Artificial Intelligence in University Teaching: A Qualitative Analysis from the Faculty Perspective

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Abstract– Artificial intelligence (AI) is increasingly becoming an integral component in university students' educational processes. In this context, it is crucial to investigate the challenges, attitudes, and opportunities arising from its pedagogical, technological, and ethical integration, as perceived by educational stakeholders. Therefore, this research aims to analyze university faculty's perceptions regarding the incorporation of AI into their teaching strategies. To achieve this, a qualitative approach with a phenomenological design was employed. Semi-structured interviews were conducted with ten experienced professors, exploring their levels of familiarity, adoption challenges, attitudes, and professional development needs. Participants identified barriers such as a lack of adequate infrastructure, the financial costs for universities (as not all applications are free), and the need for specialized training. Nevertheless, they acknowledged the potential of these technological innovations to transform teaching practices and strengthen students' critical skills.

Keywords-- Artificial Intelligence; higher education; teacher training; pedagogical innovation; teaching practice.

I. INTRODUCTION

The incorporation of artificial intelligence (AI) in education has accelerated rapidly in recent years [1], enabling more personalized learning and facilitating new forms of continuous assessment. Its integration into university teaching can contribute to achieving SDG 4, which aims for inclusive, equitable, and quality education [2]. However, it also presents unresolved challenges, such as its impact on the teacher's role, ethical concerns, and a lack of solid evidence regarding its effectiveness. Therefore, it is essential to evaluate these tools to ensure their alignment with pedagogical objectives and their cultural and social appropriateness.

AI has significantly enhanced the educational experience. For example, it facilitates personalized feedback [3], enabling self-correction of assignments. However, its implementation requires more than just financial investment. Factors such as deficient infrastructure, lack of funding, and insufficient teacher training hinder its integration [4]. A shift in attitude within the university community is also needed to overcome resistance and unpreparedness for adopting new technologies. Higher education remains limited by a lack of clarity regarding AI's pedagogical applicability, particularly since the perception of AI among educators has not been thoroughly explored, leading to uncertainty [5]. The success of AI implementation largely depends on teacher preparedness [6]. Nevertheless, many still resort to traditional methods and are unfamiliar with digital tools. Some even perceive students as more technologically competent [7], reflecting a gap that has emerged due to AI application focusing more on students [8]. Assuming new responsibilities can be overwhelming, especially amidst rapid changes like those experienced during the pandemic [9]. Furthermore, university faculty face the challenge of adapting to students with diverse skill levels and expectations [10]. From a theoretical perspective, AI offers a renewed conceptual framework for understanding teaching and learning, making it crucial to identify barriers, concerns, and training needs from the teacher's viewpoint [11].

The objective of this research is to assess university faculty's perceptions regarding the integration of AI in teaching, specifically focusing on their level of familiarity, most utilized applications, perceived challenges and concerns, attitudes, and training needs to ensure successful implementation.

II. METHODOLOGY

A phenomenological design with a qualitative approach was applied, as it allows for a deeper analysis of participants' perceptions [12]. Furthermore, this design allows access to ethical and practical dimensions that are difficult to obtain using quantitative methods. By focusing on the narratives of the educators, the aim was to achieve a contextualized and in-depth understanding of their experiences, thereby legitimizing its application in this educational setting.

A sample of 10 university lecturers from the Faculty of Humanities at a private university in Lima, Peru were selected. These lecturers, from the first academic year, had the highest teaching workload and were experts in university didactics. The group consisted of 3 women and 7 men, all with an average of 11 years of experience in higher education, an average age of 47, and a strong interest in educational innovation. They represent the entire population relevant to the study; therefore, a census sample was chosen. This type of sampling involves including every member of the population group to obtain precise results and ensure that the perceptions collected accurately reflect the experiences and opinions of all involved educators [13]. This methodological decision also ensured the principle of saturation, which occurs when the collection of additional data no longer yields new information, themes, or categories, indicating that the researcher has achieved sufficient depth and does not need to continue gathering more data.

Table I is presented below. It shows the list of ten interviewed professors, detailing information about their highest academic degree and their career in higher education.

TABLE I
ACADEMIC DEGREE AND YEARS OF EXPERIENCE OF INTERVIEWED FACULTY

	Academic Degree	Years of exp.	Age	Gender
T1	Doctor in Educational Sciences	12	39	M
T2	Master in University Teaching and Ed. Management	12	50	M
T3	Master in University Teaching	7	39	M
T4	Doctor of Education	14	56	M
T5	Doctor in Public Management and Governance	6	40	F
T6	Master in Educational Technology	10	58	F
T7	Master in Educational Administration	12	50	M
T8	Master of Education in Teaching	10	40	M
T9	Master in University Teaching	21	51	M
T10	Master in Learning Disabilities	8	48	F

A semi-structured interview was employed as the data collection instrument due to its effectiveness in exploring the depth of social phenomena from the perspective of the actors themselves. This technique, common in qualitative studies, is capable of balancing flexibility with systematicity, which facilitates addressing predefined topics without limiting the emergence of new ideas during the conversation [14].

III. INSTRUMENT DESIGN AND VALIDATION

After reviewing various studies on artificial intelligence (AI) in the university setting, the subcategories were disaggregated into five key areas to understand the complexity of the phenomenon under study. These were: (1) Familiarization with and knowledge of AI, (2) Applications and functionalities of AI tools for teaching, (3) Challenges related to the integration of AI in higher education, (4) Attitudes toward the integration of AI in university teaching, and (5) Training and professional development needs. Building upon the solid foundation provided by this initial phase, these established subcategories served as specific reference points for generating a set of open-ended questions. This allowed for a detailed exploration of the teachers' perceptions and experiences. Thus, 10 questions were strategically designed to capture the richness of the participants' teaching experiences, which enabled a more comprehensive and contextualized view of their perspective on artificial intelligence.

The instrument underwent expert judgment validation, reviewed by professionals holding doctoral degrees with experience in the thematic area and research methodology. This procedure consists of a critical review by academic-pedagogical specialists [15]. Thanks to their observations, significant adjustments were made to enhance the instrument's quality and strengthen its utility for clear and reliable data collection. The

first expert was a Doctor of Education with experience in educational evaluation; the second, a Doctor of Education and a researcher in higher education; and the third, a Doctor of Public Management with experience as an advisor in formative research. This review allowed for improved wording and ensured conceptual precision and feasibility for field application.

The experts evaluated aspects such as item clarity, internal consistency, language appropriateness, relevance to objectives, and congruence with theoretical dimensions. They were asked to approve or disapprove each item using a dichotomous system (0 or 1). Subsequently, the agreement index (V) was calculated using the formula $V = S / n(c-1)$, where "n" is the number of experts, "c" is the number of possible values, and "S" is the sum of agreements [16]. A total Aiken's V coefficient of 0.8 was obtained, demonstrating the content validity of the instrument.

Table II displays the organization of the thematic subcategories that group the questions aimed at exploring faculty's perceptions, knowledge, attitudes, and needs regarding the integration of AI in university teaching.

TABLE II
ORGANIZATION OF THEMATIC SUBCATEGORIES

Subcategory	Guiding Questions
Familiarity and Knowledge of AI	How familiar are you with AI?
Applications and Functionalities of AI Tools for Teaching	What AI applications or tools do you know that are relevant for teaching?
Challenges Regarding AI Integration in Higher Education	What obstacles do you perceive, including technological and pedagogical barriers, to integrating AI into higher education teaching? What are your main ethical concerns regarding the use of AI in teaching?
Attitudes Towards AI Integration in University Teaching	Are you currently willing to integrate AI into your teaching practice? What benefits or risks do you perceive in using AI for teaching?
Training and Professional Development Needs	What type of training or professional development have you received related to the use of artificial intelligence for teaching? What additional tools or resources would be useful for you to implement AI in your classes? What do you believe should be the university's role in integrating AI into teaching? What results would you expect to observe in student assessments and tests if AI were implemented in teaching?

A. Procedure

Interviews were conducted virtually via Zoom and in-person. Before each interview, participants received an informed consent form outlining the research purpose, procedures, voluntary participation, and guaranteed confidentiality.

B. Data Analysis

Deepgram was used to transcribe the semi-structured interviews. Subsequently, data analysis was performed using

Atlas.ti version 8 for coding and developing emergent categories aligned with the research objectives. Finally, each response was analyzed to identify patterns and trends. This procedure ensured a rigorous and well-founded interpretation of the collected information [17].

C. Ethical Statement

This research adopted ethical measures to ensure the protection of participants' rights, the privacy of personal information, and the appropriate use of involved technologies, in accordance with current international regulations regarding the protection of participants' rights. All collected personal information was coded and stored securely and anonymously to prevent unauthorized access.

IV. RESULTS

This section presents the findings regarding faculty perceptions of artificial intelligence in teaching, including associated challenges and concerns, their familiarity with the technology, attitudes toward its classroom integration, and professional development needs.

A. Degree of Familiarity with AI Use in Teaching

The results show that three faculty members (T5, T7, T8) reported highly familiar with AI. They regularly apply it in their classes, even when not required by the university. Furthermore, they actively promote its integration into the curriculum and consider it important to guide students in its use. Therefore, they strive to stay updated on new technologies and participate in internal or external training. Their proactive approach reflects a commitment to innovation.

In contrast, four faculty members (T1, T2, T3, T9) indicated moderately familiar with AI. They use AI not only for personal work but also in some sessions with students. In addition, they are in the process of incorporating it into their teaching methods and experiment with different applications to improve their classes.
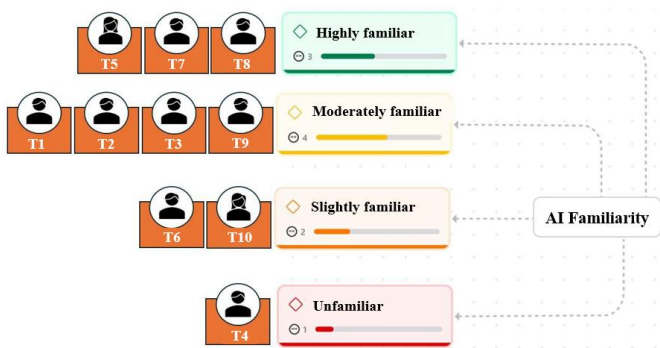

Fig. 1 Degree of Familiarity with AI Use in Teaching.

Figure 1 shows varied level of familiarity exists among university faculty: a small group actively promotes its use, the majority are in an exploratory or partial application phase, and one case demonstrates complete unfamiliarity.

Meanwhile, two faculty members (T6, T10) reported slightly familiar with AI. They primarily use AI for personal support. They acknowledge that their understanding is still limited, which restricts its direct application in the classroom. Finally, one faculty member (T4) stated, "I'm actually not familiar with artificial intelligence," showing a disconnection from these emerging tools, in contrast to those who have already started implementing them. Consequently, a prevalence of intermediate and exploratory levels is observed, with only a small number of highly specialized faculty members and a single case of complete unfamiliarity.

B. Applications and Functionalities of AI in University Teaching

This finding shows that faculty members are adopting AI in a strategic and functional manner, adapting it to their specific needs and pedagogical styles. The most frequently used tools are ChatGPT for improving texts, Copilot and Gemini for generating ideas, and other applications for designing visual and narrative materials. Overall, AI is being used as a resource to optimize time, organize knowledge, and enhance creativity. Different approaches were observed among the participants: T1 and T3 highlighted its utility for improving the coherence of their writing; T5 and T7 valued its capacity to generate and enrich content; while T4 and T6 emphasized its contribution to creating storytelling and slides for students. In all cases, its role in saving time and improving the quality of teaching materials is recognized, though with varying emphases depending on each individual's experience.

Figure 2 illustrates the diverse ways faculty utilize AI, highlighting a growing trend toward adopting these tools. Therefore, there was a consensus on the utility of artificial intelligence tools in teaching.
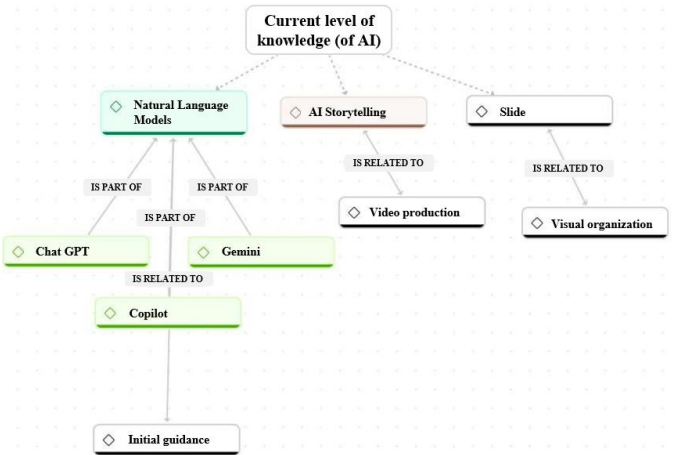

Fig. 2 Applications and Functionalities of AI in University Teaching.

C. Challenges Regarding AI Integration in Higher Education

The challenges arise from the contrast between the possibilities that technology offers and the real limitations of the educational environment. On one hand, faculty members T3 and T7 mentioned a lack of access to Wi-Fi and adequate devices, which creates a digital divide that limits the use of these tools. In contrast, T5 and T10 expressed concern about the risk that AI may encourage plagiarism and reduce the development of critical thinking among students. Furthermore, T4 and T7 pointed out that a lack of training makes it difficult to guide students on the proper use of the technology. Finally, T5 warned that many students use AI only to get quick answers without deepening their understanding or reflecting, simply resorting to a copy-and-paste approach. In this regard, it is considered that the mere adoption of AI is not enough to drive real change. The university must ensure that all students have access to new technologies to reduce the unequal impact and better leverage their potential for learning.

Figure 3 shows the main challenges of integrating artificial intelligence into university education, such as the risk of plagiarism, the reduction of critical reasoning, and the lack of teacher training, which could limit adequate student support.
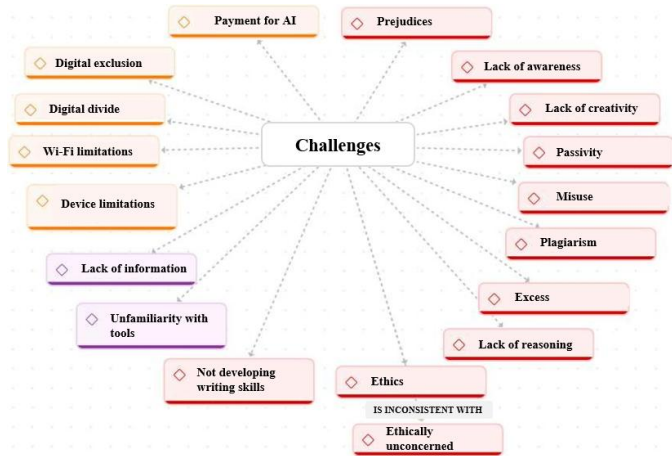

Fig. 3 Challenges Regarding AI Integration in Higher Education.

D. Faculty Attitudes Towards AI Integration in Teaching

Upon analyzing the interviews, a variety of attitudes were identified. Of the ten faculty members, only one (T9) expressed rejection toward AI, arguing that it could lead to dependence and limit the development of analytical skills. In contrast, the majority showed a favorable attitude, recognizing its potential to make classes more dynamic, improve writing, facilitate information searches, and strengthen critical and higher-order cognitive skills. They also agreed that it is a key tool for preparing students for a technological environment. Within this majority, T1, T2, and T4 highlighted the importance of promoting responsible and ethical use. Meanwhile, T5 and T6

emphasized its ability to streamline processes and foster critical analysis, and T10 underscored that AI can enrich classes as long as it is used responsibly.

Figure 4 illustrates that the attitudes of the interviewed faculty members regarding the integration of artificial intelligence into their pedagogical practices are structured along two main axes: acceptance and rejection. The first case, acceptance, is linked to adaptation, preparation for a digitalized world, and the idea of progressive change, highlighting AI's value as a tool to enrich learning. Within this dimension, written communication stands out as a central component. Positive contributions are identified, such as ease of information search, initial guidance, in-depth topic exploration, comparison, hierarchical organization of ideas, analysis, and the generation of cognitive conflict. In the second case, rejection is related to a distrust of AI sources and the risk of fostering passivity in students. Likewise, risks such as the mechanical "copy-and-paste" approach are noted, along with an excessive reliance on AI to automatically verify information and a tendency to focus solely on formal aspects (like connectors or punctuation) without developing critical reflection.
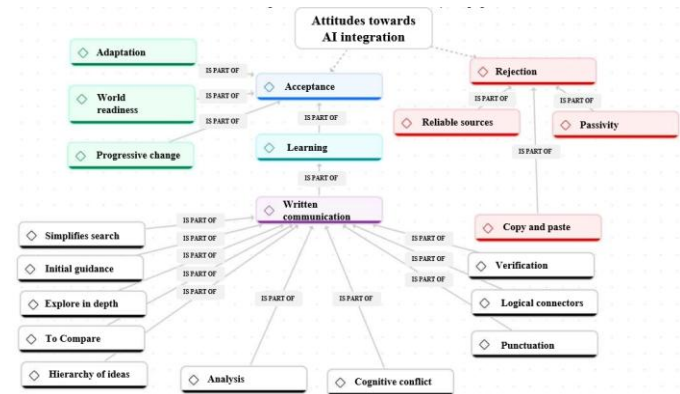

Fig. 4. Faculty Attitudes Towards AI Integration in Teaching.

E. Training and Professional Development Needs

The interviews reveal that while one faculty member opposes the implementation of AI out of fear of its negative effects on students, the majority supports it and highlights their self-taught learning process. The faculty members identified several key needs for effective AI integration: T2, T4, T6, and T7 pointed to the need for specialization programs, institutional funding, and manuals on best practices. T1 and T3, in contrast, emphasized the importance of accessing tools and receiving continuous training to apply new didactic strategies. T5 and T9 warned that a lack of professional development limits implementation and reduces teaching opportunities. T10 highlighted the urgency of clear institutional guidance to optimize AI's use in the classroom.

Fig. 5. Training and Professional Development Needs.

Figure 5 shows that most faculty agree with the benefits of AI and support its integration into teaching, as it promotes self-directed learning. However, this support is accompanied by concern, as they consider it fundamental to have specialization programs, university financial support, clear practical guidance, and continuous training. The results show that while a few teachers have mastered and actively apply AI, the majority remain at intermediate or basic levels, with differences in usage, challenges, and attitudes. However, all agree that training is essential.

V. DISCUSSION

This research analyzes university faculty's perceptions of artificial intelligence integration in teaching, as well as their concerns and challenges. The incorporation of AI in the educational context has led to a significant shift in how knowledge is acquired, managed, and shared, transforming traditional teaching and learning approaches [18]. AI shows a high potential to address global pedagogical challenges, proposing an integration based on inclusion and equity [8].

The study reveals a heterogeneous distribution in faculty's familiarity with AI. Although there's growing interest, most are at an intermediate stage of understanding and application. It is considered important to offer continuous support and training for a broader and more effective integration. This diversity aligns with the digital skills gap among university faculty, especially in Latin American contexts with still limited training processes and infrastructure [19]. Faced with this disparity, it is suggested that progressive integration, accompanied by training and clear guidelines, is required, which aligns with the disconnection observed in less familiar faculty [20]. In turn, the responsible use of AI should be fostered among faculty with intermediate and advanced knowledge [21]. This heterogeneous scenario highlights the need for differentiated strategies to achieve effective integration.

Regarding applications, an inclination towards tools like ChatGPT, Copilot, and Gemini for text correction, idea generation, and visual content creation was evident. This trend aligns with the fact that AI enhances creativity and academic

writing when used in a guided manner [22]. Similarly, faculty intensively integrate AI-based tools like Plagscan and ChatGPT [21]. They value advantages such as personalized learning and research support. Thus, faculty appear to be actively exploring these technologies to enrich their practices and anticipate greater integration in the academic future.

Among the challenges, faculty highlighted technical, ethical, and training aspects. On the technical side, T3 and T7 mentioned the lack of Wi-Fi access and devices, creating digital divides, which aligns with [23] and [24]. Additionally, this aligns with the fact that integration requires technological investment and cultural changes [25]. Ethically, T5 and T10 warned of the risk of plagiarism and student passivity, and they agreed with other authors that misuse could affect critical reasoning [26] [27]. Regarding training, faculty expressed feeling unprepared to guide their students, as also noted by [28]. This indicates that successful AI integration requires a comprehensive strategy that includes continuous training, investment, and inclusive policies.

Concerning attitudes, an openness towards AI as a tool for information retrieval, idea prioritization, and in-depth topic exploration predominated, aligning with [29]. However, an isolated critical attitude emerged, fearing that excessive use could affect analytical thinking, as also warned by [30]. This ambivalence shows that acceptance depends on the level of training, institutional context, and educational objectives. Furthermore, [32] recommend guiding AI use to avoid dependence and promote critical and autonomous writing. Thus, while reservations persist, the dominant perspective highlights AI's potential to prepare students for a competitive technological environment and foster reflection and debate.

As for training needs, faculty, especially those with less familiarity, agreed on the importance of continuous training and greater access to AI tools. Moreover, [21] proposes that there should be progressive integration with clear training and guidelines. In addition, [32] highlights the need to integrate digital and AI competencies into teacher training. Finally, [19] elaborate that it is not enough to know how AI works, but also how to apply it pedagogically and personalize data-driven strategies. Thus, enhanced training will allow for better leveraging of AI's potential in teaching.

VI. CONCLUSIONS

In conclusion, although the majority show openness and recognize AI's potential to energize classes, optimize processes, and prepare students, technical, ethical, and training challenges persist that must be addressed for successful implementation. The heterogeneity in the level of familiarity confirms, as indicated by the literature, the need for differentiated training programs. Although the adoption of AI tools fosters active exploration, cautions persist regarding the risk of dependence or the adverse impact on critical thinking, and the importance of guiding its use is emphasized. Ultimately, integrating AI requires sustained investment, cultural changes that value

responsible innovation, and inclusive policies that mitigate the digital divide and address ethical concerns to positively transform higher education.

Based on the findings of this study, university policies should adopt a proactive and multifaceted approach to integrate artificial intelligence (AI) into teaching. This approach must begin with the implementation of continuous and differentiated training programs to address the diverse levels of basic and advanced familiarity with AI among faculty members. Additionally, it should involve investment in the necessary technological infrastructure, ensuring access to Wi-Fi and devices to mitigate the digital divide among both professors and students. It will also be necessary to establish clear ethical guidelines to address concerns about plagiarism, student passivity, and the responsible use of AI, in order to foster critical thinking and autonomy in learning. This will ensure that policies not only facilitate effective technological adoption but also guarantee that this transformation is carried out in an equitable and responsible manner.

Among the main limitations, while the participation of faculty members who are experts in university didactics was achieved, the findings may not fully represent the variety of perspectives and experiences regarding the use of artificial intelligence in higher education. Therefore, it is recommended that the sample be expanded in future studies to include faculty from different disciplines and universities. Additionally, the qualitative methodology could be complemented with mixed-methods or comparative approaches to more accurately assess digital competencies and better approximate the study's phenomenon. Finally, longitudinal studies would allow for an analysis of how faculty attitudes and practices evolve in the face of the growing presence of AI.

Future studies should move along three main axes: teacher training and professional development that integrates technical, pedagogical, and ethical aspects of AI; ethical-institutional frameworks to promote the responsible and ethical use of AI; and the pedagogical effects of AI implementation in teaching and learning.

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