



**Teaching Organizational Culture as a Key Factor for the
Adoption of Artificial Intelligence in University Education.**

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Summary

This quantitative and correlational study analyzes the influence of artificial intelligence (AI) on the transformation of learning from the perspective of teaching organizational culture. A total of 168 teachers and 124 academics from the National Open and Distance University (UNAD) participated through surveys and semi-structured interviews. The results show a positive and significant correlation ($r = 0.81$; $p < 0.001$) between the frequent use of AI tools



and the design of technology-mediated teaching strategies, as well as between the variables of perceived competence and the intention to continue innovating ($r = 0.76$; $p < 0.001$). A negative correlation ($r = -0.34$; $p < 0.01$) was identified with regard to ethical concerns, highlighting the need to strengthen critical digital literacy and institutional ethical frameworks. The findings confirm that a favorable organizational culture drives the sustainable and responsible adoption of AI, consolidating its role as a transformative force in learning and professional development for teachers, toward the consolidation of the university's organizational culture.

Artificial intelligence, Organizational culture, Ethics of technology, Educational innovation, Teaching, Educational technology.

Introduction

The rapid emergence of AI in learning has raised high expectations among universities and, in particular, teachers, who, in their desire to stay ahead of technological advances, find themselves in a race against time to become qualified and adopt generative AI in their academic interactions. Their motivations are daily innovation in AI, the institutional role, fostering an organizational culture, the demands of the environment, and the interactive dynamics of its actors, which lead them to seek new horizons of methodological and didactic innovation, encouraging their students to revive critical and creative thinking.

This study allows us to analyze the role of teaching organizational culture, marked by rapid adoption of AI in academic processes, permeated by educational innovation, and undergoing gradual changes in awareness, consciousness, and rapid learning models, in conditions of both uncertainty and motivation that come with the challenge of acting in a technological era of continuous learning to learn in relation to generative AI.

Teachers, entrepreneurs, students, graduates, and academic leaders from Colombia's National Open and Distance University (UNAD) participated in the study, demonstrating high levels of use, interest, and commitment to the incorporation of generative AI. There were significant correlations in variables such as perceived competence, pedagogical design, intention to innovate, institutional perception and commitment, as well as ethical and regulatory uncertainties regarding AI, with an analysis of opportunities and challenges for teachers in the transformation of education.

Theoretical basis

Artificial intelligence and learning processes

Artificial intelligence (AI) has emerged as a transformative force in educational settings and in the university environment, where it redefines learning processes and strengthens autonomous and meaningful learning. Its incorporation into teaching practices has led to a paradigm shift that involves the development of new skills (Muñoz & Delgado, 2025), policy



regulation, ethical frameworks, and an organizational culture of openness to change and innovation (Loayza-Maturrano, 2025).

According to Sánchez Ramos & Jaimes Villamizar (2023), the incorporation of AI into learning emphasizes the priority of renewing educational strategies to ensure their relevance in a globalized and competitive context, due to their degree of innovation, reconfiguring pedagogical methodologies and strategies. This transformation is enhanced by the development of more adaptive, personalized environments with immediate feedback (Kroff, et al., 2024, p. 121) under conditions of equitable access to learning, addressing the ethical and technical challenges for educational transformation (Monge Vera et al., 2024).

Teaching organizational culture

The transformation of the teaching organizational culture is decisive in the process of incorporating AI for learning, as it entails a willingness to undergo structural and strategic change (Mireles, 2025, p. 3354) and implies its reorganization (Rondón, 2023). Thus, educational leadership and the continuous training of human talent consolidate intelligent, resilient university ecosystems that are adaptable to the demands of the global environment (Riofrio et al., 2025, p. 2216). Institutional willingness and academic leadership are fertile ground for the effective adoption of emerging technologies.

According to Fajardo et al. (2020), openness to change includes a multifaceted and holistic perspective, with profound transformations, (Gómez, 2025) of organizational culture that recognizes the strategic value of educational innovation and promotes the strengthening of its intellectual capital (Fajardo et al., 2020). Effectiveness in the face of AI depends on previous experience, institutional support, and continuous training, as the role of teachers is redefined and processes are rethought in order to educate new generations to face the challenges and opportunities of the digital age (Cornelio et al., 2024).

Autonomous motivation is essential for the effective adoption of AI and is enhanced when teachers perceive that AI improves their teaching practice, generating commitment, innovation, and academic performance, as well as personalized learning and continuous, dynamic feedback. Figueroa (2023) adds that educational innovation with AI requires reflective, motivated, and ethically committed teachers, in a process of sensitization and awareness that transforms practices, pedagogical, methodological, and instructional paradigms, as well as organizational culture according to Schein (cited by Fajardo et al., 2020), with its values, beliefs, norms, symbols, languages, organizational structures, and leadership styles, with the rise of AI (Ricardo & Morales, 2024).

Teaching challenges in the implementation of AI

The perceived opportunities of AI are contrasted with teachers' uncertainties about the ethical challenges to be faced in order to be part of the new educational scenarios of the future.



Aparicio & Gallego (2024) highlight challenges such as building trust in AI, student empowerment, excessive dependence on technology, educational equity, protection of sensitive data, and cultural diversity in education, proposing the implementation of clear regulatory policies to mitigate their effects.

Ramírez & Litardo (2025) state that teachers relate their ethical concerns to the widening digital divide caused by misinformation, equity in access, loss of critical thinking, data protection, plagiarism, and bias in information. In this regard, Chávez & Caicedo (2025) seek to promote AI solely as a support tool, “with solid ethical and regulatory frameworks, cross-cutting training processes, critical reflection on technology in education, and the construction of an ethically responsible and technologically relevant university” (p. 66).

For Rojas et al. (2025), AI training processes are structured around comprehensive competency models, such as the ED-AI Lit model proposed by Allen and Kendeou (2023), which highlights six key dimensions: knowledge, evaluation, collaboration, contextualization, autonomy, and ethics. Therefore, there is a need to train teachers who are capable of understanding, applying, and critically questioning the adoption of AI. The objective of this research is to perform a correlational analysis between the study variables that involve the rise of artificial intelligence in learning processes and their interrelation with educational transformation and university teaching organizational culture.

Methodology

The research was conducted using a quantitative and correlational approach. The design was non-experimental and cross-sectional, with a structured survey administered to university teachers, consisting of 48 items on a five-point Likert scale, aimed at exploring the opportunities and challenges that AI represents in the field of education. The sample was selected for convenience and includes 168 teachers, 64 entrepreneurs, 36 participants in AI training workshops, and 24 academic leaders involved in curriculum innovation processes, who were interviewed using a semi-structured interview to gain insight into the institutional vision of educational transformation and technological integration.

Data systematization was performed using descriptive and correlational statistical analysis in SPSS software, analyzing Pearson's coefficient, as well as thematic triangulation with the findings. The study took ethical principles into account, ensuring informed consent, confidentiality, and anonymity for participants.

Results

In accordance with the identified teaching organizational culture, the educational transformation evidenced, and its interaction with AI tools, we proceed to analyze the average use of AI tools in their pedagogical practice, the exploration and use of specific tools, and the degree of competence developed in terms of taking advantage of their benefits.



Table 1

Uses of AI in teaching activities and their relationship with organizational culture

Components of organizational culture	Average	Mode	Standard deviation
I frequently use AI tools in my practice – Established AI standards	4.57	5	±0.67
I have designed AI-mediated teaching strategies. Leadership styles	4.37	5	±0.80
I have explored various AI tools (ChatGPT, Copilot, etc.) – AI symbols and languages	4.59	5	±0.71
I share best practices in AI with my colleagues – Institutional values AI	4.44	5	±0.76
I feel highly competent in the educational use of AI tools – Beliefs and organizational structures related to AI	4.23	5	±0.89

Note: The table presents the mean, mode, and standard deviation statistics for five statements about the use of AI in the teaching context, on a scale from 1 to 5.

Analysis of the results confirms that there is a high level of adoption and integration of artificial intelligence (AI) tools in teaching practice, particularly a marked frequency in pedagogical and didactic practice, as well as in techno-pedagogical design.

The averages range from 4.23 to 4.59, indicating a high level of agreement on the use of AI tools. The highest average corresponds to the exploration of various AI tools (4.59), where responses extended not only to the use of Chat GPT, but also to Perplexity, DeepSeek, Gemini, among others, and to a greater extent Copilot, as teachers have access to the premium version with their institutional email, which they have been able to take advantage of by designing PROMTS with educational impact.

This is closely followed by frequent use in practices (4.57), which demonstrates an active and positive attitude towards the incorporation of these technologies. Although the lowest average score is for perceived competence (4.23), this suggests that, in general, teachers feel capable, although there is room for improvement in their skills. Overall, the averages reflect a teaching community committed to innovation and the pedagogical use of AI, coupled with a university organizational culture that promotes teacher training in new technologies through the continuous offering of AI-based diploma courses, open courses, seminars, and MOOCs. They even have their own institutional chatbot linked to Open AI and regulatory



provisions such as the creation of avatars with artificial intelligence for their teaching interactions.

In general, all deviations are moderate, ranging between ± 0.67 and ± 0.89 . The least variability is observed in the frequent use of AI tools (± 0.67), indicating consensus among teachers. The greatest dispersion occurs in the perception of competence in the educational use of AI (± 0.89), suggesting significant differences in the level of confidence or mastery among participants. These figures show that, although the use of AI is quite widespread, there is still diversity in how it is perceived and applied depending on the context and experience of each teacher. The high mode in all statements reveals full identification with these practices, reinforcing the idea of a teaching community highly committed to integrating AI into their educational work.

A strong positive relationship is identified between the use of AI tools in teaching activities and aspects of organizational culture. Averages above 4.2 and modes of 5 indicate a favorable and widespread perception among teachers toward the integration of AI. The component with the highest average (4.59) corresponds to the exploration of various AI tools, suggesting a significant openness to new technological symbols and languages.

Table 2

Educational level × Frequent use of AI tools

Educational level	Average AI usage	Mode	N (teachers)
Specialization	4.55	5	62
Master's degree	4.58	5	102
Doctorate	4.42	5	25

Note: Frequent use of AI according to teacher training level on a scale from 1 to 5.

Likewise, the frequent use of AI in pedagogical practice (4.57) reflects that institutional norms are aligned with innovation. Although the teaching competence component in AI has the lowest average (4.23) and the highest standard deviation (± 0.89), indicating greater variability in self-perception of skills, it still shows a positive trend. Overall, the results show that organizational culture is facilitating the adoption of AI in teaching practice, especially in terms of leadership, shared values, and structures that promote collaborative learning.

The relationship between frequent use of artificial intelligence (AI) tools according to educational level shows that teachers with a master's degree have the highest average use (4.58), followed by those with a specialization (4.55) and a doctorate (4.42), indicating greater adoption among those with master's-level training. The consistent mode of 5 at all levels suggests a widespread tendency toward intensive use of AI, regardless of educational level.



Furthermore, the larger sample size in the Master's group (102 teachers) provides greater stability to the results. The data reflects a high frequency of AI use in teaching, with a slight advantage in the Master's group and a clear growing trend among teachers to advance their levels of educational qualification.

Table 3

Years of teaching experience × Frequent use of AI

Years of teaching experience	Average usage	AI Mode	N (teachers)
	4.60	5	16
1-3 years	4.67	5	42
4-6 years	4.50	5	47
6-10 years	4.48	5	29
>10 years	4.51	5	79

Note: Frequent use of AI according to teaching experience. Scale from 1 to 5.

The use of AI tools is high across all experience levels, with averages ranging from 4.48 to 4.67. Teachers with 1–3 years of experience have the highest average (4.67), suggesting that younger professionals are adopting AI more intensely. In contrast, teachers with more than 10 years of experience have a slightly lower average (4.51). The mode of 5 in all groups reinforces the general trend toward frequent use of AI, regardless of experience. However, those with more than 10 years of experience also show high usage, suggesting that adoption does not depend strictly on professional age, which rules out the application of differentiated training strategies and instead encourages the exchange of experiences between generations of teachers.

Table 4

Frequent use in the design of AI-mediated teaching strategies

Strategy design with AI	Average frequent use of AI	% Teachers	N (teachers)
1 – Never	3.33	1.78%	3
2 – Almost never	3.67	5.36%	9
3 – Sometimes	4.16	13.69%	23
4 – Almost always	4.54	39.88%	67
5 – Always	4.85	39.29%	66



Note: List of use frequency variables and AI-mediated instructional design.

Although teachers show frequent and widespread use of AI tools in their academic interactions, the results reveal that specific application in the design of teaching strategies is growing. While 79% of teachers indicate that they design teaching strategies with AI (almost always or always), there is a significant percentage (around 21%) who use it only occasionally or almost never in their teaching and techno-pedagogical strategy planning processes.

Table 5

AI-oriented Institutional conditions and organizational culture

Variable	Average	Mode
My institution has the necessary resources to implement AI.	4.16	5
I receive technical or pedagogical support for using AI.	4.06	5
There is an organizational culture that favors innovation with AI.	4.11	5

Note: The table shows the aspects of organizational culture perceived by teachers with regard to the adoption of artificial intelligence (AI).

The results reflect a positive institutional perception, albeit with some nuances. Although most teachers recognize that their institution promotes innovation and provides resources, the levels of appreciation are slightly lower compared to the enthusiasm and personal interest they express. This difference represents a valuable opportunity to strengthen policies, optimize resources, and provide support that is more aligned with the innovative commitment shown by teachers.

We proceed with the calculation of Pearson's correlation coefficient between the values obtained, whose interpretation focuses on the r and p values, where the p value determines whether the correlation is statistically significant and the r value establishes that an $r \approx +1$ is a strong positive correlation, an $r \approx -1$ refers to a strong negative correlation, and a value of $r \approx 0$ defines that there is no linear correlation. The first variable cross-tabulation compares variable X, frequent use of AI tools in my practice, and variable Y, design of specific AI-mediated teaching strategies, from which we obtain: $r = 0.81$ and $p < 0.001$, reflecting a positive, strong, and statistically significant correlation: the more frequently AI tools used in practice, the greater the probability that the teacher is designing AI-mediated teaching strategies. This relationship indicates that the use of AI is not only instrumental, but also has a direct impact on pedagogical planning.

Crossing the variable X of pedagogical competence in the use of AI and the variable Y of interest in continuing to innovate with AI for learning processes, with a Pearson coefficient result of $r = 0.76$ and $p < 0.001$, demonstrates a highly significant relationship: the greater the



perception of pedagogical competence with AI, the stronger the teacher's interest in continuing to innovate with these tools in their educational practice, in order to strengthen pedagogical capacities and innovation in AI-assisted learning experiences. Therefore, it is necessary to develop proposals for continuing education, not only from a technical standpoint, but also in terms of their creative integration into learning.

The correlation between variable X on privacy concerns and the ethical use of personal data in AI systems and variable Y on the frequent use of AI tools in practice yields a Pearson coefficient of $r = -0.34$ and $p < 0.01$, reinforcing the idea that one of the main challenges for the use of AI is the handling of privacy and shared use of information, as there is concern by the teaching staff and, therefore, the AI tools use frequency is lower in their practice. Hence the importance of defining clear policies, ethical training, and institutional support to help mitigate legitimate fears and promote more confident and responsible use of AI in educational contexts.

The correlational cross-tabulation of variable X (the existence of an organizational culture that favors educational innovation through AI) and variable Y (interest in continuing to innovate with AI in the design of learning processes), with results of $r = 0.69$ and $p < 0.001$, indicates a positive and significant correlation. Teachers who perceive a favorable institutional culture tend to show greater interest in continuing to innovate with AI. The importance of an organizational culture that inspires and motivates teachers to act with a high degree of commitment toward educational transformation is reaffirmed. The organization is committed to an organizational culture that values innovation, which facilitates the adoption of new technologies, strengthens motivation, sense of purpose, and professional development among teaching staff, marked by AI.

Discussion

The findings of this study are contrasted with proposed theories such as Schein's components of organizational culture cited by Fajardo et al. (2020) and Allen and Kendeou's ED-AI Lit model (2023). The contrast between the results and the theories studied reveals a highly favorable outlook toward the adoption and integration of artificial intelligence (AI) tools in learning processes and their relationship with strengthening the teaching organizational culture.



Table 6

Relational Analysis: Uses of Artificial Intelligence Organizational Culture

Item	CO	ED-AI Lit Model Levels	Relational Interpretation
Frequent use of AI in practice	Established AI standards	Knowledge; teachers understand and apply AI in their teaching practice	Clear and accepted institutional standards, which facilitate the use of AI in the teaching practice.
Teaching strategies with AI	Leadership styles	Collaboration and contextualization; AI in educational settings. Collaborative work in instructional design	Educational leaders are actively promoting pedagogical innovation through AI.
Exploring AI tools	AI symbols and languages	Knowledge and autonomy: Independent exploration of AI as part of their professional identity.	Deep appropriation of technological symbols and AI language as part of their professional identity.
Sharing best practices in AI	AI institutional values	Collaboration and Ethics. Promoting the responsible and shared use of AI.	Culture of collaboration and trust, promotion of values, teamwork, continuous improvement.
High perception of competition in AI use	Beliefs, favorable structures with AI	Autonomy and Evaluation. Critical thinking and autonomous action in the application of AI.	Competent teachers. Structure that supports their learning (training, resources, support).

Note: Integration of research results, components of organizational culture, and levels of the ED-AI Lit model for AI integration.

In this regard, the results show that teachers frequently use AI in their teaching practices, which is supported by clear institutional guidelines that promote its integration. This behavior is directly linked to the knowledge component, demonstrating that teachers not only know the tools, but also apply them with pedagogical intent.

Likewise, the design of AI-mediated instructional strategies reflects a relationship with institutional leadership styles that encourage collaboration and contextualization of AI in real educational settings. The autonomous exploration of AI tools indicates an appropriation of



technological language, which relates to the symbols and languages of technology and the levels of autonomy in their use and evaluation. Furthermore, sharing best practices among colleagues demonstrates a culture of collaboration and professional ethics, aligned with institutional values and the principles of responsible AI use.

Finally, the perception of teacher competence in the use of AI is significant. This suggests that teachers feel autonomous and capable of critically evaluating their performance with AI, supported by organizational structures that offer training and guidance. Overall, the results reflect an organizational culture that is favorable for the integration of AI, but they also highlight the need to strengthen pedagogical design and assessment skills in order to consolidate comprehensive digital literacy across all levels of the university.

Conclusions

The evidence obtained confirms that artificial intelligence (AI) is a decisive factor in the transformation of university education, as it directly influences teaching practices, models of pedagogical innovation, and the consolidation of an organizational culture oriented toward change. The positive correlation between frequent use of AI tools and the design of technology-mediated teaching strategies reveals a growing process of digital maturity among teachers, in which perceived competence translates into a genuine commitment to innovation and educational quality.

Teaching organizational culture emerges as a structural element in the adoption of AI, providing regulatory frameworks, leadership styles, and institutional values that promote collaboration, collective learning, and pedagogical experimentation. However, challenges remain in addressing ethical issues, data management, and technological trust, which require comprehensive institutional strategies and public policies consistent with the principles of responsibility, equity, and digital sustainability.

Critical digital literacy should be a priority on university agendas, not only to reduce technological uncertainty, but also to strengthen professional autonomy and critical and creative thinking. Consequently, higher education in the future will depend on the institutional capacity to articulate technological, pedagogical, and axiological competencies in increasingly complex and interconnected educational ecosystems.

AI-based educational transformation should be understood as a technological phenomenon, a cultural and organizational process, supported by collaborative innovation, academic leadership, and critical reflection on the human meaning of technology, through the strengthening of teaching communities, the creation of interdisciplinary ethics committees, and the continuous evaluation of the impact of AI on learning, which guarantee a sustainable, responsible, and socially relevant integration of AI into university education.



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