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Teachers, Students, and Thinking Machines: Rethinking the Role of Artificial Intelligence in Higher Education

Alirio Velasco-Gómez[1*], **Juan Camilo Ospina-Agudelo**[1], **Gilbert Andrés Cruz-Rojas**[1]

[1] **Universidad del Valle, Cali, 760041, Colombia,**

* Corresponding author: alirio.velasco@correounivalle.edu.co

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Abstract: Artificial intelligence (AI) has rapidly emerged as a disruptive force in higher education, transforming how knowledge is produced, disseminated, and validated within academic communities. In Latin America, however, this transformation unfolds within persistent structural inequalities, where digital modernization progresses unevenly and intersects with socio-economic, institutional, and technological disparities.

This study examines the perception and use of AI at Universidad del Valle–Pacífico Campus (Colombia), serving as a representative case of emerging educational innovation in a context shaped by regional constraints. Adopting a mixed-methods approach, the research combines: (i) online surveys administered to faculty members (N = 64) and students (N = 416), analyzed using descriptive and inferential statistics (Pearson's χ^2, $p < 0.05$); and (ii) a focus group with ten instructors, analyzed through text mining and semantic network techniques.

The findings reveal widespread adoption of AI tools—particularly ChatGPT—among students (98%) and faculty (74%), primarily for information retrieval, content generation, and pedagogical support. High levels of perceived usefulness (80–90%) and motivation (75–87%) were reported, with affective responses such as curiosity and amazement playing a significant role in engagement. Despite these positive perceptions, concerns remain regarding response accuracy, plagiarism, and technological dependency, further exacerbated by limited formal training in AI (59–70%).

Inferential analysis demonstrates statistically significant associations between sociodemographic variables, ethical orientations, and usage patterns, indicating heterogeneous adoption across the academic community.

Qualitative findings further suggest that AI is perceived as a transformative agent capable of reshaping educational roles, pedagogical practices, and ethical frameworks.

Overall, the study highlights the urgent need for Latin American universities to reconsider pedagogical models, update governance and ethical guidelines, and implement inclusive strategies that promote equitable access, protect academic integrity, and strengthen institutional resilience in the context of AI integration.

Keywords: Artificial Intelligence; Higher Education; Digital Transformation; Educational Innovation; Academic Integrity; Ethics in AI; Technology Adoption; Latin America.

教师、学生与思维机器：重新思考人工智能在高等教育中的角色

摘要：人工智能（AI）已迅速成为高等教育中的颠覆性力量，正在改变学术共同体中知识的生产、传播与验证方式。然而，在拉丁美洲，这一转型发生在长期存在的结构性不平等背景之下，数字化进程呈现出明显的不均衡发展，并与社会经济、制度及技术差距相互交织

本研究以哥伦比亚巴耶大学太平洋校区为案例，探讨人工智能的认知与应用情况，该案例在区域性挑战背景下具有一定的代表性。研究采用混合方法：一方面，通过在线问卷调查收集教师（N = 64）和学生（N = 416）的数据，并采用描述性统计和推断统计方法（Pearson卡方检验，$p < 0.05$）进行分析；另一方面，对10名教师开展焦点小组访谈，并运用文本挖掘与语义网络分析进行处理。

研究结果表明，人工智能工具（尤其是ChatGPT）在学生（98%）和教师（74%）中得到广泛应用，主要用于信息获取、内容生成及教学支持。受访者普遍表现出较高的感知有用性（80%–90%）与学习动机（75%–87%），其中好奇与惊奇等情绪在使用过程中发挥了重要作用。尽管总体态度积极，但受访者仍对回答准确性、学术不端风险及技术依赖问题表示担忧，而这些问题在缺乏系统性人工智能培训（59%–70%）的背景下进一步加剧。

推断分析结果显示，社会人口特征、伦理取向与使用模式之间存在显著统计关联，表明学术群体内部的人工智能采纳呈现出明显的差异性。质性分析进一步指出，人工智能被视为一种能够重塑教育角色、教学实践与伦理框架的变革性力量。

总体而言，本研究强调拉丁美洲高校亟需重新审视教学模式，完善治理与伦理规范，并制定包容性策略，以促进教育公平、维护学术诚信，并在人工智能日益融入高等教育的背景下提升制度韧性。

关键词：人工智能；高等教育；数字化转型；教育创新；学术诚信；人工智能伦理；技术采纳；拉丁美洲

1. Introduction

In the digital era, artificial intelligence (AI) has evolved from a speculative technological frontier into a constitutive infrastructure underpinning contemporary societies. In the twenty-first century, its pervasive influence extends far beyond computational innovation, reshaping knowledge production, economic organization, and the epistemological and ethical foundations of social life [1]. Within less than two decades, technologies such as deep learning, predictive analytics, and multimodal generative models have transitioned from experimental prototypes to omnipresent mediators of decision-making, communication, and creativity across diverse sectors [2], [3]. This process of technological naturalization signals the emergence of a new cognitive regime characterized by the automation of meaning, the expansion of data-driven rationalities, and the delegation of cognitive agency to algorithmic systems [4].

Within this global transformation, higher education stands simultaneously as a site of disruption and a catalyst for innovation. Universities face the dual imperative of adapting to environments in which AI

redefines teaching, learning, and institutional management, while sustaining their critical function as spaces for interrogating the epistemological, ethical, and societal implications of these technologies [5], [6]. A substantial body of international literature underscores AI's transformative potential in higher education, emphasizing its capacity to personalize learning, enhance administrative efficiency, broaden access to high-quality educational resources, and foster pedagogical innovation [5], [7], [8].

Empirical evidence substantiates these claims. Intelligent tutoring systems, academic recommender engines, conversational agents, and learning analytics platforms have demonstrated tangible impacts, including 15–20% increases in student retention, 10–25% reductions in operational costs, and significant improvements in global and asynchronous access to educational resources [9]–[12]. Collectively, these outcomes suggest that AI functions not merely as an auxiliary tool but as a systemic driver of transformation within the contemporary university ecosystem.

However, this technological optimism is tempered by growing critical concerns. Recent scholarship has illuminated substantial risks associated with algorithmic opacity, data bias, unreliable content generation, corporate dependency, and the cultural and epistemic homogenization accompanying AI's global diffusion [13], [14]. Within universities, these issues acquire particular salience, as education transcends the acquisition of technical competencies to encompass the cultivation of critical thinking, intellectual autonomy, creativity, and ethical discernment. The emergence of generative systems capable of producing essays, solving complex problems, or simulating academic discourse raises profound questions regarding authorship, authenticity, and the evolving role of educators as cognitive, ethical, and cultural mediators [15], [16].

These dynamics become even more intricate when examined through a geopolitical lens. Whereas universities in the Global North operate within consolidated technological infrastructures and mature regulatory frameworks, institutions across Latin America often integrate AI under conditions of structural inequality. Persistent digital divides, limited investment in technological infrastructure, low levels of AI literacy among faculty and students, and fragmented public policies constrain equitable adoption and innovation [17], [18]. In Colombia, this paradox becomes particularly pronounced in historically marginalized regions such as the Pacific, where academic communities display growing enthusiasm for AI, yet socioeconomic and institutional constraints threaten to deepen pre-existing educational and technological disparities [19]–[21].

Despite AI's increasing prominence, research on its integration within Latin American higher education remains fragmented, uneven, and disproportionately shaped by perspectives from the Global North. Existing studies frequently privilege narratives of technological efficiency or student-centered pedagogical enhancement, while overlooking ethical dilemmas, social tensions, and the situated experiences of actors operating within contexts of inequality [22]–[25]. This theoretical and empirical gap hampers the formulation of context-sensitive institutional policies, constrains the development of critical digital literacy initiatives, and limits universities' capacity to anticipate transformations in teaching, research, and academic governance. Addressing this void requires the production of situated empirical evidence that illuminates how educators and students in Latin America experience, negotiate, and reinterpret the incorporation of AI into their educational practices.

Guided by this imperative, the present study explores the perceptions, practices, and underlying tensions surrounding AI adoption at the Pacífico campus of Universidad del Valle (Colombia). This case functions as a microcosm of the broader regional landscape: a university community characterized by pronounced sociocultural and socioeconomic diversity, growing pedagogical and administrative interest in AI, and structural constraints in infrastructure, resources, governance, and digital inclusion that mirror the systemic challenges of Latin American higher education. Employing a mixed-methods design that integrates survey data from faculty members (N = 64) and students (N = 416) with a focus group involving faculty participants (N = 10), this research seeks to contribute empirically grounded insights to global academic debates and to inform the design of educational policies and digital literacy programs that foster ethical, equitable, and transformative uses of AI within twenty-first-century universities.

2. Method

Study Design

This study employed a sequential explanatory mixed-methods design, integrating quantitative and qualitative approaches to achieve both breadth and depth in the analysis of artificial intelligence (AI) use in higher education. This design strategically combines the descriptive, correlational, and inferential strengths of quantitative research with the contextualized, meaning-oriented insights of qualitative inquiry. Such methodological integration enables a multidimensional understanding of faculty and student perceptions, practices, and ethical considerations related to the use of AI in teaching and learning.

In the first phase (quantitative–descriptive), data were collected through an online structured questionnaire designed to measure and statistically characterize perceptions, practices, and ethical–pedagogical tensions associated with AI adoption. The quantitative findings served as a foundational framework for identifying patterns, relationships, and emerging trends, which subsequently informed the qualitative phase.

The second phase (qualitative–interpretive) involved a focus group discussion aimed at contextualizing, contrasting, and deepening the

interpretation of the quantitative results. Through dialogic interaction, participants reflected on their experiences, beliefs, and underlying rationales regarding AI use, thereby enriching the analysis of the socio-cognitive and institutional dynamics influencing its integration.

This methodological framework is grounded in the principle of data triangulation, widely recognized for enhancing the validity, reliability, and explanatory power of empirical research [28]. The systematic interplay between numerical evidence and narrative interpretation facilitated a synergistic dialogue across epistemological paradigms, resulting in a more comprehensive and theoretically robust understanding of the phenomenon under study.

Context of the Study

The research was conducted at the Universidad del Valle – Pacífico Campus, located in Buenaventura, Valle del Cauca, Colombia (3.8801° N, 77.03116° W). This institutional setting constitutes a particularly compelling case for examining perceptions and patterns of adoption of Artificial Intelligence (AI), as it is situated at the intersection of global socioeconomic integration and persistent regional structural inequality. As Colombia's principal Pacific seaport, Buenaventura occupies a strategically significant position within international trade networks; however, this economic centrality coexists with profound socioeconomic disparities, a history of institutional neglect, and limited access to technological and digital infrastructure.

Within this broader context, the Pacífico Campus plays a critical role as a catalyst for social mobility, knowledge production, and intellectual development in a region predominantly populated by Afro-descendant communities and students from socioeconomically vulnerable backgrounds. For many individuals in this setting, access to higher education represents the primary—and in some cases the only—pathway to challenge entrenched structural barriers and expand life opportunities.

In recent years, the institution has demonstrated a growing commitment to digital transformation, as evidenced by emerging initiatives aimed at incorporating Artificial Intelligence into pedagogical practices, research activities, and administrative processes. Nevertheless, these efforts have unfolded within a landscape characterized by significant constraints, including persistent digital divides, infrastructural limitations, gaps in technical expertise and training, restricted financial resources, and the absence of dedicated governance frameworks for AI deployment [23].

Consequently, the university community exhibits dynamics that are particularly relevant to the present study: (i) pronounced socioeconomic and cultural diversity; (ii) a substantial digital divide affecting access, skills development, and the meaningful appropriation of technology; and (iii) an ongoing institutional transition marked by increasing interest in AI adoption, tempered by structural, operational, and resource-related limitations.

By situating the research within this context, the study deliberately departs from the techno-optimistic narratives that dominate much of the existing literature, which is largely produced in metropolitan or resource-abundant environments of the Global North. Instead, AI integration is conceptualized as a situated socio-technical process in which the potential for technological leapfrogging confronts the realities of regional precarity, community-specific challenges, and institutional constraints.

In this sense, the Universidad del Valle – Pacífico Campus (Figure 1) emerges as a microcosm of broader Latin American conditions, where the adoption of emerging technologies such as AI is not merely a matter of technical enhancement, but rather a complex negotiation involving ethical and equity considerations, social and institutional capacity, and collective resilience [19]–[21].

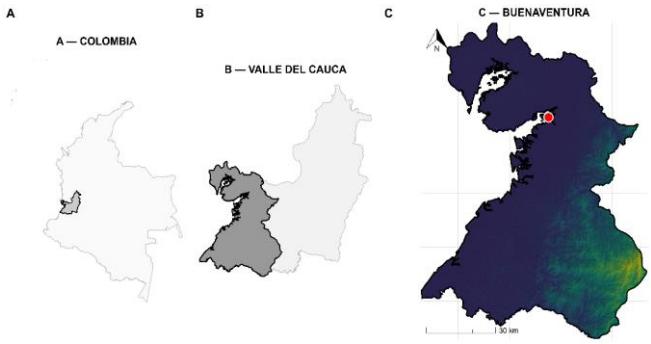

Figure 1. Geographic location of the study site (Pacifico Campus, Universidad del Valle).
(Source: developed by the authors)

Instrument and Design

Quantitative Instrument

A structured digital questionnaire was administered via Google Forms, enabling standardized data collection, broad geographic reach, and secure data storage. The instrument consisted of closed-ended questions and five-point Likert scales and was developed based on an interdisciplinary theoretical framework integrating perspectives from artificial intelligence, digital pedagogy, and technology ethics.

The questionnaire addressed four key dimensions identified as critical gaps in the existing literature [23], [29]–[33]:

I. Pedagogical Dimension: Examines perceptions of the pedagogical relevance of AI, with a focus on its contribution to the development of cognitive, metacognitive, and creative skills.

II. Technical Dimension: Assesses digital literacy levels, frequency and purposes of AI tool use, accessibility, and perceived technological adequacy.

III. Ethical Dimension: Investigates moral positions and ethical dilemmas related to academic integrity, transparency, and the responsible use of AI.

IV. Institutional Dimension: Analyzes institutional policies, available resources, support systems, and perceived barriers influencing the integration of AI within the university context.

To ensure content validity, the instrument underwent expert review by specialists in education, technology, and ethics. These experts evaluated the relevance, clarity, and coherence of the items prior to the instrument's deployment.

Qualitative Component

To complement the survey data, a focus group session was conducted to deepen the interpretative dimension of the findings. The 120-minute discussion was held in person and digitally recorded following informed consent procedures that ensured confidentiality and compliance with ethical research standards. The discussion protocol was structured around four thematic axes:

1. Prior experiences with artificial intelligence (AI) tools.
2. Perceived benefits and challenges in teaching and learning processes.
3. Attitudes toward and resistance to AI integration within academic curricula.
4. Institutional proposals, policies, and ethical considerations related to AI adoption.

Population and Sample

The target population comprised all academic actors affiliated with Universidad del Valle – Pacífico Campus during the 2025-I academic semester. This population included 135 faculty members (classified as permanent, occasional, or hourly) and 2,118 students enrolled in undergraduate and graduate programs. To ensure representativeness and minimize sampling bias, a stratified sampling technique for finite populations was employed, as recommended for heterogeneous educational contexts. Stratification criteria included faculty appointment type and students' academic programs, allowing for the consideration of both disciplinary diversity and contractual variability.

Sample sizes for each subgroup were calculated using the standard formula for finite populations, assuming a 95% confidence level, a 5% margin of error, and a proportion of maximum variability (p = 0.5):

$$n = \frac{N \cdot Z_{\alpha}^{2} \cdot p \cdot q}{e^{2} \cdot (N-1) + z_{\alpha}^{2} \cdot p \cdot q} \quad (1)$$

Equation 1. Sample size formula for finite populations

Where:

n= Sample size

N= Population size (135 for faculty and 2,118 for students)

Z= Z-value for a 95% confidence level (1.96)

p= Expected proportion of success (0.5)

q= Proportion of failure (0.5)

e= Margin of error (0.05)

The calculations yielded minimum required sample sizes of 100 faculty members and 325 students. Actual participation included 64 faculty members (64% of the target sample) and 416 students (128% of the target sample), ensuring adequate statistical power and inferential reliability, particularly due to the overrepresentation of students. In addition, a focus group consisting of 10 faculty members was selected through purposive theoretical sampling. This approach ensured disciplinary heterogeneity and maximized the diversity of pedagogical perspectives, thereby enriching the qualitative interpretative analysis.

Data Analysis

Quantitative Analysis

Quantitative data, collected up to July 31, 2025, were processed using JASP version 0.19.03 and visualized in RStudio version 2025.09.0. The analytical procedures comprised the following components:

a) **Descriptive statistics:** Absolute and relative frequencies, measures of central tendency (mean, median, and mode), and measures of dispersion (standard deviation and variance).

b) **Inferential statistics:** Pearson's Chi-square test (α = 0.05) was employed to examine associations between sociodemographic variables and participants' perceptions, practices, and ethical orientations related to artificial intelligence (AI).

Statistical significance was established at $p < 0.05$. Residual analyses (unstandardized, Pearson, and standardized residuals) were conducted to identify cell-level contributions to the observed associations. Results were visualized using heatmaps and mosaic plots to enhance interpretability.

$$\chi^{2} = \sum \frac{(O_i - E_i)^2}{E_i} \quad (2)$$

Equation 2. Pearson's Chi-square test

Where:

O_i represents observed frequencies, and

E_i represents expected frequencies under the null hypothesis.

Qualitative Analysis

Audio recordings from the focus group sessions were transcribed using Whisper, an advanced Transformer-based automatic speech recognition

(ASR) model. The implementation was carried out using faster-whisper via CTranslate2, optimized with the following parameters: model = small, compute_type = int8, and VAD_filter = True (min_silence_duration_ms = 500). This configuration ensured an optimal balance between transcription accuracy and computational efficiency (see Figure 2):

1. Removal of stopwords.
2. Lemmatization and morphological normalization.
3. Synonym unification to enhance semantic coherence.

A term-frequency dictionary was then generated, and word clouds were created using Python's WordCloud library to visualize salient concepts and dominant themes. This analytical procedure integrated computational linguistics techniques with interpretive qualitative analysis, enabling robust data triangulation and a deep, contextually grounded understanding of participants' experiences and discursive constructions.

Figure 2. Workflow of the faster-whisper transcription and text-mining process.
(Source: developed by the authors)

Research Hypotheses

The mixed-methods analyses were designed to test the following hypotheses:

1. **Hypothesis on adoption gaps between academic groups.**
   Hypothesis: The level of adoption and use of generative AI tools is significantly higher among students than among faculty members.
2. **Hypothesis on sociodemographic and ethical correlations.**
   Hypothesis: Patterns of AI use within the academic community are significantly influenced by sociodemographic factors as well as by individuals' ethical orientations toward AI.
3. **Hypothesis on the "Acceptance versus Training" paradox.**
   Hypothesis: Despite a high perceived usefulness of and motivation toward AI among members of the academic community, there exists a critical lack of formal training in the use of generative AI tools.

Ethical Considerations

The study adhered to the ethical principles of the Declaration of Helsinki, as well as national and institutional research ethics protocols. Participation was voluntary, informed, and anonymous, with explicit consent obtained for recording and data use. All procedures ensured confidentiality, non-maleficence, and the responsible use of AI technologies within the research process.

3. Results

Patterns of AI Adoption and Perception among Students

The survey of 416 undergraduate students revealed an almost universal adoption of artificial intelligence (AI) tools within academic and everyday contexts. A striking 98.3% reported having used at least one AI application, with ChatGPT emerging as the most prevalent (71.5%). The dominant purpose of use, reported by 65.9%, was information retrieval, typically associated with task support, text summarization, and content expansion. This pervasive engagement coexists with a notable absence of formal training: 70.4% of respondents indicated never having received structured instruction in AI, and 56.7% self-assessed their knowledge as basic.

Despite this limited technical grounding, attitudes toward AI were overwhelmingly positive. Approximately 90% of students perceived AI tools as useful and associated them with curiosity, fascination, and optimism. Yet, critical awareness accompanied this enthusiasm: an equal 90% admitted to doubting the reliability of AI-generated outputs. About 70% considered AI a facilitator of learning without replacing the pedagogical role of the instructor, signaling an equilibrium between innovation and academic caution. Notably, 75% expressed motivation to expand their AI use in future academic activities.

Institutionally, 55% of students observed their professors employing AI during instruction, again predominantly through ChatGPT. However, perceptions of its pedagogical impact were ambivalent: while 41.1% viewed AI use by faculty as enhancing their learning process, 48.3% remained undecided. Ethical concerns predominated around technological dependency and academic integrity, with 64% affirming that responsibility for ethical limits rests with the individual student. This perception underscores the absence of clear institutional guidance, confirmed by nearly 70% who reported that Universidad del Valle, Pacific Campus, lacks explicit policies on AI usage. Nevertheless, demand for structured training is high: 85.9% of respondents deemed it essential for the university to provide ethical and technical education on AI use.

Faculty Engagement and Pedagogical Tensions

Among the 64 participating faculty members, results revealed a similarly high but more reflective adoption pattern. Nearly three out of five (59.7%) reported lacking formal AI training and rated their knowledge as basic. Nonetheless, 74.2% had incorporated AI tools, chiefly ChatGPT (56.5%), into their teaching, primarily for creating instructional materials, presentations, and exercises.

Faculty perceptions of AI were predominantly favorable (87%). Around 80% believed it improved their teaching performance, and 74.2% agreed that it enhanced students' learning quality, though 19.4% disagreed. A large majority (87%) rejected the notion that AI threatens the teaching profession, instead framing it as a complementary pedagogical resource. However, trust remains limited: 92% admitted harboring doubts about the accuracy of AI-generated outputs. Although 65% reported classroom use of AI, most described their engagement as moderate (72%), constrained primarily by limited technical expertise (21%).

Perceived student outcomes were mixed. Over half of the faculty (54.8%) observed improvements in academic performance linked to AI, especially in research and information retrieval. Conversely, 53% detected unauthorized or inappropriate uses, and 32.3% reported ethical or disciplinary conflicts related to AI use. Ethical apprehensions were widespread: 73% expressed medium to high concern, particularly regarding plagiarism and misuse. Alarmingly, 90% of instructors felt unprepared to handle AI-related ethical dilemmas, and 79% doubted that students possess the critical capacity to engage with these tools responsibly.

Institutional deficits amplify these challenges. Nearly 89% of respondents affirmed that the university lacks explicit AI policies, and 95.2% considered teacher training in ethical, pedagogical, and technical aspects an urgent institutional priority. The gap between adoption and institutional preparedness illustrates a reactive rather than strategic approach to AI integration in higher education.

Sociodemographic and Disciplinary Determinants

Inferential analyses (see Figures 3–4) reveal statistically significant associations between sociodemographic variables and AI-related behaviors across both populations.

Among students, academic program and semester level emerged as the most explanatory variables, correlating with diverse dimensions: overall AI use, purpose of use, frequency, perceived usefulness, ethical dilemmas, and attitudes toward faculty use. This pattern underscores a pronounced curricular heterogeneity, whereby disciplinary epistemologies and academic maturity shape distinctive modes of AI engagement.

Program-specific differences show, for instance, that students in technologically oriented disciplines employ AI for research and deliverable generation, whereas those in early semesters or social science programs use it primarily for studying or organizing coursework. Additional associations reveal that age correlates with the purpose of use, gender with perceptions of faculty

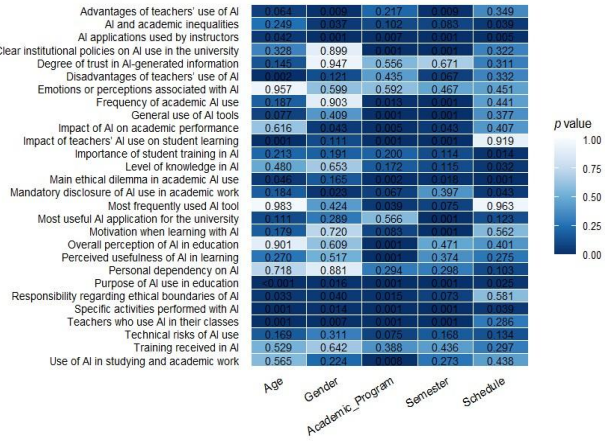

Figure 3. Inferential statistics (Students)
(Source: developed by the authors)

adoption, and study schedule (day/night) with ethical awareness and perceived inequality, suggesting stratifications in access, literacy, and legitimacy.

For faculty, the most consistent associations involved age, academic degree, teaching experience, and contract type. These factors shaped pedagogical uses, levels of integration, ethical orientation toward students, and willingness to participate in future training. Older faculty and those with permanent contracts tended to exhibit greater interest in ethical reflection but lower rates of experimentation, while younger or adjunct instructors demonstrated higher adoption but less institutional support. Gender differences also appeared in attitudes toward ethical guidance, highlighting gendered dimensions of digital confidence and responsibility.

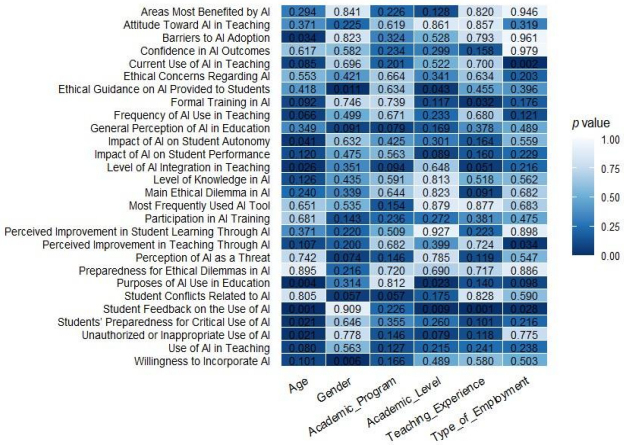

Figure 4. Inferential statistics (Teachers)
(Source: developed by the authors)

Structural Tensions in the AI Turn of Higher

Education

Across both datasets, three structural tensions emerged that encapsulate the contradictions of AI integration in Latin American higher education:

1. **Pedagogical Transformation vs. Academic Integrity:** The simultaneous normalization of AI use and anxiety about plagiarism and dependency reveals duality: AI is both an enhancer of cognitive productivity and a disruptor of traditional evaluation paradigms.
2. **Equity of Access vs. Digital Divid:** Significant differences by discipline, semester, and schedule expose unequal access to digital capital. Without targeted interventions, these disparities may reinforce pre-existing academic inequities, reproducing patterns of digital stratification.
3. **Heterogeneous Faculty Adoption vs. Institutional Coherence**: Variability by age, contract type, and experience produces uneven pedagogical practices and ethical interpretations. This fragmentation underscores the need for coherent institutional frameworks that harmonize autonomy with accountability, ensuring equity and quality in AI-mediated education.

Cognitive, Affective, and Institutional Reconfigurations

The qualitative phase deepens these quantitative insights. Focus group discussions revealed that AI has penetrated up to 70% of faculty's daily tasks, including course design, assessment preparation, meeting organization, and communication management. Generative platforms such as ChatGPT, Perplexity, Claude, and Humata, as well as interactive tools like Kahoot, have redefined teaching workflows and institutional communication.

Pedagogically, AI is perceived as a learning mediator. Several instructors have begun implementing activities where students critically compare AI-generated responses with academic sources, encouraging epistemic vigilance and analytical competence. However, participants also expressed concern that superficial use could lead to intellectual outsourcing, diminishing students' cognitive autonomy and conceptual depth.

The discourse revealed ambivalence: AI was praised for saving time, increasing engagement, and enabling multimodal instruction aligned with students' generational codes, yet simultaneously criticized for fostering plagiarism, dependency, and dehumanization. This ethical ambivalence mirrors broader anxieties about the commodification of knowledge and the erosion of reflective pedagogy in the algorithmic university.

Faculty converged on the need for institutional leadership and governance. Rather than prohibition, they advocated for a regulatory–formative model grounded in: (1) equitable access to reliable AI platforms, (2) continuous teacher and student training, and (3) a shared ethical code for responsible integration. Only under these conditions can AI serve as a vector of academic innovation rather than a catalyst for epistemic erosion.

Mapping the Discursive Topology

The semantic mapping of focus group transcripts (Figure 5), processed through the faster-whisper ASR model and analyzed using WordCloud and semantic network algorithms, highlights recurring lexical nodes: teacher, student, use, artificial, intelligence, information, university, and idea. These nodes cluster around three interpretive axes: (1) the pedagogical relationship between teachers and learners, (2) the instrumental function of AI as a knowledge mediator, and (3) the ethical tensions inherent in its adoption.

Co-occurrence patterns reveal AI as both a cognitive–affective catalyst and an institutional challenge, simultaneously inspiring curiosity and demanding critical regulation. The discourse portrays AI not simply as a tool but as a cultural and epistemic phenomenon that reconfigures the very grammar of teaching, learning, and knowledge validation in higher education.

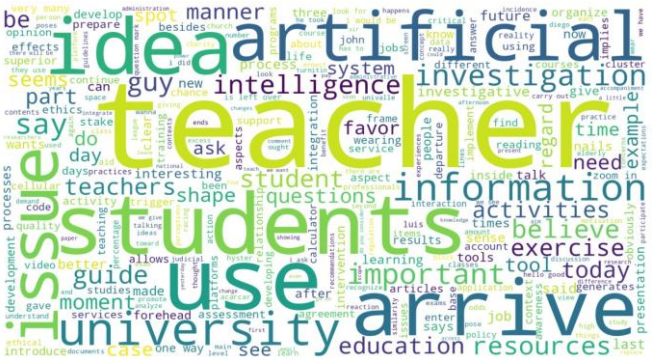

Figure 5. Semantic mapping of focus group.
(Source: developed by the authors)

4. Conclusion

Artificial intelligence (AI) can no longer be understood as a peripheral or auxiliary add-on to established pedagogical practices in higher education. Instead, it is actively reshaping the epistemic foundations upon which contemporary universities are organized, governed, and legitimized. Evidence from the Pacífico Campus of Universidad del Valle demonstrates—within a distinct and highly contextualized setting—that even in geographically remote, economically constrained, and institutionally under-resourced environments, AI is gradually, though unevenly and belatedly, consolidating itself as a disruptive epistemic force. In the historically marginalized Colombian Pacific region, AI is not merely optimizing academic tasks but reconfiguring knowledge practices, cognitive processes, and ethical

frameworks in ways that transcend instrumental efficiency.

The rapid and largely unregulated diffusion of AI tools among students and faculty at the Pacífico Campus—occurring in the absence of systematic training, formal governance structures, or clearly articulated regulatory guidelines—signals a deep institutional transformation. Teaching, learning, and scholarly production are increasingly mediated by algorithmic systems, giving rise to an emergent academic ecosystem in which AI operates simultaneously as a catalyst for productivity, creativity, and intellectual exploration, while also exposing the fragility of traditional pedagogical models. These tensions reveal rigid curricula, weak ethical infrastructures, and institutional cultures that remain insufficiently prepared to respond strategically, reflexively, and responsibly to accelerated technological change. As a result, Latin American universities face a critical historical moment in which uncritical technological adoption must give way to intentional, ethically grounded, and epistemically reflective institutional stewardship.

The Pacífico Campus case further illustrates that this disruption unfolds within a broader landscape of structural contradictions characteristic of higher education systems across the region. The coexistence of high levels of AI use with low levels of institutional preparedness exemplifies a paradox of innovation without consolidation, in which technological enthusiasm is accompanied by organizational inertia, fragmented governance, and persistent inequalities in access to material, digital, and cognitive resources. Moreover, observed patterns of AI adoption—stratified by age, gender, academic discipline, and employment status—confirm that technological integration is neither neutral nor evenly distributed. Instead, it is deeply embedded in pre-existing social hierarchies and enduring epistemic asymmetries. Without sustained and deliberate institutional interventions to strengthen digital literacy, ethical formation, and infrastructural capacity, AI risks reproducing—and potentially intensifying—the very inequalities it is often assumed to alleviate.

These findings underscore the urgent need for institutional and policy frameworks that move beyond narrow concerns with access, efficiency, or technical proficiency. What is required is the cultivation of critical, reflexive, and ethical competencies capable of addressing the ambiguities of algorithmically mediated knowledge production. From this standpoint, the integration of AI into higher education constitutes not simply a technical or operational challenge, but a profound ontological and epistemological reorientation. Universities are therefore compelled to rethink their pedagogical, organizational, and ethical architectures so that AI is positioned not as a substitute for human cognition, but as a collaborative partner in the co-construction of knowledge.

Achieving this shift demands a transformative governance paradigm grounded in equity, critical pedagogy, and epistemic pluralism—one capable of aligning technological innovation with academic integrity and broader commitments to social justice. Under such conditions, AI may transition from a disruptive external force into a constitutive element of a renewed academic ethos, where learning processes are simultaneously technologically enhanced and humanly accountable. This transformation offers universities a strategic opportunity to reimagine pedagogical, ethical, and technical models, while recalibrating faculty development through the identification of professional practices most vulnerable to—and potentially enriched by—AI-mediated change.

To advance this agenda, future research should prioritize:
(I) analyzing how disparities between free (often limited) and paid (more advanced) AI tools, together with connectivity constraints, unequal access to digital infrastructure, and uneven levels of digital literacy, shape academic performance, learning trajectories, and epistemic outcomes;
(II) examining how sustained AI use reshapes teachers' epistemic authority and how prolonged student reliance on AI affects critical thinking, learner agency, and intellectual autonomy across multiple academic semesters; and
(III) designing and empirically validating AI governance frameworks specifically tailored to Latin American public universities—frameworks capable of balancing academic integrity with pedagogical innovation in contexts marked by limited resources and restricted training opportunities.

Taken together, these research directions are essential to ensuring that the transformative potential of AI in higher education is realized in ways that are epistemically responsible, socially just, and institutionally sustainable

Declarations

Author Contributions

Conceptualization, A.V.G.; methodology, A.V.G. and J.C.O.A.; software, A.V.G. and J.C.O.A.; validation, A.V.G. and G.A.C.R.; formal analysis, A.V.G. and J.C.O.A.; investigation, J.C.O.A.; resources, A.V.G.; data curation, J.C.O.A.; writing—original draft preparation, A.V.G. and G.A.C.R.; writing—review and editing, J.C.O.A.; visualization, A.V.G. and J.C.O.A.; supervision, A.V.G. and G.A.C.R.; project administration, A.V.G. and G.A.C.R. All authors have read and agreed to the published version of the manuscript.

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Institutional Review Board Statement

This study was conducted in accordance with rigorous ethical guidelines to ensure participant privacy and data confidentiality, and in compliance with institutional, national, and international research standards.

Informed Consent Statement

Participation in the study was voluntary, and informed consent was obtained from all participants prior to their involvement.

Conflicts of Interest

The authors declare no conflict of interest.

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