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Artificial Intelligence Use and Perceptions in Communication Programmes in Ecuador: Student and Academic Leadership Perspectives

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Abstract

Background: The integration of artificial intelligence (AI) within higher education ecosystems is moving at a faster pace than operational or pedagogical understanding. In emerging fields such as communication studies, where digital media frameworks are continually developing, complex technological shifts and evolving professional competencies persist, heavily shaping institutional priorities and profoundly influencing the strategic deployment of academic resources.

Objective: This study examines the specific areas of application and qualitative perceptions of artificial intelligence in communication education by contrasting student experiences with academic leadership perspectives across undergraduate communication degree programmes in Ecuador.

Methodology: The empirical analysis utilises a non-experimental, mixed-methods explanatory design with descriptive and correlational scope to capture fundamental operational realities. Quantitative data were operationalised through a structured digital survey administered to a purposively sampled group of communication students, with statistical validity assessed using Pearson's chi-square and Spearman's rho. Concurrently, qualitative insights were gathered through semi-structured interviews with academic programme leaders, with data management and theme extraction systematically executed using ATLAS.ti software to ensure analytical rigour.

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Results: The findings indicate that while most students demonstrate a basic foundational knowledge of AI tools within strategic communication contexts, advanced technical proficiency remains exceptionally scarce. Furthermore, the distribution of this technological knowledge exhibits significant structural variations when analysed by sex across distinct application categories. From an administrative perspective, academic leaders describe routine AI utilisation across institutional planning, programmatic management, and educational support systems, whilst heavily highlighting the critical absence of formal ethical frameworks. Triangulation of the datasets reveals a pronounced implementation gap between macro-level institutional adoption narratives and effective, day-to-day student uptake.

Conclusion: The study concludes that internal managerial frameworks and student-level digital competencies work jointly in driving successful technology adoption. Structural focus on institutional policy yields suboptimal educational outcomes when communication programmes face an active knowledge transfer divide and pedagogical mediation breakpoints.

Unique Contribution: This research advances digital literacy and educational management literature by providing an integrated empirical framework that explicitly maps the divide between managerial intent and student reality within an emerging economy context, offering critical analytical insights into how gender-based variations and structural transfer gaps disrupt uniform AI adoption within contemporary communication curricula.

Key Recommendation: It is recommended that university regulation boards, curriculum designers, and higher education authorities in Latin America design comprehensive academic reforms that incorporate mandatory AI literacy modules and standardised digital competence training. Additionally, policymakers should implement context-sensitive academic change management strategies and establish clear, institutional ethical guidelines to safeguard data transparency, close the access divide, and enhance the long-term viability of AI-augmented media education.

Keywords: artificial intelligence; digital transformation; higher education; digital literacy; communication.

Introduction

Artificial intelligence, AI, is evolving rapidly, and its impact across sectors is becoming increasingly evident. It has become a central component of digital transformation. AI has developed into systems capable of analysing large volumes of data, recognising patterns, learning from experience, and optimising processes through machine learning and deep learning algorithms. This development has enabled its integration across multiple sectors, including higher education and strategic communication.

Education 4.0 is characterised by the integration of advanced technologies, flexible learning models, and a focus on professional and social skills (Muñoz-Guevara et al., 2021).

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Education 4.0 is a learning model that responds to the Fourth Industrial Revolution by integrating advanced technologies and promoting flexible, human-centred, personalised learning focused on twenty-first-century labour-market and societal competences (Chakraborty et al., 2023; Muñoz-Guevara et al., 2021). It is grounded in interrelated, learner-centred principles that align education with Industry 4.0, including autonomous and project-based learning, technological integration, competency development, lifelong learning, inclusion, collaboration, a redefined educator role, and the promotion of global citizenship and values (Fisk, 2017; Kim, 2022). It is underpinned by a set of interrelated principles that reorient teaching and learning around the learner and the demands of Industry 4.0 (Fisk, 2017; Kim, 2022): designing learning so that students act as autonomous, reflective agents; adapting pathways through personalisation and flexibility; integrating digital technologies to enhance pedagogy; and prioritising key competences such as digital literacy, critical thinking and collaboration. They also emphasise project-based and experiential learning, a lifelong learning perspective, inclusion and accessibility, collaborative and social learning dynamics, a redefined role for educators as mentors and facilitators, and the cultivation of global citizenship and values.

In higher education, AI plays a key role in the development of intelligent tutoring systems, adaptive learning environments, and educational analytics, strengthening both personalised learning and institutional efficiency (Gallo Macías et al., 2024). At the same time, the incorporation of AI raises ethical, equity, privacy, and teacher-training challenges, which require clear policies and updated pedagogical approaches (García-Peña et al., 2020).

In Ecuador, recent studies identify barriers to integration of AI in higher education, including tensions between institutional interests, available resources, and implementation criteria (Fernández-Miranda et al., 2024). Although AI is gradually being incorporated into the university ecosystem, effective appropriation requires clear guidelines, training processes, and consistent pedagogical practices.

University students in Ecuador recognise the potential of AI but perceive a gap between conceptual knowledge and its practical application in strategic communication management (Duque-Rengel & Puertas-Hidalgo, 2024). Technological advances are redefining the role of communication professionals, who are expected to integrate critical thinking, ethical awareness, and technological skills. However, current university training in communication does not fully align with labour market demands linked to Industry 4.0 and the expansion of AI technologies (Córdova et al., 2023). This article seeks to determine the level of knowledge and use of AI tools in communication degree programmes in Ecuador. Accordingly, the general objective is to analyse areas of application and perceptions of AI in communication education from an academic perspective.

The study adopts a mixed descriptive-correlational design. Quantitative data were collected through structured surveys administered to 230 students, while qualitative data were obtained through semi-structured interviews with programme coordinators. This approach allows for a comparison between student practices and the strategic perspectives of academic authorities.

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The article is organised as follows. After this introduction, the second section presents the theoretical framework and state of the art. The third section describes the methodological design. The fourth section offers a critical and integrated analysis of the results and proposes a model of AI adoption phases. The final section presents the conclusions and outlines directions for future research.

Digital literacy has shifted from a technical skill set to a broader critical and sociocultural competence, involving the responsible use, understanding, evaluation and creation of digital information (Herrera-Aguilar, 2023). It includes abilities such as information evaluation, multimodal processing and real-time decision-making (Eshet-Alkalai, 2012), and within Education 4.0 is expressed through three interconnected levels of digital competence: functional, cognitive and critical (Herrera-Aguilar, 2023).

Objective

This research analyses the areas of application and perception of AI in communication training from an academic perspective. Based on this objective, the following specific objectives are established: 1) to identify the main applications of AI in the field of communication; and 2) to analyse the possible correlations between the level of knowledge and use of AI and the areas of application considered most relevant by academic stakeholders.

Methodology

The study adopted a mixed-methods approach, combining quantitative survey methods and qualitative semi-structured interviews to obtain a comprehensive understanding of the phenomenon. The research follows a non-experimental, descriptive correlational design. Its purpose is to characterise perceptions of AI use in the field of communication and to analyse the relationships between the identified variables.

In this design, variables are observed in their natural context without the researcher deliberately manipulating them. This approach allows for describing the characteristics of the phenomenon and examining associations between variables of interest (Hernández-Sampieri & Mendoza, 2018).

The study was conducted in accordance with fundamental ethical principles of scientific research. Data confidentiality and voluntary participation were ensured. The information collected through interviews was used responsibly and exclusively for academic and purposes (Orozco & Lamberto, 2022).

Two stages were established for the research.

- **Stage 1: Student Perspective**: This stage focused on analysing the areas of application and opportunities for AI in academic training. A non-experimental, cross-sectional, correlational design was adopted, as data were collected at a single point in time to analyse associations between variables (Hernández-Sampieri & Mendoza, 2018).

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Within this design, the study examined the relationships between gender, level of knowledge, and perceptions of AI in communication. The phenomena were observed in their natural context, without the researcher's intervention (Hernández-Sampieri & Mendoza, 2018). The questionnaire was reviewed by experts to ensure content validity, focusing on item clarity, response options and alignment with the study objectives. Data collection was standardised through closed-ended items and systematic digital administration to ensure consistency.

The sample consisted of 230 university students selected through non-probability purposive sampling, with voluntary participation. Of these, 64.3% were female and 35.7% male. Inclusion criteria included enrolment in higher education institutions in Ecuador, representation across different study stages, participation in communication-related programmes, and geographical diversity.

Data were collected using a structured digital questionnaire with closed and multiple-choice questions. The main dimension addressed was knowledge of AI applications in communication.

The data were processed using SPSS version 25. Descriptive statistical techniques, including frequencies and percentages, were applied, along with inferential analyses. Pearson chi-square tests were used to identify associations between categorical variables, and Spearman correlation coefficients (ρ) were used to examine relationships between ordinal variables. A significance level of $p < 0.05$ was used.

- **Stage 2: Academic Leadership Perspective:** To understand the perspective of administrators about the study, semi-structured in-depth interviews were conducted with directors and coordinators of Communication and Journalism programmes and related fields, including journalism and strategic communication, at public and private universities in Ecuador. This technique was used to analyse variables such as successful experiences identified within the programmes from the administrators' perspective.

  Qualitative analysis was carried out using ATLAS.ti software. The analysis focused on thematic coding of the interview responses to identify patterns, meanings, and relationships between categories. The validity of the interview guide was reinforced through alignment between the protocols and the analytical dimensions derived from the research objectives. The reliability of the interpretative process was supported by the application of systematic procedures for coding categories and subcategories, linked between the units of analysis, the coding systems, and the analysed results.
  The interview sample consisted of seven managers of communication programmes in Ecuador (Table 2).

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Table 2. Interviewed individuals.

No.	Program	University	Code
1	Journalism	University of Cuenca	E1
2	Communication	National University of Chimborazo	E2
3	Communication	Bolívar State University	E3
4	Communication	Private Technical University of Loja	E4
5	Communication	National University of Loja	E5
6	Journalism	University of San Francisco de Quito	E6
7	Communication	University of San Francisco de Quito	E7

Note. Participants interviewed in the study were identified by an alphanumeric code to ensure the confidentiality of their identities.

Results

The analysis focuses on describing the main applications of AI in communication, divided into two sections.

The students' perspectives (Table 3) reveal how male and female students perceive and understand the applications of AI in communication.

Table 3. Applications of AI in the field of communication.

			I am familiar with several common applications	I am familiar with some basic applications	I am not familiar with any applications	I have good knowledge of various applications	I am familiar with many specific applications	Total
Gender	F*	Frequency	15	78	50	2	3	148
		% total	6.5%	33.9%	21.7%	0.9%	1.3%	64.3%
	M**	Frequency	19	35	21	4	3	82
		% total	8.3%	15.2%	9.1%	1.7%	1.3%	35.7%
Total		**Frequency**	**34**	**113**	**71**	**6**	**6**	**230**
		%	**14.8%**	**49.1%**	**30.9%**	**2.6%**	**2.6%**	**100%**

Note. Most students are familiar with only a few basic applications of AI in communication. * Female. ** Male.

The results indicate limited student knowledge of AI applications in communication. Nearly half (49.1%) reported only basic familiarity, while 30.9% reported none; only 5.2% demonstrated broad knowledge (Acero, 2020; Duque Rengel & Puertas-Hidalgo, 2024; Flores-Vivar & García-Peñalvo, 2023). This fragmented understanding suggests difficulties in integrating theoretical, digital and analytical skills, despite labour-market demand for T-shaped profiles that combine specialisation, interdisciplinarity and adaptability (Wale, 2021).

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By gender, women (64.3%) are mostly concentrated at basic or no-knowledge levels, whereas men (35.7%) show a more varied distribution, with greater representation at advanced levels. This indicates limited depth of AI use overall, alongside gender differences in familiarity and experience (Chen, 2023; Duque-Rengel & Puertas-Hidalgo, 2024).

Chi-square analysis

Pearson's chi-square test yields a value of 11.340 with four degrees of freedom and a significance level of p = 0.023. This result indicates a statistically significant relationship between gender and level of knowledge of AI applications in communication. In other words, familiarity with these applications is not randomly distributed between men and women but shows a clear association between the two variables.

Table 4. Chi-square test.

	Value	**Df**	**Asymptotic Significance (two-sided)**
Pearson Chi-square	11,340[a]	4	,023
Likelihood Ratio	10,924	4	,027
Linear-by-Linear Association	,634	1	,426
Number of Valid Cases	230		

Note. The chi-square test shows a significant association between gender and knowledge of AI applications in the field of communication, $p < 0.05$.

The likelihood ratio, with a p = 0.027, confirms this result and reinforces the conclusion that the observed differences between groups are not random. Table 4 presents the results of the chi-square test analysing the relationship between gender and knowledge of artificial intelligence (AI) and its applications in communication. The Pearson chi-square value, $\chi^2 = 11.340$; df = 4; p = 0.023, indicates a statistically significant association between the variables, supporting the finding that levels of familiarity with AI applications differ by gender (Hernández-Sampieri & Mendoza, 2018). The likelihood ratio further supports this interpretation.

The linear-by-linear association test, with p = 0.426, indicates the absence of a clear linear trend. This result suggests that knowledge levels do not increase systematically according to gender but are concentrated in specific categories. Although approximately 40 per cent of the cells have expected frequencies below five, the sample size of 230 cases and the minimum expected value of 2.14 allow the results to be considered acceptable according to methodological criteria (Hernández-Sampieri & Mendoza, 2018).

These findings reinforce the descriptive analysis. Men tend to appear more frequently at higher levels of knowledge, while women are more concentrated at basic levels or report no knowledge. This pattern indicates that gender influences the distribution of knowledge of AI applications in communication.

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Correlation analysis

Table 5 presents the results of Spearman's correlation between respondents' gender and their level of knowledge of artificial intelligence, AI, and its applications in communication. The correlation is not statistically significant, $\rho = -0.080$; $p = 0.224$, indicating that there are no clear differences between men and women in their knowledge of these applications.

Table 5. Spearman's correlation.

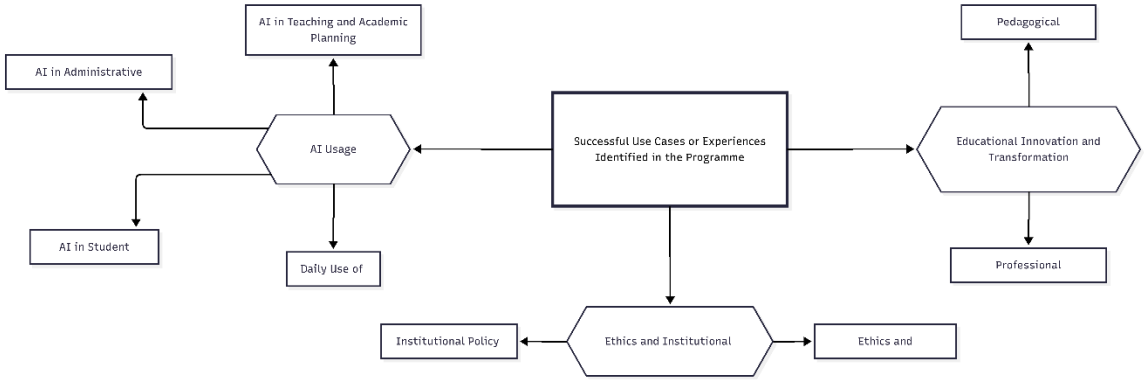
			Gender	**Knowledge of AI Applications in Communication**
Spearman's rho	Gender	Correlation coefficient	1,000	-0.080
		Sig. (two-sided)	.	0.224
		N	230	230

Note. There is no significant correlation between respondents' gender and their knowledge of AI applications in communication, $\rho = -0.080$; $p = 0.224$.

This result is consistent with Hernández-Sampieri and Mendoza (2018), who note that a non-significant correlation indicates no statistically relevant relationship between variables. Although men show a slight tendency towards higher knowledge levels, the effect is not meaningful within the sample. The contrast between the significant chi-square and non-significant Spearman results suggests that differences by sex are concentrated in specific categories rather than following a linear trend.

The discrepancy between the significant chi-square result and the non-significant Spearman correlation indicates that, although sex and knowledge level are associated, the relationship is not monotonic across ordered categories. Instead, differences appear concentrated in specific knowledge categories, suggesting a distributive rather than progressively correlational pattern.
The academic leadership perspective, collected through in-depth interviews, enable to identify use cases and successful experiences related to the incorporation of AI. For the analysis of the results, a coding process was conducted using three groups: AI usage practices, educational innovation and transformation, and institutional ethics and culture (Figure 1).

Figure 1. Successful uses and experiences of AI in communication degree programmes.



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Note. These three groups of codes consist of sub codes derived from common patterns identified in the respondents' responses.

AI usage practices.

The interviewees agreed that AI has been integrated into the daily academic and administrative activities of the degree programmes.

This group includes the following areas.

1) **AI in teaching and academic planning**. E1, E2, E4, E5, and E7 report their use in syllabus design, content development, learning activity design, and curriculum planning. This top-down approach to AI use in curriculum design risks creating a disconnect with students by excluding them from the innovation process. The lack of participatory mechanisms may constrain more inclusive pedagogical innovation, in which students are not only users of AI but also active agents in its integration.
2) **AI in administrative processes**. E1 and E4 indicate that AI supports academic management tasks, document preparation, and institutional organisation.
3) **AI in student learning**. E1, E2, E3, and E6 highlight the role of AI in strengthening skills, mainly in creativity, efficiency, and critical thinking.
4) **Daily use of AI**. E1, E5, and E6 explain that tools such as ChatGPT have become part of everyday work, both for communication production and for graphic design and content creation.

Educational innovation and transformation.

The second category analysed refers to the role of AI in driving changes in educational and professional practice. Two subcategories were identified within this group.

1) **Professional transformation**. E3, E6, and E7 highlight the role of AI in the training of critical communicators who adapt to the contemporary digital context. Interviewees emphasise that AI supports a rethink of how communication projects are evaluated and developed.
2) **Pedagogical innovation**. E7 explains that AI is not perceived as a replacement for teachers, but as a tool that supports creativity, encourages new methodologies, and expands teaching possibilities.

Ethics and institutional culture.

The third group of codes addresses the ethical and cultural challenges posed by AI in higher education. This dimension includes the following aspects.

1) **Ethics and responsibility**. E2, E3, E4, E6, and E7 emphasise the importance of training users to be critical and aware of the scope and limitations of AI, while promoting responsible use. Ethical concerns centre on academic integrity, information accuracy and responsible use of AI-generated content, underscoring the need for ethical and institutional guidelines in communicator training.
2) **Institutional policy on AI**. E6 reports the existence of an institutional policy that promotes the ethical and effective use of AI. In contrast, other interviewees did not report formal institutional guidelines, suggesting that these practices remain at an early stage or are not yet widespread.

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The findings indicate that AI is being incorporated in both pragmatic and reflective ways. On the one hand, the tools are used daily to optimise tasks. On the other hand, academic leaders recognise the need for ethical and institutional frameworks to guide their use.

Discussion and conclusion

When examining the relationship between the two study groups, a clear disconnect between managerial discourse and student practice becomes evident. In the qualitative phase, programmes coordinators, E1, E4, E7, state that AI is successfully integrated to support teaching innovation and facilitate planning. The quantitative results show that 30.9 per cent of students report no knowledge of any AI tools. This contrast suggests that the benefits identified by academic management remain largely at an administrative level and do not sufficiently reach classroom learning processes.

There is also a clear mismatch in perceptions of equity. While senior managers show pragmatic enthusiasm for technology, student data reveal a significant gender gap, $p = .023$, that none of the authorities acknowledged. This points to unequal distribution of competencies, with women's basic levels rooted in structural, sociocultural and educational factors, and suggests that innovation strategies assume universal adoption that is not supported by the statistical evidence.

To synthesise the relationships examined, a Functional Model of AI Adoption by Phases is proposed, as shown in Figure 2. This model links the study variables and identifies key points of disruption in the knowledge transfer process. This model links the study variables and identifies ruptures in the knowledge transfer process. Phase 1, Strategic Planning, reflects institutional optimism towards Education 4.0 (Muñoz-Guevara et al., 2021). This optimism becomes strained in Phase 2, Pedagogical Mediation, the key bridge between technology and adaptive learning (Gallo Macías et al., 2024), which emerges as the main point of rupture.

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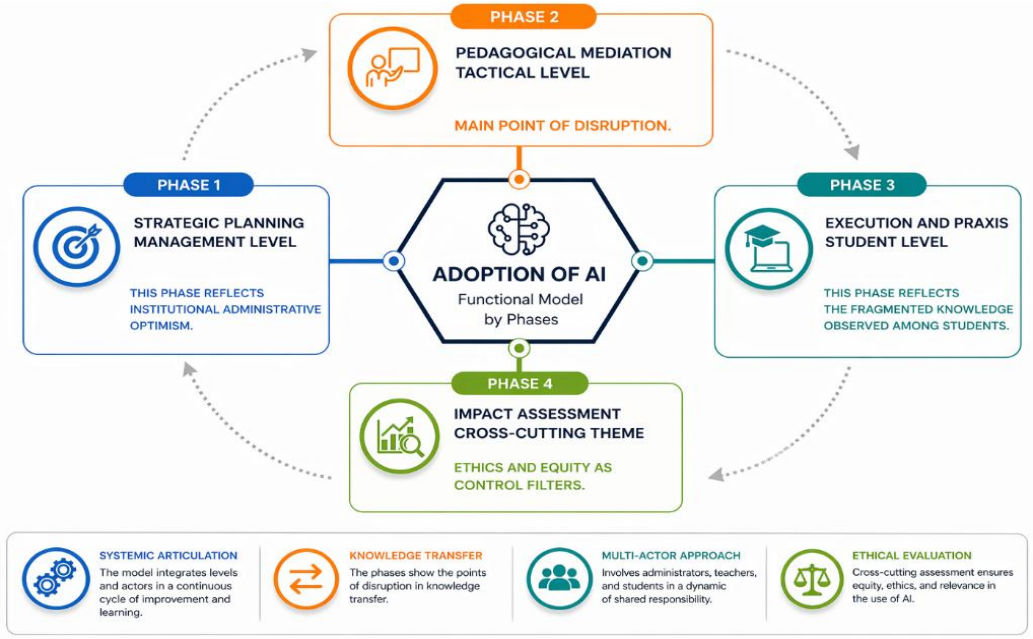
Figure 2. Functional Model of AI Adoption.



Note. By the authors.

This, in turn, affects Phase 3, Execution and Praxis, where students' fragmented knowledge becomes evident, and lifelong learning is undermined (Rawas, 2023). Phase 4, Impact Evaluation, incorporates the gender gap and ethics as control variables, following and should be complemented by broader indicators that go beyond traditional metrics and adopt more holistic views of learning (Castañeda et al., 2020), considering the quality of communication outcomes, academic efficiency and the development of critical skills through integrative projects..

Administrative optimism in Phase 1 likely reflects bias, as this small, high-level group tends to emphasise progress and positive expectations about AI, potentially presenting an overly idealised view of its educational integration.

The main rupture in Phase 2 arises from the disconnect between strategic planning and classroom implementation. Institutional guidelines often remain declarative and are not translated into curriculum design, concrete actions or specific assessment practices. This gap is reinforced by teacher training focused mainly on the instrumental use of AI, the misalignment between innovation goals and traditional evaluation systems, and the lack of disciplinary contextualisation, all of which limit the relevance of AI use.

Conclusions

The results of this research indicate that students' knowledge of AI applications in communication remains at an early stage. Student understanding is fragmented and largely superficial. Almost half of the respondents report familiarity with only basic applications, while 30.9 per cent indicate no

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knowledge of these tools. Only a small proportion, 5.2 per cent, report advanced levels of knowledge. This pattern reveals a structural training gap that contrasts with the growing importance of AI in professional communication contexts.

Statistical analysis provides additional insight into this situation. The chi-square test confirms that gender is associated with levels of knowledge, indicating that the differences observed between men and women are not random. In general, men are more frequently represented at advanced or specialised levels of knowledge, while women, despite constituting most of the sample, are concentrated at basic levels or report no knowledge. Correlational analysis supports this interpretation. Although gender does not substantially affect overall perceptions of AI, differences appear in knowledge of specific tools, with men reporting higher familiarity. This pattern reflects a localised inequality in access, exploration, or in-depth knowledge, rather than a strong structural divide. To address this gap, specific interventions are recommended, including AI training programmes with a gender-sensitive approach that promote women's active participation, extracurricular spaces such as clubs or workshops, and mentoring schemes.

This context highlights that AI is increasingly present in daily activities, yet its use is not understood or developed equally. There is a clear need for more inclusive and accessible training spaces that go beyond basic familiarity and support deeper and more specialised knowledge, particularly among women.

The qualitative analysis involving communication programmes directors and coordinators presents a more optimistic view of AI's role in higher education. Identified successful uses of AI across three complementary dimensions: (1) everyday practices that improve content management and production; (2) opportunities for pedagogical innovation and professional profile development; and (3) ethical concerns related to academic integrity, information accuracy and responsibility in the use of generated content. In this regard, ethical and institutional frameworks are needed to guide the responsible use of AI in the professional education of communicators.

They report that AI is used daily in administrative processes, academic planning, and student learning, and view it as a tool with strong potential. At the same time, the findings reveal a tension between instrumental enthusiasm, focused on efficiency and creativity, and regulatory caution, aimed at preventing misuse and promoting critical use.

This divergence points to an asymmetry between institutional perspectives and student experiences. It suggests that efforts to integrate AI have not yet been fully reflected in curricula or in the skills consistently developed by students.

Overall, the findings indicate that the central challenge lies in integrating these dimensions. Institutions must leverage AI's functional capabilities to strengthen communication training while also developing educational policies and practices that promote an ethical, critical, and competent use in complex digital environments.

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The study shows that AI in communication operates at two different speeds: an optimistic managerial vision and an early, uneven student reality. Future research should include longitudinal studies on the impact of generative AI on critical thinking and the design of teacher training programmes with a gender perspective to support the more balanced development of technical skills among students.

Declarations

AI Use Statement: During the preparation of this paper, the authors used ChatGPT to design Figure 2 and Grammarly to check the grammar and wording in British English. After using these tools or services, the authors reviewed and edited the content as necessary and accept full responsibility for the content of the publication.

Data Availability Statement: The data that support the findings of this study are available from the corresponding author, Rosario Puertas-Hidalgo, upon reasonable request.

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Conflict of Interest: The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Ethical Approval: This study was conducted in accordance with the Declaration of Helsinki. Formal institutional ethical approval was not required for this study as the surveys and interviews were completely voluntary, anonymised, and carried no physical or psychological risk to human participants.

Authors' Contributions: VD-R and RP-H conceived and designed the study; VD-R and RP-H performed the data collection; VD-R and RP-H analysed the data and wrote the paper. All authors have read and agreed to the published version.

References.

Acero, O. (2020). Educación 4.0: tendencias en la ruta del aprendizaje en la educación superior del Siglo XXI. (1 edición). Fundación Universitaria Juan N. Corpas. https://repositorio.juanncorpas.edu.co/handle/001/58

Castañeda, L., Salinas, J., & Adell, J. (2020). Hacia una visión contemporánea de la Tecnología Educativa. Digital Education Review, 37, 240–268. https://doi.org/10.1344/der.2020.37.240-268

E-ISSN: 2735-9891 DOI: https://doi.org/10.5281/zenodo.20423042

Chakraborty S, Gonzalez-Triana Y., Mendoza, J. and Galatro, D. (2023) *Insights on mapping Industry 4.0 and Education 4.0*. Front. Educ. 8:1150190. doi: https://doi.org/10.3389/feduc.2023.1150190

Chen, S. (2023). *Generative AI, learning, and new literacies. Journal of Educational Technology Development and Exchange*, 16(2), 1–19. https://doi.org/10.18785/jetde.1602.01

Córdova, M., Curioso, W., & Cerquin, J. (2023). *Digital transformation and reference models in higher education*. Universidad Continental, Fondo Editorial. https://doi.org/10.18259/2023001

Duque-Rengel, V., and Puertas-Hidalgo, R. (2024). Artificial intelligence in organizational strategic communication: Perspectives of future communication professionals. *European Public & Social Innovation Review*, 9, 1–19. https://doi.org/10.31637/epsir-2024-1551

Eshet, Y. (2012). Thinking in the Digital Era: A Revised Model for Digital Literacy. Issues in Informing Science and Information Technology, 9. https://iisit.org/Vol9/IISITv9p267-276Eshet021.pdf

Fernández-Miranda, M., Román-Acosta, D., Jurado-Rosas, A. A., Limón-Domínguez, D., & Torres-Fernández, C. (2024). Artificial intelligence in Latin American universities: Emerging challenges. Computación y Sistemas, 28(2), 435–450. https://doi.org/10.13053/cys-28-2-4822

Fisk, P. (2017, January 24). Education 4.0 ... the future of learning will be dramatically different, in school and throughout life. - Peter Fisk. Peter Fisk. https://www.peterfisk.com/2017/01/future-education-young-everyone-taught-together/

Flores-Vivar, J., & García-Peñalvo, F. (2023). Reflections on the ethics, potential, and challenges of artificial intelligence in the framework of quality education SDG 4. *Comunicar*, 74, 37–47. https://doi.org/10.3916/C74-2023-03

Gallo Macías, G. G., Pacheco Pérez, X. O., and Sánchez Macías, R. E. (2024). Artificial intelligence in higher education: Opportunities and challenges. A systematic review. *RECIMUNDO*, 8(4), 28–39. https://doi.org/10.26820/recimundo/8.(4).diciembre.2024.28-39

García-Peña, V. R., Mora-Mancillo, A. B., and Ávila-Ramírez, J. A. (2020). Artificial intelligence in education. *Dominio de las Ciencias,* 6(3), 648-666. https://dialnet.unirioja.es/descarga/articulo/8231632.pdf

González-Pérez, L. I. and Ramírez-Montoya, M. S. (2022). *Components of Education 4.0 in 21st Century Skills Frameworks: Systematic Review*. Sustainability 2022, 14, 1493. https://doi.org/10.3390/su14031493

Herrera-Aguilar, M. (2023). *Educación y alfabetización en medios y tecnologías de información y comunicación: su dimensión instrumental y cognitiva*. Transdigital, 4(7), 1–16. DOI: https://doi.org/10.56162/transdigital167

Hernández-Sampieri, R., & Mendoza, C. (2018). *Quantitative, qualitative, and mixed research approaches*. McGraw-Hill Education. https://tinyurl.com/2cdh45w3

Kim, J. (2022). The Interconnectivity of Heutagogy and Education 4.0 in Higher Online Education. Canadian Journal of Learning and Technology / Revue canadienne de l'apprentissage et de la technologie, 48(4), 1–17. https://doi.org/10.21432/cjlt28257

E-ISSN: 2735-9891 DOI: https://doi.org/10.5281/zenodo.20423042

Muñoz-Guevara, E., Velázquez-García, G., & Barragán-López, J. F. (2021). Analysis of technological evolution toward Education 4.0 and the virtualization of higher education. *Transdigital*, 2(4), 1–14. https://doi.org/10.56162/transdigital86

Orozco, H., and Lamberto, J. (2022). Ethics in scientific research: Considerations from the educational field. *Perspectivas: Revista de Historia, Geografía, Arte y Cultura*, 10(19), 11–21. https://goo.su/yGCmpQp

Rawas, S. (2023). ChatGPT: Empowering lifelong learning in the digital age of higher education. *Education and Information Technologies*, 29, 6895–6908. https://doi.org/10.1007/s10639-023-12114-8

Wales Government (2019). National Strategic Skills Audit for Wales 2011: Skills for Jobs - Key Findings. Welsh Government. https://www.gov.wales/sites/default/files/statistics-and-research/2019-08/110620skillsforjobskeyfindingsen.pdf