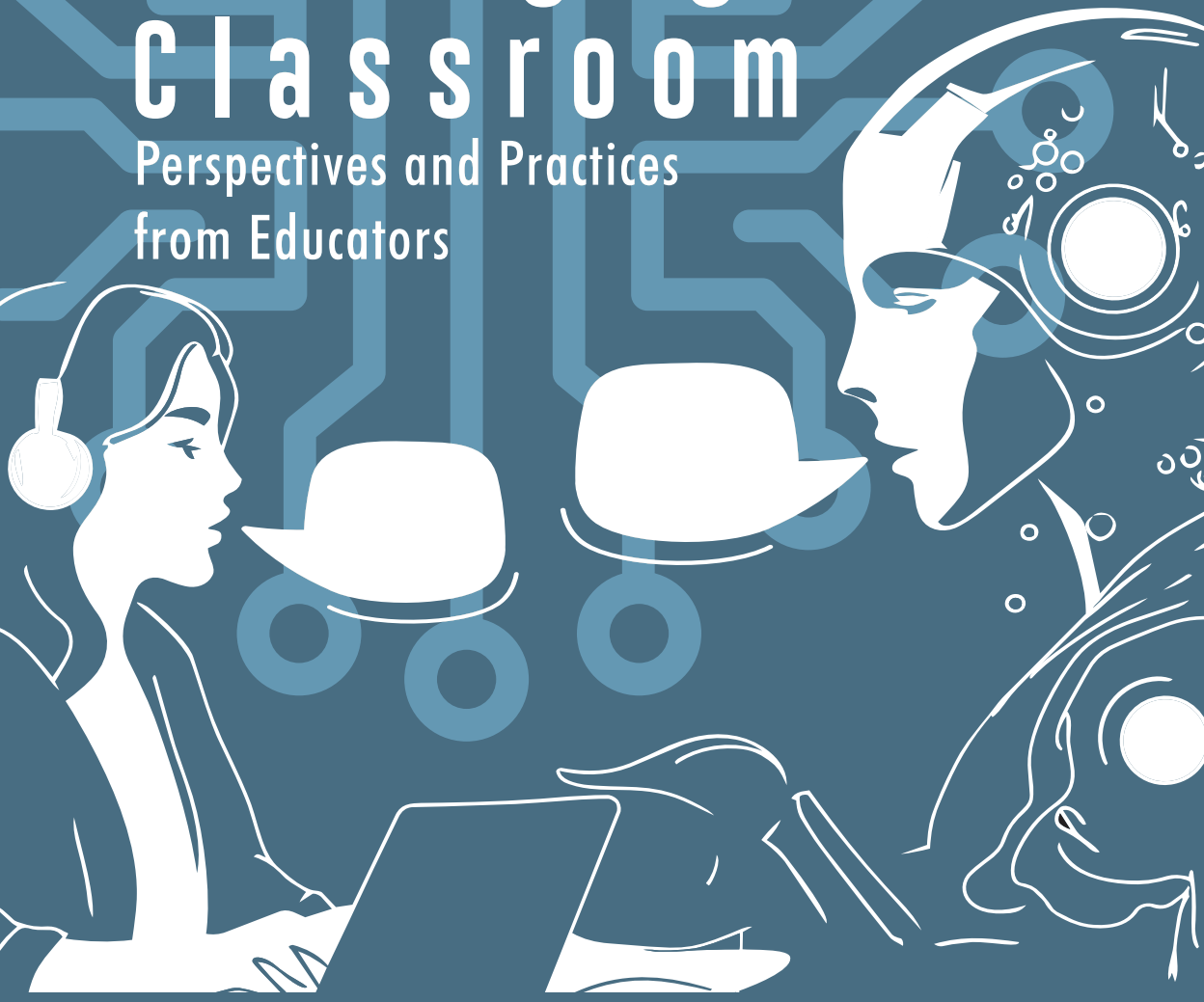
AI in the Language Classroom

Perspectives and Practices from Educators



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UNIVERSIDAD DE COLIMA

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enfoque académico

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Prologue

A transformative agent of change that has burst into our daily lives, becoming a fundamental shift in the way we live, work, and interact is Artificial Intelligence (AI), also known as the core of the fourth industrial revolution, as it functions as an entity that embraces other technologies. Despite the rapid advancements in AI, it is still a promising field of knowledge. There is vast knowledge in the area yet to be explored and discovered, especially in its application, as greater uses are discovered every day and a large number of tools emerge. Despite the background of AI in education, it is still a fertile field, especially in the area of language teaching and learning.

Being active participants ourselves in the world of language teaching, we foresee emerging topics that concern the teaching and research community in our field of knowledge. With the incentive to know and explore the different ways in which AI has permeated the academic life of language teachers, the interest arose to understand what was happening in various university contexts in the Mexican Republic, in relation to the use and application of AI and how language teaching professionals resolve and face the emergence and disruption of this technology in teaching and learning processes.

Through the collaboration network that exists among teachers and researchers belonging to the Network of Academic Bodies in Foreign Language Teaching, an invitation was extended to participate in a research study exploring the integration and impact of AI tools in English language teaching. Those who responded belong to different academic bodies of Higher Education

Institutions in the Mexican Republic. All interested in the topic, willing and committed to working on the collection of information through a unique instrument, whose collected information served as input for the drafting of the chapters.

The authors are professors from various universities in the country: from *Universidad Autónoma de Baja California*, from *Universidad Nacional Autónoma de Nuevo León*. Professors from *Universidad Autónoma de Chihuahua* also participate. From the central region of the country, professors from *Benemérita Universidad Autónoma de Puebla* participate. From the west, professors from *Universidad de Colima* are participating, and from the southeast, professors from *Universidad Veracruzana* and *Universidad Autónoma de Quintana Roo*.

The different geographical positions represented by each of the participating researchers reveal a distinctive feature of this project, which is the diversification of information sources. This allows for understanding the topic and delving deeper into it from the perspective and experience of diverse individuals in different educational contexts. This enriches the study with a diversity of perspectives, sociocultural contexts, and local realities that allow for a broader and more representative understanding of the phenomenon being investigated. This geographical diversity favors the identification of common patterns and regional differences, which contributes to the external validity of the findings and the possibility of generating more robust and nationally applicable conclusions. Additionally, it allows for the visibility of inequalities, particularities, or best practices specific to each region, which can be useful for designing policies, study programs, or more contextualized and effective strategies.

It is for the reasons previously mentioned that this book may be of interest to various stakeholders at different levels of Higher Education Institutions in our country. It is attractive for language teachers because they can understand what the best educational practices are carried out by language teachers from other regions. It is also useful for educational coordinators who wish to understand or justify the reasons why AI should be part of the curriculum in language learning and teaching programs. It can

also be very useful for decision-makers in educational institutions; as the book provides an important source of information collected and analyzed through scientific processes, resulting in reliable information for decision-making.

Chapter one explores the understanding of English teachers at *Universidad Veracruzana* regarding AI, their behavioral intentions and the underlying factors influencing their use of AI in their teaching practice.

Chapter two focuses on a comparative mixed methods study that explores how teaching experience may influence the perceptions and uses of AI in the classroom of pre-service and in-service English teachers from Chihuahua.

Chapter three explores the integration of AI tools among English language teachers in southern Mexico. Young teachers showed greater AI familiarity, often using language apps and grading tools to boost engagement and feedback. Teachers found AI beneficial but were concerned about privacy, ethics, and student over-reliance.

Chapter four reveals that most teachers at the University of Colima possess only basic AI knowledge, with varying levels of expertise across different tools. A significant finding highlights teachers' perceptions of AI´s benefits for teaching.

Chapter five analyzes the impact of AI on English teaching at *Benemérita Universidad Autónoma de Puebla*, posing questions about its influence, challenges, and support for teachers.

Chapter six examines the current state of AI integration in ELT, highlighting the benefits and challenges faced by educators in northern Mexico.

Chapter seven reveals that AI tools empower some teachers as others manifest some caution in using these in their classrooms. Teachers, policy makers and school authorities can use the information provided in this study to gain a holistic understanding of the perceptions and challenges of using AI tools in language teaching.

CHAPTER I

Will They Embrace It? Artificial Intelligence and Mexican English Educators' Behavioral Intentions

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Abstract

Artificial Intelligence (AI) has profoundly impacted various educational domains; it has emerged as an innovative tool poised to revolutionize teaching and learning processes. The integration of AI in education has garnered significant attention from practitioners and researchers alike, owing to its potential to enhance educational outcomes. In the context of English Language Teaching (ELT), AI offers a substantial opportunity to deliver personalized instruction, improve assessment practices, and foster interactive learning environments. Despite its potential benefits, little is yet known about English teachers' understanding of AI, their behavioral intentions and the underlying factors influencing their use of AI in their teaching practice. This study

aims to bridge this research gap by examining how English teachers in a Mexican university perceive, use, and plan to integrate AI tools. This exploratory, descriptive case study adopted a quantitative approach and used a survey as the primary method of data collection. The data were gathered through a single online questionnaire distributed using Google Forms from 47 teachers across three different teacher education programs. The findings indicate that while teachers acknowledge AI's potential to enhance teaching practices, significant obstacles related to perceived ease of use hinder its adoption. Addressing this barrier is crucial to maximizing the utility of AI in educational settings through targeted interventions that enhance both the perceived usefulness and ease of use of AI.

Keywords

Artificial Intelligence, TPACK, technology adoption, EFL classroom, perceptions

Introduction

The rapid advancement of technology has significantly transformed various sectors, including education. Among these technological innovations, artificial intelligence (AI) has emerged as a powerful tool with the potential to revolutionize teaching and learning processes. The integration of AI in education has gained significant attention in recent years, with educators exploring its potential to enhance teaching and learning processes (Sangapu, 2018; Alhalangy & AbdAlgane, 2023; Lee, 2022). AI in education encompasses a range of applications, from intelligent tutoring systems and automated grading to personalized learning experiences and administrative support (Chen, Chen, & Lin, 2020). The existing literature highlights the various benefits that AI can offer in the field of English language teaching.

AI-based educational programs can provide more personalized and adaptive learning experiences for students by tailoring the content, pacing, and feedback to their individual needs and abilities, which could lead to improved language proficiency and learning outcomes

(Al-Othman, 2024). Furthermore, AI can also be leveraged to enhance assessment techniques, offering more efficient and objective ways to evaluate students' language skills (Rashmi, 2023). However, the existing literature lacks empirical evidence on English as a Foreign Language (EFL) teachers' understanding of AI, their behavioral intentions and their underlying factors when it comes to adopting AI in their classrooms (Grani and Maranguni, 2019). This study focuses on the specific context of English as a foreign language (EFL) education in Mexico, where the adoption of AI technologies holds the potential to significantly enhance language learning outcomes. It aims to address this research gap by researching 4 key determinants: Perception, Awareness, Application of AI tools, and Future intentions of use which might indicate EFL teachers' acceptance of AI in their teaching practices, using the Technology Acceptance Model (TAM) (Davis, 1989) as a theoretical framework. Specifically, this study seeks to answer the following questions: (1) How do Mexican EFL teachers perceive the usefulness and ease of use of AI-based tools? (2) What factors influence their behavioral intention to integrate AI into their teaching practices? (3) How does Technological Pedagogical Content Knowledge (TPACK) mediate the relationship between teachers´ perceptions and their intention to use AI?

By studying both the perceptual and contextual factors influencing EFL teachers' acceptance of AI, this study intends to provide valuable insights into the perceptual and contextual factors that shape EFL teachers' adoption of AI. The findings are expected to inform educational institutions and policymakers in Mexico about the necessary support and resources to foster the effective integration of AI in EFL education, ultimately enhancing language learning experiences in diverse classroom settings.

Literature

This article on EFL teachers in a Mexican teacher education program examines perceptions and intention to use AI is grounded in the existing literature on the Technology Acceptance Model (TAM). TAM suggests that an individual's intention to use technology is determined by their perceived usefulness and perceived ease of use (Teo, 2011). TAM posits that two primary factors determine people's

intention to use a particular technology: a) perceived usefulness (PU) which refers to the extent to which an individual believes that using a specific technology will enhance their performance or effectiveness in achieving a particular task; and b) Perceived ease of use (PEU) refers to the degree to which an individual believes that using a specific technology will be effortless and easy to use (Davis, 1989). In the context of this study, TAM suggests that if teachers perceive AI-based tools as useful for improving their teaching practices and student learning outcomes, and if they find these tools easy to use and integrate into their existing practicum, they are more likely to adopt and use AI in their classrooms.

The Technology Acceptance Model (TAM) has been widely applied in educational contexts to explore teachers' and learners' intentions to adopt new technologies. Several key studies that have approached EFL teachers' behavioral intention to adopt AI-based tools in EFL contexts have provided insights into the factors influencing EFL teachers. In what follows, a review of these studies is presented.

Grani and Maranguni (2019) provide a comprehensive review of TAM studies in education, highlighting TAM's effectiveness as a framework for assessing technology acceptance across diverse learning technologies and educational domains. Their findings indicate that TAM's core constructs, perceived usefulness (PU) and perceived ease of use (PEU), consistently influence educators' intentions to integrate technology into their practice. Despite TAM's extensive application, Grani and Maranguni note a gap in research specifically focused on TAM in varied educational settings, including language education, which suggests a need for further studies on how TAM can predict the use of AI in EFL classrooms.

Teo (2010) notes that EFL teachers are more likely to adopt AI if they perceive it as beneficial for enhancing teaching effectiveness and student engagement. However, tools perceived as difficult to integrate or require extensive training are often met with resistance. Teo (2011) further underscore the importance of PU and PEU, as EFL teachers' favorable perceptions of AI's utility and ease of use significantly predict their intention to adopt AI tools. Similarly, Benek (2025) identify technological knowledge and self-

efficacy as essential for effective AI integration, as teachers with a higher self-efficacy level in using technology are more likely to overcome adoptions barriers.

Nagy and Dringó-Horváth (2024) find that digital competence, collegial support, ICT self-efficacy, and positive perceptions of ICT significantly enhance university teachers' technology integration. Similarly, Arif and Handayani (2021) emphasize the roles of motivation, ICT skills, and attitudes, which are shown to substantially impact teachers' use of ICT for language learning, whereas access to equipment alone does not directly influence technology acceptance. Other studies identify educational experience, prior exposure to e-learning, and access to facilities as determinants in shaping EFL teachers' willingness to adopt e-learning (Al-Anezi & Alajmi, 2021). In addition, apart from PU, external factors such as institutional support and cultural values play critical roles in shaping EFL teachers' intentions to adopt AI (Wang et al. 2022).

Understanding teachers' attitudes and behavioral intentions is important for the successful integration of AI in Education. Alam (2021) emphasizes that AI can assist and modify pedagogical practices, potentially transforming the roles of educational actors. However, concerns about the impact of AI on teacher autonomy and the need for ethical guidelines in AI integration are also highlighted (Patty, 2024).

Recent studies have specifically explored EFL teachers' behavioral intentions to use AI in their teaching practices. Ann et al. (2022) investigated middle school EFL teachers' perceptions, knowledge, and behavioral intentions to integrate AI in their lessons. The study discovered that factors such as performance expectancy, social influence, AI language technological knowledge, and AI technological pedagogical knowledge significantly influenced teachers' intentions. Similarly, Benek. (2025) used a mixed methods approach to examine the determinants of EFL teachers' decisions to use AI-driven teaching tools, finding that most EFL teachers had a positive view of AI and were confident in using AI tools to enhance their teaching. They highlighted the importance of PU and PEU in influencing teachers' intentions. Xin

et al. (2022), investigated EFL teachers' perceptions, knowledge, and behavioral intentions to use AI in middle schools. The results indicate that performance expectancy, social influence, AI language technological knowledge, and AI technological pedagogical knowledge significantly influenced teachers' behavioral intentions to use AI. Teachers with higher knowledge and positive perceptions were more likely to intend to use AI in their classrooms.

Florea and Radu (2019) explored the impact of AI on EFL teaching through a case study. AI technologies were found to be beneficial in tasks such as analyzing learners, checking homework and correcting pronunciation. The study noted that AI could enhance the efficiency and effectiveness of teaching practices but also highlighted the need for teacher training and support to maximize the benefits of AI integration. Tlili, et al. (2021) identified the potential benefits of AI current applications and future perspectives of AI in education, including its use in EFL contexts, such as personalized learning and improved administrative efficiency, as well as challenges like ethical considerations and the need for teacher training. Chiu et al. (2023) conducted a systematic literature review on the opportunities, challenges, and future research recommendations of AI in education, emphasizing the need for more research on the integration of AI in teaching, learning, assessment, and administration, and suggesting future directions for AI in education research. In addition, Wang and Xue (2024) unveiled that PU, PEU, and attitudes towards technology were significant predictors of the teachers' behavioral intentions. Chang, Jau, and Bujeng (2024) investigated Malaysian EFL teachers' readiness and intentions to integrate ICT, including AI-based tools, into their teaching practices. The findings suggested that teachers' technological knowledge, self-efficacy, and institutional support were important factors shaping their intentions to adopt these technologies.

Notably, studies have highlighted the ability of AI-based tools to provide more personalized and adaptive learning experiences, which can lead to improved student outcomes in language learning (Alhalangy & AbdAlgane, 2023). Furthermore, AI can enhance assessment techniques, offering more efficient and objective ways

to evaluate students' language skills (Rashmi, 2023).

The studies reviewed here indicate a positive outlook towards the use of AI in EFL teaching. Teachers' willingness to adopt AI is influenced by their perceptions of its usefulness, ease of use, knowledge, and the support provided for its implementation. Also, these studies reinforce that intrinsic factor, such as attitudes and self-efficacy, play pivotal roles in shaping technology acceptance in EFL contexts. Furthermore, these studies underscore the potential benefits of AI in enhancing teaching efficiency and personalized learning, while pointing out the challenges that need to be addressed for successful integration.

It must be considered that while TAM provides a strong predictive framework, contextual elements unique to EFL teaching environments must be considered to fully understand and support teachers' acceptance of AI in language education.

The TPACK Framework

Other researchers have approached EFL teachers' integration of AI harnessing the TPACK framework. Mishra and Koehler's (2006) TPACK framework provides a lens to understand the integration of technology, including AI-based tools, in education by emphasizing the interplay between technological knowledge, pedagogical knowledge, and content knowledge. This framework serves as a comprehensive model to understand the intersection of these three domains. The role of TPACK is pivotal in enhancing educators' confidence, efficacy, and instructional innovation. For language teachers, TPACK underlines the need to develop a nuanced understanding of how technologies can be effectively integrated into English teaching practices. This involves not only mastering the technical aspects of AI tools but also understanding how these tools can support pedagogical strategies and enhance language learning content.

Recent studies emphasize the importance of TPACK proficiency in boosting teachers' confidence and readiness to adopt innovative tools (Wang, 2022). Similarly, Belda-Medina and Calvo-Ferrer (2022) highlight the fact that higher levels of TPACK proficiency are directly associated with increased self-assurance

in leveraging technology for pedagogical purposes. To address existing gaps in TPACK proficiency such as limited access to training and resources, strategic, tailored technological training is instrumental (Chen et al., 2022). Chakim et al. (2023) advocated for the integration of TPACK into teacher preparation programs to ensure the systematic development of these competencies, aligning with findings by Farhadi & Öztürk (2023).

The effectiveness of TPACK-driven initiatives often depends on broader contextual factors, including teacher attitudes and institutional culture. Teachers with higher TPACK proficiency are more likely to perceive technology as beneficial for enhancing engagement and language acquisition (Tseng et al., 2020). Positive teacher attitudes are further reinforced by institutional support and the availability of technological resources (Long et al. 2020). Conversely, perceived barriers, such as inadequate infrastructure or insufficient training, can diminish the potential impact of TPACK, even among teachers with high self-efficacy (Ertmer & Ottenbreit-Leftwich, 2010).

In EFL education, TPACK has been linked to improved teaching effectiveness and increased adoption of digital tools. Instefjord and Munthe (2017) revealed that EFL teachers' technological knowledge and their ability to integrate it with pedagogical and content knowledge were crucial factors in shaping their intentions to adopt AI-based tools while Sánchez et al. (2024) highlighted the relevance of developing teachers' technological, pedagogical, and content knowledge to facilitate the effective integration of AI in English language education. Mohammad-Salehi et al. (2021) revealed that while TPACK indirectly influenced technology adoption through performance and effort expectancy, factors such as social influence and perceived usefulness were also critical determinants. Alian and Alhaj's (2024) demonstrated that enhanced TPACK proficiency aligns with greater digital teaching effectiveness. Furthermore, Pehlevan and Ünal (2023) highlighted the interplay between digital literacy and TPACK among pre-service teachers, showing their combined impact on advancing effective language instruction.

While the evidence overwhelmingly supports the importance of TPACK in education, specific areas warrant further exploration. Wang's (2022) findings on the lower confidence of EFL teachers in teaching higher-order thinking skills using technology suggest a need for targeted professional development in this domain. Moreover, the gaps identified by Farhadi and Öztürk (2023) call for strategic investments in technological infrastructure and tailored training programs to bridge existing disparities.

The TPACK framework offers a comprehensive approach to integrating technology, pedagogy, and content knowledge. Empirical evidence suggests that higher TPACK proficiency enhances teachers' confidence, self-efficacy, and willingness to adopt innovative tools. However, the interplay of TPACK with contextual factors such as professional development, institutional support, and teacher attitudes underscores the need for a multifaceted strategy. By addressing barriers and fostering structured learning opportunities, educators can be better equipped to meet the demands of technology-driven pedagogies and transform EFL instruction in the digital age.

In conclusion, while AI powered technologies hold immense potential for transforming language education, significant gaps remain in understanding their effectiveness, particularly in EFL contexts. Concerns related to privacy, teacher training, and the lack of empirical evidence necessitate a nuanced and context-sensitive approach. The integration of the TPACK and TAM frameworks provide a robust foundation to exploring the factors shaping EFL teachers' intentions to adopt AI tools, particularly within culturally specific contexts such as Mexico. Addressing these gaps is critical for developing effective AI-based educational policies and tools tailored to the unique needs and perceptions of Mexican EFL teachers. By identifying the key enablers and barriers to AI-adoption, future research can contribute to fostering innovative and impactful language teaching practices in this rapidly evolving technological landscape.

Methods

This exploratory, descriptive study adopted a quantitative approach (Seliger & Shohamy, 1989) and used a survey as the primary method of data collection. It employed a case study design, allowing the researcher to examine a situation within its context of time and activity while collecting detailed information (Merriam, 1998; Yin, 2003). Quantitative descriptive research offers a structured approach to systematically quantify perceptions, intentions and trends, without manipulating variables or testing causal relationships (Seliger & Shohamy, 1989). The data was gathered through a single online questionnaire distributed using Google Forms to 88 teachers who comprise the totality of faculty members of a School of Languages hosting three BA programs in language education. Unfortunately, only 47 educators responded. This manner of distribution was chosen for its cost-effectiveness, capacity for large sample sizes, and ability to minimize human error (Fleming & Bowden, 2009).

Instrument

The survey used in this study was an adaptation of An et al.'s (2023) questionnaire, designed to identify English teachers' behavioral intention to integrate AI into their teaching practice. It comprised 39 items distributed across eight constructs: Performance Expectancy, Effort Expectancy, Facilitating Conditions, Social Influence, Technological Knowledge, Pedagogical Knowledge, Technological Pedagogical Knowledge, and Behavioral Intention. The instrument used a 10-point Likert scale, with responses ranging from strongly disagree (1) to strongly agree (10). The scale went to a rigorous process of revision and validation, including a piloting stage. It contains eight constructs derived from prior research and interviews with 15 teachers (An et al. 2023). Validity and reliability analyses confirmed strong internal consistency across all constructs. As reported by the original authors, "The Cronbach's α of the whole scale was 0.98" (An et al. 2023, p. 51). The instrument captured a broad spectrum of opinions, providing a comprehensive overview of key factors influencing AI adoption in the context of the study. For the complete version of the instrument, see the Appendix .

Participant

The participants in this study were 47 EFL teachers enrolled on three distinct teacher education programs offered by the School of Languages at a major university in southeast Mexico. The programs included a bachelor's in English Language, an online BA in English Teaching and a master's degree in Teaching English as a Foreign Language for in-service teachers. They were invited to participate through official institutional channels, primarily via program coordinators and academic mailing lists. A non-probabilistic convenience sampling strategy was employed, given the accessibility of the participant pool and the study's focus on a specific institutional context.

The sample reflected a diverse cohort in terms of professional stage, teaching experience, and academic engagement. They ranged in age from mid-twenties to early fifties. While some participants were in their initial years of teaching and had limited classroom experience, others had accumulated more than 20 years of teaching in various educational settings, primarily within the public sector.

The inclusion of participants from three academic programs allowed for the collection of data from individuals with varying levels of theoretical knowledge and practical expertise, thereby contributing to a more comprehensive understanding of pedagogical practices and attitudes toward AI integration in language education.

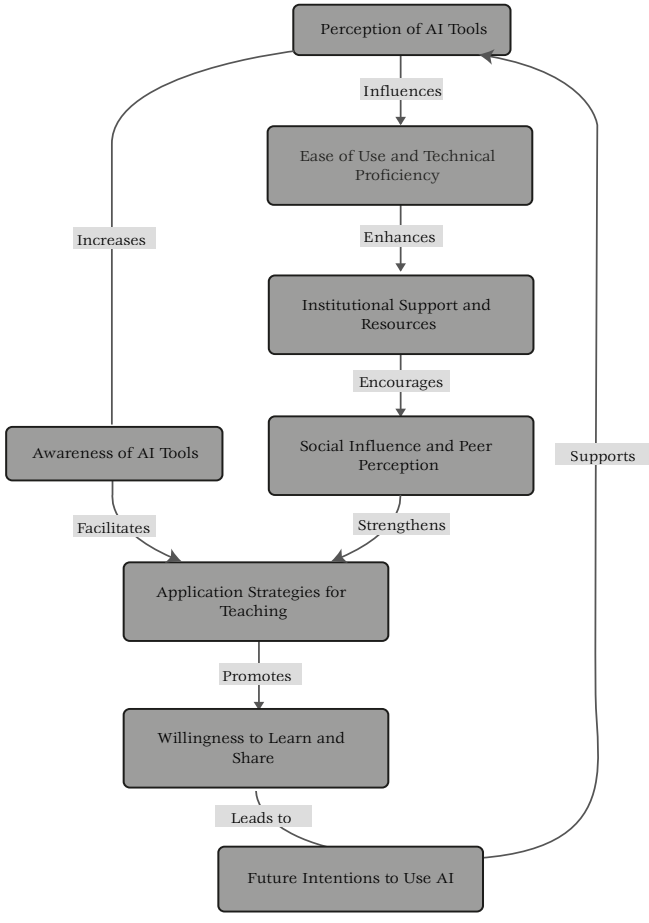
Data Analysis

Responses were compiled into an Excel database and basic statistical analysis was performed to quantify them numerically (Bergin, 2018). Descriptive statistics, as defined by Trochim (2006), were used to interpret the data collected, encompassing frequencies, means, standard deviations, and percentages of the responses (Johnson & Christensen, 2019). By using comparative and correlational analysis employing ANOVA, Spearman range test, Pearson correlation, and thematic grouping, a range of meaningful insights were revealed.

These categories are designed to identify distinct dimensions of EFL teachers' perceptions and experiences with AI. This thematic distribution not only facilitates a more structured analysis, but also enhances the interpretation of results by providing a

comprehensive view of how AI is perceived, utilized, and supported within educational settings. These categories were established to systematically explore the interconnections among various factors influencing AI adoption in teaching, ultimately contributing to a deeper understanding of the role AI plays in language education. For further reference, Figure 1 is provided to illustrate the hypothesized relations among the eight research constructs.

Figure 1. Hypothesized Relations Among the Eight Research Categories



Results

This study investigated the perceptions of EFL teachers regarding the integration of AI into their teaching practices. Specifically, it examined their overall attitudes, self-reported knowledge, perceived institutional support, and willingness to adopt AI-driven methodologies. The findings revealed a nuanced landscape, characterized by a moderately positive perception of AI's potential alongside significant implementation barriers.

The data acquired from this analysis displayed a range of differences between the amount of experience teachers hold in relation to the implementation of AI in their courses and teaching practices. These insights revealed a spectrum of attitudes shaped by institutional, demographic and cognitive factors.

Overall, teachers expressed a moderately positive perception of AI's pedagogical utility as evidenced by a mean score of 7.17 (SD = 2.38) on a 10-point Likert scale for the statement, "AI can help me improve the quality of my teaching methods". This suggests a prevailing belief in AI's capacity to enhance instructional approaches. Similarly, a mean score of 6.74 (SD = 2.57) for "AI is very useful in my academic work" further underscores the perceived benefits of AI beyond direct classroom applications. However, the observed variability in responses points to a heterogenic acceptance of AI among EFL teachers, indicating that its perceived value is not uniformly distributed.

Impact of Institutional Support

A key finding of this study is the substantial impact of institutional support on teachers' perceptions of AI's utility. Educators in institutions with robust administrative frameworks (e.g., technical training, resource allocation) exhibited a 28% higher mean score on AI utility questions compared to those in less supporting environments. This disparity underscores the critical role of institutional backing in fostering positive attitudes towards AI. Furthermore, a Pearson correlation analysis ($r = 0.72$, $p < 0.01$) confirmed a strong, positive link between perceived institutional support and perceived AI utility, confirming that teachers who perceive greater institutional support are more likely to recognize the benefits of AI in professional practice.

Usability Challenges of AI-Driven Teaching Platforms

A significant challenge identified by EFL teachers in this study pertains to the usability of AI-driven teaching platforms and systems. Respondents reported moderate difficulty in operating these systems, with a mean rating of 6.17 (SD = 2.59) on a 10-point Likert scale assessing ease of operation. Similarly, the statement "I can easily master the use of teaching systems that use AI", yielded a mean score of 6.00 (SD = 2.55), indicating that while some educators feel confident in using AI tools, a significant portion faces challenges likely stemming from inadequate formal training or limited exposure to such technologies. The perceived clarity of AI teaching systems' operation further underscores this issue, with a mean rating of 6.08 (SD = 2.57). This consistent pattern of moderate scores reinforces a critical need for targeted interventions to enhance EFL teachers' technical proficiency and familiarity with AI platforms.

Critical Role of Institutional Support in AI adoption

Institutional support emerged as a crucial factor in the adoption of AI-based teaching strategies. A recurring theme across responses was the perceived lack of adequate institutional assistance in implementing AI-based teaching strategies. The statement "When I need to use AI to teach, my school will provide me with support" received a relatively low mean rating of 5.06 (SD = 2.68). Likewise, the perception that "There are favorable conditions for me to use AI in my teaching" was rated at 5.31 (SD = 2.83). These findings suggest a prevalent sentiment among EFL teachers that their institutions do not sufficiently facilitate AI integration. Further reinforcing this concern, the question regarding the availability of specific personnel to assist teachers with AI platform difficulties scored a mean of 4.97 (SD = 3.12), with numerous respondents selecting the lowest possible rating. This data strongly indicates that many institutions lack structured support mechanisms, leaving educators to independently navigate the complexities of AI integration.

Theoretical Awareness vs Practical Implementation

A particularly striking trend emerged between participants' theoretical awareness of AI's potential and their perceived practical proficiency in its implementation. While respondents generally recognized AI's teaching value, their self-assessed ability to effectively use AI-driven technologies in the EFL classroom was markedly low. The statement "I know how to provide students with an immersive English learning experience with the help of AI" yielded a mean score of 4.02 (SD = 2.95). Similarly, "I know how to use AI for personalized guidance strategies to improve students' English skills" (Mean, 4.25; SD = 2.93). Such findings suggest that while educators acknowledge AI's pedagogical value, they often lack the necessary training or confidence to translate this awareness into effective classroom practices. This gap underscores the need for targeted professional development initiatives that bridge the divide between theoretical understanding and practical application.

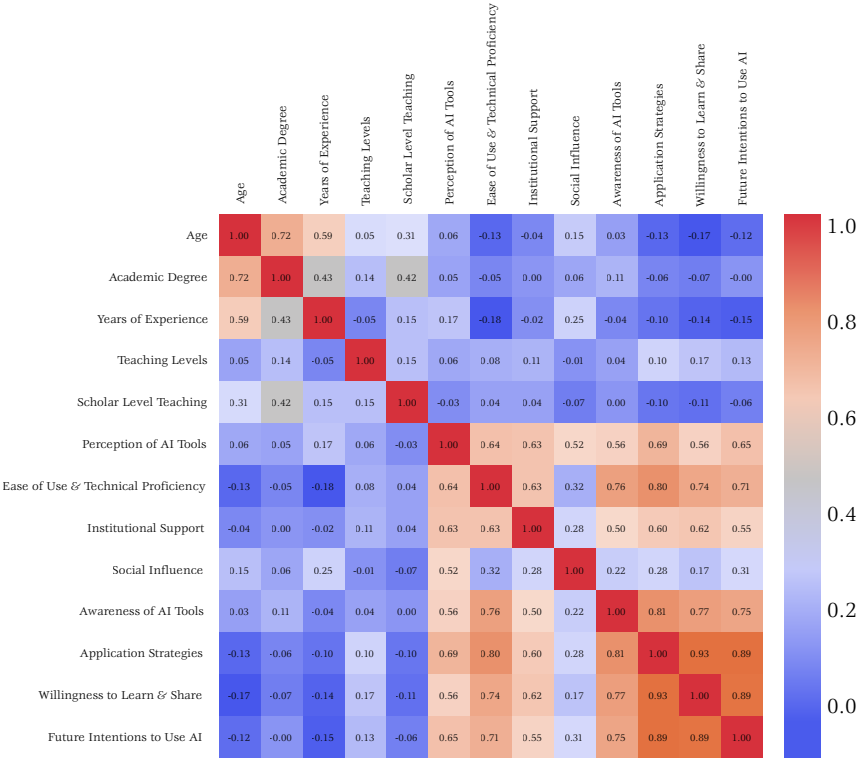
Willingness to Experiment

Despite the identified technical and proficiency challenges, participants demonstrated an overwhelming willingness to engage with and learn about AI in education. The statement "I am willing to learn from others the experience of educational application of AI" received one of the highest scores, with a mean of 8.76 (SD = 2.61), indicating a strong inclination towards collaborative learning. Similarly, "I am willing to learn about the educational application of AI through the Internet" was rated at 8.72 (SD = 2.56), highlighting EFL teachers' proactive approach to self-directed learning. These findings indicate that while technical barriers exist, teachers are motivated to learn and develop AI-related skills, provided they receive appropriate resources and institutional support.

Further correlational analysis using Pearson correlation, Spearman rank test, and ANOVA, revealed significant associations between demographic variables and participants' perceptions of AI. Specifically, age, academic degree, and years of experience were found to be significantly correlated with perceptions of AI

utility, ease of use, and institutional support. Notably, academic degrees exhibited a strong positive correlation (r = 0.78) with the perception of AI tools, indicating that educators with higher qualifications tend to hold more favorable views of AI (see Figure 2). Similarly, age was significantly correlated (r = 0.84) with technical proficiency, suggesting that younger educators perceive AI as easier to use. These findings underscore the relevance of considering demographic factors when designing and implementing AI integration strategies, as they significantly influence EFL teachers' attitudes and abilities.

Figure 2. Pearson Correlation Heatmap



Age and AI Acceptance

Age emerged as a significant predictor of AI acceptance and perceived utility, aligning with prior research on ICT integration in EFL classrooms Kubiatko, 2013). Younger EFL teachers, specifically those aged 25-30, displayed a higher acceptance rate towards the use of AI as a pedagogical tool, and perceived it as easier to use. Conversely, teachers in the 51-55+ age bracket demonstrated a lower acceptance rate, with their responses indicating significant concern regarding the complexity of AI systems and the adequacy of institutional support. Remarkably, a trend of negative correlations was observed within this older age group, suggesting an inverse relationship between age and AI perceived usefulness and ease of use. However, a positive correlation was found regarding respect for AI proficient teachers, indicating that older educators may perceive enhanced professional respect associated with AI proficiency.

Experience and Academic Degree and Social Influence

Analysis of Variance (ANOVA) further indicated a significant variation in perceived institutional support across different teaching levels ($p < 0.05$). Educators with over 15 years of experience reported significantly lower levels of institutional support compared to their less experienced counterparts. Furthermore, a strong positive correlation was observed between academic degree and social influence/ peer perception ($r = 0.89$), reinforcing the notion that educators with advanced qualifications are more likely to acknowledge the growing importance of AI among their peers, suggesting that higher academic attainment is associated with greater awareness of and responsiveness to emerging trends in educational technology (see Table 1).

Table 1. *ANOVA Analysis Results*

	Age	Academic Degree	Years of Experience
Perceptions of AI Tools	0.361033	0.779163	0.370618
Ease of Use of Technical Proficiency	0.843465	0.328747	0.567051
Institutional Support and Resources	0.958499	0.422265	0.922153
Social Influence and Perception	0.489798	0.896802	0.432661
Awareness of AI Tools	0.981739	0.507259	0.309263
Application Strategies for Teaching	0.769770	0.357750	0.208871
Willingness to Learn and Share	0.701301	0.374596	0.168498
Future Intentions to Use AI	0.546770	0.653961	0.207134

Age, Experience, and AI Awareness

Age and teaching experience showed strong positive correlations in terms of AI awareness ($r = 0.98$ and $r = 0.92$, respectively), indicating that younger and less experienced teachers reported higher levels of AI awareness. This suggests that educators who are earlier in their careers and likely exposed to AI technologies during their recent training, possess greater familiarity with AI capabilities compared to their more experienced counterparts. The tendency of exposure to AI tools and concepts appears to play a crucial role in shaping participants' awareness levels.

Academic Degree and Intentions to Use AI

Regarding the future intentions to use AI in teaching, the data, showed a significant variability among respondents. While academic degree showed a moderate positive correlation with these intentions ($r = 0.51$), the high standard deviation ($SD = 3.35$) indicates a wide range of perspectives within this demographic. This suggests that while higher academic qualifications may predispose some educators towards AI adoption, other factors such as individual beliefs, institutional support, or perceived usability also play substantial roles in shaping their intentions. The variability underscores the complexity of predicting AI adoption based solely on academic qualifications.

These findings reported here depict a multifaceted landscape of AI adoption in EFL education. While teachers recognize the benefits of AI, significant impediments persist, notably in the realms of usability, institutional support, and self-efficacy. Addressing these challenges requires comprehensive training programs, increased administrative backing, and the development of user-friendly AI tools that cater specifically to language educators' needs. Without such measures, AI integration in EFL classrooms may remain an underutilized potential rather than a transformative pedagogical tool.

Discussion

This study aimed to explore the behavioral intentions of Mexican EFL teachers toward adopting Artificial Intelligence (AI) in their teaching practices, guided by the Technology Acceptance Model (TAM) and supported by the TPACK framework.

The findings indicate that Mexican EFL teachers perceive AI as moderately useful in enhancing the quality of teaching and facilitating academic work. This is consistent with the findings of Wang and Xue (2024) and Benek (2025), who also reported that EFL teachers acknowledge the pedagogical benefits of AI tools. However, as for the perceived ease of use, the study revealed only moderate confidence in operating AI-driven platforms, suggesting usability challenges. This finding aligns with Teo (2010), who noted that despite perceiving AI as useful, teachers tend to resist its integration when they believe the tools are difficult to use or require extensive training. Moreover, the gap between theoretical knowledge and practical proficiency reported in this study mirrors the concerns raised by Sánchez et al. (2024), who found that EFL teachers often lack the confidence and preparation to implement AI despite being aware of its potential. Hence, while perceived usefulness appears to be moderately high, perceived ease of use remains a barrier to broader adoption.

Additionally, institutional support emerged as a significant factor in shaping teachers' willingness to adopt AI. The study found strong correlations between perceived institutional support and positive attitudes toward AI adoption. This is consistent with

findings by Long et al. (2020), who emphasized the critical role of infrastructure, administrative backing, and availability of technical assistance in fostering AI integration. This indicates that broader contextual variables or environmental conditions such as digital culture or policy frameworks may shape teachers' adoption of AI.

Moreover, demographic variables—particularly age and academic degree—were also shown to influence behavioral intention. Younger teachers and those with higher degrees demonstrated a greater inclination to use AI, echoing Kubiatko (2013) and Alian and Alhaj (2024), who both reported that younger and more academically advanced educators are generally more receptive to educational technologies. These findings suggest that individual characteristics intersect with contextual factors in shaping AI adoption in this educational setting,

Conclusions

The integration of AI into the EFL classroom represents a cutting-edge technological advancement. This study reveals that while EFL educators acknowledge the potential perceived usefulness of AI in enhancing teaching practices, significant barriers related to perceived ease of use persist. Specifically, challenges in technical proficiency, institutional support, and access to adequate training hinder the seamless adoption of AI. To bridge this gap, it is imperative to address both the perceived usefulness and ease of use of AI through targeted interventions. These include expanding professional development opportunities to improve technical skills, implementing policy changes to ensure institutional backing, and fostering collaborative environments for educators to share best practices. By enhancing AI literacy, providing accessible training, and ensuring robust institutional support, both the perceived usefulness and ease of use of AI integration may be facilitated.

This study is subject to several limitations. One of the primary limitations is the relatively small sample size of participants. While the data provide a comprehensive snapshot of current attitudes and institutional support structures, a broader and more diverse pool of participants would yield more generalizable and nuanced conclusions. The inclusion of teachers from a wider

range of institutions, geographic locations, and educational settings would likely present more varied perspectives on AI integration. Furthermore, increasing the number of respondents from different levels of experience and academic backgrounds could provide a clearer understanding of how demographic factors shape AI adoption and perceptions. Future research should aim to expand participant recruitment to ensure that findings are representative of the larger EFL teaching community. Another venue of investigation ought to explore how digital culture, institutional readiness, and professional identity shape AI adoption in diverse educational settings.

Another key consideration in the interpretation of these results is the reliance on self-reported proficiency in AI usage. While Likert-scale measures offer valuable insight into educators' confidence and attitudes toward AI, they do not necessarily reflect actual skill levels or experience in implementing AI-driven teaching tools. Educators may overestimate or underestimate their abilities, leading to potential discrepancies between perceived and actual AI integration in the classroom. Future studies could incorporate observational data, practical AI proficiency tests, or interviews to complement self-reported responses and provide a more accurate picture of how AI is being used in real teaching contexts.

The study also highlights an important challenge: how to increase awareness and adoption of AI in the EFL classroom. While the willingness to learn about AI was high among respondents, technical barriers and limited institutional support continue to hinder its widespread adoption. To address this, institutions should invest in targeted professional development programs that equip educators with hands-on experience in AI-assisted teaching methodologies. Training sessions that focus on practical applications, rather than theoretical knowledge alone, could significantly boost educators' confidence in using AI tools effectively.

Additionally, fostering a collaborative learning environment where educators can share AI-based teaching strategies and best practices could contribute to more widespread adoption. Peer mentoring programs, communities of practice, and workshops led

by AI-experienced instructors may help bridge the gap between knowledge and practical application. Furthermore, institutions should prioritize technological infrastructure, ensuring that educators have access to reliable AI tools and adequate technical support.

Beyond professional development, raising awareness about the pedagogical benefits of AI is essential. Educators may be more likely to adopt AI if they perceive tangible improvements in student engagement and learning outcomes. Showcasing successful case studies and empirical evidence of AI's effectiveness in EFL instruction can serve as motivation for reluctant educators. In addition, integrating AI literacy into teacher training curricula could ensure that future educators enter the workforce with foundational knowledge of AI tools and their potential applications in language learning.

Finally, policy-level changes at the institutional and governmental levels could play a crucial role in facilitating AI integration in EFL education. Developing AI-focused teaching frameworks, creating funding opportunities for AI-based research in language instruction, and incentivizing institutions to modernize their technological resources would contribute to a more AI-ready educational landscape. Ultimately, proactive policy measures are indispensable for transitioning EFL education from a state of potential to a reality of AI-enhanced learning.

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Appendix

Research Instrument

Construct: Performance Expectancy

Items:

AI can help me improve the quality of teaching.

AI can help me improve the efficiency of teaching.

I believe AI is very useful in my job.

AI is very helpful for my teaching.

Construct: Effort Expectancy

Items:

AI teaching systems are easy to operate for me.

I think AI teaching systems are very simple.

I can easily master the skills of using AI teaching systems.

The operation of AI teaching systems is clear.

Construct: Facilitating Conditions

Items:

When I need to use AI in teaching, my school will provide help for me.

There are convenient conditions for me to use AI in teaching.

When I have difficulties in using AI in teaching, specific people will help me.

When using AI in teaching, I know where to get technical support.

Construct: Social Influence

Items:

Teachers around me who are good at using AI will have more respect.

Teachers who can use AI in teaching will be admired by colleagues.

My colleagues think I should use AI to support teaching.

Construct: AIL-TK

Items:

I know that [picture recognition technology] can convert handwritten words into words that can be edited by computer.

I know that [speech recognition technology] can score pronunciation accuracy, fluency, and phonological tone type.

I know that [semantic analysis technology] can analyze the meaning of sentences, such as detecting grammatical structure in documents.

Construct: AI-TPK

Items:

I know when I should use AI in teaching.

I know how to use AI tools to find students' differentiated learning needs.

I know how to use AI tools to adjust teaching pace.

I know how to use AI tools to set students' learning goals.

I know how to use AI tools to plan courses.

I know how to use AI tools to stimulate students' learning motivation.

I know how to give personalized guidance to students with the help of AI.

Construct: AI-TPACK

Items:

I know how to use appropriate strategies with AI to help students learn vocabulary and grammar better.

I know how to use appropriate strategies with AI to help students better practice their English skills.

I know how to use appropriate strategies with AI to help students better understand the cultural differences between Mexico and English-speaking countries.

I know how to use AI to carry out English teaching better.

I know how to give students an immersive English learning

experience with the help of AI.

I know how to use appropriate strategies with AI to help students learn English better.

I know how to use the strategy of personalized guidance to improve students' English skills with the help of AI.

I know how to provide learning materials to students according to their aptitude with the help of AI.

I know how to use the strategy of "instant feedback" to let students practice English with the help of AI.

I know how to use appropriate strategies to provide students with opportunities to use English with the help of AI.

Construct: Behavioral Intention

Items:

I am willing to learn the experience of AI education application from others.

I am willing to learn the case of AI education application from the Internet.

I am happy to share my AI teaching resources and experience with others.

I intend to use AI in teaching in the future.

Adapted from: An, X., Chai, C. S., Li, Y., Zhou, Y., Shen, X., Zheng, C., & Chen, M. (2023). Modeling English Teachers' Behavioral Intention to Use Artificial Intelligence in Middle Schools. *Education and Information Technologies, 28*(5), 5187-5208. https://doi.org/10.1007/s10639-022-11286-z

CHAPTER II

AI in Language Classrooms: Perceptions of Pre-Service and In-Service Teachers in Chihuahua

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Abstract

The rapid growth of research on artificial intelligence (AI) and its integration in the field of language teaching and learning, has provoked positive and negative opinions among teachers around the world. In recent years, several AI-powered tools have emerged and some of them present promising opportunities for English language teaching (ELT), such as enabling personalized learning, providing pronunciation and language skill practice, and reducing the workload of teachers (Edmett et al., 2024; Grassini, 2023; Kannan & Munday, 2018). However, AI has also posed ethical and educational concerns related to privacy and security, over-reliance on tools, and academic integrity, among others. While AI improves learner engagement, it cannot replicate the social and emotional aspects of human interaction,

which are crucial for the development of communicative competence and social interaction skills, and are fundamental in language learning (Kanero et al., 2021; Su & Zou, 2020). This contrast in benefits and challenges may explain why teachers with different levels of experience perceive AI's usefulness and feasibility in different ways. Considering these differing perspectives and the growing presence of AI in language education, this comparative mixed methods study explores how teaching experience may influence pre-service and in-service English teachers' perceptions and uses of AI in the classroom. Data was gathered in 2024 in Chihuahua, México, from 23 pre-service teachers and 10 in-service teachers using a questionnaire with both quantitative and qualitative items. While quantitative results showed no statistically significant differences between the two groups, qualitative findings revealed important differences. Pre-service teachers showed enthusiasm for AI's potential and a clear need for structured training, while in-service teachers, despite greater familiarity with AI, expressed caution, highlighting ethical concerns, risks of student unethical use, and the importance of balancing technology with human interaction.

Keywords

Artificial intelligence, educational technology, English Language Teaching, in-service teachers, pre-service teachers.

Introduction

The recent growth of research on artificial intelligence (AI) and its incorporation in education, especially in the field of language teaching and learning, has provoked both excitement and concern among educators around the world. Several AI-powered tools have emerged in the last couple of years and some of them seem to offer opportunities in English language teaching (ELT) for personalized learning, pronunciation, and language skill practice, efficient lesson planning, a reduction of the workload of teachers, and innovative classroom practices (Edmett et al., 2024; Hockly, 2023; Hoi, 2020). While AI presents valuable opportunities for language education, how teachers perceive its usefulness and feasibility seems to vary according to their teaching experience.

This study explores how pre-service and in-service teachers in Chihuahua, Mexico, perceive and use AI in their classrooms, to identify differences or similarities between the two groups and, therefore, understand if experience impacts the perceptions of AI's role in education. Data was gathered in 2024 from 23 pre-service and 10 in-service teachers using a 22-item structured questionnaire. For the purposes of this study, pre-service teachers refer to those who were students of the last year of their B.A. program in English Language, had three years or less of teaching experience, and were doing their practicum at the time of the study. On the other hand, in-service teachers are to those who already held a degree in English Language, had teaching experience of more than five years, and were working as English teachers.

A comparative mixed-methods approach was used to gather quantitative and qualitative data, and the research was conducted as a case study (Creswell, 2012; Creswell & Creswell, 2018). The main instrument for data collection was a 22-item structured questionnaire which included Likert-type statements used to measure teachers' agreement with several AI-related statements to get a general overview of the participants perspectives. In addition, the questionnaire included open-ended questions to provide deeper context regarding concerns, training needs, and perceived benefits and challenges of using AI in the classroom. Findings suggest that pre-service teachers showed enthusiasm for AI's potential as a tool to improve efficiency and engagement but emphasized the need for formal training and practical guidance due to their lack of confidence in integrating it effectively. In contrast, in-service teachers, while more familiar with AI, expressed caution about ethical concerns, student misuse, and over-reliance on technology, stressing the importance of keeping a balance between AI and traditional teaching methods to preserve the human element in education.

Literature Review

The role of technology in language teaching and learning has been explored by researchers for several decades now as its integration in language education has changed the way languages are taught and learned. The evolution and increasing accessibility of digital tools

have reshaped traditional teaching methodologies, incorporating more interactive, personalized, and autonomous learning experiences into the classroom. With the emergence of artificial intelligence (AI) tools in language teaching and learning, teachers and researchers have explored their uses in language learning, recognizing both the potential benefits and challenges they present. Even though it has been claimed that the incorporation of technology into the classroom enhances motivation, encourages engagement, and fosters autonomy, the impact of artificial intelligence is still being discussed as there are several concerns regarding mainly its ethical use.

Technology and Mobile Learning in Language Teaching

The integration of technology into language teaching and learning has significantly evolved over the past decades. From early forms of Computer-Assisted Language Learning (CALL) to recent mobile and artificial intelligence (AI)-enhanced learning environments, digital tools have influenced the ways in which some educators approach language teaching and how students engage in language learning.

Technology-enhanced language learning (TELL) has gone through different transformative stages. According to Kannan and Munday (2018), early systems focused on structural approaches, prioritizing accuracy through repetitive exercises. In the 1980s the focus changed to communicative methods, emphasizing interaction and fluency as key goals of language learning. Then, by the 1990s, the integration of multimedia and internet-based tools supported more authentic language use, and in the late 90s and early 2000s, with the emergence of Web 2.0 technologies, learning became more networked, allowing students to collaborate using digital platforms like wikis, discussion boards, and virtual environments for social interaction. Similarly, research shows that social media platforms such as *Twitter* and *Facebook* have become essential tools for language learners, providing opportunities for authentic communication and encouraging socio-pragmatic awareness (Kannan & Munday, 2018).

With the increased use of mobile devices, recent advancements have further expanded TELL to include Mobile-Assisted Language Learning (MALL) and context-aware learning environments. Mobile

devices nowadays have different apps which offer accessibility, enabling learning anytime and anywhere (Hoi, 2020). Similarly, context-aware technologies use augmented reality and geolocation to situate learning within real-world interactions, improving students' motivation and increasing their engagement by practicing language skills in real-life scenarios such as museums, work, and social places, among others (Lee, 2019). These developments highlight the shift from teacher-centered instruction to learner-centered approaches, where digital tools are used to adapt the class to individual learner needs.

As can be seen, technology has positively impacted language teaching and learning. Research emphasizes its role in increasing motivation, engagement, and learning efficiency (Su & Fu, 2020). Similarly, mobile learning environments have played a significant role in taking education beyond the classroom, allowing for collaborative, independent, and lifelong learning practice (Hoi, 2020), while digital tools facilitate peer interaction, providing learners with opportunities to practice language skills in authentic contexts (Panagiotidis, Krystalli, & Arvanitis, 2023).

However, there are still some challenges that must be considered. Technical limitations such as small screen sizes and typing difficulties can negatively impact usability (Hoi, 2020). Additionally, cultural and educational barriers influence learners' willingness to adopt technology-based approaches. Moreover, some studies suggest that technology alone does not guarantee improved learning outcomes, but that pedagogical design plays a crucial role in determining effectiveness (Aysu, 2020). This presents a challenge for teachers who must carefully select and integrate technological and AI tools in ways that are educationally effective and aligned with learners' needs, preferences, and contexts, which is a complex task that requires time, training, and curricular flexibility. Furthermore, access to technology remains a significant barrier in many educational settings; not all learners have reliable internet connections, up-to-date devices, or digital literacy skills, which can widen educational gaps and reduce the effectiveness of technology-based strategies. Therefore, for technology to have a significant impact in language teaching, both instructional strategies and access issues must be addressed, to make sure that tools are not only relevant but also accessible to all students.

A recent technological advancement which is starting to be used in the field of language teaching and learning, and that seems to be promising in aligning with students needs and goals is artificial intelligence. We will explore its uses and possible impact in the following paragraphs.

Artificial Intelligence and Language Learning

Artificial Intelligence (AI) in education refers to the use of advanced computational systems, such as chatbots, language tutors, and adaptive platforms, designed to support and improve language learning and teaching. It has changed English Language Teaching (ELT) by improving key language skills, such as speaking, listening, reading, and writing, through targeted practice, immediate feedback, and interactive environments. For example, AI-powered speech recognition tools help learners improve pronunciation and fluency, while writing assistants offer grammar and vocabulary suggestions to improve written communication (Edmett et al., 2024; Grassini, 2023; Lee, 2019; Su & Zou, 2020). These tools also contribute to personalized learning by adapting tasks to the student's individual proficiency levels, tracking progress and recommending content and strategies based on learners' needs. Moreover, AI fosters learner autonomy by providing independent practice to students, at their own pace, and receiving instant feedback without relying solely on teacher input (Edmett et al., 2024; Kannan & Munday, 2018). AI-powered tools use natural language processing, machine learning, and data analysis to provide these personalized experiences, offering opportunities for a more immersive and self-directed communicative development.

Additionally, AI and technological tools have also transformed pedagogical approaches and self-regulation strategies. Rebolledo and Gonzalez (2023) emphasize the evolution of the framework CALL into Intelligent Computer-Assisted Language Learning (ICALL), which integrates AI and machine learning to aid in language teaching and learning. An example of an application of ICALL is the implementation of self-managed courses such as MOOCs (Massive Open Online Courses), and the integration of chatbots such as *ChatGPT* in education, which can

provide automated assessment, personalized recommendations, and adaptive learning routes (Edmett et al., 2024; Grassini, 2023; Kannan & Munday, 2018; Lee & Lee, 2022).

However, despite its advantages, AI presents several challenges related to ethical concerns, technical issues, over-reliance, and the role of teachers in language education. Regarding ethical concerns, AI-based tools rely on great amounts of learner data, raising concerns about privacy and security among users who do not know where their information will end up stored, and what can and will be done with it. Moreover, AI-based tools require significant computational resources, and their effectiveness depends on the quality of its algorithms (Chen et al., 2021). Other technical issues are that poor connectivity might prevent the correct use of AI tools and, especially, the inaccurate responses that they often provide (Edmett et al., 2024). These limitations can affect learning and reduce students' and teachers' trust and, consequently, willingness to use AI tools.

Additionally, there is a risk of over-reliance on AI, especially among students who may unethically use it to complete tasks without fully engaging in the learning process, which could negatively impact their critical thinking and language production skills. Finally, the role of teachers remains essential. While AI supports instruction, it cannot replace the pedagogical judgment, emotional support, and interactive feedback that human teachers provide (Edmett et al., 2024; Hockly, 2023; Pikhart, 2020; Rebolledo & González, 2023). Thus, instead of replacing educators, AI should be viewed as a complementary tool that enhances but not substitutes the human elements needed for effective language teaching and learning.

Other concerns regarding the use of AI are related to its users. While AI improves learner engagement, it cannot replicate the social and emotional aspects of human interaction, which are crucial for developing communicative competence and social interaction skills, and are fundamental in language learning (Kanero et al., 2021; Su & Zou, 2020). Moreover, not all learners are interested in using AI for language acquisition as the lack of engagement with a human teacher and other learners makes them

feel isolated and unmotivated. In addition, some students may face limited access to AI tools due to a lack of a reliable internet connection, devices, or institutional support, while others may not know how to use these tools for language learning (Chen et al., 2021; Rebolledo & González, 2023). These issues can contribute to unequal learning opportunities and limit the potential benefits of AI in education.

Additionally, some teachers may be reluctant to use AI tools in their classrooms. Not only might they not be familiar with them and may feel that learning to use and incorporate them into their practice could be time-consuming, but they may also not see a need to incorporate them in their classroom, due to internet-related issues, or because they prefer traditional instruction (Chen et al., 2021; Pokrivcakova, 2019). As AI is rapidly evolving, teachers need to keep up to date with their training to learn about the latest tools and how they can be effectively incorporated into their teaching practices. Without such training, teachers risk falling behind in digital competence, which could limit their ability to support students and fully take advantage of the educational benefits that AI can offer.

Even though AI tools can support personalized learning, their effective implementation often requires additional planning and efforts from teachers. Instructors must carefully select and integrate AI resources to personalize activities that cover the students' diverse needs, which can be time-consuming and complex. Chen et al. (2021) argue that "given the learner variability, instructors are challenged to differentiate lessons and to individualize learning for each student while simultaneously keeping the overall level of expectation and rigor in classrooms high" (p. 218). Due to this challenge, some teachers may feel unprepared or overwhelmed by the demands of adapting their teaching practice to incorporate AI. Therefore, they may choose to continue using traditional approaches instead, which are more familiar and easier to manage with their workload and contribute to a stronger sense of teacher efficacy (Edmett et al., 2024).

The perspectives teachers hold regarding AI are crucial for its effective application in the classroom, since AI tools can be used

to complement traditional instruction. As Hockly (2023) suggests, "teachers may want to encourage their learners to try a chatbot app out of class for a period of time, and then report back periodically on what they have learned" (p. 449). This approach promotes the integration of AI tools to support autonomous learning while keeping teacher guidance.

Technology and AI, therefore, have reshaped language learning by offering adaptive, personalized, and interactive experiences. The evolution of CALL and ICALL has transformed digital education, allowing learners to engage with authentic content, receive real-time feedback, and develop language skills through AI-driven applications.

Despite challenges such as data privacy concerns and teacher willingness to use AI tools, the potential uses to improve language instruction and language learning cannot be denied. It is thus important that effective AI integration focuses on ethical considerations, teacher training, and keeping the essential role of human educators in language acquisition. By using AI responsibly, language education can adapt to meet the demands of the digital age while keeping the invaluable role of human teachers.

Methodology

The present comparative mixed-methods study aimed to explore the perceptions of pre-service and in-service English teachers in Chihuahua, Mexico, regarding the use of AI in their classrooms. A comparative mixed methods study approach was chosen as it "documents the differences in the cases through the qualitative and quantitative data" (Creswell & Creswell, 2018, p. 311). This study explored the differences and similarities of the perspectives among pre-service and in-service teachers in the specific context of Chihuahua, Mexico, making it thus a comparative case study (Coccia & Benati, 2018; Creswell, 2012; Creswell & Creswell, 2018).

Data were gathered from 23 pre-service and 10 in-service teachers between September and December 2024, who were chosen following convenience and snowball sampling (Creswell & Creswell, 2018). Participants were selected based on the following inclusion criteria:

1. Being currently enrolled in the last semester of their English Language major and doing their practicum (pre-service group), or having an undergraduate degree in English Language with at least five years of teaching experience (in-service group).
2. Currently teaching or having recent teaching experience in formal ELT contexts.
3. Willingness to participate voluntarily and provide informed responses.

No exclusion criteria were established other than not meeting the previously stated characteristics.

We followed both convenience and snowball sampling to ensure access to both groups while allowing participants to recommend peers who met the same inclusion criteria. Convenience sampling was used first, since pre-service teachers from a B.A. in English Language were invited to participate in the study, as well as English teachers from the same School. Then, they were asked to share the instrument with other English teachers to collect data from more participants (snowball sampling). Although this approach limits external validity, it enabled access to a diverse sample of ELT practitioners within Chihuahua.

The instrument used in this study was designed by language experts at the University of Colima as part of a national project on perceptions of AI in ELT. The questionnaire was validated through content validity, which was established through expert review (three specialists in English teaching and the use of educational technology). Then, it was distributed via *Google Forms* to university professors in different cities across Mexico, who were invited to administer it to English teachers in their local contexts. In this study, we collected data in Chihuahua, and the University of Colima provided us with a dataset containing the responses from our local participants.

Prior to administration in the present study, minor wording adaptations were made to contextualize references to Chihuahua; however, no structural changes were made. A pilot administration with five pre-service teachers confirmed clarity of items and led to no further modifications.

Although the questionnaire consisted of 22 items divided into six sections (Demographic Information, Familiarity with AI Tools, Usage of AI Tools, Attitudes Toward AI Tools, Digital accessibility for students with disabilities, and Support and Training Needs), this paper focuses specifically on the categories of usage and perceptions. They were selected because they align with the study's research objectives and provided the most detailed responses from participants. The category of *perceptions* was developed from the information gathered from sections *Attitudes toward AI tools, Familiarity with AI tools,* and *Support and training needs*, as they reflect participants' views, criticism, and feelings about AI in ELT.

The questionnaire gathered quantitative data and included seven Likert-type items to measure the participants' perceptions and attitudes regarding the use of AI in the classroom. It also gathered qualitative data as it included open-ended questions where participants could express their opinions on the use of AI regarding challenges, concerns, benefits, and training needs in a deeper way.

Quantitative data was analyzed using the software *SPSS* as it is a reliable tool for quantitative analysis. Both descriptive and inferential statistics procedures were followed. The Likert-type items were analyzed following descriptive statistics procedures to obtain their mean and standard deviation, as well as inferential procedures such as t-tests, Mann-Whitney, and Cohen's D. tests. These tests were carried out to see if there were significant differences between the results obtained from the two groups (pre-service and in-service teachers).

The qualitative information was analyzed using the Constant Comparative Method by Glaser and Strauss (2012) as the information provided in the comments was categorized and compared across the same qualitative data, the quantitative results, and the literature. It is important to mention that ChatGPT (OpenAI) was used to assist with language editing and text clarity in the writing of this paper. However, all content was reviewed, verified, and approved by the authors, who remain responsible for the final version of the manuscript.

Results and Discussion

The present study aimed at exploring the perceptions of pre-service and in-service English teachers regarding the use of AI in the classroom, to see if there were any differences between the two groups. Both quantitative and qualitative findings suggest that pre-service and in-service teachers hold similar views regarding the incorporation of AI in the English classroom, but qualitative data highlighted some differences.

AI Usage Among Pre- and In-Service Teachers

Findings show that both pre- and in-service teachers are generally aware of the different ways in which AI can be incorporated into their practice. However, they also show that some of them are reluctant to use these tools. Figure 1 below shows how familiar participants were with AI tools.

Figure 1. Familiarity with AI tools
between pre-service and in-service teachers

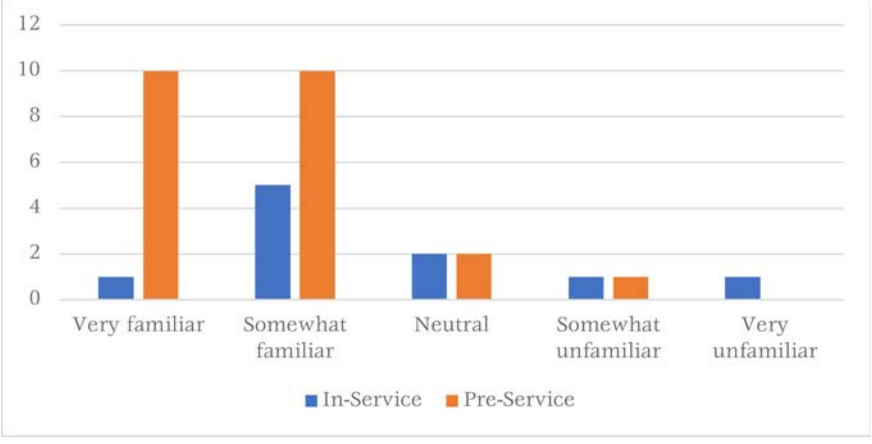

Figure 1 shows that 20 of 23 pre-service teachers and 6 of 10 in-service teachers consider that they are familiar enough with AI tools that can be used in language teaching and learning. This indicates that most of the participants are aware of the technological tools

available to facilitate language teaching. Findings also suggest that pre-service teachers are more familiar with AI tools than in-service teachers. Nevertheless, even though both groups report some level of familiarity with these tools, there is a difference in how frequently they use them in their teaching practice (see chart 2 below).

Figure 2. Comparison of AI usage Frequency
Between Pre-Service and In-Service Teachers

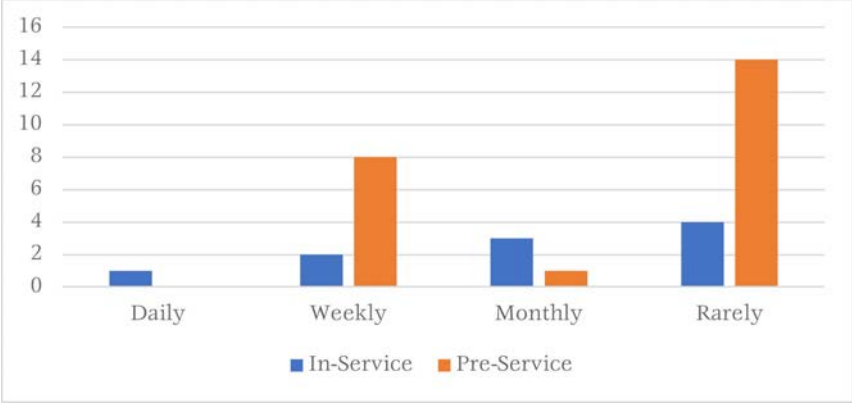

Figure 2 shows that most pre-service teachers (61%) rarely use AI in their classroom while 60% of the in-service teachers use it at least monthly. This might be because in-service teachers are already immersed in the labor market and, as such, they tend to be in constant search for tools to facilitate their teaching practice and reduce their workload.

Participants were also asked to identify which types of tools they use. They were provided with a list of the most popular AI tools for language teaching and learning and they could choose more than one option, according to their practice. Chart 3 below shows the results obtained:

Figure 3. AI Tools Used by In-Service and Pre-Service Teachers

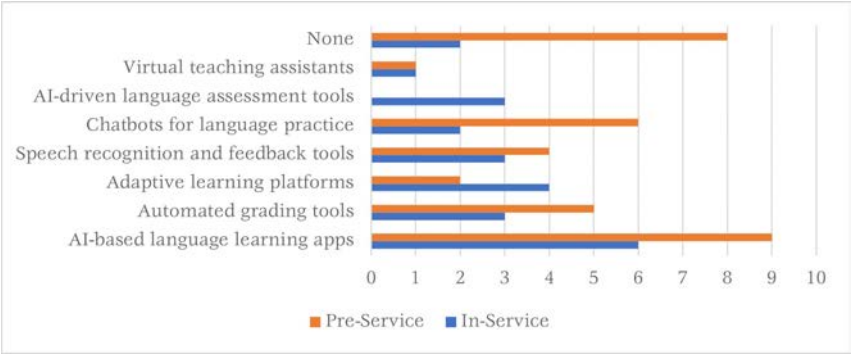

Figure 3 shows that 8 out of 23 pre-service teachers (35%) do not use any AI tool in their practice. However, the most popular AI tools used by the other 15 pre-service teachers are AI-based language learning apps (39%), chatbots for language practice (26%) and automated grading tools (22%). Regarding in-service teachers, only two of them mentioned that they do not use any AI tool. The most popular tools among in-service teachers were AI-based language learning apps (60%), adaptive learning platforms (40%), and feedback-related tools such as AI-driven language assessment, speech recognition and feedback, and automated grading tools (30%). These results show a tendency that pre-service teachers are more focused on apps that facilitate learning and practice, while in-service teachers also focus on those that help reduce their workload.

After identifying the tools that participants use, they were asked to provide more specific reasons as to why they use them. This question was answered by eight in-service and 15 pre-service teachers, who mentioned that they use AI in the classroom. They were encouraged to select all the options that applied to their situation, and the results are represented in chart 4 below.

Figure 4. Reasons for AI Use in the Classroom among In-Service and Pre-Service Teachers

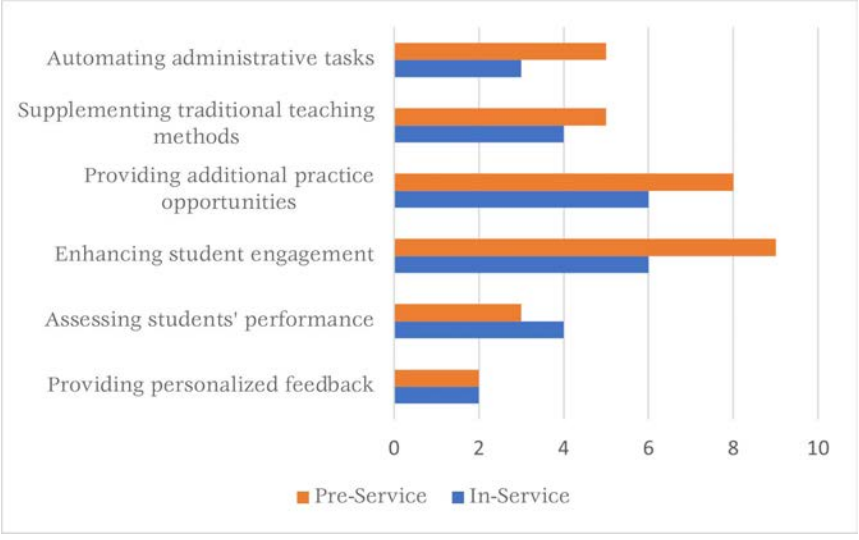

Figure 4 reports that pre-service and in-service teachers share similar motivations for using AI tools. Findings show that 60% of pre-service teachers use AI for enhancing student engagement, while 53% to provide additional practice opportunities to the students. It also illustrates that they value the uses of AI to automatize administrative tasks and supplement traditional teaching, and for feedback-related tasks.

Similarly, 60% of in-service teachers use AI tools mainly for additional practice and student engagement. However, they gave a higher value on the use of AI for assessment purposes compared to pre-service teachers. These results confirm the trends shown in chart 3, where in-service teachers emphasized the usefulness of AI for easing assessment, feedback tasks, and administrative work. In addition, both groups seem to give similar importance to the use of AI tools as a complement to traditional teaching methods, highlighting their role as a supportive resource in the classroom.

Once the usage-habits of AI of pre-service and in-service teachers were identified, the Likert-type items were analyzed to

gain further insight into their perceptions and attitudes towards the use of AI in language teaching.

AI Perceptions Among Pre- and In-Service Teachers: Likert Scale

The participants of the study were asked about their perceptions regarding the use of AI in the classroom through seven Likert-type questions. They were given a 5-item-scale where 1 meant completely disagree, while 5 meant completely agree. Participants had to respond to what extent they agreed with the following statements:

1. AI tools enhance student learning and engagement.
2. AI tools provide valuable personalized feedback to students.
3. AI tools save time by automating routine tasks.
4. AI tools are easy to integrate into my teaching practice.
5. AI tools can replace traditional teaching methods.
6. AI tools pose challenges related to data privacy and security.
7. I feel confident using AI tools in my teaching.

Results obtained from the Likert-scale items show that there is a generally neutral to slightly positive perception towards the use of AI by both in-service and pre-service teachers (see Table 1 below).

Table 1. Likert Scale Quantitative Analysis

	Teachers	Learning Engagement	Feedback	Time Saving	Easy to Integrate	Replace Traditional Teaching	Privacy Concerns	Feel Confident
Mean	In-Service	3.89	3.7	4.3	3.2	2.5	4.1	3.3
	Pre-Service	3.7	3.82	4.26	3.91	2.57	3.52	3.17
SD	In-Service	0.994	0.483	0.823	0.919	0.972	0.738	0.949
	Pre-Service	1.105	1.07	0.75	1.124	1.08	1.16	1.07

Table 1 presents the perceptions of in-service and pre-service teachers regarding the use of AI in the classroom, measured across the seven statements described above. Results show both similarities and differences between these two groups, emphasizing their views on AI's advantages and challenges in language teaching.

Regarding learning and engagement, in-service teachers showed slightly higher agreement than pre-service teachers. This suggests that both groups of teachers recognize the potential of AI tools to improve student engagement, but pre-service teachers showed more variability in their responses (SD = 1.105), possibly due to differences in exposure and use of these tools during their training and practicum.

Similarly, in terms of personalized feedback, both groups seem to value AI's ability to individualize instruction. However, the standard deviation for pre-service teachers (SD = 1.07) is notably higher than that of in-service teachers (SD = 0.483). This variability may indicate that pre-service teachers hold more diverse experiences or opinions about how effectively AI tools provide feedback, perhaps reflecting differences in the specific tools they have used, the extent of their teaching experience as some of them had been teachers for six months while others for more than two years, or their confidence in interpreting and using AI-generated feedback.

Results also show that both groups of teachers consider timesaving benefits an important advantage of AI tools, as it had the highest means among all the categories. The relatively low standard deviations suggest a strong agreement within both groups, showing that they appreciate AI's role in helping teachers make better use of their time and reduce their workload.

Regarding ease of integration, pre-service teachers rated AI more positively than in-service teachers. This difference suggests that pre-service teachers find it easier to integrate the tools in their practice, possibly because, as they are still students, they are receiving training and are more open to experiment with them. However, their higher standard deviation indicates some disagreement within the group, likely due to different levels of familiarity with AI-powered teaching aids.

The following two items were about their perspectives regarding some challenges or negative aspects of the integration of AI in the classroom. Findings show that both groups disagree with the idea of AI replacing traditional teaching practices, which aligns with previous studies that emphasize the importance of human interaction in language teaching and learning (Kanero et al., 2021; Su & Zou, 2020).

A key difference is seen in the participants' attitudes related to privacy concerns. In-service teachers expressed stronger concerns (M = 4.1, SD = 0.738) compared to pre-service teachers (M = 3.52, SD = 1.16). The lower standard deviation among in-service teachers suggests a more uniform concern regarding the security and privacy risks of the use of AI in the classroom, while pre-service teachers showed more mixed opinions. These findings may reflect the different

professional experiences of both groups, with in-service teachers being more protective of their privacy and data security.

Finally, regarding the levels of confidence of the use of AI in the classroom, in-service teachers (M = 3.3, SD = 0.949) and pre-service teachers (M = 3.17, SD = 1.07) showed similar perceptions, though pre-service teachers show slightly more variability in their responses. This suggests that, while both groups have a neutral opinion regarding their skills using AI tools and recognize the need for more training, there is less consensus among pre-service teachers, possibly due to differences in awareness or exposure to these types of tools.

Besides obtaining the Mean and SD of the Likert-type items of the questionnaire, different statistical tests were used to assess if there were significant differences between the two groups (pre-service and in-service teachers) regarding their responses to the Likert-type items. One of these tests was the Independent Samples t-test, which is typically used to compare the means of two independent groups when the assumption of equal variances is met. This test allows us to determine if the average scores of the two groups differ significantly.

However, if the assumption of equal variances is not met, the Welch's t-test is preferred because it adjusts for unequal variances between the groups, and it provides a more accurate result when comparing means under these conditions. Finally, the Mann-Whitney U test was run as a non-parametric alternative to the t-test, which does not require the assumption of normality in the data. This test compares the ranks of the two groups to see if the distributions differ significantly, even if the data is not normally distributed (see table 2 below).

Table 2. Independent Samples T-Test

		Statistic	df	p
AI_Student_Learning_and_Engagement	Student's t	0.5022	31.0	0.619
	Welch's t	0.5242	19.0	0.606
	Mann-Whitney U	104.0		0.668
AI_Personalized_Feedback	Student's t	0.0487	31.0	0.961
	Welch's t	0.0589	27.3	0.953
	Mann-Whitney U	110.0		0.851
AI_Save_Time	Student's t	0.1336	31.0	0.895
	Welch's t	0.1288	15.9	0.899
	Mann-Whitney U	110.5		0.865
AI_Easy_Integration	Student's t	-1.7609	31.0	0.088
	Welch's t	-1.9095	20.9	0.070
	Mann-Whitney U	71.0		0.078
AI_Replace_Traditional_Teaching	Student's t	-0.1640	31.0	0.871
	Welch's t	-0.1712	19.0	0.866
	Mann-Whitney U	110.5		0.870
AI_Challenges_Privacy_and_Security	Student's t	1.4442	31.0	0.159
	Welch's t	1.7186	26.4	0.097
	Mann-Whitney U	82.0		0.182
Confident_Using_AI	Student's t	0.3207	31.0	0.751
	Welch's t	0.3370	19.3	0.740
	Mann-Whitney U	110.5		0.869

All three tests were conducted as they allowed us to ensure robustness in the analysis, considering both parametric and non-parametric data conditions. As Table 2 shows, the p-values for all tests were higher than 0.05, thus, we concluded that there is no statistically significant difference in how pre-service and in-service teachers responded to the Likert items regarding their use and attitudes toward AI in the classroom.

Overall, the results show that both in-service and pre-service teachers recognize the benefits of AI in the classroom, particularly in terms of personalized feedback and time-saving procedures. However, concerns about ease of integration, privacy, and AI replacing traditional teaching prevailed. Pre-service teachers tend to have more varied opinions, while in-service teachers showed more consensus, especially regarding the challenges of AI adoption. These findings suggest that professional development and targeted AI training could help bridge gaps in AI implementation, ensuring that teachers feel more confident and prepared to integrate AI into their instructional practices.

AI Perceptions among Pre- and In-Service Teachers: Participants' Comments

To get a deeper understanding of the perspectives of the pre-service and in-service teachers towards the uses of AI in the classroom, open-ended questions were included in the instrument to complement the results obtained in the quantitative sections.

Qualitative results showed that there are both similarities and differences in the perceptions of in-service and pre-service English teachers towards the integration of AI in education. These were gathered from the following open-ended questions:

> What are the main benefits you perceive from using AI tools in your teaching?
> What are the main challenges you face when using AI tools in your teaching?
> What specific training or resources would help you better integrate AI tools into your teaching?
> Please share any additional comments or insights regarding the use of AI tools in English language teaching.

While both groups recognize the potential benefits of AI tools, in-service teachers tend to focus more on practical challenges and ethical concerns, while pre-service teachers showed a stronger interest in learning about them and integrating them into their classrooms. Participants' responses were categorized into four main themes:

The need for AI training and support
Balancing AI and traditional teaching
AI concerns, limitations, and risks
Perceived benefits of AI in language teaching
Each of these themes will be further explained.

Need for AI Training and Support

Results show that pre-service teachers expressed a greater desire for structured AI training compared to in-service teachers. Eight pre-service teachers mentioned that they wanted to learn more about AI, either through formal training such as workshops or courses, or by exploring the uses of different tools themselves and incorporating them into their practice. Participant 15, for example, mentioned that "it would be great to have access to workshops related to AI tools to improve my classes." On the other hand, participant 32 claimed that after answering the questionnaire and learning about possible uses of AI, she believed that "AI has its bad and good sides, but I was only considering the bad side until now," showing that the perceptions teachers have regarding AI can shift when they are exposed to more information.

In contrast, in-service teachers did not focus on training in their answers, as only two participants mentioned it directly. Participant 5 claimed that teachers "need to be educated to use AI", while participant 2 mentioned the need to be trained and updated as "every now and then there are new tools." The area of focus for in-service teachers was related to the challenges of incorporating AI in the classroom, instead. This suggests that while pre-service teachers seem to be more curious and open to explore AI tools and develop their skills, in-service teachers may feel more overwhelmed by the constant changes that AI undergoes and, thus, might be less motivated to actively seek training. This is congruent with the quantitative findings shown in Table 1 and aligns with the studies of Chen et al (2021) and Edmett et al (2024) who claimed that teachers may be hesitant to incorporate AI into their practice as they are more reluctant to spend time learning about these tools.

Balancing AI and Traditional Teaching

Findings also suggest that not all teachers are equally willing to incorporate AI into their practice. Some expressed reluctance, emphasizing the importance of finding a balance between traditional teaching methods and the integration of new technologies. This shows a concern with adapting to modern strategies while keeping familiar teaching approaches that work with both teachers and learners.

This balance was more explicitly emphasized by pre-service teachers during the qualitative analysis. Participant 11, for instance, argued that "we need to be careful in bringing proper balance between traditional teaching and AI usage," while Participant 25 said, "I think they are good as long as we don't use them excessively." These comments show a cautious but open attitude toward using AI, suggesting that while pre-service teachers are generally receptive to new tools, they are also aware of the risks of over-reliance and the persistent value of human-led instruction.

In-service teachers similarly mentioned the need for balance but also the irreplaceability of human teachers. Participant 10 stated that "there must be a balance between AI and traditional tools to show students a variety of resources for learning," while Participant 33 emphasized that "nothing would replace humans." This suggests that in-service teachers may already perceive AI as a complementary tool rather than something that could replace traditional teaching and that, consistent with the quantitative results and the studies of Kanero et al. (2021) and Su and Zou (2020), the human element is crucial in language learning.

AI Concerns, Limitations, and Risks

Concerns about AI's limitations and risks were another common theme in both groups, but in different ways. In-service teachers were more focused on ethical considerations and the potential unethical use of AI tools, while pre-service teachers were concerned with AI's impact on student learning and cognitive development.

Among in-service teachers, Participants 3, 7, and 30 mentioned ethical concerns. Participant 3 argued that "we must be able to identify that our students are using AI to avoid doing their job, but we must also recognize that this is now part of human

life and learn to use it ethically." Participant 30 took a stronger stance, claiming that "young students should be banned from using AI," while participant 7 was more receptive to it: "we need to be educated to use AI to help our students use it correctly." This reflects a mixed approach to AI, where some in-service teachers hold defensive opinions and view it as a challenge that must be managed, while others as an opportunity that must be explored to not fall in unethical practices.

Pre-service teachers, on the other hand, focused more on the potential disadvantages of using AI in learning. Participant 18, for example, stated that AI "may harm students' learning process if not being used properly," while Participant 31 emphasized the need for students to think independently: "We need to be very careful, because students need to think by themselves in order to learn." These comments suggest that pre-service teachers are more concerned with AI's pedagogical impact, while in-service teachers are more worried about issues of student responsibility and academic integrity.

Perceived Benefits of AI in Language Teaching

The final theme that emerged from the qualitative data was related to the perceived advantages of using AI in the English classroom by both groups. Both pre- and in-service teachers acknowledged the benefits of AI, but pre-service teachers showed more enthusiasm about its potential uses. Participants 9, 14, 20, and 22 emphasized AI's usefulness in lesson planning, grading, and content adaptation. Participant 9 stated that AI tools are "useful for adapting classes," and Participant 14 mentioned that AI "could help teachers to keep track of all their classes, by grading students' work."

Regarding in-service teachers, only Participants 8 and 10 explicitly noted AI's usefulness in the classroom. Participant 8 stated, "I think it can be very helpful to use it in class because all the students know about it; it's very familiar for them. But use it only as a tool." This reflects a more cautious approach, where in-service teachers see AI as a supporting tool rather than a transformative one.

Comparative Analysis with Previous Research

As can be seen, findings align with recent international studies reporting generally positive attitudes toward AI in ELT, but varying levels of confidence depending on training and experience (Edmett et al., 2024; Grassini, 2023). Similar to Rebolledo and González (2023), both groups in this study recognized AI as beneficial for feedback and autonomy, although in-service teachers expressed greater concern about ethical and privacy challenges, an issue also emphasized by Hockly (2023).

Consistent with Pokrivcakova (2019), pre-service teachers seemed to show higher enthusiasm and motivation yet lower confidence in effective AI integration, highlighting a need for structured or formal training. Meanwhile, in-service teachers' cautious adoption parallels Su and Zou (2020), who argue that teachers perceive AI as valuable but insufficient to replace human-mediated interaction.

All this suggests that although the Chihuahua context presents particular sociocultural conditions, local perceptions follow broader international patterns regarding benefits, concerns, and professional development needs for AI integration in ELT.

Conclusion

The aim of this study was to explore how pre-service and in-service teachers in Chihuahua, Mexico, perceive and use AI in their classrooms, with a focus on identifying differences or similarities between the two groups and understanding if teaching experience impacts perceptions of AI's role in education. While quantitative results showed no statistically significant differences between the groups, qualitative findings revealed some distinctions in their attitudes and approaches to the use and integration of AI in the English classroom.

Pre-service teachers showed enthusiasm for AI's potential, recognizing it as a tool to improve efficiency, motivation, and engagement in the classroom. However, they also mentioned a strong need for formal training and practical guidance, as many felt unprepared or unconfident to effectively integrate AI into their

teaching practices. On the other hand, in-service teachers, while seemingly more familiar with AI tools, approached them with more caution. They expressed concerns about ethical issues, student misuse, and the risk of over-reliance on technology, emphasizing the irreplaceable role of human interaction in language teaching and learning. Both groups recognized the importance of keeping a balance between traditional practices and those with AI tools, but pre-service teachers expressed this more frequently, probably because they were still students and still in the process of shaping their teaching philosophies and teacher identities.

The findings of this study highlight the importance of personalized professional development programs to address the different needs of each group. For pre-service teachers, practical workshops that introduce AI tools and demonstrate their classroom applications could be particularly beneficial. For in-service teachers, as they are more familiar with AI tools, training could focus on ethical AI use, strategies to prevent student unethical use, and guidelines for keeping a balance between AI and traditional teaching methods. By addressing these needs, educational institutions and teacher training programs could provide support to both novice and experienced teachers to integrate AI effectively, promoting a balanced and informed approach to the adoption of technology in the classroom.

The results of this study have several implications in the field of language teaching and learning. The most relevant is that the effective integration of AI in the classroom requires careful consideration of its limitations and potential risks. While AI has the potential to enhance instructional practices, promote students' engagement, and improve learning outcomes, its effectiveness depends on how carefully and thoughtfully it is implemented. Teachers must be provided with the knowledge and skills to use AI as a complementary tool, rather than as a replacement for traditional methods. This balanced approach can help maximize the benefits of AI while reducing its challenges and while preserving the crucial role of teacher-student and student-student interaction in language learning.

Even though this study provided some meaningful insights, it also had some limitations. One of them was the uneven distribution of the sample size, with 23 pre-service teachers and only 10 in-service teachers. To address this, future research should aim for a more balanced and larger sample to make sure that generalizations can be made. Moreover, as this study was mainly quantitative, further research could include more extensive qualitative data, using instruments such as interviews or focus groups, to gain deeper insights into teachers' perceptions and experiences and to enrich the interpretation of quantitative findings. Future research should, thus, incorporate more robust sampling procedures (for instance, stratified sampling) and triangulate data sources to strengthen reliability and contextual interpretation. By addressing these research gaps and continuing to explore the role of AI in language classrooms, future studies can contribute to a more comprehensive understanding of how technology can support and transform language teaching and learning.

In conclusion, this study highlights the evolving role of AI in education and the importance of addressing the unique needs of pre-service and in-service teachers. By providing personalized support and fostering a balanced approach to AI integration, educators can harness the potential of this technology to enhance teaching and learning while preserving the essential human elements of education.

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CHAPTER III

An Exploratory Study of Artificial Intelligence Usage Among English Language Teachers in Southern Mexico

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Abstract

This exploratory study investigates the integration of Artificial Intelligence (AI) tools among 68 English language teachers in southern Mexico. Thus, four key research questions were formulated: (1) the extent of teachers' familiarity with the AI concept, (2) their usage of AI tools, (3) their attitudes toward AI, and (4) their perceptions of the benefits and challenges of AI integration. Regarding the research design, the study falls mostly within a quantitative approach supplemented by a brief qualitative component. The instrument used was a validate online

questionnaire with closed-ended items and some open-ended questions. A non-probability purposive sampling strategy was employed, with inclusion criteria requiring participants to be active English teachers in the southern Mexican state of Quintana Roo.

The results showed that younger and less experienced teachers were more familiar with the AI concept, whereas older and more experienced teachers reported lower levels of familiarity. AI-based language learning applications and automated grading tools were the most frequently used, primarily for enhancing student engagement and providing personalized feedback. Also, teachers generally considered AI tools as beneficial for saving time and improving learning outcomes, but expressed concerns about data privacy, ethical implications, and the potential over-reliance on AI by students. In conclusion, this study suggests the need for targeted professional development programs to enhance teachers' digital competence and acquaintance with AI tools, along with better technological infrastructure.

Keywords

Artificial intelligence tools; AI in language teaching; AI benefits; AI challenges.

Introduction

No doubt, the integration of Artificial Intelligence (AI) into the realm of education has been considered as one of the most transformative developments in the last ten years (Luckin et al., 2016; Holmes et al., 2019), especially in the field of language learning and teaching. Today, AI-powered tools have shown the potential to impact how languages are learned and taught. Such an impact is observed in the different language learning applications available in the market, which allow for more personalized learning strategies, among other aspects. Language teachers can also benefit from these technologies to make their daily practice more efficient and motivating for learners. However, despite this seemingly positive scenario worldwide, the adoption of AI tools on the part of language teachers, there is still a long way to integrate them

fully into their teaching practices. As Zawacki-Richter et al. (2019) claimed, their adoption and integration into teaching practices remain unequal, particularly in regions with limited technological infrastructure or where teachers may lack familiarity with these emerging technologies.

In this line, it appears that in Mexico, the adoption of AI tools in English language teaching is still in its early stages, with little research on how language teachers perceive and use such tools. It seems that attention has been paid to teachers' digital competence levels (see Reyes & Gurubel-Tec, 2024; Hernández-Romero, et al., 2019). It is then necessary to understand how language teachers engage with AI tools to identify both the potential benefits and the barriers to their effective implementation inside and outside the classroom. Hence, this study seeks to pave the way in this field by exploring the familiarity, usage, attitudes, and perceptions of English language teachers in southern Mexico regarding AI tools in their teaching practices. Accordingly, the following research questions have been formulated:

1. To what extent are English language teachers in southern Mexico familiar with the AI concept?
2. What is the usage given to AI tools by English language teachers?
3. What are English language teachers' attitudes towards AI tools?
4. What are English language teachers' perceptions about the benefits and challenges in using AI tools?

In sum, this study aims to explore English language teachers' familiarity, usage, attitudes, and perceptions AI tools in educational contexts. The research first investigates the extent to which language teachers are familiar with the concept of AI to identify gaps in awareness. This is considered as a point of departure in the process of adopting AI tools. The second research question examines language teachers' usage of AI tools rather than simple use; that is, how language teachers utilize AI tools in their teaching practices, focusing on the types of tools employed and their specific applications in language instruction. Thirdly, the study also assesses teachers' attitudes towards AI

tools, whose opinions may allow for further understanding about their willingness to integrate such technologies into their practice. Finally, the research delves into language teachers' perceptions of the potential benefits and challenges associated with AI tools; benefits such as enhanced learning outcomes, and concerns like ethical considerations or technical limitations. Collectively, answering these research questions may provide a preliminary description of the integration of AI in language teaching and its implications for teachers in this field.

Furthermore, the rationale for this study stems from the need to understand how AI tools are being integrated into English language teaching in a region, whose main industry depends on tourism. For such a reason, this descriptive study attempts to provide insights into the current state of AI adoption among English language teachers in this region, along with the opportunities and challenges they face. By doing so, this investigation also seeks to provide policymakers and institutions with research-based information, which allows them to make decisions on how to integrate AI into language teaching and learning. In addition, this research may contribute to the broader discourse on the role of AI in education with an emphasis on English language teaching.

Literature Review

As stated before, AI tools have been gradually integrated into the field of education, particularly in the realm of English language teaching. The potential of AI in education is achieved in numerous ways among teachers as they can provide students with more personalized strategies, immediate feedback, and motivating instructional materials, which may lead to meaningful learning. In this brief literature review, the concept of AI is presented, followed by some studies on the integration of AI in education as well as research on AI in language teaching.

Defining the Concept of Artificial Intelligence

A seminal paper was published by Luckin et al. (2016), who succinctly explains the concept of artificial intelligence in education along with its potential impact on this field. They pointed out that artificial intelligence is a difficult concept to define, even for experts since AI is evolving over the years. Besides, AI is an interdisciplinary concept that has a great impact on many disciplines; hence, many perspectives can be attached to it. Similarly, Russell and Norvig (2021, p. 1) emphasize that "we have claimed that AI is interesting, but we have not said what it is. Historically, researchers have pursued several different versions of AI." Therefore, for the sake of this study, a relatively accepted definition of AI is presented as follows:

> AI as computer systems that have been designed to interact with the world through capabilities (for example, visual perception and speech recognition) and intelligent behaviors (for example, assessing the available information and then taking the most sensible action to achieve a stated goal), that way would think of as essentially human. (Luckin et al., 2016, p. 14)

Thus, such a definition refers to the ability of computer systems to mimic human cognitive functions and, perhaps, "behavior" when making sensible decisions or solving problems based on the analysis of information. In our view, acquaintance with the AI concept represents the starting point for teachers who are in the process of integrating AI tools into their teaching practices. Moreover, familiarity with the AI concept is reflected in the first research question posited above to investigate to what extent language teachers are aware of this concept. In what follows are the most relevant and recent studies, which were conducted outside Mexico.

Regarding AI in general education, Estrada-Araoz et al. (2023) conducted a quantitative, descriptive cross-sectional study to evaluate the level of artificial intelligence (AI) knowledge among 55 Peruvian university teachers. The researchers used a structured online survey via Google Forms, which assessed three

dimensions: theoretical aspects of AI, AI tools for education, and their applications in teaching. The data analyzed with SPSS software revealed a generally low level of AI knowledge among participants, which may have implications for the effective adoption of AI tools. Furthermore, the study identified a statistically significant relationship between AI knowledge and age, with younger teachers demonstrating higher AI acquaintance in comparison with their older counterparts.

Similarly, Sánchez-Vera (2023) conducted a mixed-methods investigation to explore the use of AI tools by teachers across different academic levels. She administered an online questionnaire to 35 educators who had integrated AI into their teaching or professional practices. The quantitative data collected were analyzed via the Jamovi software, whereas the qualitative data involved the analysis of 91 Twitter comments (now X) through content analysis with Atlas.ti. The findings revealed that teachers were familiar with conversational AI tools (ChatGPT and Bing), image generation tools (Dalle2, Midjourney), content creation tools (Jasper, Peppertite, Compose AI), and programming or multimedia tools. The participants reported using AI for classroom activities such as information retrieval, content creation, translation, and programming, as well as for professional tasks like lesson preparation, evaluation, brainstorming, and resource generation. Nonetheless, despite their engagement with AI, teachers expressed concerns about plagiarism and a lack of preparedness to fully integrate AI tools into their professional practice.

Language Teachers' Usage of AI Tools

One of the most recent and comprehensive studies on the use of AI in English Language Teaching was conducted by Edmett et al. (2024), which can serve as a valid reference for future investigations. These researchers first did a systematic review of 36 papers published worldwide between 2014 and 2023. This was followed by a survey with 1348 teachers from 118 countries and by interviews with 19 key stakeholders. The review results showed that most research has been done in Asia, mainly in China, and the focus of AI use has been on speaking, writing, reading, general

pedagogy, and self-regulation. The survey outcomes showed that while many teachers reported using AI tools, 80% of them still felt they needed adequate training to integrate AI into their teaching practices (n = 1078); hence, there is still a gap to fill. Concerning the interviews, the stakeholders reported a deeper understanding of the benefits and challenges of using AI tools; common themes emerged like bias, ethics, teacher preparedness, and the huge contribution of AI to education. The authors also argue that the human element should be maintained in language teaching by considering AI tools as complementary rather than a threat to the profession.

In another investigation, Idham et al. (2024) conducted a mixed-methodology study to describe the impact of AI technology on English language teaching in higher education, with emphasis on the opportunities and challenges. The participants were 16 Indonesian English lecturers who were surveyed and interviewed accordingly. The results showed that the participants reported using ChatGPT to get quick answers about teaching and learning English; however, they claimed that they received inaccurate information. Similarly, Grammarly was found to be the tool that teachers use to check for grammatical errors in the compositions of their students. The lecturers also highlighted that AI provided them with personalized feedback and learning, which they found particularly useful for learning to write in English. Finally, most of the participants expressed that AI could replace English teachers and professors in the future because the centennial generation could be technologically proficient in the use of AI tools.

In this vein, Munni and Rafique (2025) conducted a qualitative study to explore the experiences and perceptions of 17 Bangladeshi university English teachers regarding AI usage. Data were collected through a 13-question qualitative survey distributed via Google Forms on social media platforms. The researchers performed a thematic analysis based on Braun and Clarke's (2006) six-step framework. The findings showed that participants utilized AI tools like ChatGPT and Duolingo, especially for teaching writing, grammar, and vocabulary. Also, the participants reported using Turnitin and Quillbot to detect plagiarism and cheating in written compositions. Additionally, the teachers reported the adoption of

AI software such as Bing AI, Copilot, and Gemini to design age-appropriate activities, and prepare class materials, readings, and slides. Finally, the researchers found that AI tools enhanced teacher and learner tasks by saving time, reducing workloads, providing immediate feedback, and increasing engagement from the learners.

Correspondingly, Zhou and Hou (2025) conducted a qualitative study to examine the integration of AI tools into English as a Foreign Language (EFL) pedagogical practices of 24 Chinese university teachers of English. Consistent with the research design, the main instrument was a semi-structured interview, whose data were analyzed using Braun and Clarke's (2006) thematic analysis framework and the MAXQDA software. The researchers found that a great majority of the participants utilized AI tools in their teaching practices. The main results showed that teachers utilized AI to enhance student writing, generate personalized assignments, automate grading, and provide detailed feedback. Moreover, AI tools were employed to enrich course materials, organize syllabi, recommend reference texts, and support translation and interpretation courses by enabling students to compare AI-generated translations with their own. In sum, the participants appeared to have a good command of AI tools, which reflected a high level of AI integration into teaching.

Language Teachers' Attitudes Towards AI Benefits and Challenges

In this regard, Har (2023) qualitatively examined the perspectives of both English for Specific Purposes Students and English as Second Language Teachers on the impact of AI on English Language Teaching and Learning in Hong Kong. To collect data, semi-structured interviews were conducted, and the analysis was performed by employing Braun and Clarke's (2006) six-step thematic analysis framework. In general, the findings indicated that ChatGPT was considered as a valuable tool for enhancing self-directed learning, academic literacy, and language skills. However, teachers expressed concerns about potential negative consequences, such as plagiarism and over-reliance on the tool. Despite these challenges, educators acknowledged ChatGPT's

potential to transform evaluation processes and teaching practices. The participants also referred to the capacity of AI tools to reduce workload so that they could focus on other relevant teaching tasks.

Another qualitative study was conducted by Sumakul et al. (2022), who explored how 4 EFL teachers perceived the integration of AI technology in the classroom and what pedagogical implications emerged during its implementation. Semi-structured interviews were selected as the instrument for this research, administered in both virtual and face-to-face modalities. The analysis revealed that participants held positive attitudes towards the impact of AI on their roles as language teachers. Concerns about AI replacing teachers also emerged from the data analyzed. Despite this, the teachers emphasized the importance of embracing technological advancements and expressed enthusiasm for adopting new responsibilities, such as evaluating AI applications. They considered that successful AI implementation in education would depend on their active involvement in its development. Additionally, they identified learner motivation and teachers' technological and pedagogical knowledge as critical factors for effective AI integration into the language classroom.

Similarly, Varsamidou (2024) conducted a quantitative study to examine Greek foreign language teachers' attitudes and perceptions towards the integration and pedagogical use of artificial intelligence (AI) in language teaching. The sample consisted of 150 public-sector teachers of English, French, and German, who were surveyed with a self-administered Google Forms questionnaire. The results showed that while teachers recognize AI as a disruptive technology, they feel inadequately informed about it and express limited enthusiasm for its application in language instruction. Although some participants were aware of AI tools and used them primarily to save time, the majority did not see a need for their integration into teaching. Furthermore, the teachers generally showed some skepticism about the benefits of using AI tools but acknowledged a few positive aspects such as direct and personalized feedback along with the possibility of adapting lessons to their learners' needs. Interestingly, the participants criticized AI for failing to enhance critical thinking or student motivation.

Finally, the participants stated that they felt insecure and wished to have training so that they can integrate AI into their teaching.

In the same geographical area, Rapti and Panagioditis (2024) carried out a quantitative study to describe foreign language teachers' attitudes toward AI integration in language education. Special interest was focused on differentiated instruction and flipped classroom models. The investigation involved 116 teachers of English, French, German, and Italian, whose data were collected via a questionnaire distributed through Facebook educational groups. The findings revealed that most participants held positive attitudes towards AI in that they recognized its potential to create individualized learning experiences and address different student needs. Furthermore, factors such as age, teaching experience, and familiarity with AI technologies appeared to influence these attitudes significantly. Despite this apparent enthusiasm, the study highlighted limited AI adoption within flipped classroom frameworks, perhaps due to insufficient knowledge of suitable software, inadequate resources, and a lack of teacher training.

In summary, the integration of AI tools in education, particularly in English language teaching, presents both significant opportunities and challenges. The brief literature reviewed emphasizes the transformative potential of AI tools in providing personalized learning experiences, immediate feedback, and innovative instructional materials, which can enhance students' engagement and learning outcomes (Luckin et al., 2016; Edmett et al., 2024). However, the effective adoption of AI in education can be hindered by several barriers, including teachers' limited knowledge and preparedness, concerns about ethical issues such as plagiarism, and the potential over-reliance on AI tools (Estrada-Araoz et al., 2023; Sánchez-Vera, 2023; Varsamidou, 2024). While younger teachers and those with greater familiarity with AI technologies tend to exhibit more positive attitudes and higher levels of engagement (Rapti & Panagioditis, 2024; Sumakul et al., 2022), there is a clear need for comprehensive training programs to equip teachers with the necessary skills and confidence to integrate AI into their teaching practices effectively. Furthermore, the human element in education remains crucial, as AI tools

should be viewed as complementary rather than replacements for teachers (Edmett et al., 2024; Idham et al., 2024). Therefore, future research should focus on developing strategies to address these challenges by ensuring that AI is leveraged to its full potential while maintaining the essential role of teachers in fostering critical thinking and meaningful learning experiences.

Finally, the literature reviewed underscores a global trend of cautious optimism regarding AI in education. However, most of the existing research originates from Asian, European, and North American contexts. There is an evident gap in the literature concerning the adoption and perception of AI among language teachers in Latin America, and Mexico specifically. The socio-economic and infrastructural realities in regions like Southern Mexico, where tourism is a primary industry, present a unique context that may significantly influence how AI tools are accessed and integrated. Hence, this study aims to contribute to filling this gap by providing empirical data from this under-represented region, allowing for future comparative analyses.

Methodology

This exploratory non-experimental study has mostly a quantitative design, in which some personal variables (age, gender, educational level taught, and teaching experience) are examined in relation to other variables concerning artificial intelligence in English Language Teaching (familiarity, usage, attitudes, benefits, and challenges). Also, this investigation incorporates a qualitative component to describe the benefits and challenges of integrating artificial intelligence tools into the classroom.

The study employed a non-probability purposive sampling method to select participants. The inclusion criteria were explicitly defined as: (1) being a current teacher of English as a foreign language, (2) being employed at any educational level (primary, secondary, high school, higher education, or private language institute), and (3) working within the state of Quintana Roo in Southern Mexico. Recruitment was conducted through two primary channels: (1) direct email invitations sent to English department

listservs of public and private institutions in Quintana Roo, and (2) a public call for participation posted on professional Facebook groups for Mexican English teachers.

Thus, the participants were 68 teachers of English from different educational levels, mostly in higher education in the State of Quintana Roo (77.9%). Other levels included primary school (8.8%), secondary school (5.9%), high school (4.4%), and language institutes (2.9%). In terms of gender, the proportion of female teachers was 66.2% whereas that of male teachers was 33.8%, which is common in the context of language teaching. The age of the participants was established in ranges (20-30, 31-40, 41-50, 51-60, and above 60). Thus, most of the teachers (38.2%) were aged in the 31-40 range, followed by the 41-50 range (27.9%), the 20-30 range (16.2%), the 51-60 range (8.8%, and the above 60 range (8.8%). This indicates that the participants were predominantly middle-aged, with a significant representation of younger and older teachers. Regarding their teaching experience, five range groups were considered (0-5 years, 6-10 years, 11-15 years, 16-20 years and above 20 years). It was found that 27.9% of the participants reported more than 20 years of experience, 22.1% of them fell within the 11-15 range, 19.1% in the 16-20 range, 17.6% in the 6-10 range, and 13.2% in the 0-5 range. This distribution suggests that the sample included both highly experienced teachers and those who were relatively new to the profession. Table 1 shows these four variables accordingly.

Table 1. Demographics of the Participants

Variables	Sub-variables	N	Percentage
Educational Level	Higher Education	53	77.9%
	Primary School	6	8.8%
	Secondary School	4	5.9%
	High School	3	4.4%
	Language Institutes	2	2.9%
Gender	Female	45	66.2%
	Male	23	33.8%
Age	20-30 years	11	16.2%
	31-40 years	26	38.2%
	41-50 years	19	27.9%
	51-60 years	6	8.8%
	Above 60 years	6	8.8%
Teaching Experience	0-5 years	9	13.2%
	6-10 years	12	17.6%
	11-15 years	15	22.1%
	16-20 years	13	19.1%
	Above 20 years	19	27.9%

The instrument used in this study was the online questionnaire "Integrating Artificial Intelligence in English Language Teaching in Mexico" designed and provided by F. Peralta (personal communication, December 3, 2024). The data collection period spanned four weeks, from mid-December 2024 to mid-January 2025. The questionnaire is divided into six sections: Demographic Information, Familiarity with AI Tools, Usage of AI Tools, Attitudes towards AI Tools, Digital Accessibility for Students with Disabilities, and Support and Training Needs. Most of the items are closed-ended (Likert-type) with some open-ended questions and can be completed in less than 20 minutes. The contents of this instrument followed a natural sequence in terms of organization, starting with Acquaintance with the AI Concept, Usage of AI Tools, and Attitudes towards AI Tools. After validation

by expert colleagues, the questionnaire was distributed via email to potential participants, and a call for participation was posted on Facebook, considering the participants' age group.

The data gathered with Google Forms were downloaded into an Excel file, then cleaned up to be exported to the IBM SPSS Version 26. Frequencies were obtained mostly for the demographic variables and the dichotomous scales of the questionnaire. Mean frequency ratings were used to analyze variables such as familiarity with the AI concept, usage of AI tools, and attitudes towards AI tools. Additionally, some inferential statistical tests were employed to examine differences and relationships among the main variables of the study; for example, one-way ANOVA and independent-samples t-test. The former was used to explore differences according to age, educational level taught, and years of teaching experience, whereas the latter was applied to examine the relationship between gender and AI usage and attitudes.

As the questionnaire contained some open-ended questions, a simple thematic analysis was performed to explore the benefits and challenges that language teachers perceive in using AI tools. It should be recalled that thematic analysis was also performed by Munni and Rafique (2025), Zhou and Hou (2025), and Har (2023). The data from the Excel file were exported to MAXQDA 2020 to codify segments of the opinions from the teachers (see Zhou & Hou (2025). Then all the segments were organized into benefits and challenges. After that, the segments from each category were grouped under related topics. Finally, the analysis ended up with the two main categories and the resulting subtopics.

The thematic analysis employed was generally based on Braun and Clark's (2006) method, which consists of six phases: (1) Familiarization with the Data, (2) Generating Initial Codes, (3) Generating Themes, (4) Reviewing Potential Themes, (5) Defining and Naming Themes, and (6) Producing the Report. Thus, the qualitative data obtained were systematically analyzed to generate valid themes under the umbrella of the benefits and the challenges of using AI tools. It should also be noted that the AI tool DeepSeek was used to triangulate the qualitative results with those generated via MAXQDA.

Results

In this section, the main results of the study are presented based on the four research questions formulated in the introduction: (1) Language Teachers' Familiarity with the AI Concept, (2) their Usage of AI Tools in Teaching, (3) their Attitudes toward These Emerging Technologies, and (4) their Perceptions about the Benefits and Challenges in Integrating AI Tools into their Teaching Practices. For practical reasons, this section is divided into quantitative and qualitative results.

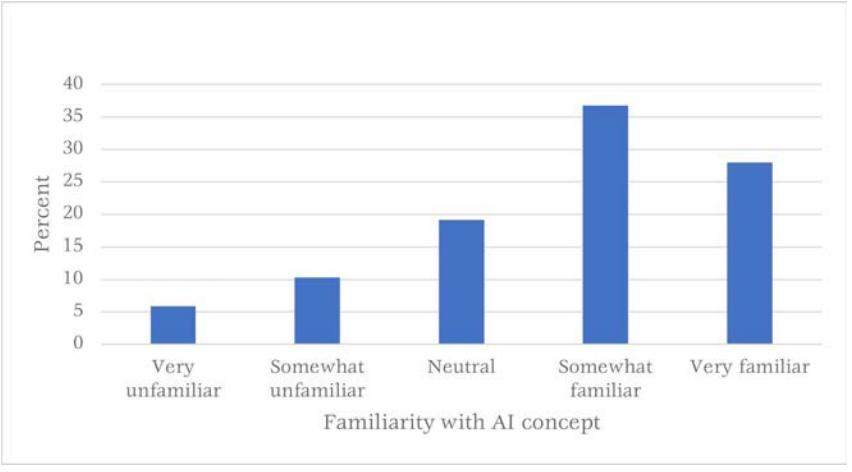
Quantitative Results

As stated in the methodological section, the quantitative results included both descriptive and inferential statistics; hence the whole sample is analyzed in terms of percentages and means followed by some comparisons across the demographic variables of the study.

Familiarity with the Artificial Intelligence Concept

In general, teachers' familiarity with the AI concept tends to vary across the whole sample. Figure 1 shows that the largest group (36.8%) reported being "somewhat familiar" with AI, while 27.9% indicated they are "very familiar." A smaller proportion of participants reported being "neutral" (19.1%), "somewhat unfamiliar" (10.3%), or "very unfamiliar" (5.9%) with the AI concept.

Figure 1. Teachers' Familiarity with the AI Concept



This suggests that while a significant portion of the participants have some understanding of what AI conveys, there is still a notable proportion that may lack familiarity, especially if those being "neutral" are somehow indecisive.

Familiarity with the AI Concept Across Variables of the Study

The statistical analysis revealed that familiarity with the AI concept varies across different age groups. Teachers aged 20-30 reported the highest mean familiarity score ($M = 4.00$, $SD = 1.095$), while those aged 51-60 and above 60 had lower mean scores ($M = 2.83$, $SD = 1.329$ and $M = 2.67$, $SD = 1.862$, respectively). The ANOVA results indicated a statistically significant difference in familiarity across age groups ($F = 2.856$, $p = .031$). However, post hoc tests using the Bonferroni correction showed no significant pairwise differences between age groups, suggesting that while there is a general tendency for younger teachers to be more familiar with AI, the differences between specific age groups are not statistically significant.

The study also examined gender differences in AI familiarity. Female teachers ($N = 45$) had a slightly lower mean familiarity score ($M = 3.62$, $SD = 1.134$) compared to male teachers ($N = 23$,

M = 3.87, SD = 1.217). However, an independent samples t-test revealed no significant difference in familiarity between female and male teachers (t = -0.830, p = .409). This indicates that gender does not significantly influence language teachers' familiarity with the AI concept.

Familiarity with the AI concept was also analyzed based on the educational level taught by the teachers. Teachers at the secondary level reported the highest mean familiarity score (M = 4.00, SD = 1.414), while those teaching at the high school level had the lowest (M = 2.33, SD = 1.528). However, the ANOVA results showed no significant differences in familiarity across educational levels (F = 1.401, p = .244), suggesting that the level of education taught does not significantly impact teachers' familiarity with AI.

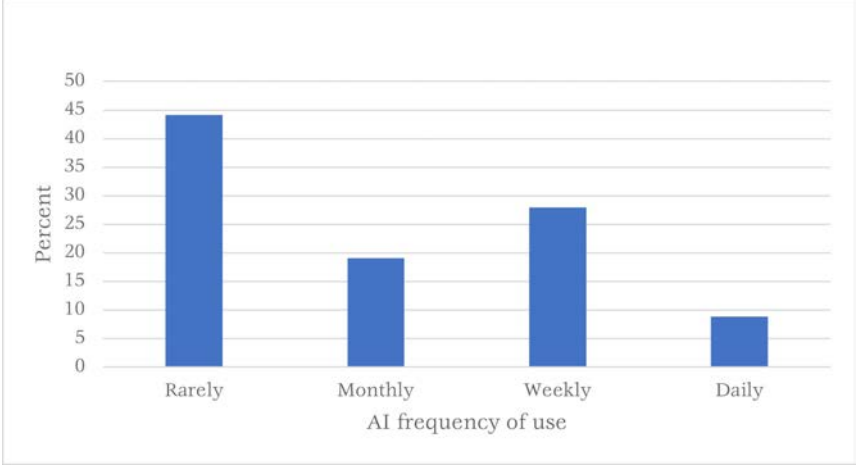
In the same line, the study explored the relationship between years of teaching experience and familiarity with AI. Teachers with 0-5 years of experience had the highest mean familiarity score (M = 4.11, SD = 1.167), while those with more than 20 years of experience had the lowest (M = 3.11, SD = 1.370). The ANOVA results indicated a statistically significant difference in familiarity across experience groups (F = 2.531, p = .049). Thus, post hoc tests revealed that teachers with 0-5 years of experience were significantly more familiar with AI than those with more than 20 years of experience (p = .049), suggesting that more experienced teachers may be less familiar with AI concepts compared to their less experienced counterparts.

In sum, the findings suggest that there is a trend that younger and less experienced language teachers tend to be more familiar with the AI concept, while older and more experienced teachers show lower levels of familiarity. Gender and the educational level taught do not appear to significantly influence familiarity with AI. These results highlight the need for targeted professional development programs to enhance AI literacy among language teachers, particularly for those with more years of experience or who are older, to ensure they are equipped to integrate AI into their teaching practices effectively.

Usage of AI Tools in Language Teaching

To explore the usage of AI tools, the participants were asked if they incorporated them into their teaching practices, how often they used them, and what AI tools they used. The survey results indicated that 61.8% of the teachers reported using AI tools, whereas 38.2% indicated they did not. In terms of AI frequency of use, Figure 2 shows that 44.1% of the teachers reported using AI tools rarely and 19.1% used them monthly. This may suggest that there is a limited or exploratory use of AI tools. Interestingly, 27.9% of the teachers reported using AI tools weekly and only a small proportion (8.8%) used AI tools daily.

Figure 2. Language Teachers' AI Frequency of Use



Regarding which AI tools they reported using, the participants were asked to choose from a list of AI tools that can be applied in language teaching such as AI-based Language Learning Apps, Automated Grading Tools, Chatbots for Language Practice, AI-driven Language Assessment Tools, Virtual Teaching Assistants, Adaptive Learning Platforms, Speech Recognition, and Feedback Tools. Thus, AI-based Language Learning Apps resulted in the most frequently used AI tool (45.9%) among the sample, followed by the Automated Grading Tool with 36.1%, Chatbots for Language

Practice, and Adaptive Learning Platforms, both with 26.2%. The least frequently used AI tools include Visual Teaching Assistants (21.3%), Speech Recognition and Feedback Tools (19.7%), and AI-driven Language Assessment Tools (16.4%).

In the same vein, the purposes for which the teachers used AI tools were further explored. Again, the teachers were provided with a list of possible reasons such as enhancing student engagement, providing personalized feedback, automating administrative tasks (e.g., grading), supplementing traditional teaching methods, assessing student performance, and providing additional practice opportunities. The results showed that the most common purpose for using AI tools was to enhance student engagement (58.8%), which goes in line with the types of AI tools reported previously. It appears that teachers used AI-based language learning apps, chatbots for language practice, and adaptive learning platforms to create interactive and dynamic learning experiences that may motivate students to participate more actively in class. The second purpose mentioned more frequently by the teachers was providing personalized feedback (47.1%), which goes in hand with the use of automated grading tools and AI-driven language assessment tools to offer tailored feedback on students' performance. The third popular purpose for which AI tools are used is automating administrative tasks (42.6%), such as grading and lesson planning. The reason behind this finding may be because teachers can save time and reduce the workload associated with manual grading or planning.

Attitudes towards AI Tools

To explore attitudes towards AI tools, seven Likert-type statements were placed for the teachers to totally agree or disagree on the benefits, challenges, and ease of integrating AI tools into their teaching practices. Table 2 shows in descending order the means obtained for each statement.

Table 2. Attitudes towards AI Tools

Descriptive Statistics					
	N	Min.	Max.	Mean	Std. Dev.
AI Tools Save Time by Automating Routine Tasks	68	3	5	4.24	.794
AI Tools Enhance Student Learning and Engagement	68	2	5	4.03	.772
AI Tools Pose Challenges Related to Data Privacy and Security.	68	1	5	3.79	.971
AI Tools are Easy to Integrate into My Teaching Practice.	68	2	5	3.72	.861
AI Tools Provide Valuable Personalized Feedback to Students.	68	2	5	3.71	.811
I Feel Confident Using AI Tools in My Teaching.	68	1	5	3.63	.945
AI Tools Can Replace Traditional Teaching Methods.	68	1	5	3.00	1.051
Valid N (Listwise)	68				

The results show that language teachers strongly agree that AI tools save time by automating routine tasks (M = 4.24) and enhance student learning and engagement (M = 4.03). However, they seem to express moderate concerns about data privacy and security (M = 3.79), together with integrating AI into teaching practices (M = 3.72). In the same manner, teachers tend to see value in AI for providing personalized feedback (mean = 3.71). Teachers' confidence in using AI tools is also moderate, with a mean score of 3.63, while the belief that AI tools replace traditional teaching results in the lowest mean (3.00), which implies some skepticism on their part.

Attitudes Towards AI Tools Across Variables of the Study

Language teachers' attitudes towards AI tools were also explored by considering personal variables such as age, gender, educational level taught, and years of teaching experience. Therefore, one-way ANOVA and independent-samples t-tests were performed on the seven attitudes measured. In general, the results showed no significant differences in attitudes across age, gender, educational level, or years of teaching experience for most variables. For instance, ANOVA results for "AI tools enhance student learning and engagement" ($F = 0.140$, $p = 0.967$) and "AI tools provide valuable personalized feedback" ($F = 0.191$, $p = 0.942$) were not statistically significant, suggesting that demographic factors may not influence these perceptions. The only statistically significant result was found in the t-test results for "AI tools can replace traditional teaching methods," where male teachers were slightly more likely to agree with this statement compared to female teachers ($t = -2.536$, $p = 0.014$). These findings suggest that while teachers broadly recognized the potential benefits of AI tools, their attitudes may be determined by their perceptions per se, regardless of their age, gender, educational level taught, and their teaching experience.

In summary, it was found that language teachers generally view AI tools as beneficial for saving time and enhancing student engagement, but they also express concerns about data privacy and face challenges in integrating AI into their teaching. Although they see value in AI, they seem cautious about its potential to replace traditional teaching methods. So far, these findings may suggest a need for further training and support to help teachers to effectively adopt and use AI tools in language teaching contexts.

Qualitative results

As stated above, further qualitative analysis was performed to find out the benefits and challenges expressed by the teachers. In what follows are the main results obtained through a simple thematic analysis, accompanied by some segments for the sake of evidence to support each category. This type of analysis involved identifying, analyzing, and reporting patterns, which were translated into main themes or categories.

Benefits of Using AI Tools

Four categories emerged in the benefits that teachers view while integrating AI tools into their teaching practices: (1) Time Efficiency, (2) Enhanced Student Engagement and Motivation, (3) Personalized Learning and Feedback, and (4) Innovation and Modernization.

(1) Time Efficiency: an emerging and recurring topic among teachers was the ability of AI tools to save time, especially by automating routine tasks such as grading and lesson planning. For example:

> *"Automated grading reduces grading time, freeing instructors for more critical tasks."*

Teacher 9 appears to highlight how AI tools automate grading, perhaps giving them time for more important teaching activities.

> *"They save me lots of precious time and they have given me great ideas to use in the class."*

Teacher 11 seems to appreciate how AI tools save time and provide creative ideas for classroom activities.

(2) Enhanced Student Engagement and Motivation: teachers frequently reported that AI tools may make learning more interactive and engaging for students, increasing their motivation to participate. Here are some examples:

> *"It enhances students' performance and challenges both teacher and students."*

Teacher 10 points out that AI tools can improve performance in students, making learning and teaching more challenging.

> *"First of all, new things are always exciting. Secondly, I think AI could be a tool that can be useful to enhance learning and teaching as long as it becomes an extra aspect of the class."*

Teacher 64 notes that AI tools are exciting and can enhance learning and teaching; this may lead to greater engagement from both teacher and learner.

(3) Personalized Learning and Feedback: according to the teachers, AI tools were valuable for their ability to provide personalized feedback and adapt to individual student needs. For instance:

> *"Personalized feedback and different ideas about teaching."*

Teacher 44 reports that AI tools can provide students with personalized and immediate feedback.

> *"My students can have more opportunities for feedback and information."*

Teacher 35 seems to consider AI tools as great opportunities for providing feedback and managing information.

(4) Innovation and Modernization: teachers appreciate how AI tools bring innovation to traditional teaching methods, which makes lessons more dynamic and relevant.

> *"Innovating the ways we teach and students learn."*

Teacher 37 explicitly states that AI tools bring innovation to both teaching and learning processes.

> *"Providing a wide technological knowledge to the students in our modern era so the students can improve their skills and have more creativity."*

Teacher 66 highlights how AI tools modernize teaching by providing students with technological knowledge and fostering creativity.

Challenges in using AI tools

Interestingly, like in the case of benefits, four main challenges were grouped together based on the teachers' perceptions: (1) Technical and Infrastructure Issues, (2) Data Privacy and Security Concerns, (3) Lack of Training and Familiarity, and (4) Student Dependence and Ethical Concerns.

(1) Technical and Infrastructure Issues: a relevant challenge is the lack of reliable internet access and technological infrastructure, which may hinder the effective use of AI tools.

"Internet accessibility, time to develop activities"

Teacher 3 notes that poor internet access and the time required to develop activities are important challenges when using AI tools.

"Bad connectivity and not enough computers"

Teacher 16 emphasizes problems with internet connection and the lack of computers as the main challenges.

(2) Data Privacy and Security Concerns: many teachers expressed concerns about the ethical implications of using AI, especially regarding data privacy and security.

"Risk of data privacy"

Teacher 8 considers that using AI tools may compromise personal data privacy.

"I fear for the privacy of my data, that's the reason why I avoid using them"

Teacher 67 categorically expresses their concerns about personal data privacy.

(3) Lack of Training and Familiarity: several teachers may feel unprepared to use AI tools due to insufficient training and a lack of familiarity with digital technologies.

"A training course to know which AI tools exist to improve language skills and how to use them."

Teacher 3 straightforwardly expresses their need for training and perhaps interest in receiving it.

"I have no idea. I am not interested after seeing the damage it actually brings to students' learning."

Teacher 7 denotes a lack of familiarity and interest in AI tools, perhaps suggesting a need for training to understand their potential benefits.

(4) Student Dependence and Ethical Concerns: some teachers seemed to be worried that students may become overly reliant on AI tools, which may potentially undermine critical thinking and ethical behavior.

> *"Students are using it mainly to replace critical thinking, and that is not acceptable"*

Teacher 7 appears to be utterly convinced that AI tools may hinder critical thinking.

> *"That my students use them ethically."*

Teacher 58 directly states that ensuring the ethical use of AI tools by students is an important challenge.

In summary, the qualitative results suggested that the integration of AI tools in language teaching offers important benefits, including time efficiency, enhanced student engagement and motivation, personalized learning and feedback, and innovation and modernization. These advantages highlight the potential of AI to transform traditional teaching methods, making them more dynamic, efficient, and tailored to individual student needs. However, the challenges of technical and infrastructure issues, data privacy and security concerns, lack of training and familiarity, and student dependence and ethical concerns should be addressed to fully achieve the potential of AI in language teaching and learning. By providing adequate training, improving infrastructure, and establishing clear ethical guidelines, language teachers can overcome these barriers and exploit the power of AI to create more engaging, effective, and inclusive learning contexts.

Discussion

It can be suggested that the findings of this exploratory study can contribute valuable insights into the current state of AI adoption in this region. The results revealed an interesting relationship between familiarity, usage, attitudes, and perceptions, which are in line with the findings of previous research in this realm. The study also highlights both the transformative potential of AI tools in language teaching and the possible barriers that may hinder their effective integration, especially in areas with limited technological infrastructure. What follows are three points of discussion motivated by the general results. Also, some ethical considerations are incorporated into the discussion.

First, the findings on teachers' familiarity with AI tools seem to reflect a global trend observed in the literature, where awareness and understanding of AI may vary significantly across different personal variables of teachers such as age. For instance, the present study found that younger and less experienced teachers tend to be more familiar with the AI concept compared to their older and more experienced counterparts. This goes in line with the findings of Estrada-Araoz et al. (2023), who reported a generally low level of AI knowledge among university teachers in Peru, particularly among older faculty members. This generational gap in AI familiarity is consistent with the broader literature, which suggests that younger teachers are more likely to embrace emerging technologies (Zawacki-Richter et al., 2019). However, the lack of significant differences in familiarity based on gender or educational level taught suggests that the barriers to AI adoption are not solely demographic but may also be influenced by external variables, such as access to training and technological infrastructure. Interestingly, this finding suggests the need for targeted professional development programs that address the specific needs of older and more experienced teachers, as well as those working in low-infrastructure educational contexts.

Second, the patterns of AI tool usage among the participants revealed both opportunities and challenges that may be congruent with findings from other contexts. Thus, the most frequently used AI tools (AI-based language learning apps and automated grading

tools) were primarily employed to enhance student engagement and provide personalized feedback. This is consistent with the findings of Sánchez-Vera (2023), who noted that teachers often use AI tools for tasks such as content creation, translation, and lesson preparation. However, the limited frequency of use reported by the participants, with most teachers using AI tools only occasionally or for exploratory purposes, suggests that, whereas there is interest, there may also be some barriers to more widespread adoption. Such barriers include technical and infrastructure issues, such as unreliable internet access and insufficient access to computers, which were frequently addressed by participants. This finding is consistent with the work of Idham et al. (2024), who identified similar infrastructure-related challenges among Indonesian English teachers.

Finally, the attitudes and perceptions of the teachers in this study revealed a mixture of views of AI tools, characterized by both optimism and caution. On the one hand, teachers recognize the potential of AI to save time, enhance student engagement, and provide personalized feedback, which aligns with the findings of Luckin et al. (2016) and Edmett et al. (2024), who emphasized the transformative potential of AI in education. On the other hand, teachers express concerns about data privacy, ethical implications, and the potential for over-reliance on AI tools, which could undermine critical thinking and ethical behavior among students. These concerns are consistent with those reported by Varsamidou (2024) and Sumakul et al. (2022), who found that while teachers acknowledge the benefits of AI, they are cautious about its potential to disrupt conventional teaching practices and student learning processes. In this respect, this exploratory study suggests that the specific challenges faced by teachers in Southern Mexico may include a lack of training and familiarity with AI tools, which may hinder their effective integration into teaching practices. Addressing these challenges will certainly require a mixed approach that includes comprehensive training programs, improved technological infrastructure, and the development of clear ethical guidelines for the use of AI in English Language Teaching.

Conclusions

In conclusion, with respect to the main results of this study, it can be suggested that teachers are somewhat acquainted with the notion of artificial intelligence, which is reflected in the usage they reported and the purpose of using AI tools. Their attitudes towards AI tools were generally positive, with some valid concerns about the effective AI integration into language teaching. Most importantly, several benefits of AI tools were generally pointed out such as time efficiency, enhanced student engagement and motivation, personalized learning and feedback, and innovation and modernization. Challenges in using AI tools were also reported qualitatively, for instance, technical and infrastructure issues, data privacy and security concerns, lack of training and familiarity with AI tools, and student dependence and ethical concerns. As pointed out before, these findings contribute to the broader discourse on AI in education by emphasizing the need for context-specific strategies to support the integration of AI tools in low-infrastructure educational contexts.

Nevertheless, despite its contributions, this study has some limitations that should be acknowledged. First, the sample size of 68 teachers, while sufficient for an exploratory study, may not be representative of the broader population of English language teachers in Southern Mexico or other regions with similar characteristics. Additionally, as the study relied on self-reported data through an online questionnaire, the responses could have been influenced by social desirability. Furthermore, as the study focused on quantitative data, supplemented by limited qualitative insights, the teachers' experiences and perceptions may not have been captured effectively. Therefore, future research could address these limitations by employing mixed-methods research, which may include in-depth interviews and classroom observations to provide a more comprehensive understanding of how AI tools are integrated into language teaching practices. Also, longitudinal studies could shed light on how teachers' attitudes and usage evolve over time as they gain more experience with AI tools.

The pedagogical implications of this study can be relevant, particularly for policymakers, educational institutions, and teacher training programs. The findings suggest that while AI tools have the potential to revolutionize language teaching, their successful integration depends on addressing key barriers, such as the lack of training and technological infrastructure. Professional development programs should be designed to enhance teachers' digital competence and familiarity with AI tools, with a focus on practical applications in the classroom. Moreover, efforts should be made to improve access to reliable internet and technological resources, especially in regions like Southern Mexico. Crucially, these efforts must be guided by clear policies developed through collaboration between technologists, pedagogues, and local educational authorities. These policies should explicitly address data privacy, ethical use, and the role of AI in complementing, not replacing, the teacher's facilitative and mentoring role. By addressing these challenges, teachers can harness the power of AI to create more engaging, personalized, and effective learning experiences for their students. Ultimately, this study calls for a balanced approach to AI integration in education, one that leverages the benefits of AI while maintaining the essential role of teachers in fostering critical thinking, creativity, and meaningful learning.

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CHAPTER IV

Exploring the Integration of Artificial Intelligence in English Language Teaching: Perceptions of Teachers

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Abstract

The use of AI in education has grown rapidly, yet its adoption in English Language Teaching (ELT) faces significant barriers, including a lack of training, poor internet infrastructure, and concerns about student misuse. This chapter explores the perceptions of teachers about the role of AI tools in language teaching. This study employs a descriptive quantitative research design to investigate the perceptions of English teachers as well as their experiences regarding the integration of AI into ELT. The subjects for this study were 114 English Language Teachers from the University of Colima who completed a Google Form questionnaire designed specifically for this purpose. Quantitative data from the

questionnaire was analyzed using descriptive statistics, including frequencies and percentages to summarize the responses provided by the participants. Jamovi Statistical Software was used for analysis as it allowed us to analyze data through open coding. The findings show that the great majority of teachers only have elementary knowledge of artificial intelligence. The level of expertise of teachers varies regarding the kinds of tools they are familiar with. The perceptions of teachers about the advantages of AI in connection to their teaching practices are one noteworthy finding from the study. Although the study offers valuable insights from a particular group with distinct experiences, its capacity to extrapolate findings to a broader population or other contexts is uncertain.

Introduction

The use of technology in the classroom has been on the rise. The internal operations of the educational system at all levels have been affected by the growth and evolution of technological components. Since the development of writing, which took the role of oral tradition in the transfer of knowledge, the introduction of ink and paper, and the printing press, education and technology have been paired together. Blackboards and textbooks appeared in the 19th century along with the Industrial Revolution (Li, 2023). The arrival of radio, television, personal computers and the internet at the close of the previous century marked the beginning of the biggest and fastest explosion; the last two are then main components of the so-called digital revolution (Qolamani & Mohammed, 2023). Undoubtedly, these technological advancements have permeated and, to a certain degree, compelled educators and educational institutions to accommodate the learning requirements of students and capitalize on the benefits and opportunities they present.

Nonetheless, Artificial Intelligence (AI) is a disruptive and new technology that poses complicated problems because of two primary issues: "the rapid pace at which they are developing, and the pain points and fractures within our educational models that they are exposing" (Shah, 2023, p. 2). The current state of knowledge is insufficient to define AI. Cardona et al. (2023)

offer three definitions of AI. From the standpoint of human-like reasoning, AI mimics human thought and reasoning by simulating cognitive processes to solve problems, make decisions, and learn. A second viewpoint concerns an algorithm that works towards a goal. According to this viewpoint, AI is a technology that effectively accomplishes particular objectives through data analysis and procedure optimization. Lastly, AI is considered from the standpoint of intelligence augmentation, which aims to improve human capacities by supplying insights, automating procedures, and assisting in decision-making.

Even though the use of AI in education has grown rapidly, its adoption in English Language Teaching (ELT) faces significant barriers, including a lack of training, poor internet infrastructure, and concerns about student misuse. Hence, this chapter explores the perceptions of educators about the role of AI tools in language teaching. The questions below serve as a guide to understand the perception of the language teachers who participated in the study.

> What are the perceptions of English language educators regarding the role of AI tools in teaching?
> What are the perceptions of English language educators about the way AI integration in English language teaching impacts teaching practices?

Despite the variety of difficulties and problems AI poses with regard to ethics, privacy, bias, and transparency, numerous studies highlight the potential advantages AI offers to enhance education and move the teaching role to a more individualized learning environment (Lampou, 2023; Ray & Ray, 2024; Maisaiah, 2024).

Given these developments, it is important to look at how teachers and students feel about using AI in education. In language teaching, their attitudes can help to understand how AI is being used and accepted in real classrooms. The following background studies show what recent research has found about these views and experiences.

Attitudes Towards the Use of AI in Language Teaching

This section provides an overview of the findings related to attitudes towards the use of AI in language teaching and the integration of AI into language teaching. The growing integration of AI in education has introduced new opportunities and challenges, making it essential to understand how educators and learners perceive and engage with these technologies.

Hamza et al. (2024) is their study investigating teachers' attitudes towards the effectiveness of using interactive whiteboards when teaching English as a foreign language explore the attitudes of teachers toward the use of Interactive Whiteboards (IWBs) in English Language Teaching (ELT) classrooms in Jeddah, Kingdom of Saudi Arabia. Grounded in the theoretical framework of the Technology Acceptance Model (TAM), which examines how individuals adopt and accept new technologies, the research employs a two-phase case study approach. Using questionnaires and interviews, the study investigates teachers' perspectives on integrating IWBs, focusing on their features, applications, perceived usefulness, and ease of use.

The research was conducted in six male state schools, and the findings reveal that most teachers hold positive attitudes toward the usefulness and ease of employing IWBs in their teaching practices. Teachers perceive IWBs as an effective tool for enhancing pupil motivation, fostering cooperative learning, and significantly improving cognitive development, particularly among primary school students. Additionally, teachers find the basic functions of IWBs user-friendly and timesaving. However, they also identify the need for better utilization of advanced features, which could enhance productivity with proper training. The study concludes that teachers view IWBs as a promising resource for delivering knowledge and information. It emphasizes the importance of investing in professional development through targeted training sessions to enable educators to maximize the potential of IWBs.

According to the study written by Pokrivcakova (2023), there is a gap in educational research when investigating the knowledge and attitudes of Slovak pre-service EFL teachers towards AI. Understanding these perspectives is crucial for the successful

integration of AI into education. The research seeks to determine their overall knowledge of AI, attitudes toward its role in EFL learning and teaching, and their views on including AI in teacher training programs. Data were collected through a cross-sectional KAP (Knowledge, Attitudes, and Practices) Survey conducted in November–December 2022. A total of 137 pre-service English teachers completed a pre-tested online questionnaire comprising 19 Likert-scale items and one open-ended question.

Findings revealed a balanced interest in AI among respondents, with 38.67% expressing interest and 39.42% showing no interest in ongoing discussions about AI in education. Most participants (61.31%) reported having no knowledge of basic AI principles, and 21.17% rated their understanding as unsatisfactory. However, they were more confident about their familiarity with AI based applications for EFL teaching, with 35.04% considering their knowledge adequate, though 45.25% still rated it as insufficient. Encouragingly, 64.24% of respondents believed AI education should be incorporated into their university curriculum, and 63.50% agreed that AI would improve education overall, compared to only 18.98% who disagreed.

The participants held predominantly positive expectations for the integration of AI into EFL teaching and learning and expressed optimism about its potential benefits. Interestingly, Slovak EFL pre-service teachers did not express concerns about the future of their profession. However, 53.28% believed that using AI might lead to a decline in certain teaching skills, and 42.33% worried that AI could make EFL teaching less personal. These findings align with prior international research.

AI's integration into education brings several benefits such as changes in teaching methods in which AI has expanded the tools available to educators, modernizing traditional approaches (e.g. intelligent writing assistants) while introducing new actors like virtual assistants and chatbots. In addition to the personalization of learning environments, where AI powered adaptive systems analyze students' strengths, weaknesses, and preferences, allowing educators to create tailored learning experiences, another key benefit is improved educational management. AI can streamline administrative tasks,

enhance communication with students, and provide real-time feedback, thereby reducing educators' workload and enabling them to focus more on teaching. Another advantage is an improved educational management due to AI that can update administrative tasks, enhance communication with students, and provide real-time feedback, reducing educators' workload and allowing them to focus on teaching. Finally, increased accessibility to the AI based platforms transcends institutional and geographical barriers, which facilitates inclusive education and internationalization. These tools also enhance access for students with disabilities and those from diverse social and cultural backgrounds.

Similarly, Pokrivcakova (2023) considers that the integration of AI into education has been a notable trend for some time. AI-powered learning tools have become a fundamental part of education, including foreign language teaching. Their use surged significantly during the COVID-19 pandemic, when national lockdowns and school closures necessitated a rapid shift to remote, hybrid, or blended learning modes. This transition created opportunities for more sophisticated integration of technology into both teaching and learning processes.

AI-powered tools, with their ability to provide personalized materials and foster independent learning, have proven to be invaluable aids, widely appreciated by both educators and students. Furthermore, the author aimed to evaluate the attitudes of university students, specifically future English teachers from Slovakia, the Czech Republic, and Poland, toward using AI-powered tools for learning English. A total of 211 participants responded to a 20-item online questionnaire with anonymity assured.

The findings revealed that students exhibited more reserved attitudes toward AI in language education compared to their generally favorable views on integrating ICT and digital technologies. A significant majority of respondents admitted to having limited knowledge of AI principles and showed little interest in learning more about the subject. Unsurprisingly, nearly half of the participants were unaware they were already using AI-powered tools, such as online browsers and translation applications. The study uncovered a clear correlation between a lack of information

about AI and negative attitudes, often rooted in fear or distrust. Despite this, most respondents recognized the potential benefits of AI in enhancing language education. Importantly, few believed that AI would ever replace human teachers. The research found no significant differences in responses among the three countries.

Integration of Artificial Intelligence into Education Language Teaching

The integration of Artificial Intelligence (AI) tools into language teaching and learning has been the focus of various studies that highlight both their potential and challenges as shown as follows:

A study conducted by Woo & Choi (2021) provides a review of AI based language learning tools developed between 2017 and 2020. These tools used advanced algorithms in machine learning and natural language processing to detect errors in language use, deliver personalized feedback, and assess linguistic skills with high precision. Their findings demonstrate that students using such tools show measurable improvements in areas like vocabulary acquisition, grammar, and pronunciation. The study highlights the importance of equipping educators with the necessary skills to integrate these tools into their teaching practices effectively, recommending training programs that bridge the gap between technological capabilities and pedagogical applications. This approach ensures that AI tools complement, rather than overshadow, traditional teaching methods.

According to Hamza et al. (2024), the influence of Artificial Intelligence (AI) on the professional development of faculty members in Saudi private universities continues advancing. However, the impact of AI on faculty career growth remains underexplored, particularly in the Saudi Arabian context where AI's role in enhancing knowledge, awareness, usage, teaching innovation, work engagement, and productivity in higher education. Yet, there is limited understanding of how these factors influence faculty advancement in the region. Adopting a quantitative methodology, the study analyzed 103 survey responses gathered through a structured online questionnaire using random

sampling. It aimed to assess the transformative effects of AI on faculty roles and responsibilities, focusing on their experiences, perceptions, and teaching practices. The research targeted faculty members from leading private universities in Jeddah, uncovering a strong correlation between AI adoption, faculty engagement, and productivity. Findings indicate that AI tools simplify administrative tasks, enabling faculty to dedicate more time to student interaction and innovative teaching methods.

The results emphasize the growing societal acceptance of AI in education and its potential to enhance teaching quality and faculty efficiency. This study offers key insights into the benefits and challenges of integrating AI in Saudi private universities. It also provides actionable recommendations for policymakers, university leaders, and faculty members to navigate the AI-driven transformation of higher education and support faculty career development in the digital era.

Following the same line, the study by Ponciano Filho et al. (2024) reflects on the rapid evolution of Generative Artificial Intelligence (GAI) tools and how their increasing integration into education have sparked a range of discussions and dilemmas regarding their application in educational practices. This study, employing a qualitative and exploratory approach grounded in bibliographic research, seeks to identify and examine key concepts, categories, benefits, limitations, and potential risks associated with the use of AI in education. Specifically, it focuses on the implications for the teaching-learning process within formal educational settings and highlights the perspectives and challenges currently emerging in this evolving research field, which we consider to be in a formative stage.

This work adopts an ethical, political, and pedagogical perspective aligned with the principles of integrated education, a holistic and non-fragmented approach to learning. Through this lens, it examines whether the growing accessibility and adoption of AI tools in the teaching-learning process represent a progressive step toward educational enhancement or pose risks to the realization of integrated education. By raising this critical question, the study aims to contribute to the ongoing discourse on the role of AI in shaping the future of education.

According to Olabisi Oluwakemi et al. (2024), AI is a tool that transforms the landscape of education, introducing innovative opportunities to improve learning experiences and foster inclusive practices. These authors examine the impact of AI on teaching methodologies and its role in promoting equity and inclusivity in education. Drawing on current research and practices, it highlights the potential of AI to address diverse learning needs and ensure access to quality education for all students.

The study begins by exploring the role of AI in personalized learning, where AI algorithms analyze student data to deliver tailored instruction and feedback. This approach enables educators to adapt teaching strategies to individual learning styles and preferences, ensuring equitable educational opportunities. Additionally, AI adaptive learning systems can identify gaps in knowledge and provide targeted interventions to support struggling students, further enhancing learning outcomes. Another focus of the study is the application of AI in fostering collaborative learning environments. AI technologies facilitate group projects and tasks by offering tools for communication, coordination, and knowledge sharing. This promotes inclusivity by allowing students to contribute their unique skills and perspectives, enhancing the overall learning experience. In summary, this study underscores the transformative potential of AI in education to create more personalized, collaborative, and accessible learning environments. By integrating AI technologies, educators can address diverse needs, break down barriers to learning, and ensure that every student can succeed.

Tafazoli (2024) examines the advantages and disadvantages of AI-mediated communication in language education. The study investigates how tools like automatic speech recognition (ASR), machine translation (MT), and intelligent tutoring systems (ITS) enhance the accessibility and interactivity of language learning. For instance, ASR systems enable real-time correction and pronunciation feedback, while MT systems break down linguistic barriers, promoting multilingual interactions. However, the research also highlights critical challenges, including dependence on AI outputs and the occasional inaccuracies inherent in these technologies. Furthermore, Tafazoli (2024) stresses the importance

of continuous professional development for teachers, emphasizing that understanding the limitations and ethical implications of AI tools is key to harnessing their potential responsibly.

Additionally, Godwin-Jones (2024) explores how generative AI, exemplified by models like ChatGPT, offers significant opportunities for informal second language practice. These models are particularly effective in creating highly customizable learning scenarios where students can engage in dialogues tailored to their proficiency level, preferred linguistic register, and areas of interest. The study highlights how these tools simulate real-life conversational settings, promoting spontaneous language use and reinforcing learner confidence. Godwin-Jones (2024) also discusses the role of generative AI in supporting underserved language learners who might lack access to traditional resources or native speakers, suggesting that such technologies could democratize language education. Nonetheless, the research points out the necessity of maintaining a balance between AI-driven tools and human interaction to preserve the social and cultural nuances of language learning.

These studies demonstrate that AI tools have the potential to revolutionize language teaching and learning by offering adaptive, personalized, and highly interactive experiences. However, addressing challenges such as teacher training, technological limitations, and ethical considerations is vital to ensuring that these tools are effectively and responsibly integrated into educational practices.

Methodology

This study employs a descriptive quantitative research design to investigate the perceptions of English teachers and their experiences regarding the integration of AI into ELT (Creswell, 2022). There were 114 English Language Teachers from the University of Colima who completed the questionnaire that was sent to them as a Google Form. The inclusion criteria were that the participants needed to comply with two conditions: to have at least one year of English language teaching experience and that they had some familiarity with AI tools. Hence, the sample was selected by using what is known as convenience sampling (Golzar et al., 2022). It is important to note that the participants were informed about the purpose of the

study, assured of their anonymity, and given the right to withdraw at any time without consequence. Data was stored securely to protect confidentiality. It is important to note that the data was collected between September and October 2024. Participants were invited to complete the questionnaire online (Lim et al., 2023).

Data for this study was collected using a structured questionnaire specifically designed for this study (Wilkinson & Birmingham, 2003). The instrument consisted of 22 items organized into six sections: Demographic Information, Familiarity with AI Tools, Usage of AI Tools, Attitudes Toward AI Tools, Digital Accessibility for Students with Disabilities and Support and Training Needs.

However, for the purposes of this paper, only the findings from the familiarity with AI Tools, Usage of AI Tools, and Attitudes Toward AI Tools sections are presented and analyzed. These three categories were selected as they directly align with the central aim of the study: to explore and articulate the perceptions of teachers regarding the use of AI in educational settings.

Focusing on these categories allows us to establish a foundational understanding of how AI tools are currently perceived and utilized by teachers in our state. More specifically, the analysis of these domains provides a baseline for assessing the readiness and confidence of teachers in exploring AI tools, offers insights into practical integration of AI in classroom environments, and reveals how AI adoption may be linked to critical reflection, ethical awareness, and professional growth.

Quantitative data collected through the questionnaire were analyzed using descriptive statistical methods, primarily frequencies and percentages, to identify trends and summarize the responses provided by the participants in a clear and accessible manner. The analysis was conducted using Jamovi Statistical Software, a user-friendly, open-source platform which facilitated the efficient organization, visualization, and interpretation of the quantitative data. While Jamovi was the primary tool for statistical analysis, qualitative aspects of the study in the form of open-ended responses were analyzed separately through open coding, following procedures described by Olayemi et al. (2022).

It is important to note that the methodology of this study is subject to certain limitations that may influence the interpretation of the findings. These include the reliance on self-reported data, a relatively limited sample size, which restricts the statistical power of the analysis, and the potential lack of generalizability to broader populations due to contextual or demographic constraints. Recognizing these limitations provides a framework for interpreting the results with appropriate caution and highlights areas for future research.

Findings

Attitudes Toward AI

Regarding this topic, there are four questions which are pertinent to it. The first question: *How familiar are you with the concept of Artificial Intelligence (AI)?* provided us with insight about the degree of familiarity the respondents had regarding AI. The second question: *Which AI tools are you aware of in the context of language teaching?* provided us with insight about the level of awareness the respondents have in relation to AI in the context of language teaching. The third question: *Which AI tools do you use?* allowed us to see which AI tools the respondents had already used. Finally, the fourth question: *To what extent do you agree with the following statements about AI tools in English teaching?* included a number of statements from which we gained insight about the beliefs the respondents had regarding the use of AI in teaching.

How Familiar are You with the Concept of Artificial Intelligence (AI)?

The first question is a multiple-choice question with only one possible choice per answer which allows us to have a glimpse regarding the familiarity of the respondents in relation to AI. The answers correspond to those of a Likert scale going from the least to the most in terms of familiarity with AI: The terms include Very Unfamiliar; Somewhat Unfamiliar; Neutral; Somewhat Familiar; and Very Familiar. The following table (1) shows the results obtained from the same.

Table 1. Familiarity with the Concept of AI

Familiarity with the Concept of artificial intelligence (AI)	Counts	% of Total	Cumulative %
Very Unfamiliar	2	1.8 %	1.8 %
Somewhat Unfamiliar	11	9.6 %	11.4 %
Neutral	26	22.8 %	34.2 %
Somewhat Familiar	54	47.4 %	81.6 %
Very Familiar	21	18.4 %	100.0 %

The results obtained from the responses indicate that the majority of the participants have a moderate to high level of familiarity with the concept of AI. That is, 65.8% of the respondents identified themselves as being either somewhat familiar or very familiar with AI. Whereas only 11.4% reported low familiarity (very unfamiliar or somewhat unfamiliar), and 22.8% remained neutral.

This data suggests that, within our sample, AI is not an unfamiliar or unknown concept as most of the respondents have at least some degree of exposure to or knowledge about it. Also, we can say that there is room for growth in the depth of the understanding of AI, as only 18.4% responded being very familiar. Finally, the neutral group (22.8%) may show that those respondents only have surface-level awareness but lack confidence and clarity in their understanding of AI.

It is then that the data obtained from this question imply first, that the participants have a relatively high familiarity with AI suggesting that the L2 teachers participating in the study may be open to, or capable of, engaging with AI tools, especially if training or support is provided.

Secondly, that by having a large group which responded somewhat familiar, shows a need for scaffolded professional learning, that is, they are not starting from zero, but they likely require support to find practical applications of AI, a pedagogical context for it, or may need ethical guidance to integrate AI into their practice more confidently. Third, as only a small minority are unfamiliar with AI, education stakeholders might consider

incorporating AI literacy into their training schemes without being worried about overwhelming the majority of the teachers. However, it is important to be able to offer differentiated approaches for those less familiar. Finally, we can say that the overall pattern of the responses reveals a positive foundation for introducing AI-supported innovations, however, it also calls for a deeper understanding of how this familiarity translates into actual usage, attitudes, and critical reflection.

Which AI Tools are You Aware of in the Context of Language Teaching?

The responses were obtained for the second question which is a multi-response question and asks the respondents about the AI tools they were aware of in the field of language teaching. All that apply from these options were checked: AI-based Language Learning Apps; Automated Grading Tools; Chatbots for Language Practice; AI-driven Language Assessment Tools; Virtual Teaching Assistants; Adaptive Learning Platforms; and Speech Recognition and Feedback Tools. The results are expressed in Table 2.

Table 2. Awareness about Different AI Tools

Option	Frequency	Percentage of Responses	Percentage of Cases
AI-based Language Learning Apps	92	28.05	80.7
Automated Grading Tools	42	12.80	36.8
Chatbots for Language Practice	53	16.16	46.5
AI-driven Language Assessment Tools	35	10.67	30.7
Virtual Teaching Assistants	37	11.28	32.5
Adaptive Learning Platforms 39 11.89 34.2			
Speech Recognition and Feedback Tools	30	9.15	26.3
Total	328	100.00	287.7

This multiple-response question aimed to identify the range of AI tools the participants are familiar with in the context of language education. A total of 328 responses were recorded across all options, representing 100% of the combined responses and 287.7% of the total number of selections made relative to the number of respondents, which means that many participants selected more than one tool.

The results shown in table 2 mean that 92 respondents reported awareness of AI-powered Language Learning Apps, making this the most frequently recognized tool. This accounts for 28.05% of total responses and was selected by 80.7% of all participants. 42 respondents indicated having awareness of Automated Grading Tools, representing 12.80% of total responses and 36.8% of the participants. 53 respondents were aware of Chatbots for Language Practice, which constitutes 16.16% of total responses and 30.7 of participants. 37 respondents reported awareness of Virtual Teaching Assistants, which corresponds to 11.28% of total responses and 32.5% of the participants. 39 respondents were familiar with Adaptive Learning Platforms, representing 11.89% of total responses and 34.2% of the participants. Lastly, 30 respondents selected Speech Recognition and Feedback Tools, comprising 9.15% of total responses and 26.3% of participants.

These findings suggest that Awareness of AI Tools varies, the most commonly recognized AI tools among participants are Language Learning Apps, Chatbots, and Adaptive Learning Platforms. Hence, this variation in familiarity may reflect differences in Tool Visibility, Accessibility, or Relevance to the teachers' specific teaching contexts.

Which AI Tools Do You Use?

The responses obtained to the third question, which is a multi-response question, asks the respondents about the AI tools they use in the field of language teaching, for which they checked all that applied from the options. It is important to note that the options to this question are the same as in the previous question: AI-based Language Learning Apps; Automated Grading Tools; Chatbots for Language Practice; AI-driven Language Assessment Tools; Virtual Teaching Assistants; Adaptive Learning Platforms; and Speech Recognition and Feedback Tools. The Results are expressed in Table 3.

Table 3. AI Tools Which are Used

Option	Frequency	Percentage of Responses	Percentage of Cases
AI-based Language Learning Apps	57	28.22	50.0
Automated Grading Tools	24	11.88	21.1
Chatbots for Language Practice	22	10.89	19.3
AI-driven Language Assessment Tools	23	11.39	20.2
Virtual Teaching Assistants	20	9.90	17.5
Adaptive Learning Platforms	34	16.83	29.8
Speech Recognition and Feedback Tools	22	10.89	19.3
Total	202	100.00	177.2

This multiple response question sought to identify the specific AI tools currently used by respondents in their language teaching. A total of 202 responses were collected, representing 100% of the total selections and 177.2% of the total number of selections made, which indicates that participants, on average, reported using approximately 1.77 tools each. This suggests that while some teachers integrate more than one AI tool into their practice, overall usage remains lower compared to general awareness (see tables 2 and 3).

From the responses to this question, we can say that the AI-powered learning apps were the most frequently used tool, as this option was elected by 57 respondents. This represents 28.22% of all responses and was chosen by 50% of all participants. The automated grading tools were used by 24 respondents, representing 11.88% of the total responses and 21.1% of all participants. Chatbots for language practice were reported by 22 respondents, representing 10.89% of the total responses and 19.3 of all participants. AI-driven assessment tools were selected by 23 respondents, representing 11.39% of the total responses and 20.2% of all participants. Virtual teaching assistants were used by 20 respondents, representing 9.90% of the total responses and 17.5% of all the participants. Adaptive learning platforms were used by 34 respondents, making them the second most frequently used tool

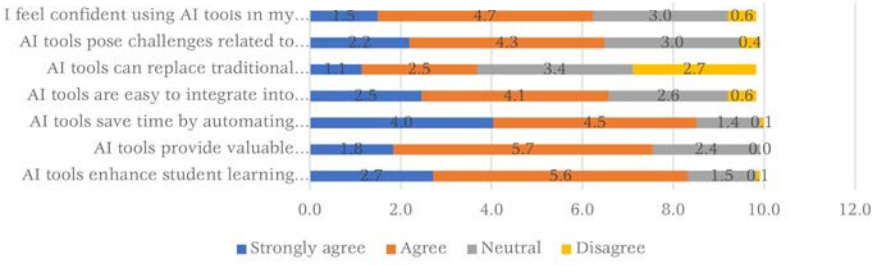
by teachers, representing 16.83% of the total responses and 29.8% of all the participants. Finally, speech recognition and feedback tools were used by 22 respondents, representing 10.89% of the total responses and 19.3% of all the participants.

This data shows that the usage of AI tools by teachers is notably lower than its awareness, with only about half of the respondents using language learning apps, and less than a third using other tools like adaptive platforms or automated grading systems. This gap suggests that although teachers are familiar with AI tools, the practical implementation of these tools into their classroom practice remains limited, possibly due to lack of training, perceived complexity, or limited institutional support. The weight placed on the use of adaptive learning platforms and language apps suggests a preference for AI tools that offer immediate classroom usability and learner-centered interaction.

To What Extent Do You Agree with the Following Statements about AI Tools in English Teaching?

To find out the extent to which educators agree with various statements about AI tools in English teaching, respondents were presented with seven statements rated on a four-point Likert scale: strongly agree, agree, neutral, and disagree. The responses are illustrated using a horizontal stacked bar chart (see Figure 1: Beliefs about the Use of AI Tools in ELT), where each segment represents the relative proportion of responses: dark blue for strongly agree, orange for agree, green for neutral, and light blue for disagree. Although the total of responses is normalized to 100% using a scale of 10 units, exact percentages are not shown on the chart to accommodate layout constraints.

Figure 1. Beliefs about the Use of AI Tools in ELT



The following results summarize the level of agreement with each statement:

1. I feel confident using AI tools in my teaching: 15% strongly agreed, 47% agreed, 30% were neutral, and 6% disagreed.
2. AI tools pose challenges related to data privacy and security: 22% strongly agreed, 43% agreed, 30% were neutral, and 4% disagreed.
3. AI tools can replace traditional teaching methods: 11% strongly agreed, 25% agreed, 34% were neutral, and 27% disagreed.
4. AI tools are easy to integrate into my teaching practice: 25% strongly agreed, 41% agreed, 26% were neutral, and 6% disagreed.
5. AI tools save time by automating routine tasks: 40% strongly agreed, 45% agreed, 14% were neutral, and 1% disagreed.
6. AI tools provide valuable personalized feedback to students: 18% strongly agreed, 57% agreed, 24% were neutral, and 0% disagreed.
7. AI tools enhance learning and engagement: 27% strongly agreed, 56% agreed, 15% were neutral, and 1% disagreed.

Overall, the results show a generally positive perception of AI tools in ELT, particularly regarding their ability to save time, enhance engagement, and provide personalized feedback. However, there

is noticeable caution around their potential to replace traditional methods and concerns related to data privacy and security.

Impact on Teaching Practices

The open-ended question *"What are the main benefits you perceive from using AI tools in your teaching?"* yielded a wealth of qualitative responses, which were thematically categorized under six headings: Education and Learning, Technology and Innovation, Career and Future Planning, Social and Emotional Development, Personal Growth and Development, and Health and Wellness. These categories are arranged from broader educational processes to more personal aspects, reflecting the multidimensional impact of AI integration in teaching.

Education and Learning

Responses under this category addressed the role of AI in enhancing core educational processes. Participants highlighted that AI tools could support knowledge acquisition, skill development, critical thinking, and problem solving. Many respondents emphasized the importance of hands-on practice and exploration with AI in the classroom. They noted that AI could facilitate opportunities to develop new competencies, encourage independent learning, and allow both teachers and students to engage actively with content through technology.

Technology and Innovation

This category includes perceptions related to the role of AI and technology in modern education. Respondents recognized the importance of developing digital literacy and becoming adept at using emerging technologies. They reported that the use of AI tools in their classes could enhance their productivity and foster creativity and innovation. Furthermore, participants expressed a growing interest in exploring AI applications, while also acknowledging the associated challenges, particularly those related to online privacy and data security.

Career and Future Planning

Respondents also linked the use of AI in education with future career readiness. They reported that AI tools could help students identify interests and career paths, set long-term goals, and acquire skills relevant to the evolving educational job market. Additionally, there was an emphasis on the need of cultivating a strong work ethic and building professional networks, highlighting the potential benefits of AI for long-term success.

Social and Emotional Development

Participants noted that AI tools could contribute to fostering essential interpersonal and emotional skills. According to the responses, AI-facilitated activities could help build positive relationships between students and teachers, promoting empathy and collaboration, and encouraging effective teamwork. Respondents also mentioned that AI could support the management of stress and emotions, thereby enhancing the sense of community and belonging in students.

Personal Growth and Development

This theme captures the perceived benefits of AI in promoting self-improvement and character development. Respondents indicated that the use of AI in teaching could enable students to set and achieve goals, develop resilience and confidence, as well as establish effective study habits. AI was also seen as a tool that could encourage creativity, innovation, and a commitment to lifelong learning.

Health and Wellness

Finally, some responses addressed the indirect, yet meaningful role AI can play in promoting health and well-being. Participants reported that AI integration could allow for discussions around healthy eating, physical activity, the importance of sleeping well, as well as the importance of practicing good hygiene. Additionally, they acknowledged that AI-supported practices could help reduce stress and encourage students to seek help when needed, thereby supporting both physical and mental health.

Discussion

Most participants agreed or strongly agreed on the benefits that AI offers in their professional lives. For instance, it enhances learning, makes time more efficient, and can encourage student engagement. This implies that participants generally had a favorable attitude towards AI. These results echo the works of Hamza et al. (2024) and Pokrivcakova (2023) which highlight the fact that educators and pre-service teachers view AI technologies such as interactive whiteboards and chatbots as advantageous and inspiring. Nonetheless, there are concerns among some participants regarding data privacy and security implications.

65.8% of participants expressed some familiarity with using AI. Most were familiar with some chatbot tools, applications, and platforms to evaluate. Similarly, Pokrivcakova (2023) and Godwin-Jones (2024) found that many pre-service teachers possessed limited understanding of fundamental AI principles. While they were familiar with commonly used applications, they often did not realize that these tools were powered by AI:

Regarding the idea that AI could replace teaching, some participants expressed some worry that AI would reduce human-to-human interaction, although most responded that they did not believe it would replace teachers. As reported by Pokrivcakova (2023) and Godwin-Jones (2024), teachers recognized the benefits of AI in education but emphasized that it cannot replace the role of the teacher.

In relation to concerns about the use of AI, teachers expressed uncertainties about the privacy of their personal data and the potential depersonalization of teaching through AI tools. Similar concerns were noted by Pokrivcakova (2023) and Tafazoli (2024), including the loss of teacher identity, ethical issues, and overreliance on AI.

Although inclusion was not explicitly mentioned, some responses reflected an awareness of students' diverse needs. These responses are comparable to those identified by Olabisi Oluwakemi et al. (2024) and Godwin-Jones (2024) who affirm that AI is recognized for promoting equity by helping students with disabilities, as well as allowing equal access to quality education for all.

When it comes to the perceived benefits of AI, respondents expressed that AI encourages critical thinking, helps with feedback and more personalized interaction, and mitigates workload. This resonates with the position of Woo and Choi (2021), Olabisi Oluwakemi et al. (2024), and Ponciano Filho et al. (2024) who claim that AI provides personalized feedback, real-time assessment, and the automation of administrative tasks.

With respect to the need for professional development, participants identified the need for training to use more advanced AI tools effectively. Similarly, Hamza et al. (2024), Woo & Choi (2021), and Tafazoli (2024) emphasized that effective integration requires teacher training in both technical and pedagogical aspects, which resonates with participants´ responses.

Based on the premise that AI supports professional development, teachers reported that AI assists students in exploring career- related goals, developing relevant skills, and planning for the future. These findings align with the literature emphasizing the role of AI in fostering innovation and professional growth (Hamza et al., 2024).

Conclusions

Throughout history, technological advancement has consistently shaped daily life, making its integration into education both logical and inevitable. From early innovations such as ink and paper to rapidly evolving technologies like AI, education has continually adapted. The literature review highlights the growing presence of AI in language teaching and its diverse applications. In this study, language teachers reflected on their experiences with AI tools. Despite their professional experience, most reported only basic knowledge of AI, with varying familiarity depending on the specific tools used. A key finding is that many teachers recognize the potential benefits of AI in areas such as innovation, efficiency, and well-being. However, both the literature and participants point to significant challenges, including concerns about AI diminishing the personalized nature of EFL instruction and eroding essential teaching skills. Furthermore, the need to preserve the social and cultural dimensions of language learning underscores the importance of balancing AI use with human interaction. Persistent issues such as limited access to technology also extend to the availability and implementation of AI tools in language education.

Drawing general generalizations about the entire Mexican language teaching population based on the insights gained from this specific set of teachers could be deceptive and possibly erroneous. Hence, it may not be justified to generalize the findings derived from this sample to draw broader implications about the attitudes and beliefs of all language teachers. Thus, although the study offers valuable insights from a particular group with distinct experiences, its capacity to extrapolate findings to a broader population or other contexts is uncertain. Hence, there is still much to learn about the complex field of artificial intelligence and how it relates to teaching languages. There is still much research to be done and a lot of questions to be answered.

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CHAPTER V

Artificial Intelligence in English Language Teaching: Pedagogical Adaptation in the Technological Era

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Abstract

Education is constantly transforming, accelerated by technology and events such as the COVID-19 pandemic, which underscored the importance of flexibility in educational models. Sociocultural constructivism and E-learning are key approaches to addressing these challenges, placing students at the center of their learning and fostering social interaction to build meaningful knowledge. This study analyzes the impact of artificial intelligence (AI) on English teaching at BUAP, posing questions about its influence, challenges, and support for teachers. The methodology adopted a qualitative approach based on case studies, interviews, and questionnaires involving 22 English teachers from BUAP. The results show that AI enhances student autonomy, facilitates administrative processes, and personalizes learning, fostering

greater interest and engagement. However, challenges remain, such as the digital divide and the need for teacher training to prevent overreliance on technology. The conclusions emphasize that AI complements, but does not replace, teaching, as it lacks crucial emotional and social components. A critical and strategic use of this technology is required, along with clear regulations and increased investment in infrastructure and training. While its implementation faces ethical and logistical challenges, AI has the potential to optimize teaching, promote inclusion, and improve accessibility. Ultimately, the integration of AI must balance technological innovation with human development, strengthening critical and creative competencies in 21st-century students.

Keywords

Artificial Intelligence, Teaching English, Personalized learning, Teaching and Technology, Educational innovation

Introduction

Education is a system in constant transformation. Teaching methods and strategies widely used in the past can become ineffective over time. The evolution of technology has significantly expanded the range of possibilities to optimize the teaching-learning process, which requires both teachers and students to adapt to new tools and methodologies (San Román, 2013). In this way, teaching remains in a process of continuous reconfiguration to adjust to the changing demands of the global environment.

A clear example of this transformation process was the adaptation of educational methodologies as a result of the COVID-19 pandemic. In this context, the traditional educational model had to be reorganized since the conventional didactic strategies applied in face-to-face teaching were not sufficient to face the health crisis and guarantee the continuity of learning (Kulesza *et al.*, 2024). Distance education, the intensive use of virtual platforms, and the implementation of digital tools have shown that the educational process is not rigidly defined but is rather a flexible system capable of reinventing itself depending on the circumstances.

This change has shown that innovation is an essential component of teaching. An educational model that does not adapt to changes and does not seek to continually improve runs the risk of becoming obsolete. There is, therefore, a close relationship between innovation and teaching, since innovation not only drives educational development, but also acts as a catalyst for continuous improvement (Dieleman *et al.*, 2022).

Within the teaching profession, it is essential to adopt *liquid teaching*, a concept that involves the construction of a flexible pedagogical approach, constantly evolving and adaptable to the needs of contemporary society. This approach is based on the idea that educational processes must evolve at the same pace as the modern world, promoting the ability to adapt continuous learning and the use of various teaching methodologies and tools. The notion of *liquidity* was first proposed by sociologist Zygmunt Bauman (2003), who used it to describe the changing nature of today's society.

The language teaching process has not been immune to these transformations. Over time, various methodological strategies have been developed in response to political, economic and social changes. From the incorporation of vinyl records and cassettes to the use of podcasts and digital platforms, foreign language teaching has been characterized by its capacity for adaptation and methodological diversification. This process of innovation has encompassed both curricular design and the production of interactive and attractive teaching materials for students.

In this context, it is relevant to consider that the formal teaching of foreign languages was consolidated in the 20th century with the introduction of the concept of method, which allowed educational processes to be structured and systematized (Salmani, 2006). This methodological advance facilitated the progressive integration of technology into language teaching.

The Organization for Economic Cooperation and Development (OECD, 2016) has indicated that information and communication technologies (ICT) can significantly improve the learning experiences of students, acting as agents of change in education. According to Kaldirim and Tavsanli (2021), in the future, teaching and learning will be increasingly oriented towards the use of digital technologies.

In this sense, the teaching of English has been one of the areas most influenced by technological advances. Technology has established itself as an indispensable resource in language learning within the classroom (Barzani *et al.*, 2021). The use of digital tools has gone from being a complementary option to becoming an essential component of the teaching process. Trujillo *et al.* (2019) state that technology has the potential to facilitate communication anywhere and at any time, turning every interaction into a learning opportunity. These advances have laid the foundations for a new methodological model that redefines foreign language teaching.

At this point, it is necessary to analyze the impact that artificial intelligence is having as an innovative technological resource in language teaching. Huang and Qiao (2024) define AI as an area of computer science focused on the development of systems capable of replicating and expanding human intelligence. Oruç *et al.* (2024) point out that AI-based systems are designed to emulate the cognitive, perceptual, and decision-making processes of human beings.

The purpose of incorporating artificial intelligence in education is to improve the effectiveness of the teaching-learning process, making it more personalized, dynamic and adaptive (Hopcan *et al.*, 2024). The characteristics of AI, such as data analysis, pattern identification, and the ability to adapt to new situations, contribute to enriching the educational experience of students. In the teaching field, AI offers advantages such as the automation of evaluation processes, the reduction of administrative tasks, and the possibility of generating instant feedback systems.

In language teaching, AI has proven its effectiveness in various areas, such as written production, reading comprehension, vocabulary expansion, development of grammatical skills, pronunciation, and listening comprehension. It has also been applied in the development of natural language processing technologies, automatic speech recognition, and the personalization of learning through intelligent tutoring systems (Eyüp & Kayhan, 2023). This confirms that artificial intelligence has arrived to significantly transform traditional language teaching methods, offering a wide range of possibilities and opportunities for improvement.

Constructivism and E-Learning

The Minerva University Model (MUM, 2007) implemented by the *Benemérita Universidad Autónoma de Puebla (*BUAP) is characterized by its flexibility and by placing the student at the center of the teaching-learning process. This model integrates diverse methodologies to facilitate comprehensive learning and was developed in response to the need of the university to align its teaching with the trends and demands of the global context. Its design emphasizes the importance of a methodology that encourages the active participation of students in their learning, a principle that is linked to the socio-constructivist approach.

Social constructivism, based on the ideas of Lev Vygotsky (Ortiz, 2015), proposes that learning should not be conceived as a simple transfer of information, but as a process in which knowledge is actively constructed through social interaction. Unlike cognitive constructivism developed by Jean Piaget, which emphasizes the modification of individual mental structures for the construction of knowledge, the socio-constructivist approach maintains that learning is generated from communication and collaboration with others (Castellaro and Peralta, 2020).

From this perspective, students build their understanding of the world through the interaction between their prior knowledge and the new information they receive. This process allows learning to have meaning and relevance in their life or field of study. David Ausubel (Viera, 2003) called this process meaningful learning, pointing out that it facilitates better retention and application of knowledge in real contexts.

In this educational model, the role of the teacher takes on a new dimension. He or she is no longer perceived as a simple transmitter of knowledge, but as a facilitator who designs learning environments conducive to reflection and interaction. According to Ronquillo *et al*. (2023), the teacher must use teaching tools that foster autonomy, collaborative learning, critical thinking, and problem-solving skills. Acting as a mentor, the teacher guides students in the development of cognitive and metacognitive skills, relying on the integration of innovative pedagogical technologies and strategies.

The need to incorporate technology into educational processes has led to the development of electronic learning or E-learning. This modality emerged between the 1980s and 1990s with the expansion of access to distance education and lifelong learning. At the same time, the growth of digital technologies, the Internet, and web platforms facilitated its consolidation as an effective educational strategy (Serema *et al.*, 2023).

E-learning is defined as a structured system that employs digital technologies to facilitate access to curricular content for the purpose of achieving educational objectives (Akuegwu *et al.*, 2024). Budiarto *et al.* (2024) highlight that E-learning allows for the provision of interactive and dynamic learning materials, which sparks the curiosity of students and motivates them to explore topics beyond what is established by the formal curriculum. Today, E-learning not only responds to the need for flexibility in education, but also expands access to learning opportunities for sectors of the population with demanding work schedules or located in remote regions.

However, a common mistake in the implementation of E-learning is to assume that simply incorporating technology is enough to improve education. Abdallah (2024) points out that technology, by itself, does not transform pedagogy; what is decisive is the approach with which it is integrated into the teaching process. Therefore, technological resources should be considered tools that facilitate the achievement of learning objectives, but not an end in themselves. For their use to be effective, teachers must ensure that technologies are aligned with pedagogical strategies and educational purposes.

Over the past few decades, E-learning has been recognized as an innovative model that has significantly improved accessibility and success rates in education. Bhat (2024) points out that E-learning has contributed to the creation of interactive learning environments that rely on the Internet and electronic devices, allowing for more flexible education tailored to the individual needs of students. Furthermore, the use of digital platforms and multimedia resources has managed to overcome geographical and temporal barriers, providing a more personalized learning experience.

One of the main benefits of E-learning is that it fosters student autonomy, allowing them to learn at their own pace and access a variety of educational materials independently. This feature is crucial in a world where self-learning and continuing education have become essential skills.

Given this scenario, the present research aims to analyze the impact of artificial intelligence on the teaching of English at BUAP. To do so, the following research questions were established:

1. How does AI influence the teaching of English at BUAP?
2. What are the main challenges associated with the implementation of AI in language teaching?
3. How can AI support *Licenciatura en Enseñanza del Inglés* (LEI) teachers in their educational work?

Methodology

The methodological design of this research has been structured to ensure consistency with the established objectives, guaranteeing a rigorous and systematic approach. Below, the methodological stages that guided the study are detailed, including the definition of the methodological approach, the selection of data collection techniques and instruments, as well as the analysis of the collected information. The purpose of this design is to establish a logical correspondence between the research objectives, the formulated questions, and the methods used, allowing for a comprehensive and precise exploration of the studied phenomenon.

From an epistemological perspective, the research was framed within the interpretative paradigm. This approach emphasizes the construction of meaning within the educational context, prioritizing the understanding of phenomena from the perspective of the individuals involved (Quinlan, 2017). Research conducted within this paradigm is often based on inductive reasoning, as it seeks to interpret human actions within their historical and cultural contexts. Consequently, interpretation in such studies is not a neutral process; rather, it is influenced by the researcher's values, beliefs, and prior knowledge, requiring continuous reflection and questioning throughout the research process (Pozzebon, 2004).

Regarding the research approach, this study adopts a qualitative model, which facilitates an interpretive understanding of the studied phenomena. Instead of generating quantifiable measurements or statistical predictions, this approach focuses on exploring participants' experiences, perceptions, and meanings within their specific environment (Sabnis and Wolgemuth, 2023). The qualitative methodology favors inductive analysis, meaning that categories emerge from the collected data rather than being predefined. This approach enables a richer and more profound understanding of the investigated phenomenon, valuing the subjectivity and diversity of human experiences.

Concerning the methodological strategy, a case study was chosen as the primary research method. A case study is a methodology used to examine and analyze in-depth a specific phenomenon, event, or context to identify its internal dynamics and underlying causal relationships. According to García and Mahoney (2020), this method focuses on analyzing critical events that may play a determining role in the observed outcomes within the studied context. In the field of education, case studies are particularly useful for investigating the implementation of new technologies and their impact on teaching and learning processes. Regarding data collection, two primary techniques were selected: questionnaires and semi-structured interviews.

Questionnaires are defined as structured instruments for systematically gathering information. The questionnaires used in this study included questions aimed at understanding teachers' perceptions, experiences, and practices regarding the use of artificial intelligence in English language teaching (Setiawati *et al.*, 2024). One of the advantages of this technique is that it allows data collection remotely, overcoming the physical and time limitations often associated with other data collection methods.

Semi-structured interviews were chosen as the main qualitative method, allowing for a more in-depth exploration of the topics discussed. Semi-structured interviews are characterized by a predefined set of questions, but they offer enough flexibility for interviewees to elaborate on their answers and for researchers to delve into emerging themes during the conversation (Ruslin *et*

al., 2022). This approach provides a balance between structured elements and open-ended inquiry, ensuring that key topics are covered while allowing for meaningful exploration of participants' perspectives and experiences.

About the participants, the study included 22 English language teachers from BUAP, 19 were from the state of Puebla, one from the state of Hidalgo, one from Veracruz, and one from Chiapas. The group consisted of 16 female and 6 male participants, aged between 31 and 60 years old. Regarding their teaching experience, 4.55% had between 6 and 10 years, 13.64% had between 11 and 15 years, 31.82% had between 16 and 20 years, and 50% had over 20 years of teaching experience. In terms of geographic distribution, 95.45% of the teachers worked at BUAP's central campus, while 4.55% taught at the southern regional campus.

In terms of ethical considerations, all participants were fully informed about the purpose of the study, how their data would be used, and the possibility of results being presented at academic conferences or other spaces. The research ensured data confidentiality and respected the autonomy of participants, guaranteeing that their involvement was entirely voluntary.

Results

Once the information was collected, it was processed using the MAXQDA 2024 qualitative analysis software. The use of this program helps to minimize errors, such as spending excessive time collecting data or carrying out a hasty analysis without a deep exploration of the available information. It also facilitates the use of codes and their organization into families, which simplifies the categorization and structuring of the data. By using this software, the traceability and precision of the analysis were optimized, which made it possible to strengthen the validity of the results obtained, contributing to a better understanding of the data and a clearer communication of the findings.

The results will be presented in a summarized manner in three main categories: 1) the influence of AI on the educational experience, 2) the factors linked to the implementation of AI and teaching practice, and 3) the challenges and ethical considerations.

The participant references included in this study were specifically selected to provide insight into the subjective perspective of the phenomenon. These references, originally collected in Spanish, were translated into English to allow for broader inclusion in the article. The selection was further guided by the principle of category saturation, ensuring that the references represented a comprehensive range of perspectives and experiences. The achievement of saturation suggests that the included themes were salient and productive for understanding the dimensions of the research. To ensure systematic integration and analysis, the translated references were processed using MAXQDA software, facilitating a more organic incorporation of the data into the research findings.

1. Influence of AI on the Educational Experience

The impact of an educational resource or tool depends on its usefulness, functionality, and effect on the student's learning process. In this sense, various tools are currently used to develop specific skills. In the field of language teaching, AI has proven to be a useful technology. For example, "the use of chatbots has made it easier for students to improve their writing in real time" (P15). In this way, student participation and engagement in their own learning process reflects a more active and meaningful teaching model.

When AI is used appropriately, it can contribute to the development of skills and attitudes. Its responsible use encourages a certain degree of autonomy in learning, "a student can be motivated to develop a certain independence in their educational process" (P17), "they could practice on their own outside of class and thus make better use of their time in the classroom" (P12). One of the main functions of the teacher is to promote the development of self-management in students so that they achieve autonomous learning. In this context, AI can be a resource that complements teaching, facilitating self-regulation of learning. Thus, time in the classroom can be better used to promote critical thinking and other higher-order skills that encourage more autonomous students who are more committed to their personal development.

AI-based teaching tools, due to their versatility and multiple functions, help to catch the attention and interest of students. The way in which content is presented and interacted with has evolved, becoming more dynamic and attractive, "students show greater interest in the topics" (P3), "for them it is entertaining to talk to a machine that responds immediately and corrects errors" (P7). Without a doubt, teaching methodologies supported by AI are transforming the way in which knowledge is acquired, making learning a more motivating and effective experience.

The incorporation of these tools into education is inevitable, as they are opening up new ways to spark curiosity and interest in students, which is a challenge today. The integration of AI into language teaching is not a future possibility, but a present necessity to renew traditional methodologies, making them more dynamic, accessible, and in line with 21st century trends. In addition to its impact on student motivation and interest, AI offers numerous benefits that favor its adoption in the educational field.

Among the advantages of artificial intelligence in education are accessibility and affordability. It is estimated that this technology will be available to everyone in the near future: "I consider that one advantage is that it is already within everyone's reach, any student could practice a language from public transport" (P2), "my students have phones that allow them to access these resources" (P5). More and more students have electronic devices that allow them to use AI-based tools, which makes it easier for most of them to access them.

While statistics suggest that a large proportion of students will be able to benefit from these applications, this does not mean that everyone is guaranteed access. It is important to be cautious, as lack of access to these tools can deepen inequalities in the educational field. There is a risk of limiting the right to education if strategies are not put in place to reduce the digital divide. Aspects such as the availability of technological devices and access to the internet can influence the equity in the use of AI in learning.

Another key benefit of AI in language teaching is its ability to automate administrative and operational tasks, allowing teachers to spend more time on teaching and interacting with

students. This time optimization marks a significant shift in educational dynamics: "I think this will make some parts of my job easier" (P4). AI can help automate time-consuming tasks such as assessments and lesson planning. However, this does not mean that the teacher is relieved of these responsibilities, but rather that they can manage resources and time more efficiently.

It is also important to consider the students perceptions of teacher performance. They value an up-to-date teacher, "students identify teachers who are familiar with technology and those who are not" (P7). Since today students are digital natives, this makes them natural users of technology. Language teachers must adapt their teaching to the level of technological knowledge and the learning pace of their students. A teacher who does not keep up-to-date is less likely to connect with current learning dynamics. Continuing education is essential to avoid teacher obsolescence. It is essential to keep teachers up-to-date, advancing at the same pace as innovations in educational technology. The intersection between education and technology raises questions about teaching dynamics today.

One of the most relevant debates in recent years is the possibility of AI replacing human teaching. From the perspective of the participants, this still seems unlikely: "I don't think AI will completely replace existing methods, but rather they can be used in conjunction" (P15). Although AI may be more efficient in certain educational tasks, such as immediate assessment and feedback, it cannot replicate the emotional and social aspects of human interaction.

As mentioned above, AI has limitations in its ability to foster social interaction in teaching. Currently, this technology has significant restrictions in developing the skills of language learners, such as cooperation, conflict resolution, and communication in group settings. Furthermore, in the psycho-affective realm, machines lack genuine empathy, which prevents them from understanding complex emotional contexts or generating authentic affective responses. Similarly, AI lacks moral and ethical judgment, as well as the ability to build interpersonal bonds based on trust and belonging, essential elements for the development of a learner's identity and emotional well-being.

2. Factors Related to Implementation and Teaching Practice

A point in favor of AI in education is its potential to reduce the learning gap by adapting to different styles and levels of students. This advance could set a substantial standard in the foreign language learning scenario, "we are discovering that AI has an algorithm that adapts to the user, this is super useful in languages because it simulates a conversation in real time, soon it will not be necessary to travel to learn pronunciation or accent" (P10). Adaptive AI learning systems automatically adjust the level of difficulty of the content based on the performance of the student.

These systems use machine learning to detect patterns in student behavior and performance. This enables AI to personalize learning experiences by analyzing large volumes of information, facilitating the identification of their strengths and weaknesses.

Personalization could help LEI students stay engaged and avoid the dropout rate that often occurs in the first semesters of the degree. Newcomers or students with greater difficulties would be more likely to stay engaged when they receive content tailored to their level. In this degree, it is essential to address the specific difficulties of each student before they gradually become significant obstacles. In this context, technology emerges as an ally to improve the educational process and face the challenges of teaching. AI can be a key tool to optimize teaching as it allows streamlining processes, such as the review of written work, which benefits both students and teachers.

In contexts where teachers face large groups, the review of written works, such as essays and argumentative texts, demands an inevitable consumption of attention and time. AI is emerging as a tool to speed up this dynamic, "I have not used it, but I have colleagues who use AI-type applications to evaluate complex work such as essays and texts, whose review takes a long time in large groups" (P14). AI systems can evaluate student writing following predefined parameters, providing grades, and immediate feedback. These AI properties contribute to the optimization of classroom synergy since too much time is usually invested in the student-by-student review process. This does not mean that the responsibility for evaluation is completely delegated to AI;

however, its responsible use helps teachers focus on aspects of greater formative relevance, such as the development of critical thinking, argumentation, and creativity in writing and not so much on technical aspects. In addition, the presence of technology in education is increasingly evident.

At the dawn of this new century, the ubiquity of technology in education is undeniable. More and more students have the basic elements to begin using this technology, "today, AI is within everyone's reach. There is an inertia in which little by little we have to delve into the use of this technology, whether we like it or not" (P20). It is true that most AI users do not fully understand how it works, its benefits and its risks. Given this panorama, a deep technological literacy is urgently needed, understood as the ability to understand, interact with, and critically evaluate AI systems. This does not only imply technical knowledge, but also the ability to reflect on the social and ethical impact of these technologies. The potential of this educational tool lies at a deep level, so a more detailed and thorough learning about the qualities, virtues, and attributes of AI applied to learning is necessary.

AI in the field of languages is working as a catalyst; this resource is positioned as an agent of change that is reinventing the way of traditional language learning. Given these new educational coordinates, it is essential to question and reformulate the conventions taken for granted in language teaching, "AI allows generating more attractive exercises for students, getting their attention and interest is difficult these days" (P5), "in real time it is possible to contextualize the exercises used in class, that seems extraordinary to me" (P2). It must not be forgotten that these technological resources are, as such, a means and should not be considered an end in themselves.

It is tempting to use AI as a first pedagogical support, so there must be a deep awareness of its scope, limitations, risks, and disadvantages. The very fact that AI is an accessible software could generate extreme dependence on this technology in users. In this era of immediacy, this type of technology seems to respond to the demand for quick responses just a click away. Given the hybridization between technology and education, the melting pot

of possibilities that this offer is undeniable, however, it is essential to use them with caution and under a justified procedure. The use of AI in education has generated growing interest due to its potential to improve efficiency in educational processes.

Efficiency, understood as the ability to achieve a goal using the least number of resources, time, and effort possible, is one of the reasons why AI is gaining more followers in the education sector. Software based on this type of algorithm has been very useful in shortening times, "it seems that AI can make what we do as teachers more efficient, but I think that it can also lead to a depersonalization of teaching" (P16), "AI is often used to automate certain tasks that usually require a lot of time" (P11). There is the challenge of balancing automation with human intervention, this intersection is possible as long as it is kept in mind that the teacher is the one who uses the tool, and their human essence must be preserved.

There are indeed points where the human mind and capabilities cannot compete with a machine, however, delegating too much to a machine can lead to students relying more on virtual assistants instead of their teachers to clarify doubts or that even though the feedback generated by AI is immediate, it can be superficial and does not always manage to motivate or inspire students. Similarly, there is a risk of losing the human aspect of education, such as mentoring and the development of soft skills, leading to education becoming mechanized. Nevertheless, the use of AI has been highlighted as an important trigger for student interest.

From the perspective of the participating language teachers, the use of AI in their classes has benefited by increasing the level of curiosity, attention, and involvement of their students. From their experience, it is about "rapid and meaningful learning of real language" (P10). The stridency with which AI has positioned itself in language teaching contexts denotes the levels of relevance it has acquired in recent years. Ductility, contextualization, and dynamism are some of the criteria that accompany the use of AI in the field of languages, since it is perceived as a customizable and versatile tool that can be scaled to multiple levels. However, as AI consolidates itself as a key tool in language teaching, reflection arises on the role of the teacher.

The implementation of new technologies in education has generated various reflections on the role of the teacher in the digital age. "A few years ago, people thought that with the arrival of platforms such as YouTube, teaching as we know it would disappear. I think something similar is happening today with AI (...) The figure of the teacher is still indispensable for the management of these technologies" (P3). It is indisputable that traditional teaching methods are losing relevance in the face of more dynamic and personalized technological approaches. In a staggered manner, these new technologies are displacing the classic forms of teaching in the field of languages. However, it is clear that the role of the human teacher is still necessary to mediate the student-technology relationship. The facilitator must develop teaching skills that allow him to carry out management, guidance, and didactic direction tasks, incorporating AI as one more strategy in his wide pedagogical "toolbox" so as not to suffer a progressive anachronism. AI also enhances teaching skills.

According to what has been previously mentioned, AI encourages language teachers to focus on activities of greater complexity and cognitive demand. These programs allow the review and evaluation of work and tasks to be completed more successfully, "they facilitate the process of planning a class, and if it is about grading, it is easier to do so (...) we really waste a lot of time on administrative things than really focusing on teaching, I think that with AI we can optimize that time" (P18). Thus, language teachers have a better margin of use of their time in the classroom, however, there must be the will to want to use AI and to deploy the minimum technical capabilities for its use. It is not only about decreeing its use, but also about really learning to use AI in all its magnitude and complexity, taking advantage of its benefits and potentialities.

3. Challenges and Ethical Considerations

The implementation and use of AI in education has caused considerable reactivity regarding ethical positions. Like any tool that is used inappropriately, AI generates controversy, "the use of this type of resources implies a shared responsibility, a bidirectional responsibility, that is, both students and teachers

must be aware of the benefits, implications and risks that are run when using AI in an uncritical manner" (P1). The implementation of AI in education without adequate controls or regulations can lead to unethical or misguided use of the aforementioned tool. Therefore, clear regulation is required, supervision of teachers in decision-making and institutional auditing and monitoring devices that guarantee that AI, in the process of training students, is used fairly and transparently. Beyond the potential benefits of AI in education, it is crucial to address the challenges and difficulties that its implementation entails.

AI promises a wide range of benefits, which means identifying barriers and potential challenges in its use in order to address and prevent them. This is the case of the lack of perspective, that is, the focus of students and teachers' attention is centered on the dispute over who uses AI to their advantage:

> There is tension between students and teachers to see who uses technology to their advantage (...) It may be the case that the student is not completely honest and uses this type of tools to generate text that is not precisely of his/her authorship and the teacher uses technology to be able to detect this originality (P15).

A few years ago, the use of automatic translators for writing assignments in English began to become popular. The overuse of this tool results in texts created entirely by a machine and which were clearly not the product of the students' inventive and technical capacity.

Similarly, AI is beginning to be used to delegate all creative responsibility to a program, now granting the teacher the role of detective and judge to determine whether the work is authentic or not. For the teacher, it is time to use AI to examine and detect these anomalies. It is not about restricting the use of AI, but rather using it rationally and objectively, since it is not just about fulfilling an academic requirement; AI must be assumed as a spring that enhances the abilities of the student.

For this purpose, language teachers must learn to use this set of tools and at the same time teach their students how to use them.

The route to follow is not the path of prohibition but of direction, "learning to use them appropriately to guide students on how to get the most out of them in their learning process" (P4). It is evident that this technology demands a considerable investment of both time and effort to be able to take full advantage of it; teacher training will be key to the organic integration of these resources in everyday school life. Likewise, there is a latent need to adapt current educational models, paving the way for the critical incorporation of AI into the curricula and critical paths of educational institutions. The BUAP *Facultad de Lenguas* must embrace a more strategic approach to integrate AI into the training of future English teachers.

It is to be expected that given the number of benefits that AI presents for teaching, the emergence of an excessive dependence on these resources is presumed. Dependence on AI as a teacher is a latent possibility, "I have doubts and concerns about depending on technology, that is, that one day we cannot use it and we do not know what to do (...) we could depend entirely on the companies that own this technology" (P8). This highlights the dependence that teachers could have on the use of automated platforms to design curricula, evaluate, and teach. As a teacher, being entirely dependent on the use of this technology runs the risk of a decrease in the capacity for pedagogical innovation, problem-solving dimension and teaching creativity within the context of language teaching. From one moment to the next, these companies can suspend access or request payment to continue providing their services, such was the case of Google Classroom that limited some features of its platform.

Another aspect that could prove to be an obstacle is the integration of AI at a macro level in educational institutions. As known, adopting new technologies in educational institutions requires a significant investment in infrastructure and training for their proper use, "it would mean that for the school to be able to invest in good AI it would require a lot of money, facilities and training for teachers, I think it does not sound viable yet" (P3). Everything indicates that the dissemination of the use of AI in the educational environment is urgent, however, it is a gradual and progressive advance.

Inadvertently, AI is positioning itself as a necessary tool in the teaching and learning of foreign languages and its arrival within faculties and educational institutions is inevitable. It is unacceptable to maintain a neutral position on this matter since the importance of the topic merits in-depth analysis and discussion.

Another point of analysis is knowledge about digital accessibility. This is an agenda that must be addressed, "on the topic of inclusion, any tool or resource that allows that, welcome" (P11). AI has the potential to facilitate access to education for people with disabilities, for example, through voice recognition, virtual assistants, and real-time translation. Today, the issue of inaccessibility is increasingly eroding, and mechanisms are emerging to alleviate this situation. Therefore, AI is projected as a potentially beneficial material that could pave the way towards inclusion. It is worth commenting on the need to reformulate educational models to direct them towards critical attention to diversity. AI in language teaching is channeled as a strategy to achieve a certain parity of conditions for those students in vulnerable conditions.

Conclusions

Despite the boom that AI is having, well-structured theories that integrate this technology into education effectively are lacking. Education needs to adapt to the digital age and take advantage of the benefits of AI to improve teaching and personalize learning.

The emotional and social development of students is an irreplaceable dimension of education, where the teacher remains the central figure in the construction of psycho-emotional well-being. More research is needed on the long-term impact of AI on education.

Artificial intelligence has proven to be a valuable tool in language education, promoting student autonomy and motivation through dynamic and interactive methodologies. Its accessibility and ability to optimize teaching time are key advantages, although its implementation must consider the digital divide to ensure equity. However, AI does not replace human teaching, as it lacks the fundamental emotional and social dimensions in learning.

Instead of replacing teachers, AI must complement their strategies, strengthening the formation of autonomous, and critical students in the 21st century.

Artificial intelligence is transforming language teaching by facilitating the personalization of learning, the automation of administrative tasks, and the optimization of teaching time. Its ability to adapt to different levels and learning styles promotes student engagement and reduces dropout rates. However, its use must be balanced to avoid the depersonalization of teaching and excessive dependence on technology. AI does not replace teachers, but rather complements them, allowing them to focus on activities of greater cognitive complexity and the development of critical, creative, and communicative skills in their students.

The integration of AI in education poses important ethical and security challenges, requiring regulation, teacher oversight, and institutional auditing to ensure its fair and transparent use. While it offers multiple benefits, its misuse can encourage academic dishonesty and excessive dependence on both students and teachers. The key is not to prohibit it, but to educate in its critical and strategic use. In addition, its implementation requires investment and training for its effective adoption. Despite these challenges, AI has great potential to improve accessibility and promote inclusion in language teaching.

It is concluded that clearer guidelines are necessary for training programs on the proper use and management of this technology. This would ensure that English teachers in the LEI program are prepared to adapt to emerging technologies and leverage the unique advantages offered by digital environments. Also, it is necessary to design methodologies oriented toward both digital literacy and teacher training, given that these new tools are positioning themselves as inherent elements of the educational process. Ignoring them would represent a setback in the progress made toward the professionalization of language teaching.

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CHAPTER VI

AI in English Language Teaching in the North of México: Integration, Benefits, and Challenges

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Abstract

This study investigates the integration of Artificial Intelligence (AI) in English Language Teaching (ELT) within northern Mexico, focusing particularly on educators' perceptions, benefits, and implementation challenges. In the context of a worldwide increase in the use of AI-based educational tools, this research employs a quantitative descriptive methodology using survey data from 34 ELT teachers in Nuevo León. The findings reveal a growing interest and moderate adoption of AI tools, such as Duolingo, ChatGPT, and automated grading systems, with notable benefits including increased instructional efficiency, personalized learning, and student engagement. However, challenges such as limited teacher training, digital inequality between public and private institutions, and ethical concerns regarding data privacy hinder widespread adoption. The study emphasizes the urgent need for comprehensive professional development, institutional

investment in digital infrastructure, and the establishment of ethical guidelines to facilitate equitable and effective AI integration in ELT classrooms. The results contribute to a deeper understanding of how AI is reshaping language education in under-researched Latin American contexts and offer recommendations for future educational policy and teacher training programs.

Keywords

Artificial Intelligence, English Language Teaching, Teacher Perceptions

Introduction

The integration of artificial intelligence (AI) into education has emerged as a transformative force, particularly in English Language Teaching (ELT). Since the public release of OpenAI's ChatGPT in November 2022, the use of AI applications in educational contexts has rapidly spread, offering opportunities, never seen before, for personalized learning and enhanced instructional methodologies. This paper explores the evolution of AI, tracing its roots from the foundational concepts proposed by pioneers such as Alan Turing, to its contemporary applications that streamline administrative processes and enrich learning experiences. Focusing on northern Mexico, this research examines the current state of AI integration in ELT, highlighting the benefits and challenges faced by educators in this region. By analyzing teachers' perceptions and the barriers to effective implementation, the research aims to provide insights that can inform future practices and policies in using AI for educational advancement.

Literature Review

There is a clear distinction in the evolution of AI before and after November 2022, when OpenAI released ChatGPT, a generative pre-trained transformer, to the public. This event allowed access to advanced AI, permitting individuals to use it for various personal and professional purposes (OpenAI, 2022). However, the rise of ChatGPT was not the beginning of artificial intelligence. AI has

been deeply integrated into human life for decades, with its roots tracing back to the 1950s when Alan Turing proposed the concept of machine intelligence (Turing, 1950). The term "artificial intelligence" was officially invented in 1956 during the Dartmouth Conference, marking the beginning of AI as a formal field of study (McCarthy et al., 2006). Since then, AI has continuously evolved, shaping industries, education, and daily interactions (Russell et al., 2021).

Today, AI is defined as the capability of computer systems to execute tasks like problem-solving, language processing, and decision-making which are generally exclusive of human beings (Russell et al., 2021). The wide accessibility of AI has significantly expanded its applications, allowing individuals not only to get and process information but also to generate new content based on their input. This has transformed numerous fields, from education to industries, promoting innovation and personalized experiences (Ali et al., 2024; Jackson & Jackson, 2024; Peláez-Sánchez et al., 2024).

AI has noticeably transformed the education field, streamlining administrative processes, enhancing teaching methodologies, and supporting students in their academic pursuits. Administrators use AI to optimize management tasks, teachers integrate AI-driven tools to enrich their lessons, and students leverage AI for academic assistance (Chen et al., 2020). AI in education includes technologies such as machine learning and natural language processing, which analyze data, detect patterns, and generate predictive insights, ultimately enabling personalized learning experiences (Barrera Castro et al., 2024; Maghsudi et al., 2021). These advancements have facilitated the development of intelligent tutoring systems, AI-powered chatbots, and automated grading tools, improving efficiency and providing consistent, data-driven feedback to learners (Harry & Sayudin, 2023).

As previously mentioned, AI has increasingly influenced various educational fields, including English Language Teaching (ELT). This discipline has made use of AI-driven technologies for multiple purposes, ranging from chatbots and automated grading systems to intelligent tutoring systems and voice recognition software, all of which support language learning (Crompton et al., 2024; Hockly, 2023; Tulasi & Rao, 2023). These tools enhance

instructional efficiency by delivering personalized feedback, adapting to individual learning needs, and providing more interactive and immersive language acquisition experiences (Chen et al., 2020; Harry & Sayudin, 2023).

AI integration in this area has been rapidly expanding on a global scale. Research highlights the widespread use of AI-driven applications, such as Duolingo and Grammarly, for enhancing language learning. Countries like China and the United States have made significant investments in AI-powered educational tools, incorporating them into formal classroom environments. However, the extent of adoption varies across regions, influenced by factors such as technological infrastructure, teacher training, and institutional support (Zawacki-Richter et al., 2019).

Research on the use of artificial AI in ELT in Latin America is still in its early stages, with most initiatives being exploratory and limited in scope (Núñez-Naranjo et al., 2024). While private institutions have begun to adopt AI-driven tools such as intelligent tutoring systems, automated grading platforms, and language learning apps, public schools in the region face significant barriers to implementation. These challenges include limited funding, inadequate teacher training, and a lack of technological infrastructure, which hinder the widespread adoption of AI in ELT (Alshumaimeri & Alshememry, 2024; Kovalenko & Baranivska, 2024; Tiwari, 2024).

Private institutions have been more proactive in integrating AI into their English language programs. For example, AI-powered platforms like Duolingo, Grammarly, and ChatGPT are increasingly being used to provide personalized learning experiences, real-time feedback, and adaptive content personalized to students' proficiency levels. However, these tools are often inaccessible to public schools due to high costs and the need for reliable internet access, which remains a persistent issue in rural areas (De la Torre & Baldeon-Calisto, 2024; Guerrero-Quiñonez et al., 2023).

In public schools, the lack of funding and resources has created a digital divide, limiting students' exposure to innovative AI-driven ELT methods. Additionally, many teachers in public institutions lack the necessary training to effectively integrate AI tools into their classes. This skills gap is further intensified by the

absence of comprehensive professional development programs focused on AI and digital literacy. Without addressing these general issues, the potential of AI to enhance English language learning in Latin America may remain almost impossible for a significant portion of the population (Mendoza-Lozano et al., 2021; Romero-Hall, 2021).

In Mexico, there has been a notable rise in interest regarding the integration of artificial intelligence into educational practices. Universities in the region are actively exploring AI-driven applications to enhance language proficiency among students. For instance, Onofre et al. (2024) highlight the potential of AI tools in facilitating personalized learning experiences, which can significantly improve language acquisition outcomes. Additionally, recent studies have emphasized the role of AI in addressing educational challenges, such as limited access to language resources and the need for adaptive learning systems (Crompton et al., 2024). These efforts align with global trends in using AI to transform education and bridge skill gaps in multilingual contexts.

The adoption of AI technologies in English language teaching varies widely among educators. Survey-based studies indicate that while some teachers actively incorporate AI for lesson planning, assessment, and student engagement, others remain hesitant due to concerns over reliability, pedagogical effectiveness, and data privacy (Zawacki-Richter et al., 2019). Factors influencing AI adoption include teacher age, professional experience, institutional support, and access to professional development opportunities (Chatterjee & Bhattacharjee, 2020). Additionally, educators with previous exposure to educational technology are more likely to integrate AI tools into their classrooms (Hinojo-Lucena et al., 2019). Addressing these barriers through training and institutional encouragement could facilitate broader AI adoption in English language teaching.

In this regard, teachers' perceptions influence in great deal the way AI is integrated in the classroom. Some educators view AI as a valuable tool that enhances teaching efficiency and personalizes student learning experience, and make use AI-powered tools like ChatGPT to tailor reading materials, improving student engagement and comprehension (Onofre et al., 2024).

However, concerns persist among educators regarding over-reliance on technology, potential inaccuracies in AI-generated content, and the decrease of human interaction in learning. A survey by Teach Plus revealed that while 92% of educators acknowledge AI's potential benefits, only half feel adequately trained to implement it effectively, highlighting the need for comprehensive professional development (Teach Plus, 2024).

Lucas Soledispa et al. (2023) examined English teachers' attitudes toward AI integration in language instruction. The findings suggest cautious optimism, with educators recognizing AI's ability to help streamline administrative tasks and provide personalized learning opportunities. However, concerns remain about reduced face-to-face interactions and the authenticity of student work.

Nonetheless, those optimistic teachers who have cautiously integrated AI into their teaching have found benefits in it, particularly in enhancing teaching efficiency and student learning experiences. For instance, one of the most significant benefits of AI is time efficiency. AI-powered tools can automate tasks such as grading, attendance tracking, and generating progress reports, allowing teachers to focus more on instruction and student interaction (Zhai et al., 2021). By reducing the time spent on repetitive tasks, teachers can dedicate more effort to lesson planning and personalized support.

Additionally, AI facilitates personalized learning by adapting to individual students' needs. AI-driven platforms analyze students' strengths, weaknesses, and learning preferences to provide customized lesson plans and exercises (Chatterjee & Bhattacharjee, 2020). This personalized approach helps students progress at their own pace, improving comprehension and retention.

Another key advantage is enhanced student engagement. AI-powered educational tools incorporate gamification, interactive simulations, and real-time feedback, making the learning process more dynamic and motivating (Chen et al., 2020). Virtual tutors, chatbots, and AI-assisted writing tools provide instant support, fostering a more interactive and immersive learning environment.

In this regard, despite the potential benefits of AI integration, several challenges hold back its effective implementation. One of the main obstacles is the lack of digital skills among teachers. Many educators have limited training in using AI-powered tools, making it challenging to integrate these technologies into their teaching practices (Tejada & Pozos, 2018). Without adequate professional development, teachers may struggle to use AI effectively for lesson planning, assessment, and student engagement.

Another significant challenge is resistance to change. Some educators remain skeptical about AI, fearing that it may undervalue traditional teaching methods or diminish the role of the teacher in the classroom (Howard & Mozejko, 2021). Concerns about the pedagogical effectiveness of AI-driven learning, as well as ethical considerations related to data privacy and student autonomy, contribute to teachers' resistance to AI integration in their classrooms.

Furthermore, limited resources are a significant barrier, particularly in public schools. Many institutions lack the necessary infrastructure, such as reliable internet access, updated hardware, and AI-compatible software, which are essential for implementing AI-based solutions (Castañeda & Selwyn, 2018). The digital divide between well-funded and underfunded schools intensifies these inequalities, making it more challenging for all students to benefit from AI-enhanced learning.

These differences are particularly evident in regions like Nuevo León, where rural and low-income urban schools face significant technological limitations. While private institutions may have access to advanced AI-driven educational tools, many public schools struggle with outdated infrastructure and limited resources, further widening the educational gap. Addressing these inequities requires targeted investments in AI-ready infrastructure, affordable internet access, and teacher training programs to ensure that AI adoption in education is inclusive and equitable (Crompton et al., 2024; Salas et al., 2022).

In addition to accessibility challenges, data privacy and ethical concerns are critical issues in AI integration for educational purposes. AI-driven tools rely heavily on collecting and analyzing student data to personalize learning experiences, but this raises

concerns about data security, consent, and potential misuse of personal information. Without proper safeguards, student data could be vulnerable to violations or unauthorized access, compromising confidentiality and trust (Williamson & Eynon, 2020).

Furthermore, AI-driven grading and feedback systems present ethical dilemmas. While these tools can provide efficient and consistent evaluations, there is ongoing debate about their ability to fairly assess student work, particularly in subjective areas like writing and critical thinking. AI algorithms may contain preferences that put certain students at a disadvantage, leading to unfair assessments and reinforcing educational inequalities. To prevent these risks, educational institutions must ensure transparency in AI decision-making and implement policies prioritizing ethical AI use in the classroom. Clear data protection, bias detection, and teacher oversight guidelines are essential to maintaining trust and fairness in AI-assisted education.

Along with institutional guidelines, there is an undeniable need for teacher training. Integrating AI in education requires comprehensive teacher training programs to enhance AI literacy. Educators must develop digital competencies that enable them to utilize AI tools in ELT and other instructional contexts effectively. Without adequate training, the potential benefits of AI in education may remain underutilized, limiting its impact on teaching and learning processes (Tulasi & Rao, 2023).

Professional development plays a crucial role in AI integration among educators. Continuous training programs that focus on AI applications, ethical considerations, and pedagogical strategies can help teachers gain confidence in using AI tools. Research suggests that institutions that invest in teacher training programs for digital technologies experience higher integration rates and improved instructional results. Therefore, schools and universities should prioritize structured professional development courses to support teachers in integrating AI effectively into their classrooms (Howard & Mozejko, 2021; Reynolds, 2021).

To facilitate AI integration, these training programs should include practical workshops, case studies, and hands-on experiences with AI tools. Such approaches allow educators to

understand AI's potential in curriculum development, assessment, and personalized learning. Moreover, promoting a culture of lifelong learning among teachers will ensure that they remain adaptable to emerging technological advancements in education (Kovalenko & Baranivska, 2024; Tulasi & Rao, 2023).

Thus, given the growing interest in the role of Artificial Intelligence in education and the limited research focused on its practical implications in the Mexican context, particularly within English language teaching, it becomes evident that more empirical evidence is needed to inform responsible and effective integration. While international studies have highlighted both the potential and the challenges of AI in language education, there is still a lack of understanding regarding how educators in Mexico perceive these tools and how prepared they feel to use them in the classroom. For all these reasons, exploring the perspectives of English teachers in Mexico about AI and its possible implementation in their classrooms is essential. Consequently, this study adopts a quantitative approach to investigate the incorporation of AI in English Language Teaching in northern Mexico. The following section outlines the methodology employed and presents the results obtained.

Methodology

This study employed a quantitative descriptive approach to explore English Language Teaching teachers' perceptions of Artificial Intelligence integration, including its perceived benefits and challenges in classroom practice. Descriptive research is particularly useful for gathering detailed information on current attitudes, beliefs, and practices, making it appropriate for this study's objectives (Creswell, 2017; Cohen, Manion & Morrison, 2018).

The research was conducted with a sample of 34 ELT teachers from Nuevo León, Mexico. Participants were selected through convenience sampling, a non-probability sampling method commonly used in educational research where accessibility and willingness to participate are key (Etikan, Musa, & Alkassim, 2016). While this method limits generalizability, it allows for exploratory insights and the identification of emerging patterns in under-researched contexts. The sample included teachers from public and

private institutions at different educational levels, which contributed to obtaining diverse perspectives on AI integration in ELT.

Data collection was carried out through an online survey administered via Google Forms, ensuring flexibility and accessibility for participants. The instrument consisted of two sections: 1) A set of Likert-scale items designed to measure teachers' perceptions of AI integration, its pedagogical benefits, and associated challenges. These items were constructed based on dimensions identified in previous studies on technology integration in education (Holmes et al., 2019; Selwyn, 2021). 2) A series of open-ended questions aimed at capturing qualitative insights regarding participants' personal experiences, perceived limitations, and expectations concerning the use of AI in ELT classrooms.

Prior to distribution, the survey instrument was validated by expert judgment to ensure content validity. Additionally, a pilot test was conducted with a small group of ELT professionals to confirm clarity and functionality of the items. Responses were collected over a period of three weeks.

Quantitative data from the Likert-scale items were analyzed using descriptive statistics to identify general trends. The responses from the open-ended questions were examined using thematic analysis, allowing for the identification of recurring themes related to AI integration, its perceived benefits, and challenges in ELT classrooms.

Results

The survey revealed insightful details about teachers' perceptions of various aspects of AI, ranging from their knowledge and usage to its integration, perceived benefits, and challenges.

1. Demographic and Professional Background

This section provides an overview of the participants' demographic and professional profiles, including their age, gender, teaching experience, and educational level where they teach. Understanding the background of the surveyed teachers helps contextualize their responses regarding AI integration in ELT (see figures 1 to 4).

Figure 1. Age Range of Participants

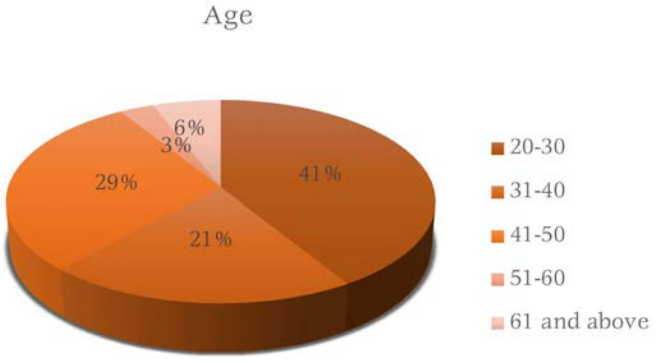


Figure 2. Gender of Participants

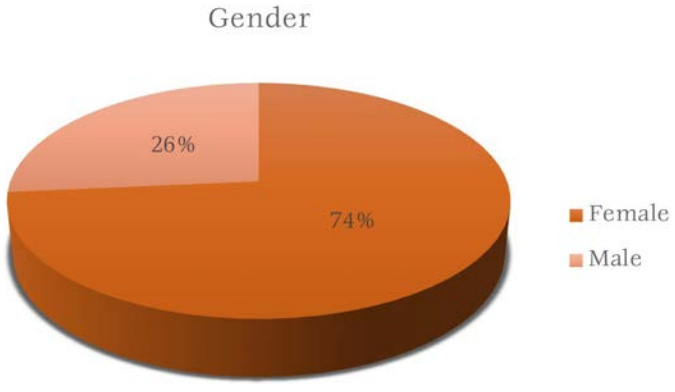


Figure 3. Years of Teaching Experience of Participants

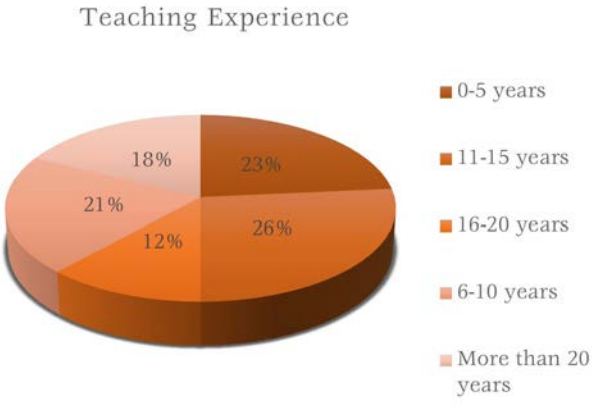
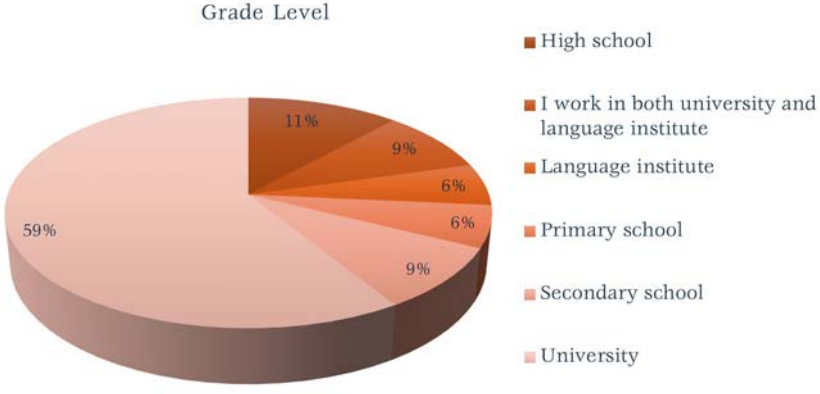


Figure 4. Grade Levels Taught by Participant



2. Familiarity and Awareness of AI in ELT

To assess the extent of teachers' knowledge of AI, the survey explored their familiarity with artificial intelligence and their awareness of AI tools used in language teaching. The findings highlight varying levels of AI literacy among educators, which may influence its adoption in the classroom (see figures 5 & 6).

Figure 5. Familiarity with AI Concept

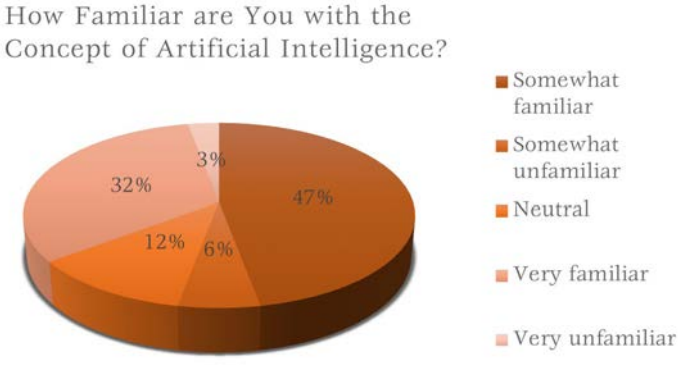
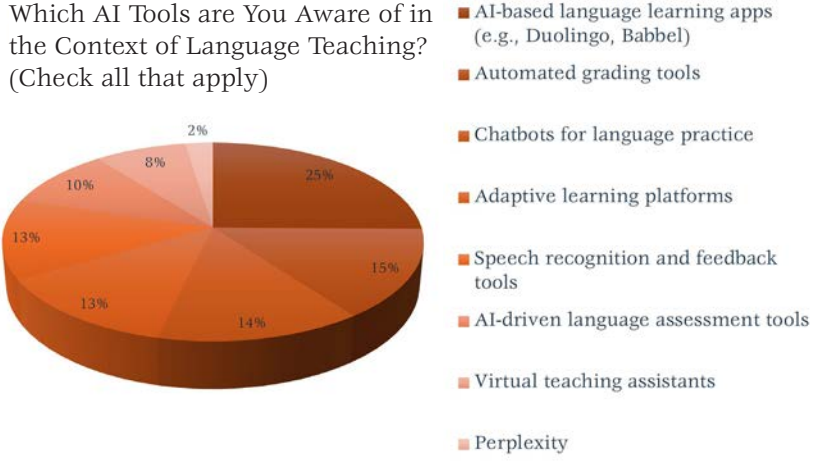


Figure 6. AI Tools Familiarity



3. AI Use and Integration in Teaching

This section examines whether and how teachers integrate AI tools into their teaching practices. The responses provide insight into the frequency of AI use, the specific tools employed, and their purposes in English language instruction.

Figure 7. Use of AI in Teaching

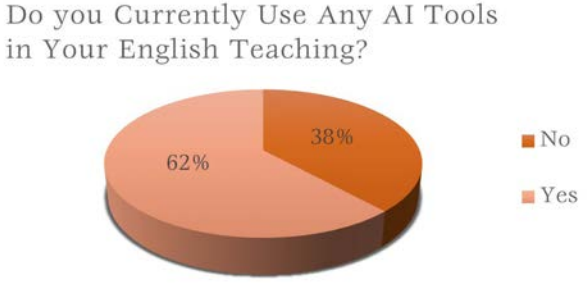


Figure 8. Frequency of Use of AI Tools

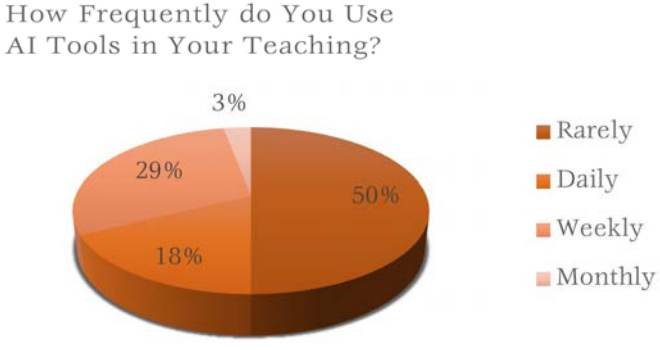


Figure 9. Type of AI Tools Participants Use

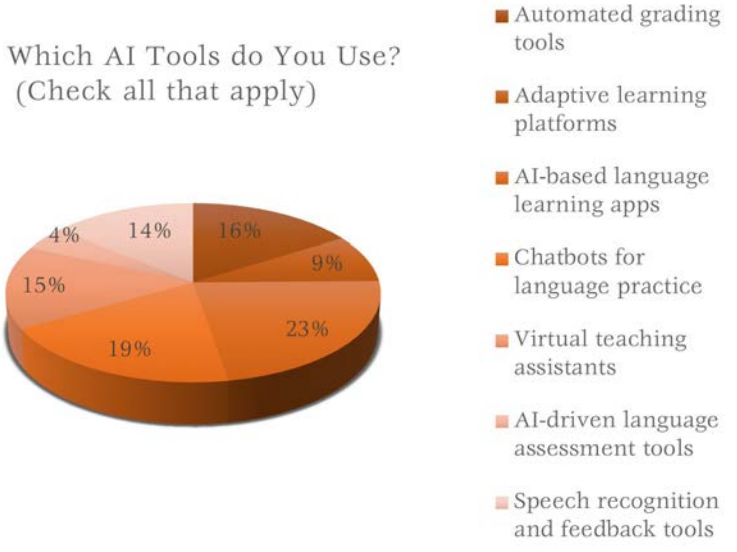
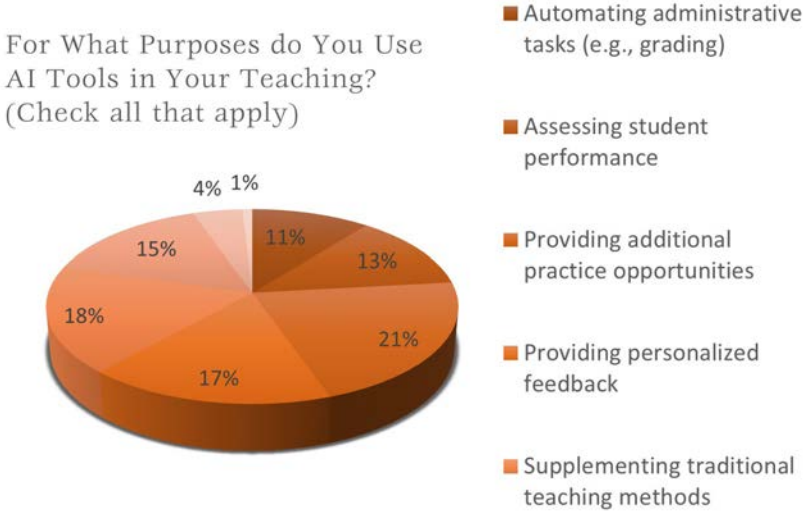


Figure 10. Purposes of Using AI Tools



4. Perceptions of AI in ELT

Teachers' perceptions play a crucial role in the adoption of AI technologies. This section presents their views on AI's impact on student learning, engagement, and instructional efficiency, as well as concerns regarding ease of use, pedagogical effectiveness, and ethical considerations (See figures 11 to 17).

Figure 11. Perception of AI Enhancing Students' Learning

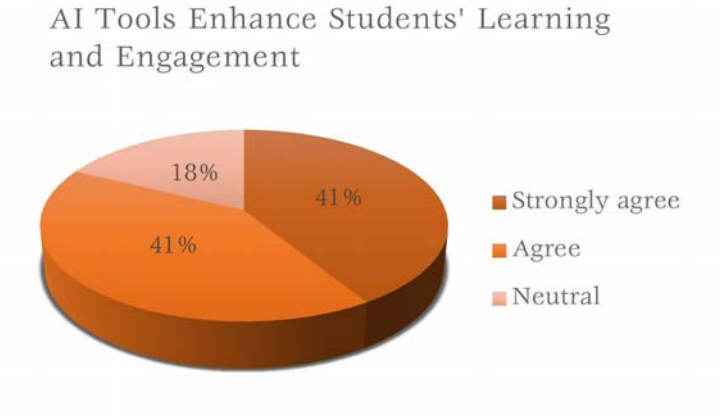


Figure 12. Perception of AI Providing Valuable Feedback to Students

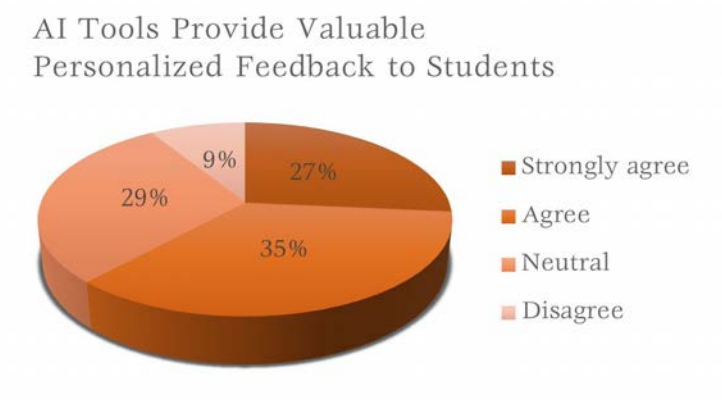


Figure 13. Perception of AI Tools Saving Time

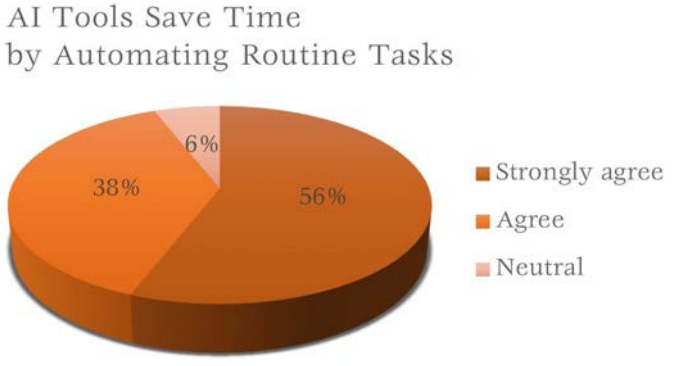


Figure 14. Perception of AI Tools Being Easy to Integrate into Teaching

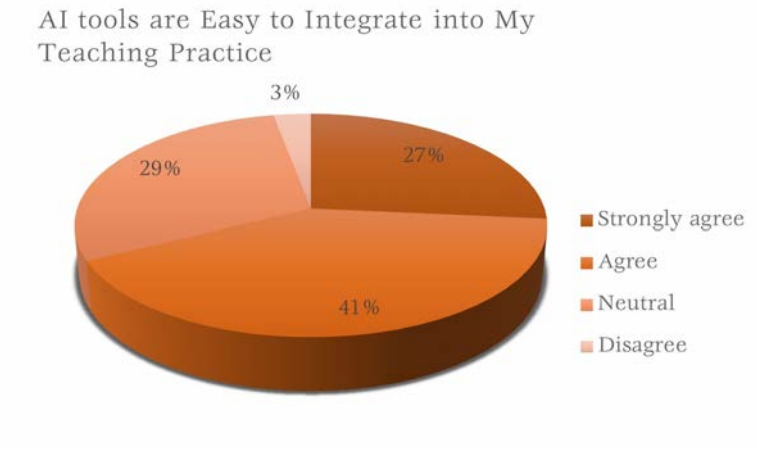


Figure 15. Perception of AI Tools Replacing Traditional Teaching Methods

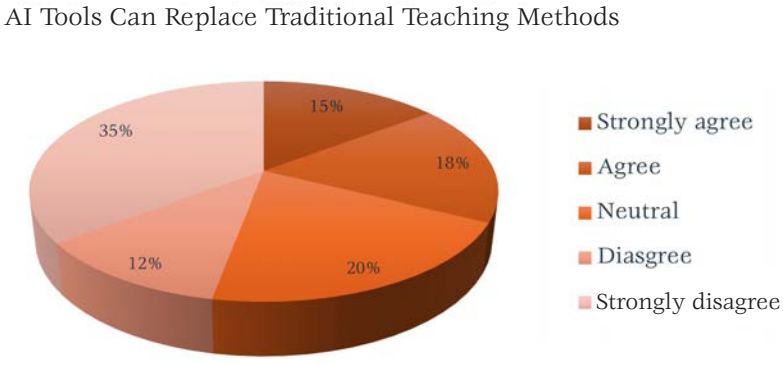


Figure 16. Perception of AI Tools Challenges in Data Privacy and Security

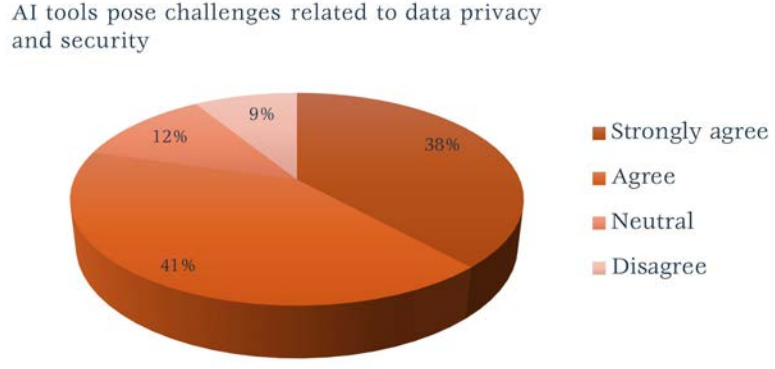
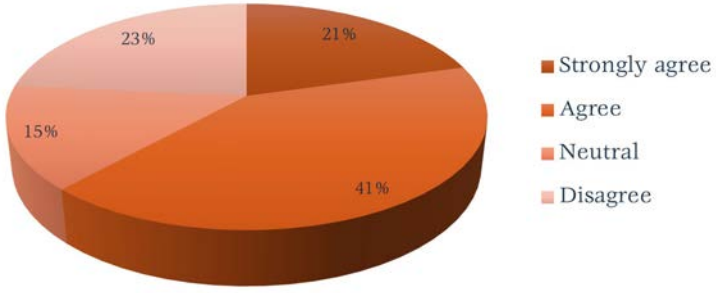


Figure 17. Perception of Confidence Using AI Tools in Teaching



5. Benefits and Challenges of AI in ELT

While AI offers numerous advantages in ELT, its implementation also presents challenges. This section summarizes the key benefits reported by teachers, such as enhanced personalized learning and time-saving automation, alongside challenges like data privacy concerns and technological barriers (see figures 18 & 19).

Figure 18. Perceived Benefits of Using AI Tools

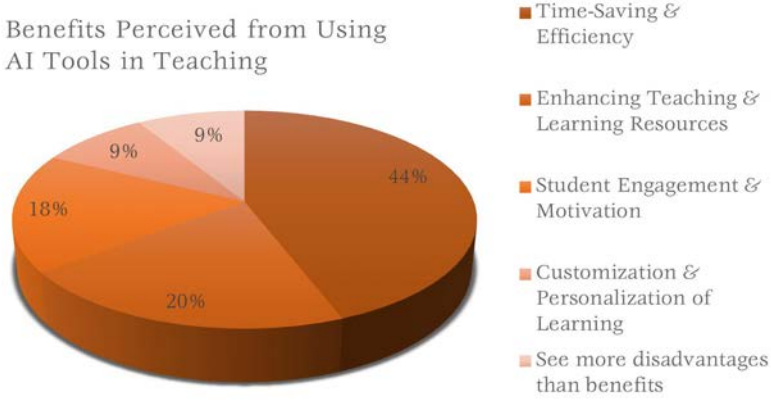
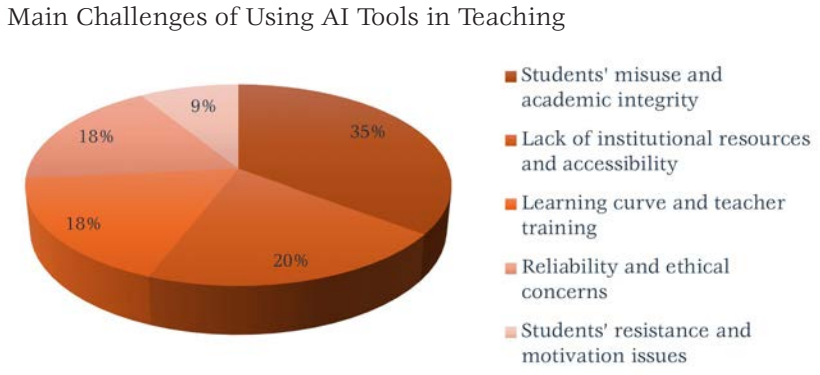


Figure 19. Perceived Challenges of Using AI Tools



6. AI and Digital Accessibility

Accessibility is an essential factor in AI integration. This section explores teachers' awareness of digital accessibility in AI tools and whether they have assessed them for inclusivity, particularly for students with disabilities (see figures 20 & 21).

Figure 20. Familiarity with the Digital Accessibility Concept

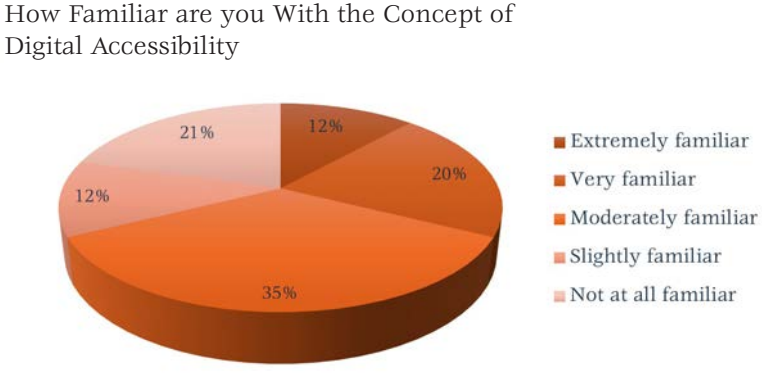
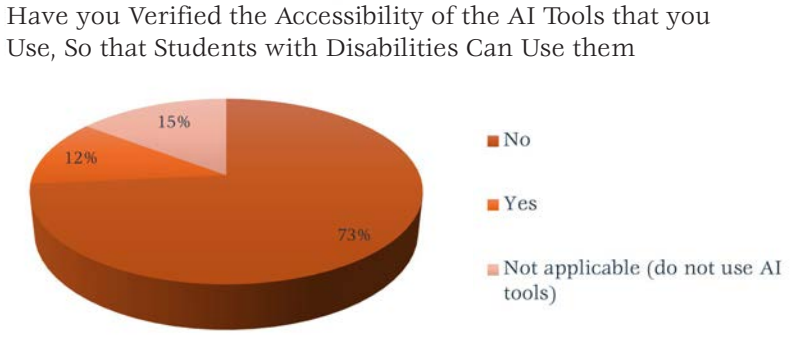


Figure 21. Verification of AI Tools Accessibility



7. Training and Professional Development on AI

Effective AI integration requires adequate teacher training. This section discusses the extent of AI-related professional development among participants, the types of training received, and the perceived need for further learning opportunities to enhance AI implementation in ELT (see figures 22 & 23).

Figure 22. Training in the Use of AI Tools

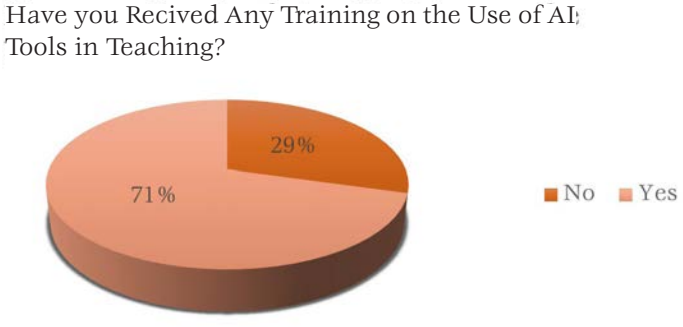
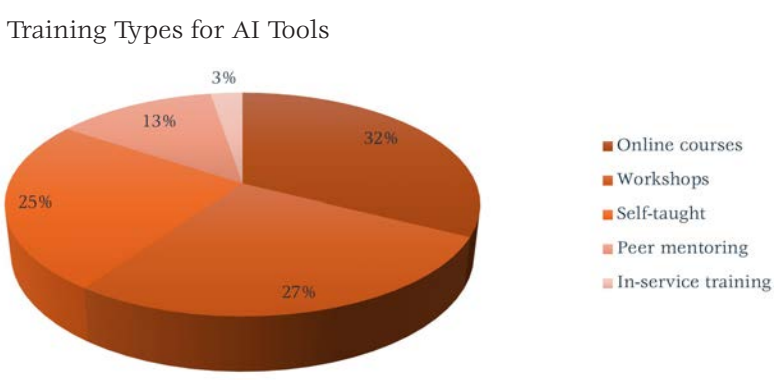


Figure 23. Type of Training Received on AI Tools



8. Open Feedback and Additional Insights

To gather more nuanced perspectives, the survey included an open-ended question inviting teachers to share additional thoughts on AI in ELT. This section highlights recurring themes, concerns, and suggestions provided by participants, offering qualitative insights into their experiences with AI tools (see figure 24).

Figure 24. Perceived Need for More Training on AI Tools

For the question: What specific training or resources would help you better integrate AI tools into your teaching? Teachers provided different and varied responses (see table 1).

Table 1. Summary of Findings in Specific Training or Resources Desired to Integrate AI Tools

Most Requested Training Types	Preferred Learning Resources
1. Workshops 2. Online Courses 3. Training Sessions on New AI Tools 4. Workshops Specifically on AI Integration into Teaching	1. Videos/Tutorials (Short Videos Explaining Processes) 2. Trial Versions of AI Tools for Hands-On Practice 3. Social Media Content, Apps, and Software for ESL Teaching 4. Training with the Latest AI Models
Key Areas of Interest	**Emerging Themes**
1. How to Use AI for Lesson Planning and Task Creation 2. AI for Academic Writing and Plagiarism Detection 3. Prompt Engineering (Learning How to Write Effective Prompts for AI Tools) 4. Understanding Different AI Tools and How to Work with Them 5. Practical, Hands-On Experience with AI Before Classroom Implementation	1. The Need for Continuous Training to Stay Updated with New AI Developments 2. Interest in Learning About Tools Beyond ChatGPT 3. Emphasis on Practical Application Over Theoretical Knowledge

Discussion

The findings of this study provide valuable insights into the perceptions, benefits, and challenges of integrating AI tools in English Language Teaching in the north of México, particularly in the state of Nuevo León. The results highlight both the potential of AI to enhance language learning and the barriers that hinder its widespread adoption in educational settings.

1. Teachers' Familiarity with AI Tools and Their Use

The survey revealed a mixed level of familiarity with AI among ELT teachers (see figure 5). While some educators were well-versed in AI concepts and tools (47%), others expressed limited knowledge or experience with AI-driven technologies. This gap in AI literacy is consistent with global trends, where the adoption of AI in education often depends on prior exposure to technology and access to professional development (Zawacki-Richter et al., 2019). The most recognized AI tools among participants were language learning apps like Duolingo and Grammarly, which are widely used for their accessibility and ease of integration into teaching practices (25%, see table 6). However, more advanced tools, such as AI-driven language assessment platforms and virtual teaching assistants, were less familiar to most respondents.

While 62% of the participants declared that they are currently using AI tools in their teaching (see figure 7), the frequency of their usage varied significantly among teachers (see figure 8). While some educators reported using AI tools daily (18%) or weekly (29%), others used them only occasionally or not at all (53%). This variation can be attributed to differences in institutional support, access to technology, and teachers' confidence in using AI tools. Teachers who integrated AI into their classrooms primarily used it for providing additional personalized practice opportunities (21%) and to provide personalized feedback (17%), as well as to supplement traditional teaching methods (18%, see figure 10). These findings align with previous research that highlights the time-saving benefits of AI in education, allowing teachers to focus more on instruction and student interaction (Ahmad et al., 2021; Hamal et al., 2022; Tiwari, 2024).

2. Perceived Benefits of AI in ELT

82% of the participants acknowledged the potential benefits of AI in enhancing student learning and engagement (see figure 11). For 62% of the teachers, AI tools were seen as valuable for providing personalized feedback, adapting to individual learning needs, and creating more interactive and immersive learning experiences (see figure 12). These findings are consistent with studies that

emphasize the role of AI in fostering personalized learning and improving student outcomes (Chen et al., 2020). Additionally, teachers appreciated the efficiency gains from automating routine tasks such as grading and attendance tracking, which allowed them to dedicate more time to lesson planning and student support, with 44% of them mentioning timesaving and efficiency as the main benefit perceived (see figure 13).

Another significant benefit reported by teachers was the ability of AI tools to enhance student motivation through enhancing teaching and learning resources with 38% mentioning it (see figure 11). AI-powered platforms that incorporate gamification elements have been shown to increase student engagement and make the learning process more dynamic (Al-Dosakee & Ozdamli, 2021). These tools not only provide instant feedback but also create a more interactive learning environment, which is particularly beneficial in language learning contexts.

3. Challenges and Barriers to AI Integration

Despite the perceived benefits, several challenges hinder the effective implementation of AI in ELT. One of the most significant barriers is the lack of digital skills among teachers (35%, see figure 22). Additionally, 91% of the educators reported the need for more training in using AI-powered tools to effectively implement them in their teaching (see figure 24). This skills gap is further exacerbated by the absence of comprehensive professional development programs focused on AI and digital literacy (Tejada & Pozos, 2018). Without adequate training, teachers may struggle to use AI effectively, limiting its potential impact on teaching and learning.

Resistance to change was another notable challenge (see figure 19). Some educators expressed skepticism about AI, fearing that it might be misused by students and their academic integrity might be affected (35%). Concerns about ethical considerations, as well as reliability, contribute to hesitancy in integration (18%) (Howard & Mozejko, 2021). Teachers also highlighted the need for clear guidelines and policies to address ethical issues and ensure that AI is used responsibly in educational settings (20%).

4. The Need for Professional Development

The research underscores the critical role of professional development in facilitating AI adoption among educators. As mentioned before, most teachers needed more training to effectively use AI tools in their teaching (91 %, figure 24). Continuous training programs that focus on AI applications, ethical considerations, and pedagogical strategies can help teachers gain confidence in using AI-driven tools. Practical workshops, case studies, and hands-on experiences with AI applications were identified as preferred learning resources (table 1), enabling educators to understand AI's potential in curriculum development, assessment, and personalized learning (Celik et al., 2022; Jackson & Jackson, 2024; Wang et al., 2024).

Moreover, fostering a culture of lifelong learning among teachers will ensure that they remain adaptable to technological advancements in education (Bozkurt et al., 2021; Celik et al., 2022). Institutions that invest in teacher training programs for digital technologies experience higher adoption rates and improved instructional outcomes, highlighting the importance of structured professional development courses to support teachers in integrating AI effectively into their classrooms.

5. Comparative Critical Analysis and Ethical-Legal Implications

While this study identifies key practical challenges in AI integration, such as training gaps and digital inequality, a deeper critical and comparative analysis reveals broader structural and ethical concerns. When compared with studies from other Latin American contexts, such as Ecuador (Lombeida & Mora, 2025), a consistent pattern emerges: the adoption of AI in education is rarely guided by strong legal frameworks or explicit ethical protocols. This regulatory space is particularly critical in the context of northern Mexico, where pre-existing socioeconomic differences between public and private institutions risk being intensified by unregulated AI systems.

The ethical implications extend beyond mere technical implementation. Lombeida & Mora (2025) emphasize that algorithmic bias and data privacy violations represent significant

threats to educational equity. In this study, teachers' concerns about data privacy (Fig. 16) and their limited awareness of digital accessibility (Figs. 20-21) reflect this wide-ranging ethical dilemma. Without proper contextualization, AI tools developed for global markets might not align with Mexican curricular priorities or teaching methodologies, limiting their effectiveness and potentially disengaging students.

From a legal perspective, the absence of specific national regulations governing AI in education places the burden of ethical decision-making on individual teachers and institutions, a responsibility for which they are largely unprepared, as evidenced by the overwhelming demand for training (91%, Fig. 24). This contrasts with emerging international efforts to establish AI ethics guidelines, such as the European Union's AI Act and highlights an urgent need for Mexico to develop its own contextualized policies that address issues of transparency, accountability, and algorithmic fairness, a challenge that is prevalent across Latin American educational systems (Lombeida & Mora, 2025).

Therefore, moving beyond a purely technical or instrumental view of AI, a critical comparative analysis suggests that the effective and equitable integration of AI in ELT in northern Mexico is not just a matter of providing tools or training, but of building a comprehensive ecosystem that includes ethical guidelines, legal protections, and a critical awareness of the sociopolitical dimensions of educational technology.

Findings

The findings of this study have several implications for policymakers and educational leaders. First, there is a need for sustained investment in technological infrastructure, particularly in public schools, to bridge the digital divide and ensure equitable access to AI-driven ELT tools. However, beyond infrastructure, our comparative analysis reveals that equitable access must also address algorithmic equity. The risk of embedding cultural or linguistic biases in AI tools, as noted in broader Latin American educational contexts (Lombeida & Mora, 2025), demands critical evaluation mechanisms for any AI tool deployed in Mexican classrooms.

Second, comprehensive teacher training programs should be developed to enhance AI literacy and digital competencies among educators. These programs should focus on practical applications of AI in teaching (Hamal et al., 2022; Wang et al., 2024), but must expand to include critical digital literacy, ethical considerations, and strategies for identifying and mitigating algorithmic bias. As Lombeida & Mora (2025) argue, teacher training should empower educators to become critical users of AI, not just technical operators.

Additionally, clear guidelines and policies should be established to address ethical concerns related to data privacy, bias detection, and teacher oversight in AI-assisted education. The current regulatory space in Mexico, contrasting with emerging international frameworks, places ethical responsibility on individual teachers and institutions. These findings highlight the urgent need for national policies that ensure transparency and fairness in AI decision-making, crucial for maintaining trust and confidence in these technologies. Finally, collaboration between governments, educational organizations, and tech companies can facilitate the development and implementation of AI initiatives in public schools. Such partnerships should be guided by ethical frameworks that prioritize educational equity over commercial interests. By fostering collaborations centered on ethical principles and shared best practices, stakeholders can work together to create inclusive and effective AI-driven educational environments (OECD, 2021; Salas-Pilco & Yang, 2022; Wang et al., 2024).

Conclusion

To overcome the challenges identified, a multi-tiered approach is essential. First, educational institutions should implement scalable professional development programs that focus on AI's pedagogical and technical aspects in ELT. These should include workshops, hands-on tool demonstrations, and continuous mentorship while integrating critical modules on AI ethics, data privacy, and algorithmic bias detection. This aligns with Lombeida & Mora's (2025) emphasis on technological literacy as a foundation for equitable AI implementation.

Second, government boards and school administrators must assign targeted funding to equip public schools with the necessary digital infrastructure, including stable internet access and updated hardware. However, this material investment must be accompanied by regulatory frameworks that protect student data privacy and ensure algorithmic transparency, addressing the legal gaps identified in this study.

Third, collaborations with ed-tech companies could enable public institutions to access affordable or subsidized AI tools. These partnerships should include contractual agreements that mandate ethical AI design, free from biases that could disadvantage Mexican students, and ensure compliance with emerging national data protection standards.

Finally, policy frameworks should be developed to ensure AI's ethical and responsible use, including clear data protection protocols and teacher oversight mechanisms. As evidenced by comparative analysis with other Latin American contexts, the absence of such a framework risks continuing structural inequalities through technological means. These collective efforts can lead the way for a more equitable and effective integration of AI in English language education across Mexico.

In conclusion, the potential of artificial intelligence to transform English Language Teaching in northern Mexico is both promising and complex. While AI tools offer significant advantages, such as personalized learning experiences and increased instructional efficiency, the challenges of the digital divide, inadequate teacher training, and resistance to change cannot be overlooked. The findings of this study underscore the critical need for comprehensive professional development programs, targeted investments in technological infrastructure, and clear ethical guidelines to facilitate the effective integration of AI in educational settings. By addressing these barriers, institutions can create an inclusive and equitable environment that maximizes the benefits of AI, ultimately enhancing language learning outcomes for students across diverse contexts.

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CHAPTER VII

Teachers´ Perceptions and Challenges of the Use of AI Tools in English Language Teaching at a Language Center in a State University in Baja California

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Abstract

The advances in Artificial Intelligence (AI) have significantly affected society due to its rapid growth in recent decades. The advanced employment of AI technology has also influenced the field of English as a Second Language (ESL) and English as a Foreign Language (EFL). This study explores the uses and challenges that AI tools bring to English language teaching in this language center in a state university as it pursues understanding the consequences and teachers' perceptions about them. Specifically, through the examination of two sources of evidence, a survey and a semi-structured teacher interview to delve into the possibilities and considerations taking place before us. Descriptive analysis was used to gain insight into the survey findings to identify patterns, trends, and relationships within the data. Content analysis was used to discover any logical connections and particular groupings

that would reveal certain particularities of the interviews. Data reveals that AI tools empower some teachers as others manifest some caution in using these in their classrooms. Teachers, policy makers, and school authorities can use the information provided in this study to gain a holistic understanding of the perceptions and challenges of using AI tools in language teaching.

Introduction

AI has captivated the world's attention, generating diverse stories and debates around its use. In the field of language education, the concerns among teacher educators in implementing AI tools is diverse: what impact will AI tools have on how our English language learners acquire knowledge and develop skills? What impact will it have on how we train our teachers? In particular, language teaching presents multiple opportunities for the implementation of AI tools. However, realizing the potential of AI requires both skills and motivation from learners, as well as teacher educators. Whilst it is very evident that there are both risks and obstacles, which need to be examined, the voices of these participants who are using these technologies must be heard and carefully considered.

Research on AI in education (e.g., Crompton & Burke, 2023) revealed that 50 per cent of the studies are taking place in the United States with Asia following second. Nowadays, more studies are being conducted on AI in ELT than there were five or ten years ago, as anticipated (Sharadgah & Sa´di 2022; Yang & Kyun, 2022; Crompton, 2022; Zawaki- Richter, 2019). This results in an increase in AI, and the number of tools available for use in diverse language contexts. Therefore, the increasing need for research in AI in Mexico is much needed in order to gain insight about what teachers need in terms of the adequate use of AI in their teaching contexts.

Literature review

In the ever-evolving realm of foreign language teaching and learning, integrating artificial intelligence (AI) is one of the primary trends that has created a need for a deep and pragmatic understanding of pedagogical approaches and strategies (Ali, 2023).

One clear example is the rise of Chat GPT in 2023. Another scenario is that of the academic and scientific contexts (Zhao, 2023). This literature review explores current research on the challenges and perceptions of using AI in language teaching.

AI in Language Teaching

Teachers exhibit both enthusiasm and skepticism toward AI in language instruction. Zawacki-Richter et al. (2019) found that while some educators embrace AI as a tool to reduce workload and enhance instruction, others express concern about diminished professional roles. Moreover, these scholars emphasize the necessity of adequate training, noting that many teachers lack the skills to effectively implement AI tools. Students also display some worries regarding the use of AI. Students generally respond positively to AI in language learning. Huang and Yu (2019) found that learners appreciated AI-based feedback and personalized learning pathways. However, caution persisted regarding the authenticity and cultural depth of AI-generated content, especially in the context of second-language acquisition. Institutions also demonstrate alarm as AI is often perceived as a means to achieve scalability and efficiency. Nonetheless, Holmes et al. (2021) highlights unresolved issues about data privacy, ethical considerations, and the long-term cost of implementing AI systems.

Challenges of using AI in the Language Classroom

Despite these advancements of AI technology in diverse contexts of education, educators and learners face several challenges, and their perceptions of AI integration are mixed. One significant challenge is AI's limited ability to grasp contextual and idiomatic language. Pérez et al. (2021) argue that AI systems frequently fail to interpret nuance, which is critical for language acquisition. Additionally, Chun (2020) notes reliability issues in natural language processing and speech recognition, which can mislead learners.

For instance, Bower (2019) suggests that AI may lead to a passive learning environment if overused, weakening teacher-student interaction. Li et al. (2022) also observed that many AI applications are not grounded in sound pedagogical principles,

limiting their instructional value. Privacy and ethical concerns may pose a threat for scholars. Ethical issues surrounding AI include data surveillance, algorithmic bias, and transparency. According to Luckin et al. (2016), these concerns must be addressed to ensure responsible AI deployment. Nye (2019) warns that biased AI systems may perpetuate stereotypes, particularly in linguistic representation. In terms of accessibility, access to AI technologies remains uneven. UNESCO (2021) reports that students in low-income or rural areas may be excluded from AI-enhanced learning opportunities, thereby exacerbating existing educational inequalities.

While AI presents valuable opportunities for language teaching, its adoption is accompanied by technical, pedagogical, ethical, and equity-related challenges. Perceptions among educators and learners vary, and successful implementation requires strategic planning, ethical safeguards, and targeted training initiatives. The need for ongoing professional development to empower teachers to use AI tools effectively should be on the agenda for school authorities in diverse contexts.

This research aims to explore the use of AI tools by English teachers at a language center in a state university in Baja California. This research fills the gap by exploring if and how these English language teachers use artificial intelligence to support their language teaching, as well as their perceptions of how AI can support and enhance English language teaching. This research is significant as it states through a small sample how English teachers use these tools in their classroom. The study can help improve the understanding of the challenges and technical issues of employing AI tools in their practice, as well as the current and limited capacities of AI and its implementation. This also brings to the floor issues such as teacher- training on the use of AI in the language classroom. This research adopted a qualitative approach, using a survey and a semi-structured interview to delve into teachers' perceptions on the implementation of AI Tools in their classes (Dörnyei,2010). Furthermore, this research can provide educators and policy makers with the information needed to evaluate their teacher training courses and language teacher education which include a focus on AI literacy.

Methodology

Research Design

This research is based on a qualitative approach. This type of approach enables the researcher to perform a descriptive analysis of the data being collected by summarizing and interpreting it (Cohen, Manion & Morrison, 2017). It aims to provide a clear picture of the phenomena being studied, capturing the nuances and complexities inherent in the data. Concretely, narratives serve to understand how teachers create stories from their personal experiences. There is an emphasis on understanding the context in which a narrative is constructed, recognizing the influence of cultural and societal factors.

In order to enquire about the topic previously mentioned, the following research questions were asked:

1. What are teachers' perceptions on the use of AI tools in the English language classroom?
2. What are the challenges and difficulties that teachers face on using AI tools in their classroom contexts?

Research Setting and Participants

The study was carried out at the University of Baja California-Ensenada campus (UABC, as known by its Spanish initials), specifically at the Center for Continuing Education. This center offers diverse language courses to both university students from diverse fields as well as the general population. The participants were eight English teachers from the language center. They teach diverse levels from beginning to advanced courses and all have a B.A. in Language Teaching (See Table 1 for participant details).

Table 1. Demonstrates the participants profiles such as age, gender, the education level they teach, and teaching experience

Participant	Age	Gender	Education Level They Teach	Teaching Experience	Familiar with the Concept of AI
Participant 1	20-30	Male	Language Institute	6-10	Somewhat Familiar
Participant 2	20-30	Female	Primary School	6-10	Very Familiar
Participant 3	20-30	Female	Language Institute	6-10	Somewhat Familiar
Participant 4	20-30	Female	Language Institute	0-5	Very Familiar
Participant 5	20-30	Female	University	0-5	Somewhat Familiar
Participant 6	31-40	Female	University	11-15	Somewhat Familiar
Participant 7	20-30	Female	Primary School	0-5	Very Familiar
Participant 8	*31-40*	Male	University	0-5	Somewhat Familiar

Data Collection

A semi-structured interview (Dornyei, 2010) was used in this study to complete data collection. I chose interviews as a research method since I am interested in people's opinions and views. This inquiring tool focused on the following two aspects: Teachers' perceptions on the use of AI tools in English language teaching and the challenges faced when implementing these in the classroom contexts. Additionally, a survey was used to explore these teachers' thoughts on the use of AI in language teaching. Interviews and surveys were chosen since they complement each other in a number of ways. Both offer different perspectives on a topic and

allow diverse data collection. Surveys provide a broad overview of a population's attitudes and behaviors, while interviews delve deeper into individual differences and motivations (Dornyei, 2010). In essence, both complement each other by providing diverse lenses through which to understand a topic. Therefore, combining unique strengths to create a more complete and intuitive understanding of a research topic.

Diverse questions were asked: The first section focused specifically on the participant's backgrounds that seek to draw out their personal views on AI, the second section focused on their perceptions of AI use, and the third section allowed teachers to give their opinions about the challenges and difficulties on using AI tools in their classroom contexts.

Data Analysis

Descriptive analysis provides researchers with valuable insights into the survey findings. It aids in identifying patterns, trends, and relationships within the data. Therefore, the objective is to gain a comprehensive understanding of the survey population.

Narratives in English language learning and teaching are concerned with stories teachers and learners share about their lives and experiences. Teachers typically "talk about their professional development and practices, and learners about their experiences of learning and using languages" (Barkhuizen, 2014, p.450), therefore, a content analytical approach was chosen. This type of analysis focuses on identifying and quantifying the presence of specific words, themes, or concepts within qualitative data to understand their frequency and relationships.

Essentially, the purpose of content analysis is to describe the characteristics of the document's content by examining who says what, to whom, and with what effect (Bloor & Wood, 2006). Many studies examine both subject reality and life reality as they appeal to some form of content and thematic analysis to analyze thoughts and feelings in order to gain insights on these in a lived situation. This study also explores the research context in a historic manner as this plays a vital role in the unfolding of research (Pavlenko, 2003; Pavlenko and Lantolf, 2000).

Perhaps the most salient manner in analyzing interview data is through content analysis. This approach emphasizes the intervention of the researcher in the construction of meaning of and within texts, as there "is a willingness to permit themes and topics to emerge from the data naturally, rather than attempting to impose a preconceived set of themes on the data" (Cohen, Manion & Morrison, 2017, p.563). The intention of following this particular type of analysis in this study was to discover any logical connections and particular groupings that would reveal certain particularities on both my research aim and questions.

One of the many benefits of content analysis is because it is context- sensitive. In other words, it is susceptible to the emerging themes from the participants' experiences and stories that are crucial in the subsequent research stages as well as the complete development of the study. Hence, the process of data analysis was both data and theory driven.

In order to analyze the teacher semi- structured interviews transcripts, the following protocol for data analysis was followed:

- Transcription of semi-structured interviews
- Open coding, which involves making notes in the margins of words, theories, or short phrases that sum up what is being said in the text.
- Comparing ideas and emergent themes obtained from the data in order to establish any links between them
- Interpretation of the data in order to seek, understand, and draw theoretical conclusions from the texts (Cohen, Manion & Morrison, 2017, p.561)

Results

This section focuses on presenting both the data derived from the semi-structured interviews and the survey. Due to space, only certain aspects of the survey will be presented that delve into the participants' perceptions of AI benefits in language teaching. Furthermore, data from the semi-structured interview was used to triangulate with the survey data to highlight these teachers' voices in order to obtain a more complete, in-depth analysis of these teachers' perceptions of AI use.

Survey Results

This next section focuses on the survey results. Table 2 demonstrates the familiarity teachers have with AI use. Table 3 indicates the frequency that these participants implement AI tools in their everyday classroom practice, and Graph 1 specifies how AI tools are used by these teachers.

Table 2. How Familiar are You with the Concept of Artificial Intelligence (AI)?

How Familiar are You with the Concept of Artificial Intelligence (AI)	Participant
Somewhat Familiar	*P1*
Very Familiar	*P2*
Somewhat Familiar	*P3*
Very Familiar	P4
Somewhat Familiar	P5
Somewhat Familiar	P6
Very Familiar	P7
Somewhat Familiar	P8

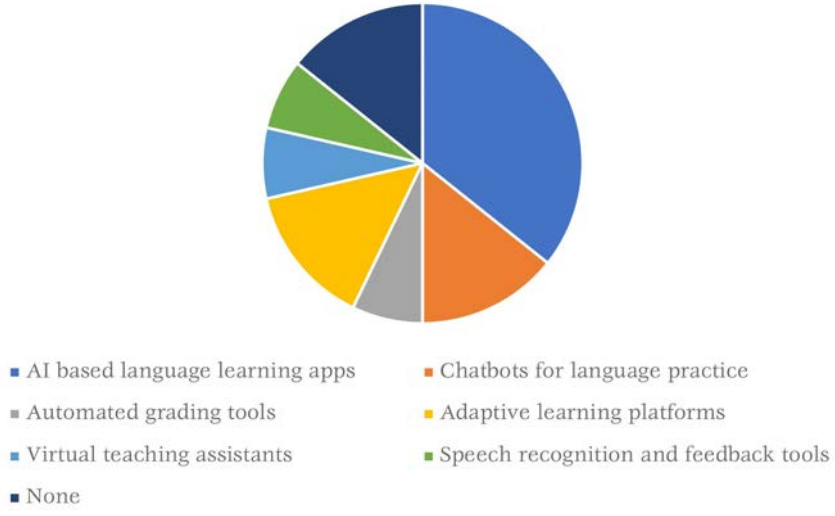
The survey data from the above table indicates that 3 out of the 8 teachers, only three deem themselves very familiar with AI. This seems contradictory to the fact that with the rise of AI use in education, only 3 teachers are familiar with AI and its uses. Thus, it is important for language teachers to understand how AI can be used to support the teaching and learning of English to those whose first language is not English as echoed by this scholar (Crompton, 2022).

Table 3. The Use and Frequency of AI Tools in Their Language *Teaching:*

Participant	Do You Currently Use any AI tools in Your English Teaching?	If Yes, How Frequently do You Use AI Tools in Your Teaching?
Participant 1	Yes	Weekly
Participant 2	Yes	Weekly
Participant 3	No	Rarely
Participant 4	No	Rarely
Participant 5	Yes	Weekly
Participant 6	No	Rarely
Participant 7	Yes	Weekly
Participant 8	Yes	Rarely

The data demonstrates that 5 out of 8 teachers do implement AI in teaching English and they do it on a regular basis. Noteworthy to highlight is that even though participant 8 does use AI in her teaching practice, they do not recur to it in their day-to-day practice revealing a concerning skills gap. This suggests that a greater focus is needed in teacher training at this language center. Therefore, to ensure a more extensive use of artificial intelligence, there is a need for more knowledge concerning the adequate use of these tools in their classroom practice (Al-Zyoud, 2020).

Figure 1. Which AI tools do you use?



This figure (1) describes the area in which AI tools are used in English language teaching. The six key areas for which AI is being used in ELT are the following: for grading, in learning apps, for language practice, for speech and feedback tools, and for virtual teaching assistants. For instance, AI facilitates certain tasks, including the more streamlined assessment and evaluation of student assignments (Chen et al, 2020). The analysis of these teachers' responses, and how they specifically use these AI tools will be described in the next section as semi-structured interviews were carried out to delve into their insights about the topic at hand.

Interview Results

The semi-structured interview was carried out to the eight participants of this study. The overall idea of conducting interviews was to gain a deeper understanding of these teachers' voices in implementing AI tools in their language teaching.

Throughout the interview, teachers were asked the following questions: What do you perceive the main benefits of using AI in your teaching are? What are the main challenges that you face when using AI in your teaching? Have you received any training

in the use of AI? What are the resources that you think will aid in integrating these tools in your teaching practice?

To delve into the benefits the teachers perceive from using AI tools, the following questions were asked:

"*What are the main benefits you perceive from using AI tools in your teaching?*"

Teachers' responses in general state that there are many benefits in using AI tools in their classrooms. During the interview, one participant highlighted that the use of these tools "helps me save time in class, especially when I want to maximize and implement other types of activities. I try to use them during my Saturday classes that are intensive. I have to cover the content of a whole unit, so these tools definitely help". Another teacher adds that "these tools help in going over and reviewing material that was just taught the day before or the previous content taught during the previous Saturday session". This teacher recalled the fact that "these tools promote more opportunities for autonomous learning in class. Unfortunately, due to time constraints in class, the need to cover all the book leads to very few opportunities to promote autonomy in their learning. The support of the AI tools in class is a great help". Moreover, this participant stresses that "these tools are practical, interactive, and that the students can have fun. For example, when I am teaching Speaking, I tell my students to converse with Alexa, (a personal voice assistant) at home for homework. Not only does this motivate them, it promotes meaningful learning as well as supports vocabulary acquisition. Being able to innovate and provide students with interesting and relevant activities and have at the same time is a win-win situation".

Lastly, this teacher reminisced that the use of AI tools aids in lesson planning: "when I feel blocked in my lesson planning, I often think of how technology can help and I am constantly looking for ideas and activities that can be more engaging for my students. For instance, when I teach Writing to my university students, Grammarly does help in providing feedback. I see it does make a difference in their emotional states, cognitive engagement and self-confidence".

To determine the main challenges teachers, encounter when using AI in the classroom, the following question was asked:

"What are the main challenges you face when using AI tools in your teaching"?

The participants' responses were varied in this section. Two teachers firmly stated that they did not need any type of training in AI in their practice, as the others highlight the need for more training and the availability of these tools for classroom implementation. Only one teacher mentioned, "I am not familiar with any AI tools for teaching English, I would like to have more teacher training courses in this area. I have already commented this to my coordinator". Prior systematic reviews into AI across disciplines emphasize that there is a clear trend towards English language learning being the most common discipline of AI use, as opposed to other disciplines in the context of education, Crompton (2022). This finding underscores the need for English language teachers to be trained to make effective and ethical use of AI in their teaching practices. This also raises the question of how pre-service teacher-training programs and continuing professional development programs can better equip English language teachers for this constantly evolving landscape. Another teacher added that, "for some of us teachers, the use of AI in class is difficult to use. There are some classrooms where the internet service is slow. Other times we are not provided with the equipment (computers or speakers), to teach our class. The center does not always have computers to borrow; there are not enough to share. We have to bring our own computers". This other participant added that, "for me, the use of AI in class should be implemented with some caution. Especially if I do not want my students, overly relying on AI tools to replace critical thinking, analyzing, and problem solving". Other important issues surrounding the challenges faced in AI use is what this teacher shares, "I am a bit reluctant to use AI tools in class, especially the privacy issue. I personally feel the quality and accuracy of these tools may not be what I expected". This is yet another implication for the continuing need to improve teachers' and students' digital literacy.

There is a pressing need to expand the understanding of AI literacy, including the issues of privacy, transparency surveillance,

and trust. AI literacy is becoming aware of its risks and limitations, and promoting a discussion amongst teachers about the various aspects of AI ethics (Ziesche & Kumar Bhagat, 2022). As with most emerging educational technologies, there is a chasm between the expectations around AI and its limitations. Teachers should be reserved and cautious of the current popularity of AI and should be realistic about its limited capabilities.

Regarding the type of training needed for the use of AI tools in their teaching practices. Three out of eight teachers have received no training in the use of AI, two were self-taught and the rest have taken workshops and other online courses. Therefore, the following question was asked to delve into the specific needs of these teachers.

"*If so, what type of training have you received*"?

Essential to address is that three participants have not had any teacher training in the use of AI for English language teaching. For instance, this participant bluntly states, "the language center has not mentioned in any of the teacher- training courses we have had, the aspect of AI. So, suddenly, when the concept comes up with other teachers or students, we have no prior knowledge or experience". The two other participants with the same-shared experience acknowledge that AI capabilities are rapidly advancing. "We need to be up to date in the many methodologies/approaches and technology that are out there". Sometimes our students have more knowledge of technology and AI than we do". For that reason, more research is needed concerning the pedagogical aspects of how AI complement effective practices. Even though there is an increase of the use of technology in language teaching, certain traditional classroom practices such as lectures are still present in many classrooms around the world. Thus, creating a mismatch between the ever-evolving uses of implementing technology to support language teaching. It would be of great value for research to be conducted in relation to the expansion of how AI can create new opportunities for language learning in diverse contexts.

Two other participants were self-taught in the use of AI. For instance, one teacher stated, "I had to take an AI course in a local private university since here, (the language center), does

not offer anything related to this topic". This emphasizes the need for language coordinators and directors to think about and reflect about the importance of incorporating courses that teach and guide language educators on the importance of how to use these tools in class. This particular study provides educators and policy makers with information regarding the feasibility and effectiveness of incorporating AI tools in the language center. The outcome would be an informed teaching practice regarding the implementation of AI tools to support language teaching and learning.

The teachers were also asked about the specific training that would help them use AI tools in their practices. The results demonstrated diverse responses from creating classes that are more dynamic, automated grading, and any type of workshop that will help them integrate AI tools in their practice. The aspect of obtaining free licenses was also an issue. Hence, the following question was addressed:

"What specific training or resources would help you better integrate AI tools into your teaching"?

This teacher has mixed feelings about the specific training in AI training, "I would like I have specific training in AI use in the classroom, but I feel responsible for comprising student learning. I do not want my students to become dependent on AI. Students who rely on it result in a lack of confidence". Therefore, the outcome of the success or failure of AI use hinges on how the tools are used and the quality, suggesting the possibility of both the negative and positive effects. Along the same lines, another teacher reflected, "the aspect of teacher-training is essential. I am open to any type of training that would benefit myself and my teaching. I am eager to learn diverse tools of AI to make lesson planning easier. I am very curious about how ChatGPT can help me in class". In this sense, these teachers' responses heed Amin´s (2023) suggestions to pay attention to the benefits of this tool.

ChatGPT can give agency to teachers to take into account individual students' needs providing classroom support by permitting personalized learning experiences and guidance with lesson planning. Another teacher´s recollection that the importance of AI

tools to aid in evaluation is something that she would like to explore, "I think automated grading has not been explored enough here in this language center. Of course, we have teacher training courses that have to do with the correct use of the book or methodology, but we rarely have anything related to evaluation. Standardized evaluation is something we do, but an alternative way to evaluate with the help of AI is something I am interested in learning about". Thus, this teachers' comment emphasizes the need for a more detailed analysis of AI assessment in ELT and that it would be beneficial for the wider community as well as practitioners and teachers. This also brings to the floor the question of whether assessment presents both an opportunity and a risk. The argument regarding the issue of cheating with AI could be conducive to the creation and implementation of new and cutting-edge assessment tasks. Another issue surrounding the resources and training in AI use, this teacher is concerned about the question of obtaining free licenses. "I am concerned about the availability of AI for classrooms. The language center should buy the licenses necessary for us to implement AI in our classrooms. I personally do not have the budget to buy them. Another issue that I am concerned about is the accessibility of some students". This highlights an important question: would AI tools receive the attention and investment required by the university's authorities? This concern emerges considering that a lack of both accessibility and knowledge in using AI tools might widen the gap in learning opportunities.

The participants were asked one last question to enquire about any additional comments or insights related to the use of AI tools in English language teaching. The responses were varied. Even though one participant clearly stated that, they did not have any additional comments. The other seven participants had diverse responses from the concern of AI replacing humans, AI being dangerous if it is not in the right hands, and AI enhancing classroom experiences in the four skills. Therefore, in order to enquire about these thoughts and perceptions, the following questions were asked:

"Please share any additional comments or insights regarding the use of AI tools in English language teaching"

This participants' concern in relation to AI replacing teachers, "AI is great for supporting learning, but it definitely cannot replace the experience of learning with a teacher". It reminds me of the story by Isaac Asimov that talks about two children living in the future, they encounter a story written by a child that lived in the past. In a nutshell, it narrates to the children in the future. Reading about how incredible it was to live in the past, being able to go to school, interacting with school friends, and having a teacher, not a robot. It is a very nice short story that I often share with my students when I touch the aspect of technology in class". There is some belief that while AI can support the teaching process, it cannot substitute being in class with a teacher, experiencing that human touch. Comments such as "the human experience is unique and no machine can substitute it" stresses the vital importance of human connection and interaction in education. Despite acknowledging the advancement of technology, hinting at the fact that while AI may not replace teachers entirely, its part in education will grow. Teachers of course lean towards the lasting importance of human educators. Teachers are concerned about how AI enhances classroom experiences for the four skills. For example, one participant acknowledges: "When teaching pronunciation, I rely on using the listening and pronunciation sections used in the book, but I also incorporate AI to help reduce the flatness of pitch and intonation patterns". This concurs with Liu & Hung´s (2022) study that revealed that the visual representation of the pitch as a spectogram provided by the AI, was helpful in supporting pronunciation. Another teacher added that when teaching Writing, Grammarly has proven to be useful, "I use Grammarly with my university students here at the language center when teaching aspects of Writing and they love it, but I also love how it helps me. I found that my students make fewer grammatical errors". This teacher´s use of Grammarly for teaching Writing aligns with Dizon &Gayed' s (2021) study that examines the impact of this AI tool when used in ELT higher education.

Data demonstrated that students wrote with more lexical variation and made less grammar mistakes than students without this AI- powered tool. The skill of Reading did emerge as an area

where AI is something worth exploring by these teachers. For example, this teacher states that she has a colleague in a private university that uses avatars and games to teach vocabulary. "My friend uses a game, I can´t remember the name, but he uses it to teach vocabulary and students have a lot of fun learning. I need to ask him the name of the game". The use of virtual worlds, semiotic resources, and avatars provide students opportunities to learn vocabulary and understand meaning through games beyond what any classroom or textbook can provide by contextualizing vocabulary. The issue of privacy and ethics are topics that came to the floor as well. This raises important questions about the fear that both teachers and students face when using or intending to use AI in their classrooms. One concerned teacher reveals that not knowing how data is processed- the opaqueness- by AI systems could lead to mistrust in the system, "They can be dangerous if not in the right hands". This implication that a lack of clear and concise data privacy protocols surrounding the ethical set up of AI in ELT could have adverse effects on learning and teaching. Policy makers should prioritize developing accessible and tangible ethics statements for AI use in the field, which could promote user confidence in the implementation of these tools.

Conclusion

This study has played a vital role in exploring the crucial role of Artificial Intelligence (AI) in English language teachers' practice. A qualitative approach was used, specifically the use of a survey and a semi-structured interview to explore teachers' perceptions of these tools. The data obtained from this research helped gain insights on how these tools were used, what challenges teachers faced in implementing them, the areas that AI tools were used, and the aspects of AI literacy and ethical concerns. While these AI tools empower teachers to pursue diversity in their teaching, the participants still manifest some caution in using these tools. Therefore, the primary contribution of this research is to delve into English teachers' use of AI in their practice and the perceptions and challenges they face when using it in their language classrooms. This research can also support both teachers and teacher trainers to develop efficacious strategies that warrant the appropriate use of AI tools to enhance the four skills.

There are concrete implications for the future of academia and the teachers' educational practices in this study. It highlights the ability of AI tools such as Grammarly. Quillbot, CHAT GPT and other tools to enhance different skills when learning English. This reveals the importance of integrating technology into teaching and learning languages. Further studies conducted in a wider range of contexts would make results more generalizable. Even though there are studies on AI in the higher context, more studies are needed in K-12 (school-level education) and adult learning.

Despite the rapid changes in available technology, the use of lectures and conventional forms of teaching persist in many contexts around the world. This study highlights the need to prepare English language teachers to have an understanding of what AI is and how to exploit the many benefits of these tools with English learners.

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A transformative agent of change that has burst into our daily lives, becoming a fundamental shift in the way we live, work, and interact is Artificial Intelligence (AI), also known as the core of the fourth industrial revolution, as it functions as an entity that embraces other technologies. Despite the background of AI in education, it is still a fertile field, especially in the area of language teaching and learning. This book explore the way AI has permeated the academic life of language teachers in various university contexts in the Mexican Republic. The different geographical positions represented by each of the participating researchers reveal a distinctive feature of this project, which is the diversification of information sources, allowing to understand the topic and delving deeper into it from the perspective and experience of diverse individuals in different educational contexts.

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