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Article

Use of Artificial Intelligence and its Relation to the Perception of its Impact on Higher Education

Uso de la Inteligencia Artificial y su Relación con la Percepción de su Impacto en la Educación Superior

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Abstract

Artificial intelligence (AI) has transformed higher education, optimizing teaching and assessment. This study analyzes the relationship between the use of AI and teachers' perception of its impact on education. A quantitative and correlational approach was used with a sample of 100 university teachers. A structured questionnaire was used to assess the frequency of use and attitude towards AI. The results indicate a significant positive correlation between the two variables. It is concluded that familiarity with AI influences its acceptance, although ethical and pedagogical challenges persist.

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Resumen

La inteligencia artificial (IA) ha transformado la educación superior, optimizando la enseñanza y la evaluación. Este estudio analiza la relación entre el uso de IA y la percepción docente sobre su impacto en la educación. Se empleó un enfoque cuantitativo y correlacional con una muestra de 100 docentes universitarios. Mediante un cuestionario estructurado, se evaluó la frecuencia de uso y la actitud hacia la IA. Los resultados indican una correlación positiva significativa entre ambas variables. Se concluye que la familiaridad con la IA influye en su aceptación, aunque persisten desafíos éticos y pedagógicos.

Palabras clave : inteligencia artificial, educación superior, percepción docente, aprendizaje automatizado, evaluación educativa.

Introduction

Higher education is at a turning point due to the irruption of artificial intelligence (AI). While digitization had already significantly transformed teaching and learning methods, the accelerated development of AI has elevated this transformation to an unprecedented level (Holmes et al., 2021). Tools such as virtual assistants, intelligent tutoring systems, and personalization algorithms are redefining how students interact with knowledge and how teachers design their pedagogical strategies (Cardona et al., 2023). The integration of AI in higher education has made it possible to optimize administrative and academic processes, automate assessments, and provide more personalized learning experiences (UNESCO, 2023). However, its implementation has generated debate among its promoters and critics, because while it offers opportunities to improve teaching efficiency, it also poses challenges related to the dehumanization of learning, equity in access to technology, and teacher training in digital competencies (Zawacki-Richter et al., 2019).

Since its incorporation in education, AI has demonstrated its ability to improve administrative efficiency, optimize student performance assessment, and deliver personalized learning experiences (UNESCO, 2023). Models from machine learning can process large

volumes of data and detect learning patterns, allowing content to be tailored to the individual needs of each student (Zawacki-Richter et al., 2019). Through intelligent tutoring systems, AI can identify learning difficulties in real time and provide immediate feedback, facilitating more autonomous and effective learning (Selwyn, 2022). According to recent studies, AI-based personalization of learning has shown positive results in knowledge retention and student motivation (Montiel-Ruiz & López-Ruiz, 2023). However, these innovations have also raised questions about the reliability of the algorithms and the possible displacement of the traditional role of the teacher.

While artificial intelligence has established itself as an innovative tool in academia, its adoption is not without controversy. (Larson et al., 2024) Recent research has raised concerns about the quality of AI-mediated learning, the potential dehumanization of teaching, and the over-reliance on algorithms in educational decision-making (Aoun, 2017). On the other hand, algorithmic biases in AI systems can generate inequities in assessment and content recommendation, affecting students with different socioeconomic profiles (Holmes et al., 2021). Likewise, the lack of training of university teachers in the use of these technologies represents a significant barrier to their effective integration in the classroom (Cardona et al., 2023).

The impact of artificial intelligence in higher education has been addressed from different perspectives in the academic literature. While some researchers highlight its potential to facilitate teaching and learning, others warn about the challenges involved in its implementation in university contexts. For example, Zawacki-Richter et al. (2019) argue that AI can improve teaching by enabling more personalized and accessible learning experiences, while Selwyn (2022) argues that its integration without a regulatory framework and adequate teacher training could generate more problems than benefits. Along the same lines, Montiel-Ruiz and López-Ruiz (2023) suggest that the use of AI in higher education should be accompanied by training strategies for teachers, ensuring that these tools are used effectively and complement traditional teaching rather than replace it. This contrast in perspectives evidences the need to deepen the relationship between the use of AI and the perception that teachers have of its educational impact. (Otero & Pedraza, 2021).

Another crucial aspect is the transformation of the role of the university teacher in an increasingly automated educational environment. Artificial intelligence is not only changing the way

knowledge is imparted, but also the competencies and skills that teachers must develop. (Salmeron & Torres, 2023) As AI takes over functions traditionally performed by educators, such as performance assessment or content personalization, teachers face the challenge of redefining their role as facilitators of learning in a digitized ecosystem (Montiel-Ruiz & López-Ruiz, 2023). In this sense, it is imperative to ensure that teacher training evolves along with technological advances so that educators can take advantage of AI opportunities without losing the pedagogical essence of university teaching.

The debate on the integration of AI in higher education must also address ethical and privacy issues. The collection and analysis of student data to personalize learning raises concerns about data protection and the right to privacy (UNESCO, 2023). How can universities ensure responsible use of AI without compromising student autonomy? What measures should be implemented to avoid bias in AI systems? These questions are fundamental to understand the impact of artificial intelligence in education and establish appropriate regulations for its implementation (Zawacki-Richter et al., 2019).

Despite the growing adoption of AI in higher education, doubts persist about how university teachers perceive its impact on teaching.(Cordón, 2023)While some studies have addressed the benefits of AI in terms of efficiency and personalization of learning, there is little empirical evidence on the relationship between the frequency of use of these tools and teachers' perception of their usefulness in higher education. This generates a knowledge gap that should be addressed through studies that analyze how the adoption of AI by teachers affects their perception of the impact of this technology on teaching. (Perez-Escoda et al., 2020).

In this sense, the present study seeks to answer the following research question: Is there a relationship between the use of artificial intelligence and university teachers' perception of its impact on higher education? Based on this question, the objective of the research is to analyze the relationship between the use of artificial intelligence and university teachers' perception of its impact on higher education. To this end, a quantitative study will be conducted to assess whether there is a significant correlation between the experience of using AI and the teachers' assessment of its benefits or limitations in the academic environment. Understanding this relationship is key for educational institutions, as it will allow the development of more effective strategies for the integration of AI in

teaching, ensuring that its implementation responds to the real needs of the university ecosystem and contributes to the improvement of educational processes.

Materials and methods

The present study was designed with the objective of analyzing the relationship between the use of artificial intelligence tools and university teachers' perception of their impact on higher education. For this purpose, the following methodological steps were defined:

A quantitative and correlational approach research was chosen, since it seeks to measure the relationship between two specific variables: the use of artificial intelligence and the perception of its educational impact. This type of study allows establishing statistical relationships between variables without directly manipulating them (Hernández-Sampieri & Mendoza, 2018).

The target population is constituted by university teachers who have incorporated artificial intelligence tools in their educational practice. Due to the specific nature of the population, non-probabilistic convenience sampling was used, selecting teachers who voluntarily participated in the study. This method is common when an accessible sample is available and relevant information is sought to be obtained efficiently (Hernández-Sampieri et al., 2014).

A minimum sample size of 100 participants was established, considering representativeness criteria and the possibility of performing significant statistical analyses. The inclusion criteria were: teachers with at least one year of experience in higher education and who have used an artificial intelligence tool in their teaching work.

For data collection, a structured questionnaire was designed in digital format, composed of two main sections:

Sociodemographic data: Questions on age, gender, years of teaching experience and academic area were included.

Level of AI use: Assessed using a scale with four categories: *Never, Rarely, Several times a week* and *Every day*.

Perception of AI impact: Measured with a five-point Likert scale, where 1 represents a *very negative* perception and 5 *a very positive one*.

The questionnaire was administered to teachers from different academic areas and levels of experience. The results indicated that most teachers have used AI tools in their educational practice, although with variations in the frequency of use. To ensure the validity of the instrument, a pilot test was conducted with a small group of participants, which allowed the questions to be adjusted and clarified before their final application.

Data collection was carried out remotely, using an online survey platform (Google Forms). Before completing the questionnaire, participants were provided with a detailed explanation of the objectives of the study and their informed consent was requested, guaranteeing confidentiality and the exclusive use of the data for academic purposes.

The data collected were processed and analyzed using SPSS v30 statistical software. Descriptive statistical tests were performed. Pearson's correlation coefficient was applied to determine the relationship between the use of AI and the perception of its impact on higher education. This coefficient is suitable for measuring the strength and direction of the linear relationship between two quantitative variables (Hernández-Sampieri & Mendoza, 2018). A statistical significance level of 0.05 was considered to assess the relevance of the results obtained.

Results

The present study analyzed the relationship between the use of artificial intelligence tools and university teachers' perception of their impact on higher education. The findings obtained from the analysis of the data collected are presented below.

Table 1. *Descriptive statistics on age.*

Age		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	22	22.0	22.0	22.0
	2	22	22.0	22.0	44.0
	3	22	22.0	22.0	66.0
	4	17	17.0	17.0	83.0
	5	17	17.0	17.0	100.0
	Total	100	100.0	100.0	

The sample was composed of **100 university teachers**, distributed in five age ranges. The most representative age groups were those

under 30 years old (22%), **30-39 years old (22%)** and **40-49 years old (22%)**, which together made up **66% of the sample**.

On the other hand, **17% of the teachers** were between **50-59 years old**, and another **17% were 60 years old or older**. These results show a balanced age distribution among the participants, with a higher representation of young and middle-aged teachers.

Table 2. *Descriptive statistics on gender.*

Genre					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	38	38.0	38.0	38.0
	2	27	27.0	27.0	65.0
	3	35	35.0	35.0	100.0
	Total	100	100.0	100.0	

The sample was composed of **100 university teachers**, with a relatively equal distribution in terms of gender. **Thirty-eight percent of the participants** identified with category **1 (Male)**, while **27%** belonged to category **2 (Female)**.

On the other hand, **35% of respondents** chose option **3 (I prefer not to say)**, indicating a considerable proportion of teachers who chose not to disclose their gender identity.

These results reflect a diversity in the sample and suggest the importance of considering identity factors in the analysis of perceptions of artificial intelligence in education.

Table 3. *Descriptive statistics on the academic area.*

Academic_Area					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	26	26.0	26.0	26.0
	2	20	20.0	20.0	46.0
	3	24	24.0	24.0	70.0
	4	30	30.0	30.0	100.0
	Total	100	100.0	100.0	

The distribution of teachers according to their area of knowledge showed that **30% of the participants** belonged to **category 4**, followed by **26%** in **category 1**. **Category 3** teachers accounted for

24%, while **category 2** had the lowest representation with **20%** of the sample.

These results reflect a balanced participation of teachers from different disciplines, although with a greater presence in the academic area represented by **category 4.**

Table 4. *Descriptive statistics on the experience.*

Experience					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	13	13.0	13.0	13.0
	2	15	15.0	15.0	28.0
	3	20	20.0	20.0	48.0
	4	18	18.0	18.0	66.0
	5	21	21.0	21.0	87.0
	6	13	13.0	13.0	100.0
	Total	100	100.0	100.0	

The analysis of teaching experience shows a wide variability in the years of teaching in higher education. The largest group corresponds to **category 5 (21%)**, followed by **category 3 (20%)** and **category 4 (18%)**.

Less represented were teachers with **less than 5 years of experience (category 1, 13%)** and those with **more than 20 years (category 6, 13%)**. These results suggest that the majority of teachers in the sample have between **11 and 20 years of** experience in higher education.

Table 5. Descriptive statistics on the use of AI.

Usage_IA					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	19	19.0	19.0	19.0
	1	81	81.0	81.0	100.0
	Total	100	100.0	100.0	

The results show that the vast majority of teachers **(81%)** have used artificial intelligence tools in their teaching practice, while **19%** indicated that they have not used AI.

These results evidence a high level of adoption of artificial intelligence in higher education within the sample analyzed.

Table 6. *Descriptive statistics on the frequency of AI use.*

Frequency_Use_IA					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	19	19.0	19.0	19.0
	1	4	4.0	4.0	23.0
	2	11	11.0	11.0	34.0
	3	31	31.0	31.0	65.0
	4	35	35.0	35.0	100.0
	Total	100	100.0	100.0	

Among teachers who reported using AI, the frequency of use varied considerably. **Thirty-five percent** of respondents indicated that they use AI **every day (category 4)**, while **31%** reported using it **several times a week (category 3)**.

Eleven percent use it **a few times a month (category 2)**, while **4 percent** reported using it **rarely (category 1)**. Finally, **19%** of the participants reported not using AI at all (**category 0**).

These results indicate that, although adoption of AI is high, its frequency of use varies significantly among teachers, with a trend toward frequent use.

Table 7. *Descriptive statistics of the numerical variables.*

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Personalization_Learning	100	0	4	2.45	1.553
Efficient_efficiency_evaluation	100	1	5	3.75	1.192
Dehumanization_Education	100	1	5	3.80	1.137
Inequality_Student	100	1	5	3.70	1.049
Integration_IA	100	1	5	3.90	1.030
General_Attitude_IA	100	1	5	4.33	1.364
Valid N (listwise)	100				

Analysis of the numerical variables on a scale of **1 to 5** shows a generally positive trend toward artificial intelligence in higher education. The main findings are presented below:

General Attitude toward AI obtained the highest mean (**M = 4.33, SD = 1.364**), indicating that most teachers have a favorable perception regarding the implementation of AI in the educational setting.

Integration of AI in Education also presented a high rating (**M = 3.90, SD = 1.030**), suggesting that teachers consider the inclusion of AI in teaching relevant.

Efficient Assessment through AI and **Dehumanization of Learning** obtained similar values (**M = 3.75, SD = 1.192** and **M = 3.80, SD = 1.137**, respectively). This indicates that while teachers recognize the ability of AI to optimize student assessment, they also perceive a risk of dehumanization in teaching.

Inequality in AI Use had a mean score of **3.70 (SD = 1.049)**, indicating a moderate concern about possible inequalities derived from access to these tools.

Personalization of Learning obtained the lowest mean (**M = 2.45, SD = 1.553**), suggesting that teachers do not perceive as strongly the ability of AI to personalize learning compared to other dimensions analyzed.

These results indicate that, in general, teachers have a positive attitude towards AI and its integration into education, although concerns related to equity and the impact on human interaction within the teaching process persist.

Table 8. *Pearson correlation*

Correlations

		Usage_IA	General_Attitude_IA
Usage_IA	Pearson Correlation	1	.982**
	Sig. (2-tailed)		<.001
	N	100	100
General_Attitude_IA	Pearson Correlation	.982**	1
	Sig. (2-tailed)	<.001	
	N	100	100

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

A **Pearson** correlation analysis was performed to assess the relationship between the **use of artificial intelligence** in teaching

and the general attitude of teachers towards its implementation in higher education.

The results showed a strong and significant positive correlation between both variables ($r = 0.982$, $p < 0.001$). This indicates that the greater the use of AI tools, the more favorable the teachers' attitude towards their integration in the educational environment.

Given that the p-value is less than 0.001, it can be affirmed that the observed relationship is not a product of chance and that there is a strong association between these two variables. This finding supports the idea that familiarity with artificial intelligence influences the positive perception of its benefits in university education.

Discussion

The results obtained in this study reinforce the relationship between the use of artificial intelligence (AI) in higher education and the attitude of teachers towards its implementation. The positive correlation found indicates that those teachers who use AI more frequently have a more favorable perception of its educational impact. These findings are consistent with previous research suggesting that exposure to AI improves confidence in its pedagogical usefulness (Zawacki-Richter et al., 2019; Cardona et al., 2023).

However, although the data reflect a generally positive attitude towards AI, studies such as those by Holmes et al. (2021) and Selwyn (2022) warn about challenges and limitations in its implementation, such as the dehumanization of teaching, lack of teacher training, and algorithmic biases. In this sense, further research is needed to analyze not only the attitude of teachers, but also the actual effects of AI use on teaching and learning.

One of the main lines of future research could focus on assessing the impact of AI on student learning outcomes. So far, most studies have approached AI from a teaching perspective, but the question of how the use of AI influences students' knowledge retention, motivation, and academic performance remains open. Research such as that of Montiel-Ruiz and Lopez-Ruiz (2023) suggests that AI can enhance personalization of learning, but more longitudinal studies are needed to measure its long-term effectiveness.

Another key aspect that requires further exploration is equity in access to AI in higher education. While some universities have adopted advanced AI tools, other institutions lack the infrastructure and knowledge to implement them effectively (UNESCO, 2023). Future studies could analyze the technological gaps between different educational contexts and propose strategies to reduce them.

It is also essential to continue researching teacher training in digital competencies and the impact of AI on university pedagogy. The literature indicates that many teachers still do not have sufficient technical and pedagogical knowledge to integrate AI effectively in their classes (Aoun, 2017; Cardona et al., 2023). Future studies could focus on evaluating teacher training programs in AI and designing effective models for its implementation in higher education.

Finally, a key question arising from these findings is to what extent AI should be used in education without compromising human interaction and traditional pedagogical principles. Future research could explore the ideal balance between learning automation and the role of the teacher as facilitator, considering both pedagogical effectiveness and the ethical and humanistic values of education (Holmes et al., 2021; Selwyn, 2022).

This study contributes to the understanding of the impact of AI in higher education, but also opens new research questions that require in-depth exploration. To ensure an effective and ethical implementation of AI in the university setting, it is essential to continue researching its impact on learning, equity of access, and teacher training, thus promoting a use of technology that enhances education without compromising its human essence.

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