). Another significant reason is a lack of knowledge on how AI works and how to integrate it into their projects (Mean F1.2.2 = 3.26). Ethical or moral concerns about AI usage are less significant (Mean F1.2.4 = 2.90).

c) The most commonly used AI applications for academic tasks and assignments (FIGURE 2) are ChatGPT 3.5, followed by ChatGPT 4. These findings align with responses from the "F1.4.IAmostUsed" question, where students indicated that they had used ChatGPT 3.5 to a limited extent (Mean F1.3.6 = 3.63) and ChatGPT 4 even less (Mean F1.3.7 = 2.63).

d) The specific tasks or activities that students have performed the most, albeit infrequently, with the assistance of AI applications (FIGURE 1) include general information searches (Mean F1.5.3 = 3.20). These results are further confirmed by responses to the "F1.6_MostPerformedTask" question.

Table 6. Outcome of the assessment of «AI». Dimension: F1

(N= 145) ITEMS	MEAN	MODE (1-6)	S^2X	ITEM	MEDIA	MODA (1-6)	S^2X
F1.1.1	2,26	1	1,459	F1.3.17	1,19	1	,587
F1.1.2.	3,20	4	1,731	F1.3.18	1,14	1	,356
F1.2.1.	2,79	3	1,818	F1.3.19	1,14	1	,402
F1.2.2.	3,26	3	2,344	F1.3.20	1,14	1	,328
F1.2.3.	3,57	3	2,372	F1.3.21	1,13	1	,379
F1.2.4.	2,90	2	2,080	F1.5.1.	2,06	1	1,886
F1.2.5.	2,33	1	2,015	F1.5.2.	1,64	1	1,259
F1.2.6.	2,26	1	2,070	F1.5.3.	3,20	1	2,633
F1.3.1.	1,18	1	,468	F1.5.4.	2,77	1	2,899
F1.3.2.	1,23	1	,570	F1.5.5.	2,62	1	3,098
F1.3.3.	1,59	1	1,230	F1.5.6.	1,31	1	,646
F1.3.4.	1,14	1	,300	F1.5.7.	1,92	1	2,007
F1.3.5.	1,59	1	1,591	F1.5.8.	1,99	1	2,194
F1.3.6.	3,63	4	2,831	F1.5.9.	1,37	1	,886
F1.3.7.	2,63	1	2,916	F1.5.10.	1,74	1	1,761
F1.3.8	1,37	1	1,206	F1.5.11.	1,35	1	,882
F1.3.9.	1,14	1	,384	F1.5.12.	2,67	1	2,862
F1.3.10	1,23	1	,584	F1.5.13.	1,65	1	1,660
F1.3.11	1,26	1	,653	F1.5.14.	1,46	1	1,194
F1.3.12	1,51	1	1,738	F1.5.15.	2,30	1	2,530
F1.3.13	1,31	1	,841	F1.5.16.	2,59	1	2,785
F1.3.14	1,23	1	,663	F1.5.17.	2,28	1	2,815
F1.3.15	1,37	1	1,013	F1.5.18	2,31	1	3,327
F1.3.16	1,15	1	,380				

F1.4.AI more Used	N	%	"F1.6_Task Most Performed with AI"	N	%
00. Not at all	18	12,4%	01. None	21	14,5%
01. Adobe anima	1	0,7%	02. Data analysis	4	2,8%
02. Adobe Expre	2	1,4%	04. General information search	40	27,6%
03. Bard	6	4,1%	05. Search and generation of texts	15	10,3%
05. Bing	2	1,4%	06. Understanding concepts	11	7,6%
06. ChatGPT 3.5	68	46,9%	09. Preparation of academic papers	11	7,6%
07. ChatGPT 4	43	29,7%	10. Generation of audios	1	0,7%
10. Copilot	1	0,7%	11. Generation of images	6	4,1%
12. DeepL	2	1,4%	13. Generation of summaries from texts or documents	8	5,5%
13. Gemini	1	0,7%	16. Generating ideas	10	6,9%

(N= 145) ITEMS	MEAN	MODE (1-6)	S^2X	ITEM	MEDIA	MODA (1-6)	S^2X
19. TutorAI		1	0,7%	17. Problem solving		8	5,5%
				18. Text revision		3	2,1%
				19. Translator		7	4,8%

Figure 1. Outcome of the assessment of «ai». Dimension: f1: tasks or activities

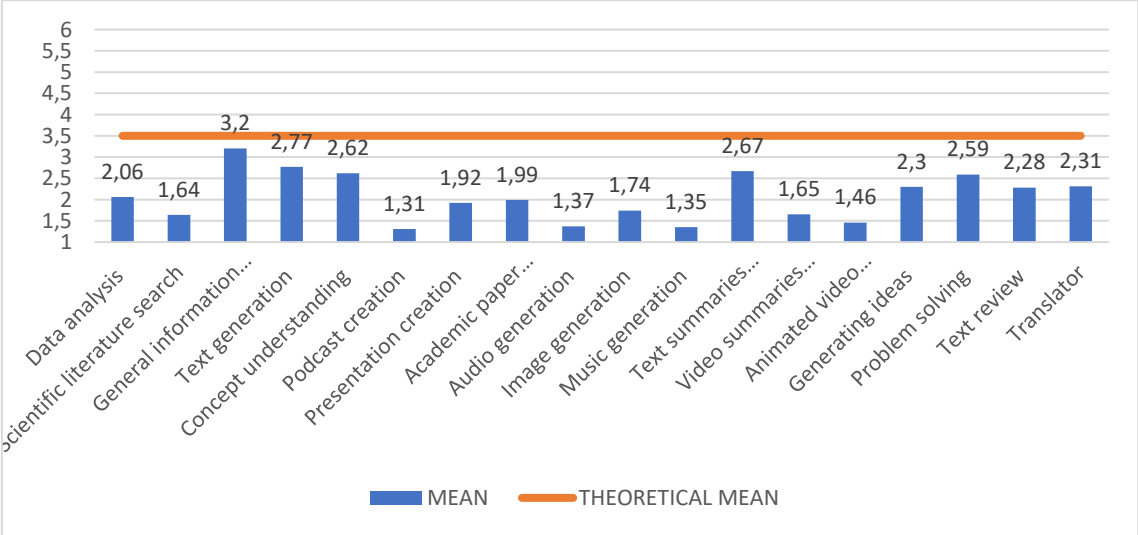
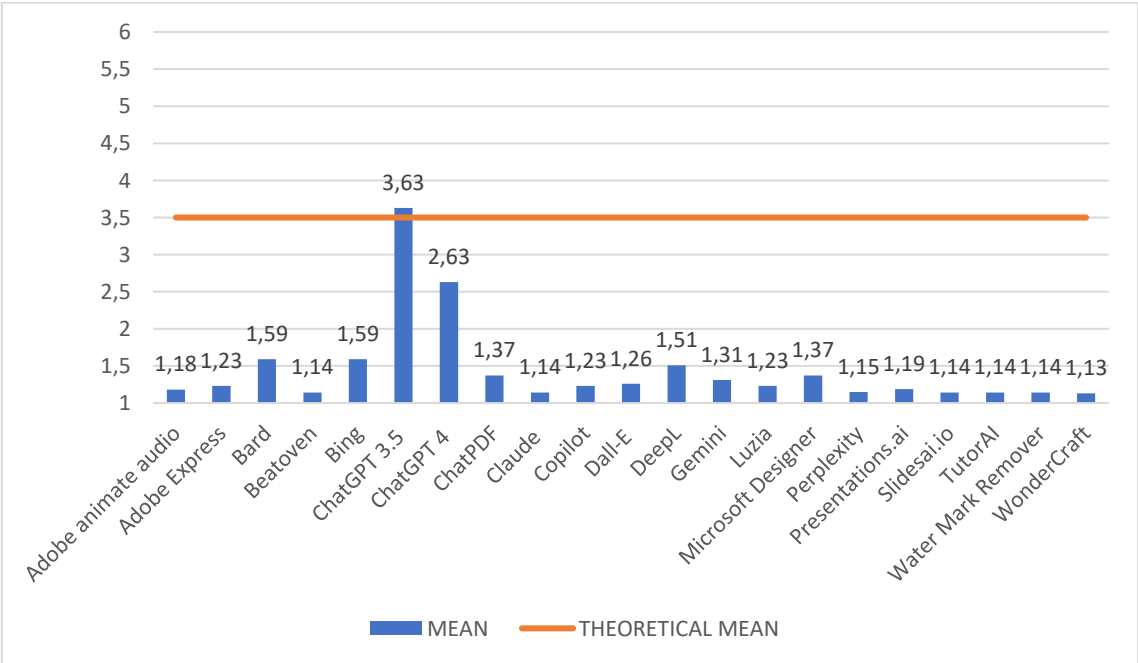


Figure 2. Outcome of the assessment of «AI». Dimension: F1: applications



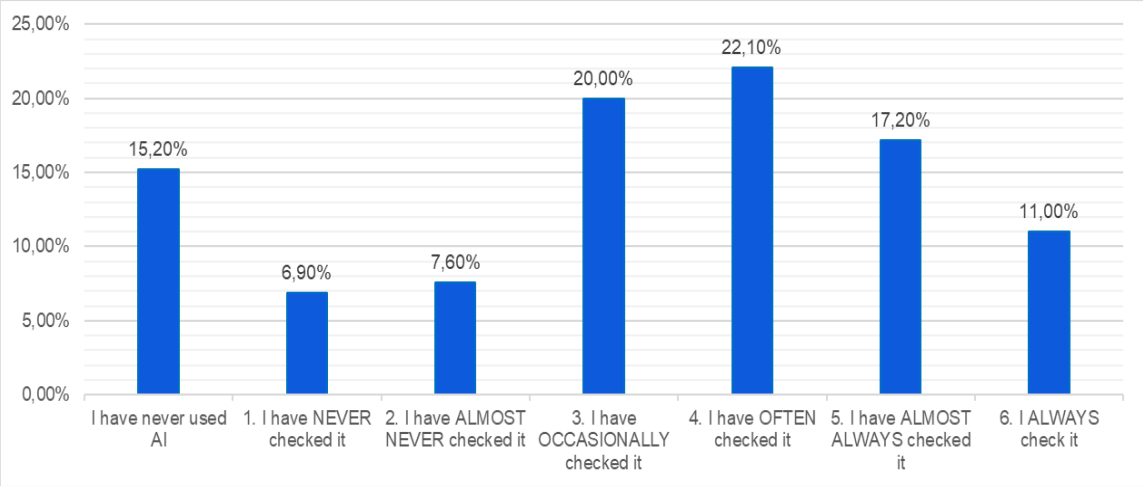
Finally, with respect to students' confidence in AI-generated content (TABLE 7, FIGURE 3), 20.0% of students reported that when completing academic tasks or assignments using artificial intelligence technology, they reviewed the generated content occasionally, while 22.1% reviewed it frequently (Mean F1.7 = 3.8).

Table 7. Outcome F1.7. Confidence. Dimension: F1.

ITEMS	(N= 123*) MEAN	MODE (1-6)	VARIANCE S^2X	
F1.7.	3,80	4	2,027	
F1.7_Confidence			N	%
0. I have never used AI			22	15,2%
1. I have NEVER checked it			10	6,9%
2. I have ALMOST NEVER checked it			11	7,6%
3. I have OCCASIONALLY checked it			29	20,0%
4. I have OFTEN checked it			32	22,1%
5. I have ALMOST ALWAYS checked it			25	17,2%
6. I ALWAYS check it			16	11,0%
TOTAL			145	100%

* N=123 as 22 students answered that they had never used AI.

Figure 3. Outcome F1.7. Confidence. Dimension: F1



Regarding dimension F2, "Perception of Experience: Current AI Use in Higher Education" (TABLE 8), where all mean values obtained exceeded the theoretical mean of the response scale (3.5), students perceived their experiences with AI in their learning process as moderately positive. This applies to their learning (Mean F2.1 = 3.91), the time spent completing their tasks and/or academic work (Mean F2.2 = 3.94) and the quality of their work (Mean F2.3 = 3.60).

Table 8. Outcome of the assessment of «AI». Dimension: F2.

ITEMS	(N= 123*) MEAN	MODE (1-6)	VARIANCE S^2X
F2.1	3,91	4	1,410
F2.2.	3,94	4	1,530
F2.3.	3,60	4	1,815

F2.1_Perception_learning	N	%	F2.2_Perception_time	N	%	F2.3_Perception_quality	N	%
0. I have never used AI	22	15,2%	0. I have never used AI	22	15,2%	0. I have never used AI	22	15,2%
1. Completely negative	5	3,4%	1. Completely negative	5	3,4%	1. Completely negative	13	9,0%
2. Strongly negative	10	6,9%	2. Strongly negative	13	9,0%	2. Strongly negative	10	6,9%
3. Moderately negative	21	14,5%	3. Moderately negative	16	11,0%	3. Moderately negative	27	18,6%
4. Moderately positive	53	36,6%	4. Moderately positive	51	35,2%	4. Moderately positive	46	31,7%
5. Strongly positive	23	15,9%	5. Strongly positive	26	17,9%	5. Strongly positive	17	11,7%
6. Totally positive	11	7,6%	6. Totally positive	12	8,3%	6. Totally positive	10	6,9%

* N=123 as 22 students answered that they had never used AI.

In dimension F3, "Perception: Impact of AI Use in Higher Education, Ethics, and Risks" (TABLE 9, FIGURE 4), the results show that students consider that in the near future, if AI technologies are incorporated into the learning process in higher education for academic tasks and assignments, the impact on education will be moderately positive (Mean F3.1 = 3.80), as well as on their learning (Mean F3.2 = 3.72), the time spent on tasks (Mean F3.3 = 4.22), and the quality of their work (Mean F3.4 = 3.82).

Turning our attention to the ethical aspect of AI, 30.30% of students moderately disagree that incorporating AI technologies for academic tasks is unethical, while another 30.30% moderately agree. When grouping students who agree and disagree to some extent, 53.80% express disagreement that AI use is unethical, while 46.10% agree it is unethical. Additionally, 32.4% of students moderately agree that it is necessary and ethical to cite AI use in academic tasks (Mean F3.6 = 4.04).

Regarding potential risks of AI technologies in higher education, students moderately agree that trusting AI-generated texts can lead to serious and irresponsible errors (Mean F3.7 = 4.33), that AI could make students overly dependent on technology, diminishing independent and critical thinking (Mean F3.8 = 4.13), that data privacy should be a major concern (Mean F3.10 = 4.23), and that AI could contribute to the dehumanization of learning by reducing interpersonal connections (Mean F3.11 = 3.97). However, students moderately disagree that AI use could lead to biases or discrimination (Mean F3.9 = 3.23).

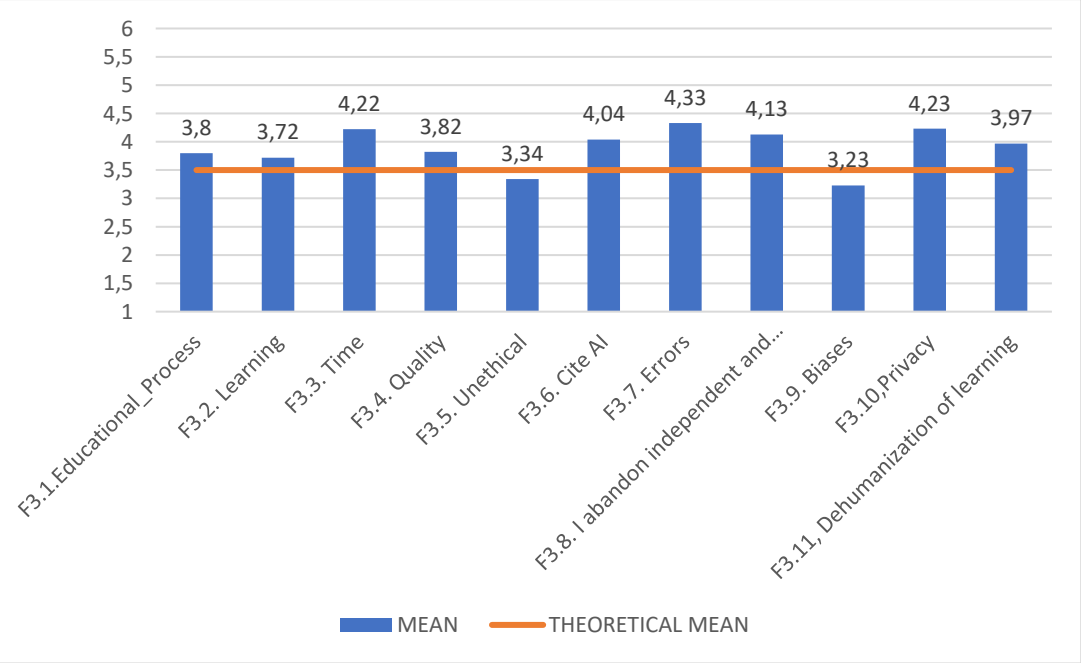
Table 9. Outcome of the assessment of «AI». Dimension: F3.

ITEMS	(N= 145) MEAN	MODE (1-6)	VARIANCE S^2X
F3.1.	3,80	4	1,758
F3.2.	3,72	4	1,687
F3.3.	4,22	4	1,618
F3.4.	3,82	4	1,440
F3.5.	3,34	3[a]	1,545
F3.6.	4,04	4	1,929

ITEMS	(N= 145) MEAN	MODE (1-6)	VARIANCE S^2X	
F3.7.	4,33	4	1,362	
F3.8.	4,13	4	1,629	
F3.9.	3,23	3	1,621	
F3.10	4,23	4	1,806	
F3.11	3,97	4	1,867	
"F3.5_Perception_Ethics_Unethical"			N	%
1. Completely disagree			13	9,0%
2. Strongly disagree			21	14,5%
3. Moderately disagree			44	30,3%
4. Moderately agree			44	30,3%
5. Strongly agree			17	11,7%
6. Completely agree			6	4,1%
F3.6_Opinion_Ethical_citeAI			N	%
1. Completely disagree			6	4,1%
2. Strongly disagree			15	10,3%
3. Moderately disagree			26	17,9%
4. Moderately agree			47	32,4%
5. Strongly agree			22	15,2%
6. Completely agree			29	20,0%

a. There are multiple modes. The smallest value is displayed.

Figure 4. Outcome of the assessment of «AI». Dimension: F3

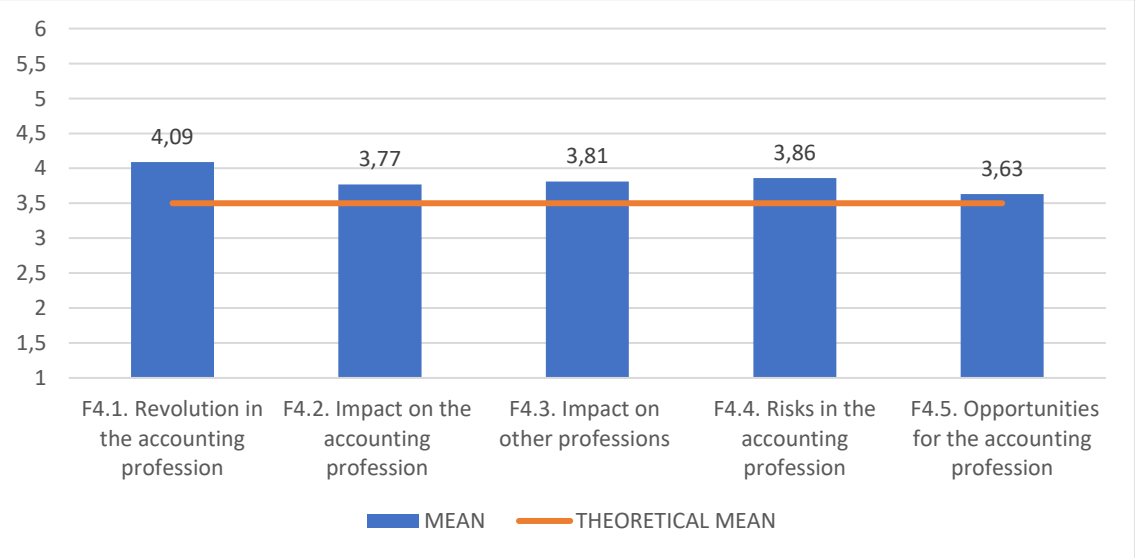


In dimension F4, "Perception: Future Impact of AI in Professional Careers" (TABLE 10, FIGURE 5), where all mean values were above the theoretical mean of the response scale (3.5), students consider it moderately likely that, in the future, AI will revolutionize professions related to accounting and finance (Mean F4.1 = 4.09). They are moderately optimistic about its impact on these professions (Mean F4.2 = 3.77) and on other professions (Mean F4.3 = 3.81). They also believe it is moderately likely that AI will pose a risk to jobs in accounting and finance (Mean F4.4 = 3.86), while also providing new opportunities (Mean F4.5 = 3.63).

Table 10. Outcome of the assessment of «AI». Dimension: F4.

ITEMS	(N= 145) MEAN	MODA (1-6)	MEAN
F4.1.	4,09	4	1,596
F4.2.	3,77	4	1,191
F4.3.	3,81	4	1,250
F4.4.	3,86	4	1,625
F4.5.	3,63	4	1,484

Figure 5 Outcome of the assessment of «AI». Dimension: F4



Finally, in dimension F5, "Perception: AI Preparedness and Training Needs" (TABLE 11), students believe they are not well prepared to apply and use AI in their learning process and academic work (Mean F5.1 = 3.28). They feel moderately prepared to use it ethically (Mean F5.2 = 3.57) and to prevent risks (Mean F5.3 = 3.31). Concerning its application in the workplace, they consider themselves even less prepared, with lower scores for applying and using AI (Mean F5.4 = 3.24) and risk prevention (Mean F5.6 = 3.23), although they feel moderately prepared to use it ethically (Mean F5.5 = 3.48).

Students moderately agree that receiving training on how to use AI applications for academic tasks and professional activities is important. They strongly agree that training is crucial for risk prevention.

Table 11. Outcome of the assessment of «AI». Dimension: F5.

ITEMS	(N= 145) MEAN	MODE (1-6)	S2X	ITEMS	MEAN	MODE (1-6)	S2X
F5.1.	3,28	4	1,687	F5.8	4,10	4	1,699
F5.2.	3,57	4	1,470	F5.9.	4,17	4	1,889
F5.3.	3,31	4	1,493	F5.10	4,34	4	1,894
F5.4.	3,24	4	1,754	F5.12.	4,28	4	1,729
F5.5.	3,48	4	1,710	F5.13.	4,45	6	1,874
F5.6.	3,23	4	1,611	F5.14.	4,13	4	1,406
F5.7.	4,20	4	1,758				

Additionally, when asked whether integrating AI learning into university education would provide a competitive advantage in their future profession, the majority responded affirmatively, with 35.2% saying "yes" and 35.9% stating "yes, but depending on other factors."

Table 12. Outcome "F5.11. Perception_AITraining_JobAdvantage"

	N	%
a) Yes, it would provide a competitive advantage.	51	35,2%
b) Yes, it could provide an advantage, but it depends on other factors	52	35,9%
c) I'm not sure if it would provide a competitive advantage	30	20,7%
d) I don't think it would provide a relevant competitive advantage.	4	2,8%
e) I don't know, I haven't thought about it.	8	5,5%
TOTAL	145	100%

Finally, when students were asked in which subjects they would like to see the training and use of artificial intelligence implemented, 36.6% answered that it should be implemented in some subjects, 32.4% considered that it should be implemented in all subjects, while only 4.8% answered that it should be implemented in none of them.

Table 13. Outcome "F5.15_Course_IncludeAI"

	N	%
a) None.	7	4,8%
b) Only for the TFG/TFM.	10	6,9%
c) In some.	53	36,6%
d) Only in those that have a practical nature	23	15,9%
e) Only in those that have a theoretical nature	5	3,4%
f) In all	47	32,4%
TOTAL	145	100%

DISCUSSION, CONCLUSION, AND IMPLICATIONS

In relation to Objective 1, results were obtained and the current use of artificial intelligence applications by university students analysed. It can be concluded that students still use AI relatively little in the learning process, for the completion of tasks and/or academic work, although to a greater extent than in their daily lives. Student behaviour can be attributed mainly to a preference for traditional methods or conventional approaches and to a lack of knowledge about how AI works and how to incorporate it in their projects. There is no significant influence of ethical or moral concerns, where there is frequent distrust of AI-generated content. Use is concentrated to the general search for information through the ChatGPT application.

Looking at the 2nd objective, it is concluded that perception of university students about their experience in the use of artificial intelligence applications for the completion of tasks and/or academic work, in their learning process, has been moderately positive. It is such, in both learning and in the time dedicated to the completion of tasks and/or academic work and its quality.

Responding to objective 3, the perception of the university student regarding the future impact of AI use in higher education, ethical aspects and potential risks, has been analysed, evidencing that:

- University students believe that, in the future, the impact of AI use in the educational process will continue to be moderately positive, both in learning and in the time needed to dedicate to completing tasks and/or academic work, as well as in its quality.
- In relation to university students' views on the ethical aspect of using AI for academic activities and/or assignments: it cannot be concluded that students consider it unethical, as the number of those who believe it to be unethical is almost equal to those who think

that it is not, with the former slightly outnumbering the latter. Additionally, students only moderately agree that citing the use of AI when utilizing it for their academic activities and/or assignments is necessary and ethical.

- Concerning the potential risks associated with the use of artificial intelligence technologies in higher education, university students moderately agree that relying on AI-generated texts could lead to serious and irresponsible mistakes. It is also felt that AI use might cause students to become overly dependent on technology and abandon independent and critical thinking. It is thought that privacy is a significant concern and that it could lead to the dehumanization of learning, resulting in a loss of interpersonal connection among students and between students and teachers. However, students are moderately in disagreement about the idea that AI technology use could lead to bias or discrimination.

Regarding the 4th objective, university students consider it moderately likely that the use of AI in the future will revolutionize professions related to accounting and finance. They are moderately optimistic about its impact on these and other professions, considering it moderately probable that it will provide new opportunities or put them at risk.

Finally, with reference to the 5th objective, it is evident that university students consider themselves poorly prepared to APPLY AND USE AI, as well as to prevent risks. In the meantime, students consider themselves moderately prepared to use it ethically in the academic field, feeling less prepared to use it ethically in the workplace. They find it more important to receive training on how to prevent risks than on how to apply and use it ethically. At the same time, students believe that integrating AI learning into university education, along with other factors, would provide them with a competitive advantage when practicing their profession in the future.

To address the implications of this study, the results obtained have been considered and similarly the implications pointed out in the work of Dawa, et al. (2024) on the use of ChatGPT. We must highlight that university students need to be provided with the necessary training in order to understand the most useful AI applications and their uses as support tools. This use extends to that of personal learning assistant (advisor or virtual tutor), both for carrying out tasks and/or academic work and for practicing the student's profession in the future. This will prevent students from focusing exclusively on the use of ChatGPT and general information searches, providing them with important knowledge about the functioning of AI applications and how to incorporate them into projects. Students will be guided regarding ethical challenges and vulnerabilities in AI use and receive instructions for its ethical use in the classroom, learning to navigate it as a facilitating tool for their learning and allowing them to develop critical thinking. On the other hand, examining the implications for university faculty, it would be necessary to offer teachers a training plan and provide them with programs or tools that allow not only for plagiarism detection but also verification of AI-generated content. Therefore, it is considered necessary to create adequate training programs with an ethical vision of AI, both for faculty and students, headlining the need to create greater ethical awareness and ensure responsible use.

The information and experience obtained in this first phase and following a "Design-Based Research" (DBR) strategy can assist in future lines of research. Within a subsequent pilot phase, an activity will be designed and applied in the classroom, through the use of the active learning methodology "flipped classroom," where students will use, among other tools, artificial intelligence in an ethical manner. This will allow us to conclude a preliminary version of our educational innovation (Prototype I), for which we will also plan and coordinate, through our Teaching Innovation Group (FECOCISO-GID), the delivery of workshops aimed at students on the ethical use of artificial intelligence.

Another future line of research will be the analysis of faculty training levels and their training needs, as well as their perception of the ethical aspects and potential risks of AI use. This is a clear limitation of this study, which focuses exclusively on students.

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