Journal of Applied Science, Engineering, Technology, and Education *ISSN: 2685-0591 (online)*
Vol. 7 No. 3 (2025)
https://doi.org/10.35877/454RI.asci4270

AI-Era Instructional Leadership for University English Speaking Practice

Ping He*, Aida Hanim A. Hamid, & Mohamed Yusoff Mohd Nor

Universiti Kebangsaan Malaysia, Lingkungan Ilmu,Bangi, Selangor,43600, Malaysia

Abstract

Artificial intelligence (AI) is reshaping English speaking instruction in higher education through tools such as intelligent chatbots, automated speech recognition, and adaptive learning platforms. While these technologies enhance personalized learning and real-time feedback, their successful integration depends largely on instructional leadership, a factor that remains insufficiently examined in existing research. This study aims to explore how instructional leadership facilitates AI adoption in university-level English speaking practice by shaping strategic direction, building faculty readiness, and ensuring ethical governance. A systematic literature review (SLR) was conducted following PRISMA guidelines, with 12 studies published between 2015 and 2025 selected through iterative screening. These studies employed quantitative, qualitative, and mixed-method designs and were analysed using thematic analysis. Three core leadership themes emerged. First, leadership frameworks were found essential for aligning AI tools with institutional goals, curriculum standards, and pedagogical practices. Second, faculty readiness was identified as a critical determinant of AI adoption, highlighting the importance of leadership-driven professional development, AI literacy enhancement, and institutional support. Third, ethical and sustainable governance emerged as a necessary condition for responsible AI integration, addressing concerns related to academic integrity, data privacy, and equity. The findings demonstrate that AI integration is not merely a technological initiative but a leadership-driven process that requires strategic planning, stakeholder collaboration, and policy coherence. The study concludes that effective instructional leadership can enhance learning outcomes in English speaking instruction—particularly in areas such as fluency, engagement, and autonomous learning—by ensuring that AI is implemented in a pedagogically aligned, ethically responsible, and institutionally sustainable manner. This review offers a leadership-based framework to support policymakers and higher education leaders in maximizing the potential of AI for language education.

Keywords: instructional leadership, artificial intelligence in higher education, english speaking practice, faculty engagement, ethical governance.

Received: 29 August 2025 Revised: 25 November 2025 Published: 31 December 2025

1. Introduction

Artificial Intelligence (AI) has progressively reshaped educational systems worldwide, transforming how instruction is designed, delivered, and evaluated. While initial applications of AI focused primarily on automating administrative tasks and content delivery, recent advancements have shifted their role toward supporting instructional decision-making, enhancing assessment accuracy, and personalizing learning experiences. In higher education, AI tools are increasingly deployed to support teaching improvement, forecast learners' performance trajectories, and facilitate adaptive curriculum planning (Luckin et al., 2016; Siagian & Purba, 2023). These developments align with the core principles of instructional leadership, which emphasize data-driven pedagogy, promoting effective teaching practices, and optimizing student achievement (Hallinger, 2011; Gumus et al., 2020).

Instructional leadership has long been established as a core driver of teaching quality and student achievement. Hallinger and Murphy (1985) conceptualized instructional leadership as a leadership model focused explicitly on improving teaching through setting academic goals, coordinating curriculum, and supervising instruction. Subsequent empirical studies confirm that instructional leadership is one of the strongest in-school factors influencing student outcomes across educational contexts (Robinson, Lloyd, & Rowe, 2008; Leithwood, Harris, & Hopkins, 2020). Unlike managerial or transformational leadership models, instructional leadership is pedagogically centred, emphasizing data-driven decision-making, professional development, and continuous improvement in teaching practices (Bush, 2019; Hallinger, 2011). These leadership functions are particularly critical in the AI era, where technology alone cannot transform learning unless instructional leaders provide strategic guidance, pedagogical alignment, and ongoing support to educators.

* Corresponding author:
E-mail address: p121489@siswa.ukm.edu.my

However, despite the rapid integration of AI into university teaching—especially in English speaking practice—existing research has predominantly examined AI from technological or learner-centred perspectives rather than through a leadership lens. Studies exploring AI in language education often focus on how AI tools improve speaking fluency, pronunciation accuracy, and learner engagement (Li & Hockly, 2022; Fang & Lee, 2023), and many apply technology adoption models such as TAM or UTAUT to analyse user acceptance. While these studies provide valuable insights into AI's pedagogical affordances, they conceptualize AI primarily as a classroom tool, overlooking the strategic and instructional leadership processes that determine how AI is selected, integrated, and scaled across institutional contexts (Hallinger, 2018; Harris & Jones, 2020).

Moreover, previous research tends to treat AI adoption as an individual or technological innovation, neglecting the institutional decision-making structures, vision-setting, and monitoring practices that shape its educational impact. Few studies have examined how instructional leaders guide AI implementation to ensure that it aligns with curriculum goals, supports lecturer professional development, and leads to meaningful improvements in student learning outcomes (Gumus, Bellibas, Esen, & Gumus, 2020). This represents a significant theoretical and practical gap, as the success of AI in education is contingent not merely on technological availability or student engagement, but on instructional leadership that ensures AI is used purposefully, ethically, and effectively. Therefore, unlike previous studies that emphasize technology use or student perceptions, this research adopts an instructional leadership lens to investigate how educational leaders guide the effective integration of AI tools in university English speaking practice. Through this leadership perspective, the study moves beyond examining *whether* AI is effective to addressing *how* leadership determines the extent to which AI contributes to improved teaching practices and student learning outcomes.

1.1. Background of study

The role of instructional leaders in the management and guidance of the utilization of AI in the university classroom remains unexplored despite the increasing interest in the topic of the integration of AI. To implement AI successfully, it is necessary not only to have access to technology but also to elaborate on a strategy, develop and continuously support professionals, and pedagogical care. Instructional leaders today are forced to respond to emerging roles such as teaching teachers how to use AI in a meaningful and ethical manner in the learning environments. The topic of data-informed leadership is a recent trend, but there is still little empirical evidence regarding the specific ways in which this type of leadership practices supports AI integration in English language teaching at the university level.

In the sphere of university English speaking practice, such AI applications as chatbots, voice recognition software, and mobile Apps are more and more frequently used to deliver real-time feedback, customized speaking practice, and interactive language experience. Such tools have been found to assist students in learning to read with fluency, accuracy and motivation (Yang, 2024; Kemelbekova, Degtyareva, Yessenaman, Ismailova, & Seidaliyeva, 2024). Students generally report positive attitudes toward AI tools for language learning due to the flexibility and autonomy they provide (Chen, 2024; Zou, Guan, Shao, & Chen, 2023).

1.2. Problem Statement

The integration of artificial intelligence (AI) tools into university English speaking instruction has introduced new opportunities for enhancing student engagement, fluency, and autonomous learning through features like real-time feedback and personalized practice (Zou et al., 2024). However, while AI adoption is growing, there is limited understanding of how instructional leadership shapes its effective and sustainable use in higher education. Most existing research emphasizes the technological benefits from the learner's perspective, with little attention to how academic leaders guide AI implementation, support faculty, and ensure alignment with instructional goals. This lack of focus on leadership creates a knowledge gap, as the success of AI integration depends not only on technological access but also on strategic, pedagogically informed leadership that promotes responsible and meaningful use (Onan, 2024).

1.3. Research Objective

a. To examine how instructional leadership supports the integration of AI tools in university English speaking instruction.

b. To investigate the experiences and practices of instructional leaders in guiding the use of AI technologies in English language classrooms.

c. To identify the key factors and challenges influencing instructional leadership in the implementation of AI for English speaking practice in higher education.

1.4. Significance of the Study

This study fills a critical gap in knowledge regarding the influence of instructional leadership on the application of artificial intelligence in English speaking instruction at universities. As AI technologies have increasingly become popular in the teaching discipline offering AI-based services to the students, making it real-time opinion and flexible learning. This research gives information on role of leadership, strategies and issues related with leadership of AI integration through literature review and analysis. Such a study may be applied to institutional policy, teacher training plans, and leadership in supporting meaningful and sustainable uses of AI in language classrooms, which translate to improved teaching and student achievement in higher education.

2. Literature Review

2.1. Instructional Leadership in Higher Education

The instructional leadership in higher education has become a decisive paradigm in enhancing the quality Kanos brides of education because it rests its instructional leadership practice on the grounds of pedagogical quality as opposed to administrative control. It is focused on establishing a common vision of instruction, professional developmental support and continuous review of teaching practices with a view towards attaining institutional learning outcomes. The studies indicate that instructional leadership gives a sense of direction and purpose in colleges and universities that means all the aspects of curriculum design, faculty development, and student performance are aligned and fit together in the coherent academic mission (Olabiyi, Vuuren, Du Plessis, Xue, & Zhu, 2025).

Instructional leadership emerges as an opportunity with the emergence of the role of digital transformation, because leaders are disposed to seek pedagogic innovation and digital preparedness. A perfect leader should move the faculty into new technologies and be able to implement technologies in a way that supports scholars in terms of institutional learning objectives and predisposes to digital instruction making institutional conditions. As mentioned by Obied (2025), with the digital aspect of leadership within the university, not just the administrative control of the technological equipment is required but also the creation of a pedagogical culture that opens up all the possibilities that the digital claims to educate.

Recent research also proposes that distributed leadership models are especially effective in higher education where leaders are distributed between administrators, program leaders, and faculty members of the institution. Shal et al., (2024) noted that the faculty agency is enhanced when the leaders promote the spirit of collaboration and reflective teaching, which results in the delivery of the teaching quality and student engagement. Similarly, in the context of business English instruction, digital leadership has been linked to higher instructional effectiveness, particularly when supported by faculty training and institutional frameworks (Dong & Tabajen, 2024).

2.2. Leadership and Technology Integration

Leadership plays a central role in advancing digital transformation within universities. Academic leaders are expected to create and sustain a vision that positions technology as a key driver of change. This involves developing institutional policies that encourage innovation and build faculty capacity to use technology effectively. Leaders also need to address infrastructural demands while guiding pedagogical shifts so that technology supports meaningful learning outcomes (Ghamrawi, 2022). By doing so, leaders act as catalysts for change and ensure that the integration of digital tools is aligned with institutional missions.

Facilitating technology adoption among faculty requires leaders to provide structured professional development opportunities, allocate financial and technical resources, and foster positive attitudes toward digital innovation. A review of technology integration efforts in higher education shows that collaboration between IT managers and academic leaders is essential to overcome challenges such as limited funding, bureaucratic obstacles, and insufficient training opportunities (Glover, 2023). These practices are consistent with established models of technology-enhanced learning. For example, the diffusion of innovations framework positions leaders as influential figures who help faculty progress from awareness to full adoption of innovations (Rogers, 2003). Likewise, the TPACK framework highlights the importance of developing faculty expertise that integrates technological, pedagogical, and content knowledge (Mishra & Koehler, 2006).

Case studies both present success and failures cases in the way leadership issues are addressed in engaging technology. As an example, Ghamrawi (2022) portrayed a university in the Gulf region that had successfully introduced digital reform led by its leadership that relied on communication and organized support and professional

development. Instead, poorly used technology that is shallowly or disparately integrated in institutions is common in institutions that lack strategic leadership and as such, this integration can do nothing to enhance student learning.

2.3. Challenges of Instructional Leadership in Adopting AI

The absence of easily followable principles which can assist in the instructional leadership concerning incorporating AI in higher education is one of the core challenges of AI adoption in the sphere. Although artificial intelligence tools present great potential to change teaching and learning, most universities are not extensive specifically because they lack a strategic approach in using the tools. How to assess AI systems, conform them to institutional plans, and develop transparent success criteria is an uphill task amongst leaders who lack solid frameworks (Sposato, 2025). This leads to scattered practices in which AI is pursued less through formal leadership, but by the interest of individual faculty.

The other long-term or rather nagging question is the issue of digital readiness. The institutions continue to satisfy with the unavailability of infrastructure, or a minimum of technical skills, or a mixture of the faculty level of internet literacy. Individuals are not quick to use AI in their instruction since teachers might be unprepared thus blocking them to use tools available to them. In this sense, leaders ought to develop professional upgrading programs that would focus on bridging such skill gaps and support them in long-term contexts (Mah and Grob, 2024). It is discovered that without the preconditions of sufficient preparation and platforms, faculty engagement in AI will begin to be limited, which will reduce the efficacy of institutional investments (Kalniina, 2024).

There is yet another complication as learning leaders face the swift cycles of AI innovation. Due to rapid development of AI technologies, leaders are frequently forced to make decisions in conditions of uncertainty, finding the regime of the balance between innovation and risk (Barnes & Hutson, 2024).

2.4. AI in English Language Education

AI applications in English language education have shown substantial promise in enhancing student learning outcomes. AI-mediated instruction has been linked to significant improvements in areas such as grammar, vocabulary acquisition, reading comprehension, and writing skills. A mixed-methods study by Wei (2023) demonstrated that university-level learners who received AI-supported instruction achieved higher levels of English proficiency, exhibited greater second-language motivation, and engaged more in self-regulated learning strategies (Wei, 2023). These findings support the potential of intelligent tutoring systems to deliver personalized educational experiences that traditional instruction may not afford.

Moreover, AI technology is also used to give individualized training on pronunciation, speaking lessons and language exposure. According to the author, chatbots, pronunciation applications, and adaptive learning platforms will offer an individualized practice in English that considers the advancement and requirements of the learners (Peina-Acuu, 2024). They also enable cultural awareness in the sense that, such technologies enable the contents of a language to be embedded into real contexts and backgrounds of learners thereby supporting more results oriented and fun learning.

Recent empirical examinations have been dealing with groundbreaking AI applications and implementation done with a specific view to enhance speaking and conversational competence. Such as, Dai and Wu (2025) studied a conversational bot designed to work with Chinese university students of English as a foreign language. The AI agent included use of artificial speech recognition and natural language processing to give two-way conversation in English, connected with feedback and interaction approximating that of an actual native speaker.

2.5. AI in University English Speaking Practice

Colleges have started incorporating AI-based technology to help develop more English-speaking skills overcoming restrictions of little speaking time and irregular feedback. The speech recognition and automated feedback functions in portable mobile applications such as *Liulishuo* have already produced promising outcomes (Li, 2022). A quasi-experimental study conducted with Chinese undergraduate EFL learners showed that the group using *Liulishuo* significantly improved their overall speaking performance, particularly in pronunciation and fluency, compared with a control group utilizing standard chat apps (Mingyan, Noordin, & Razali, 2025). This indicates that AI tools can effectively supplement traditional instruction by offering frequent, individualized speaking practice.

Another innovative approach involves embedding AI-based speaking apps within social networking contexts to promote interactive practice. In one study, students practiced spoken English using AI apps linked to social network platforms, participating in interactive tasks over five weeks. The interventions significantly enhanced students'

speaking skills, and learners reported positive attitudes toward the interactive AI-supported experiences (Zou, Guan, Shao, & Chen, 2023). This combination of AI tools and social interaction appears to leverage both autonomy and peer engagement, fostering motivation and improving oral performance.

Further advancements in technology are also reshaping speaking instruction in university language classrooms. Cornell researchers developed an AI tool called *ChitterChatter*, which simulates conversations with various accents and dialects, offering pronunciation and grammar feedback in a low-anxiety environment. This tool is designed to align with curriculum goals while providing immersive speaking practice. By enabling learners to engage in contextualized, scaffolded interaction, such AI tools not only build confidence but also serve as a practical supplement to face-to-face instruction (Cornell Chronicle 2025).

2.6. The Role of Instructional Leadership in AI-Enhanced English-Speaking Instruction

Instructional leadership plays a central role in facilitating the integration of AI tools into university-level English speaking instruction. Leaders must not only endorse technological innovation but also ensure that AI aligns strategically with pedagogical goals. Sposato (2025) provides a comprehensive taxonomy of AI's application in higher education leadership, including “Enhancing Teaching Practices” as a core domain. This shows the significance of leadership to help promote AI tools that have the potential to enhance the traditional classroom instruction beyond the goal of digitalization.

The best instructional leaders can engage in mindful alignment of AI with curriculum goals and help faculty through the process. According to Metwalli (2025), some of the vital strategies in leadership include creating collaborative design processes, incorporating stakeholders into development and the inculcation of ethical and equity considerations into the adoption of AI.

The issue of AI implementation in speaking instruction relies on the leaders of professional learning. This finding was corroborated, once again, by Ding (2024) who observed that case-based professional development programs had a considerable effect on increasing AI literacy of the teachers and expanding effectiveness in applying AI tools in classrooms. These leadership-driven interventions provide structured forums to guide teachers to learn alternative pedagogy about AI, to contemplate practice and to offer support. Leaders who prioritize capacity building thus cultivate teacher confidence and autonomy, enabling more meaningful and innovative use of AI in language learning contexts.

2.7. Literature Gap

Although research on artificial intelligence in language education has expanded rapidly, the role of instructional leadership in guiding the effective use of AI for university English speaking practice remains underexplored. Existing studies primarily examine the impact of AI tools on learner outcomes such as motivation, pronunciation, and fluency, while overlooking how leaders support faculty in adopting these technologies. There is also limited evidence on leadership strategies that ensure ethical integration, sustain teacher engagement, and align AI use with curriculum objectives. This lack of focus creates a gap in understanding the leadership practices needed for long-term and meaningful AI adoption in higher education (Sposato, 2025). SLR will transcend the research that primarily concentrates on the outcome of learners e.g., motivation, pronunciation, and fluency by specifically incorporating research that examines leadership roles, faculty support, and institutional approaches of adopting AI in higher education.

3. Methodology

3.1. Research Method and Design

The research design adopted in this study is a qualitative research design with the Systematic Literature Review (SLR) methodology. The SLR gives an ordered approach to gathering, examining and generalizing current literature thus enabling the recognition of patterns, themes and gaps in the literature (Kitchenham and Charters, 2007). The systematic literature review is an appropriate method in the study since it allows a rigorous syntax and transparent synthesis of studies on instructional leadership and AI in English speaking practice to be clearly identified with patterns and gaps.

3.2. Data Collection

3.2.1. Search Strategies

Keywords were carefully selected to align with the research objectives, including “instructional leadership” “artificial intelligence” “English speaking practice” “higher education”.

3.2.2. Database Research

The data has been collected in credible academic databases to confirm the quality and credibility of literature accessed. A list of databases to be utilized includes: Web of science (WOS), Google Scholar, and Research gate.

3.2.3. BOOLEAN Operator

Boolean operators were applied to refine the search process. The operator **AND** was applied to combine the main concepts, such as “instructional leadership” AND “artificial intelligence” AND “English speaking practice” AND “higher education”, ensuring that retrieved studies addressed all key aspects of the research. The operator **OR** was used to broaden the search by including related terms, for example “English speaking practice” OR “oral communication” OR “speaking skills”. The operator **NOT** was applied to exclude irrelevant studies, such as those focusing on “artificial intelligence NOT computer engineering NOT robotics.”

3.2.4. Screening

To prevent human bias during article selection, the screening and evaluation process was split into two phases. First, the authors independently assessed whether each study was relevant to the AI in English speaking practice by skimming through its title and abstract. A study would only be excluded if all authors reached a consensus on its irrelevance. Second, the authors evaluated the full text of each study to decide on its inclusion and carefully determined whether the study involved aspects such as the application of AI in university English speaking instruction. Any discrepancies arising during the assessment were resolved through discussions among all authors. In the end, a consensus was reached on all included studies. For example, Dong, N. et al. (2025) primarily explore the challenges and future prospects of artificial intelligence (AI) in evaluating spoken English. While the study involves both AI and spoken English, its focus lies on assessment— it has no connection to instructional leadership and only a weak direct link to English speaking practice.

As a quality control measure, each author documented the reasons for including or excluding each article both during the initial abstract-reading phase and the in-depth full-text analysis phase. During the review phase, they also recorded their personal assessment opinions, which were then submitted to another supervisor for independent verification.

3.2.5. Inclusion and Exclusion criteria

Following is the Inclusion and Exclusion criteria is used as based on Table 1

Table 1. Inclusion and Exclusion Criteria

Criteria	Inclusion	Exclusion
Publication	Peer-reviewed journal articles, books, and credible reports published in last 15 years.	Non-peer-reviewed sources, grey literature, and articles before year 2015.
Research type	Empirical and theoretical studies relevant to the Instructional Leadership in the Age of AI etc.	Studies with insufficient academic rigor, lacking relevance to the topic, or focusing solely on aesthetics.
Language	Articles written in English to ensure consistent analysis.	Articles written in languages other than English.
Focus	Studies addressing Instructional leadership, artificial intelligence etc.	Literature not related to instructional leadership, artificial intelligence, etc.

3.2.6. PRISMA Framework

A systematic selection process was carried out following the PRISMA framework to maintain transparency and rigor. Out of an initial pool of 35 articles, 12 were chosen based on inclusion and exclusion criteria. The PRISMA flow diagram summarizing this process can be shown on Figure 1.

.

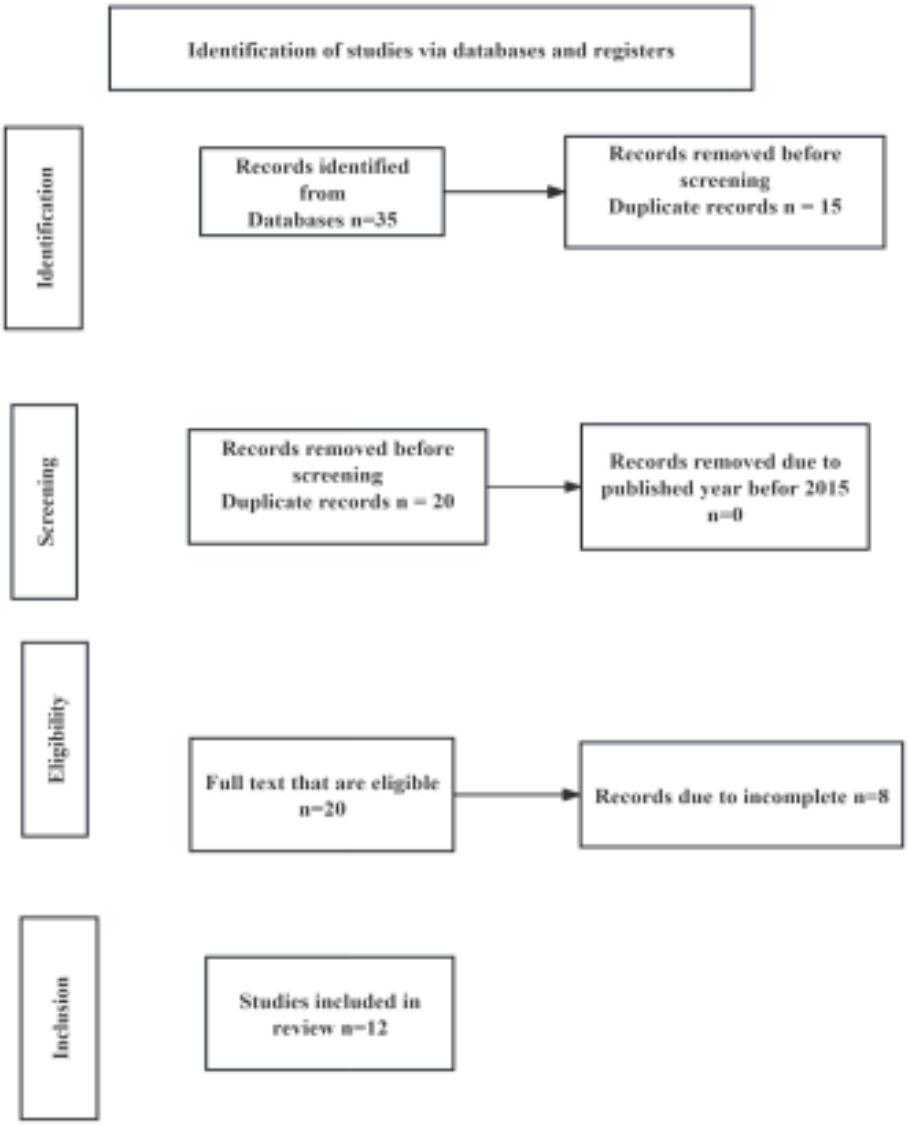

Fig. 1. PRISMA Framework

3.2.7. Ethical Considerations

This study adheres to established ethical standards for research by ensuring transparency, accuracy, and academic integrity throughout the systematic literature review process. Only peer-reviewed and credible sources are included to avoid bias and misinformation. Since the study relies exclusively on secondary data, no direct interaction with human participants occurs, thus minimizing ethical risks. However, care is taken to critically evaluate the cultural and political contexts of the materials analyzed, ensuring respectful interpretation and avoiding misrepresentation of national narratives or ideologies.

4. Data Analysis

Thematic Analysis (TA) is a widely used qualitative research method designed to systematically identify, analyze, and report patterns (themes) within data. It is highly flexible and applicable across various theoretical frameworks and research purposes (Braun & Clarke, 2006, 2012). At its core, TA involves the researcher's iterative process of reading and interpreting data, transforming raw material into meaningful themes to gain insight into participants' central experiences and perspectives. A total of 12 studies were finally included in the thematic analysis following the

PRISMA screening process. Of these, four studies employed quantitative methods such as survey research and statistical modeling, five used qualitative approaches including thematic analysis, policy review, and conceptual synthesis, and three adopted a mixed-methods design. This distribution indicates that research on leadership and AI integration remains predominantly exploratory, with qualitative and conceptual studies outnumbering empirical, data-driven investigations. The predominance of qualitative and mixed-method studies further highlights the need for more quantitative validation of leadership practices and their direct effects on teaching and learning outcomes in AI-mediated higher education. The following is the thematic analysis steps. The result can be shown in Table 2.

Table 2. Thematic Analysis Steps

Steps	Description
Familiarization	It includes reading and re-reading of all the collected dated.
Initial codes	Generating initial codes from the data by highlighting key points, concepts, and ideas relevant to the research objectives.
Initial themes	Codes are then grouped to develop the broader themes.
Reviewing themes	Themes are reviewed to ensure that they are not distracted from original research focus and objectives.
Defining and Naming themes	According to the focus of the data collected, it includes defining and naming themes according to the context of the content of the articles selected.
Producing the Report	Utilize these themes in data analysis and discussion

Building on this balanced dataset, which spans both foundational pre-2020 literature and emerging post-2020 AI-focused research, the thematic analysis identified three dominant themes reflecting the instructional leadership dimensions essential to AI integration in higher education: (1) leadership frameworks guiding AI adoption, (2) leadership in developing faculty readiness, and (3) leadership in ensuring ethical and sustainable implementation.To systematically synthesize the literature on leadership in AI integration within higher education, we conducted a rigorous SLR. Through iterative screening of publications, coding of key insights, and thematic clustering, we identified core themes that capture critical leadership dimensions. The following table presents these themes, each encapsulating distinct foci of leadership practices and challenges in leveraging AI for teaching and learning, serving as a structured summary of our analytical findings. Table 3 is themes extracted for SLR.

Table 3. Themes extracted for SLR

Themes	Description
Leadership frameworks for guiding AI integration	Focuses on how leaders establish structures and policies that ensure AI tools are aligned with teaching goals and curriculum in higher education.
Leadership in developing faculty readiness for AI use	Examines how leaders enhance teacher skills and confidence through training, professional support, and fostering positive attitudes toward AI adoption.
Leadership in ensuring ethical and sustainable AI adoption	Highlights how leaders address challenges such as data privacy, fairness, and overreliance on AI while promoting responsible and long-term use in teaching.

Based on Table 4, from the theme of Leadership frameworks for guiding AI integration, we can get important information. Sposato's 2025 review maps 10 key domains (e.g., teaching practices, ethics) for AI in education. By creating a taxonomy of AI uses, it shows leaders must organize tools around clear goals—aligning tech with curriculum and pedagogy to avoid chaotic adoption. This classification logic is highly consistent with the earlier research by Luckin et al. (2016). In their work Intelligence Unleashed: An Argument for AI in Education, the latter put forward the core viewpoint that "AI should be integrated into the educational ecosystem rather than treated as an independent technology" and constructed a "teaching-management-assessment" three-dimensional integration model. Although a complete taxonomy was not developed, this model provided a foundational framework for the 10 key domains classification proposed by Sposato (2025). Both studies emphasize that "goal orientation" is the core prerequisite for technology integration.

Metwalli (2025) identifies ethical governance and stakeholder collaboration as critical challenges in the adoption of artificial intelligence (AI) in higher education, arguing that instructional leaders must coordinate efforts across faculty, students, and technical experts while embedding ethical safeguards to ensure responsible innovation. This emphasis on balancing technological advancement with ethical responsibility builds on earlier foundational work. For instance, King and Boyatt (2015) examined the institutional adoption of e-learning technologies in higher education, emphasizing that successful implementation is not driven by technology alone, but depends on instructional leadership that provides strategic vision, establishes supportive policies, and engages multiple stakeholders to align

technology use with pedagogical goals. Similarly, Berkovich (2025) found that AI adoption in educational institutions remains in its early developmental stage, influencing both managerial domains such as budgeting and infrastructure, and instructional domains including teacher preparation and professional development. Complementing these findings, Chan (2023) proposed an AI policy framework that integrates pedagogy, governance, and operational processes, demonstrating that sustainable AI integration requires coherent leadership strategies and institution-wide coordination. Collectively, these studies underscore that effective AI implementation is not merely a technological process, but a leadership-driven initiative grounded in ethical oversight and collaborative engagement.

Overall, it points out the importance of instructional leadership in developing an instructional framework that influences the overall process of integrating AI into higher education. Leaders guide on strategy, policies, and alignment of AI with both curriculum and pedagogy. Model studies highlight the existence of taxonomies, ethics-based governance, the ability to collaborate and the guidelines of policy as critical components.

Table 4. Theme 1- Leadership frameworks for guiding AI integration

Study	Objectives	Methodology	Data Analysis & Results	Conclusion
Sposato (2025)	To develop a taxonomy of AI applications in educational leadership and identify future directions.	Systematic Literature Review (2017–2024).	Identified ten domains such as teaching practices, governance, and ethical AI through inductive synthesis.	Proposed a structured framework for aligning AI adoption with pedagogy, curriculum, and leadership practice.
Metwalli (2025)	To explore the challenges and opportunities for instructional leaders in adopting AI in higher education.	Qualitative thematic analysis of leadership and AI literature.	Highlighted strategies such as stakeholder collaboration, embedding ethics, and inclusive frameworks.	It is concluded that leadership requires ethical and collaborative structures to sustain AI use in education.
Chan (2023)	To propose an AI education policy framework for higher education in the age of generative AI.	Mixed-methods survey with students, staff, and teachers in universities.	Developed the AI Ecological Education Policy Framework, integrating pedagogical, governance, and operational dimensions.	Provided practical policy-level guidance for universities to ethically and effectively integrate AI into teaching.
King&Boyatt(2015)	To identify key institutional and leadership factors that influence the adoption and successful implementation of e-learning technologies in higher education.		Qualitative synthesis based on comprehensive literature review of institutional e-learning practices and leadership frameworks.	Found that leadership vision, institutional policy support, and faculty engagement are critical factors that drive technology adoption; resistance often stems from lack of strategic leadership and professional development.

Based on Table 5, about theme 2, it highlights how instructional leadership is the key to preparing faculty to adopt AI. Research has shown that faculty participation is dependent on usefulness, institutional support and professional growth. Issues of AI literacy and change reluctance, in combination with limited resources, show that barriers remain and that leadership-based training and systematic capacity-building programs need to be conducted.

Table 5. Theme 2-Leadership in developing faculty readiness for AI use

Study	Objectives	Methodology	Data Analysis & Results	Conclusion
Jackman et al. (2025)	To investigate faculty readiness for AI adoption in higher education using the UTAUT model.	Survey research using UTAUT framework with Caribbean faculty members.	Identified key predictors of readiness including perceived usefulness, social influence, and enabling institutional conditions.	Faculty readiness depends on institutional support and perceived benefits, highlighting leadership's role in capacity building.
Buele (2025)	To examine faculty perceptions, resistance, and training needs related to AI integration in universities.	Qualitative review and analysis of faculty perceptions and institutional responses.	Found barriers such as low AI literacy, resistance to change, and insufficient institutional support structures.	Successful AI adoption requires leadership-driven training programs and resources to reduce resistance and build engagement.
Southworth (2023)	To propose a model for integrating AI across the curriculum and build faculty capacity for AI literacy.	Conceptual and design-based research model for curriculum innovation.	Proposed structured AI literacy framework integrated across curricula, emphasizing faculty training and development.	AI integration requires leadership to foster faculty capacity and design institution-wide models for AI literacy.
Al-Emran (2018)	To analyze key factors influencing technology adoption among faculty in higher education, including leadership support, professional development, and attitudes toward innovation.	Systematic literature review (2007–2017).	Identified institutional leadership, training opportunities, and perceived usefulness as the most significant predictors of faculty readiness for adopting emerging technologies. Lack of leadership engagement and insufficient training were key barriers.	Concluded that instructional leadership is essential in building faculty capacity through strategic support, continuous training, and policy-driven encouragement, laying groundwork for future AI adoption.

Based on Table 6, theme 3 proposes the importance of ethical models and policies to lead the application of AI in the field of higher education. Researchers are raising issues about academic integrity, bias, accountability and transparency. Universities are formulating frameworks that combine innovation and governance by prioritizing policy to be inclusive, sensitive and appropriate situations, as a way of ensuring responsible adoption of AI on a global platform, in line with ethical standards.

Rooted in the theoretical foundations of UTAUT and TPACK, the three themes—leadership frameworks, faculty readiness, and ethical governance—exhibit a synergistic and hierarchical relationship in facilitating AI integration in higher education. Leadership frameworks lay the policy and strategic groundwork, guiding the alignment of AI tools with curricular and pedagogical goals. Building upon this,faculty readiness centers on enhancing educators' competencies and institutional support, ensuring the practical adoption of AI in teaching. Finally, ethical governance addresses dimensions of accountability, equity, and integrity, safeguarding the sustainable and responsible implementation of AI. Together, these interconnected themes form a holistic leadership-driven mechanism, ultimately contributing to improved learning outcomes and instructional innovation, particularly in domains like English speaking practice in higher education.The following is their relationship and the result is shown on Figure 2.

Table 6. Theme 3-Leadership in ensuring ethical and sustainable AI adoption

Study	Objectives	Methodology	Data Analysis & Results	Conclusion
Espinoza Vidaurre et al. (2024)	To explore perceptions of AI and its impact on academic integrity among university students in Peru and Chile.	Quantitative survey conducted among students in Peru and Chile.	Found significant concerns about AI's impact on academic integrity, with cultural and regional variations in perceptions.	Addressing academic integrity requires tailored ethical frameworks sensitive to local contexts and student perceptions.
An, Yu & James (2025)	To examine institutional guidelines and policies regarding the use of generative AI in teaching, learning, research, and administration.	Mixed-methods study using topic modeling, sentiment analysis, and thematic coding of AI policy documents.	Identified four main themes in institutional guidelines: academic integrity, multimodal AI use, ethical/security issues, and integration into pedagogy.	Universities need to adopt more balanced, inclusive, and transparent AI policies to ensure responsible adoption.
Slimi & Carballido (2023)	To analyze global AI ethics policies and their implications for higher education institutions.	Discourse analysis of seven global AI ethics policies relevant to higher education.	Outlined common ethical concerns such as bias, accountability, and governance, with differing regional emphases in policy approaches.	Effective governance of AI in higher education requires collaboration across stakeholders and alignment with global ethical standards.
Williamson (2017)	To examine how big data and predictive analytics are reshaping governance and ethical decision-making in higher education.	Conceptual and policy analysis based on global higher education systems and emerging data technologies.	Identified risks related to data privacy, algorithmic bias, and surveillance, emphasizing that institutions require ethical governance structures to manage AI-enabled technologies.	Concluded that educational leaders must establish transparent policy frameworks and ethical guidelines to ensure responsible and equitable use of AI-driven data systems.

5. Discussion

5.1. Leadership frameworks for guiding AI integration

The findings of this review indicate that instructional leadership has shifted from the traditional focus on classroom-level pedagogy to a system-level governance role that is central to AI integration. While Luckin et al. (2016) emphasized the conceptual need to embed AI within the educational ecosystem, their work did not provide specific mechanisms for implementation. In contrast, Sposato (2025) advances this discourse by proposing a detailed taxonomy that maps AI functions to leadership practices, demonstrating how institutional leaders can strategically align AI with curriculum design, assessment policies, and governance structures. This extends beyond previous theoretical assertions and offers a more actionable leadership framework. It highlights a key difference between earlier speculative arguments and emerging evidence-based leadership models.

Metwalli (2025) further challenges the traditional top-down leadership narrative dominant in earlier studies such as Gumus et al. (2020) by positioning stakeholder collaboration as a central driver of AI sustainability. Unlike prior models that focused on leaders as decision-makers, Metwalli emphasizes inclusive governance, suggesting that AI

adoption is most effective when leadership facilitates co-creation with faculty, students, and technology experts. This marks a shift from technology-centred leadership to collaborative governance leadership, which is critical for mitigating resistance and ensuring ethical accountability.

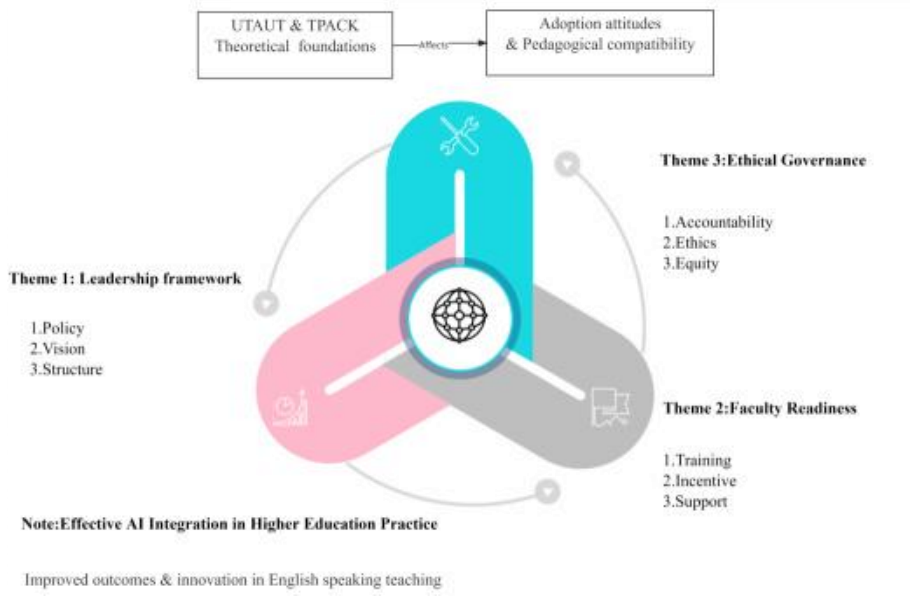

Fig. 2. Relationship of three themes

Moreover, King and Boyatt (2015) provide empirical and theoretical evidence that the adoption of educational technologies is often constrained less by the availability of tools than by fragmented institutional leadership, weak policy support, and inadequate faculty development. Their analysis of e-learning adoption highlights that without a coherent leadership vision, clear policies, and sustained training, technological initiatives tend to remain pilot-level or peripheral to core pedagogical practices. This challenges earlier, more technology-optimistic assumptions that access to tools will naturally drive innovation; instead, it underscores that AI integration is not a linear diffusion process but one that requires deliberate leadership interventions to scale and become pedagogically meaningful. Chan (2023) complements this governance emphasis by demonstrating that AI implementation must be guided by policy frameworks that integrate pedagogy, operations, and ethics. Together, these studies suggest that Sposato's focus on leadership practice should be situated within a broader institutional and policy context: sustainable AI adoption depends not only on leaders' instructional actions but also on regulatory readiness and systemic support structures.

5.2. Leadership in developing faculty readiness for AI use

Recent findings reinforce the theoretical foundation of the UTAUT model, which highlights perceived usefulness, social influence, and facilitative conditions as key determinants of technology adoption. Jackman et al. (2025) affirm this in the AI context, but unlike earlier technology adoption literature (e.g., Gumus et al., 2020), which treated leadership as a background support factor, their findings indicate a theoretical shift—leadership is now recognized as the *central agent* that shapes institutional culture, resource distribution, and strategic capacity building.

While Jackman et al. (2025) emphasize motivational readiness, Buele (2025) exposes systemic barriers such as insufficient AI literacy, resistance to change, and weak institutional incentives. In contrast with earlier assumptions that providing access to technology would automatically drive faculty adoption, these findings suggest that willingness alone is insufficient without structural leadership interventions. This view is supported by Al-Emran et al. (2018), who systematically reviewed technology adoption in higher education and concluded that successful integration depends not only on individual attitudes but also on leadership actions that establish supportive policies, provide continuous training, and ensure organizational readiness. Rather than treating innovation diffusion as a passive or linear process, Al-Emran et al. argue that institutional leaders must play an active role in orchestrating infrastructure, incentives, and professional development initiatives to build long-term faculty capability and confidence in using emerging technologies such as AI.

Moreover, studies such as Zou et al. (2023) and Southworth (2023) indicate that AI literacy and sustainable adoption depend on long-term leadership strategies that integrate professional development within institutional frameworks,

rather than short-term or fragmented initiatives. This departs from earlier literature that focused on individual faculty competence and shifts the conversation toward *institutional readiness* as the key determinant of AI adoption outcomes

5.3. Leadership in ensuring ethical and sustainable AI adoption in universities

Espinoza Vidaurre et al. (2024) reveal significant concerns among students regarding academic integrity and fairness in AI-mediated learning environments, with notable regional differences. This aligns with Chen (2024), who reported that students are increasingly aware of the ethical risks associated with AI-generated feedback in language learning, particularly regarding accuracy, authorship, and misuse. Similarly, Zou et al. (2023) observed that although AI-supported speaking tools enhanced engagement, faculty and students expressed uncertainty about the long-term ethical implications and accountability in cases of AI-generated errors.

An, Yu, and James (2025) further demonstrate that universities are moving towards normative governance models that incorporate academic integrity, multimodal AI use, ethical data management, and curriculum integration. Their findings are consistent with Slimi and Carballido (2023), who argue that transparency, accountability, and bias mitigation must form the ethical foundation of AI adoption policies.

However, Williamson (2017) offers a critical early perspective that challenges the assumption that institutional policy alone is sufficient to ensure ethical AI integration. His work on data-driven governance highlights that without strategic leadership oversight, AI tools risk reinforcing existing inequalities and concentrating power in opaque algorithmic systems. Unlike more recent studies that emphasize reactive policy responses, Williamson argues that ethical AI adoption must be proactively governed through institutional frameworks that address surveillance, data ownership, and regulatory accountability. This adds a deeper structural critique, suggesting that AI governance is not merely an ethical obligation, but a fundamental leadership responsibility tied to institutional legitimacy and public trust.

Slimi and Carballido (2023) extend this perspective by demonstrating that while global AI ethics policies share common concerns—such as bias and accountability—their implementation varies significantly according to regional values and governance capacity. This confirms Williamson's (2017) critique that ethical frameworks must be context-sensitive and cannot rely on generic, one-size-fits-all models.

This review demonstrates that AI integration in university English speaking instruction is fundamentally a leadership-driven process rather than a purely technological shift. The first theme shows that strategic leadership frameworks are essential in guiding AI adoption, moving beyond earlier theoretical assumptions toward evidence-based, policy-oriented models. The second theme highlights that faculty readiness depends not merely on individual motivation but on leadership actions such as targeted professional development, AI literacy programs, and institutional incentives that promote long-term engagement. The third theme emphasizes that ethical governance is not optional; it is a leadership responsibility central to institutional trust and regulatory compliance.

From a practical perspective, these findings offer clear implications for university leaders and policymakers. Institutions should establish AI governance committees, integrate AI literacy into faculty development systems, and align AI-based tools with curriculum standards through formal policy frameworks. Policymakers must develop regulatory guidelines that ensure accountability, data security, and academic integrity while providing funding and infrastructure to support AI innovation. Importantly, leadership should adopt inclusive decision-making models that involve faculty and students in co-creation processes, ensuring AI tools are pedagogically relevant and ethically sound.

Collectively, the review reframes AI integration as an institutional transformation process requiring strategic vision, structured support mechanisms, and ethical accountability. This positions instructional leadership as the determining force in whether AI enhances educational quality or reinforces systemic disparities.

6. Limitations and Future Research

Limitations to this research include its reliance on Systematic Literature Review (SLR) that restricts analysis to published works and not firsthand empirical evidence. The limit of inclusion in the studies published since 2016 and only in English could also have been narrowed and important perspectives related to different contexts may not have been captured. In addition, differences in the methodological rigor and geographical focus of included studies can influence the generalizability of the results of the studies to other higher education systems. Future studies that integrate interviews to gather actual experiences of AI integration among instructional leaders and faculty members

will overcome such shortcomings. Comparisons across national boundaries can further help to understand how culture and institutions influence the issue of leadership in the adoption of AI in language education.

7. Conclusion

From the perspective of the Unified Theory of Acceptance and Use of Technology (UTAUT), institutional leaders should implement policies that strategically enhance faculty motivation and reduce barriers to AI adoption across four core determinants. First, performance expectancy can be strengthened by embedding AI-driven speaking assessment tools into institutional teaching quality evaluations, ensuring that faculty clearly perceive improvements in teaching outcomes and student engagement. Second, effort expectancy should be addressed through dedicated AI training centres that provide hands-on support, reducing the cognitive load associated with learning new technologies. Third, social influence can be operationalised through creating AI demonstration schools or "model departments" where early adopters serve as peer mentors. Finally, facilitating conditions should be institutionalised through funding allocations, digital infrastructure upgrades, and formal inclusion of AI tools in teaching standards and accreditation requirements. These structural policies ensure that AI adoption is not dependent on individual initiative but supported through systemic institutional design. Conflicts of Interest: The authors declare no conflicts of interest to report regarding the present study.

Similarly, the Technological Pedagogical and Content Knowledge (TPACK) framework suggests that successful AI integration requires balanced development across technological, pedagogical, and content domains. Therefore, leadership policies should mandate AI-enhanced curriculum redesign committees that align AI tools with speaking pedagogy and disciplinary content rather than treating them as generic technology add-ons. Institutions should incentivize lecturers to develop AI-integrated lesson plans that address communicative competence, fluency development, and personalized feedback—areas where AI can add pedagogical value. Additionally, policy should encourage interdisciplinary collaboration between language educators, instructional designers, and AI technologists to ensure that AI applications are not only technologically feasible but pedagogically meaningful. By embedding TPACK principles into institutional policy, universities can move beyond surface-level use of AI and foster deep integration that transforms English language teaching practices in sustainable and contextually relevant ways.

Contribution: He: Responsible for conceptual design, survey research, participation in methodology development, data collection, analysis and interpretation, impact assessment, and drafting the initial manuscript; also undertook data organization, formal analysis, result interpretation, impact evaluation, method development, resource acquisition, software application, research supervision, result validation, literature review updating, and refinement of the manuscript through critical revision. Aida Hanim A Hamid: Contributed to drafting the initial manuscript, discussing results, interpreting research findings, and formulating preliminary conclusions and recommendations.Mohamed Yusoff Mohd Nor: Contributed to drafting the initial manuscript, discussing results, interpreting research findings, formulating preliminary conclusions and recommendations, as well as validation and technical resource support.

References

Al-Emran, M., Mezhuyev, V., & Kamaludin, A. (2018). Technology adoption in higher education: A systematic review. *Education and Information Technologies*, 23(3), 1231–1258.

An, Y., Yu, J. H., & James, S. (2025). Investigating the higher education institutions' guidelines and policies regarding the use of generative AI in teaching, learning, research, and administration. *International Journal of Educational Technology in Higher Education*, 22, 10. https://doi.org/10.1186/s41239-025-00507-3

Barnes, E., & Hutson, J. (2024). Navigating the ethical terrain of AI in higher education: Strategies for mitigating bias and promoting fairness. *In Forum for Education Studies* (Vol. 2, No. 2).

Berkovich, I. (2025). School leaders' adoption of generative artificial intelligence: Stages, domains, and implications. *Frontiers in Education*, 10, 1643023. Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Braun, V., & Clarke, V. (2012). Thematic analysis. In H. Cooper, P. M. Camic, D. L. Long, A. T. Panter, D. Rindskopf, & K. J. Sher (Eds.), APA handbook of research methods in psychology: Vol. 2. Research designs: Quantitative, qualitative, neuropsychological, and biological (pp. 57–71). *American Psychological Association*.

Bush, T. (2019). Instructional leadership: Educational leadership and management reform. *Educational Management Administration & Leadership, 47*(4), 501–507.

Chan, C. K. Y. (2023). A comprehensive AI policy education framework for university teaching and learning. *International Journal of Educational Technology in Higher Education*, 20, 5.

Chan, R. (2023). Developing an AI ecological policy framework for higher education. *Educational Technology Research and Development, 71*(4), 2105–2124.Chen, Y. (2024). A study of the effects of the application of artificial intelligence (AI) on improving the spoken English of university students: Voices of students from a Chinese university. *SHS Web of Conferences*, 199, 01003. https://doi.org/10.1051/shsconf/202419901003

Cornell Chronicle. (2025, July 15). AI tool helps students build confidence speaking foreign languages. *Cornell University.*

Dabis, A. (2024). AI and ethics: Investigating the first policy responses of universities to generative artificial intelligence. *Palgrave Communications,* 10, 35. https://doi.org/10.1057/s41599-024-03526-z

Dai, L., & Wu, F. (2025). An AI-powered conversational system for college students learning English as a second language. Education and Information Technologies. *Advance online publication.*

Ding, A. C. E. (2024). Enhancing teacher AI literacy and integration through professional development programs. Computers and Education: Artificial Intelligence. *Advance online publication*.

Dong, N., Zhao, R., & Zhao, Q. (2025). Artificial intelligence in evaluating spoken English: Challenges and future perspectives. Language Teaching Research, 14727978251322282.

Dong, P., & Tabajen, R. C. (2024). Assessing the impact of university teachers' digital leadership on enhancing student learning effectiveness. *International Journal of Education and Humanities*, 16(3), 299-304.

Espinoza Vidaurre, S. M., Velásquez Rodríguez, N. C., Gambetta Quelopana, R. L., Martinez Valdivia, A. N., Leo Rossi, E. A., & Nolasco-Mamani, M. A. (2024). Perceptions of artificial intelligence and its impact on academic integrity among university students in Peru and Chile: *An approach to sustainable education. Sustainability*, 16(20), 9005. https://doi.org/10.3390/su16209005

Fang, Y., & Lee, J. (2023). AI-powered tools for spoken English learning in higher education: Opportunities and challenges. *ReCALL, 35*(2), 135–152.

Ghamrawi, N. (2022). A typology for digital leadership in higher education. *Education Sciences*, 12(2), 136. https://doi.org/10.3390/educsci12020136

Glover, A. D. (2023). IT leadership on classroom technology integration within higher education: Barriers and emerging themes. *Issues in Information Systems*, 24(1), 1–15. https://doi.org/10.48009/1_iis_2023_1-15

Gumus, S., Bellibas, M. S., Esen, M., & Gumus, E. (2020). A systematic review of studies on leadership models in educational research from 1980 to 2014. *Educational Management Administration & Leadership*, 48(1), 25–48. https://doi.org/10.1177/1741143218813199

Hallinger, P. (2011). Leadership for learning: Lessons from 40 years of empirical research. *Journal of Educational Administration, 49*(2), 125–142.

Hallinger, P. (2018). Bringing context out of the shadows of leadership. *Educational Management Administration & Leadership, 46*(1), 5–24.

Hallinger, P., & Murphy, J. (1985). Assessing the instructional management behavior of principals. *The Elementary School Journal, 86*(2), 217–247.

Harris, A., & Jones, M. (2020). COVID-19 – school leadership in disruptive times. *School Leadership & Management, 40*(4), 243–247.

Holmes, W., Bialik, M., & Fadel, C. (2019). *Artificial intelligence in education: Promises and implications for teaching and learning*. Center for Curriculum Redesign.

Kemelbekova, Z., Degtyareva, X., Yessenaman, S., Ismailova, D., & Seidaliyeva, G. (2024). AI in teaching English as a foreign language: Effectiveness and prospects in Kazakh higher education. *XLinguae,* 17(1), 58–71. https://doi.org/10.18355/xl.2024.17.01.05

King, E., & Boyatt, R. (2015). Exploring factors that influence the adoption of e-learning in higher education. British Journal of Educational Technology, 46(6), 1272–1280.

Kitchenham, B., & Charters, S. (2007). Guidelines for performing systematic literature reviews in software engineering.

Leithwood, K., Harris, A., & Hopkins, D. (2020). Seven strong claims about successful school leadership revisited. *School Leadership & Management, 40*(1), 5–22.

Li, Y., & Hockly, N. (2022). Artificial intelligence in language education: A state-of-the-art review. *Computer Assisted Language Learning, 35*(7), 1405–1432.

Li, X. (2022, January). The effectiveness of Mobile-Assisted Language Learning (MALL) applications on the spoken English assessments in China's Universities. *In 2021 International Conference on Social Development and Media Communication (SDMC 2021)* (pp. 751-756). Atlantis Press.

Luckin, R., Holmes, W., Griffiths, M., & Forcier, L. B. (2016). Intelligence unleashed: An argument for AI in education. Pearson Education.

Mah, D. K., & Groß, N. (2024). Artificial intelligence in higher education: exploring faculty use, self-efficacy, distinct profiles, and professional development needs. I*nternational Journal of Educational Technology in Higher Education,* 21(1), 58.

Metwalli, M. M. A. S. (2025). Artificial intelligence in educational leadership: Challenges and opportunities. International Journal of Educational Technology in Higher Education. *Advance online publication*. https://doi.org/10.1186/s41239-025-00517-1

Mingyan, M., Noordin, N., & Razali, A. B. (2025). Improving EFL speaking performance among undergraduate students with an AI-powered mobile app in after-class assignments: An empirical investigation. *Humanities and Social Sciences Communications*, 12, 370. https://doi.org/10.1057/s41599-025-04688-0

Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for integrating technology in teacher knowledge. *Teachers College Record*, 108(6), 1017–1054.

Obied, A. (2025). Digital leadership in the academic environment: A literature review. *Social Sciences & Humanities Open*, 11, 100542.

Olabiyi, O. J., Vuuren, C. J. v., Du Plessis, M., Xue, Y., & Zhu, C. (2025). Digital academic leadership in higher education institutions: A bibliometric review based on CiteSpace. *Education Sciences*, 15(7), 846. https://doi.org/10.3390/educsci15070846

Peña-Acuña, B. (2024). Learning English as a second language with artificial intelligence. *Frontiers in Education*, 9, 1490067. https://doi.org/10.3389/feduc.2024.1490067

Onan, G. (2024). Digital Transformation and Digital Leadership in Higher Education Institutions: Insights from the Literature. *Uluslararası Sosyal Bilgilerde Yeni Yaklaşımlar Dergisi*, 8(2), 198-213.

Dong, P., & Tabajen, R. C. (2024). Assessing the impact of university teachers' digital leadership on enhancing student learning effectiveness. *International Journal of Education and Humanities*, 16(3), 299-304.

Robinson, V. M., Lloyd, C. A., & Rowe, K. J. (2008). The impact of leadership on student outcomes: An analysis of the differential effects of leadership types. *Educational Administration Quarterly, 44*(5), 635–674.

Rogers, E. (2003). Diffusion of innovations (5th ed.). Free Press.

Shal, T., Ghamrawi, N., Abu-Tineh, A., Al-Shaboul, Y. M., & Sellami, A. (2024). Teacher leadership and virtual communities: Unpacking teacher agency and distributed leadership. *Education and Information Technologies*, 29(12), 15025-15042.

Siagian, S., & Purba, B. (2023). Artificial intelligence in higher education: Drivers and challenges of adoption. *Education and Information Technologies, 28*(4), 5123–5142.

Slimi, Z., & Carballido, B. V. (2023). Navigating the ethical challenges of artificial intelligence in higher education: An analysis of seven global AI ethics policies. *TEM Journal*, 12(2), 123–130. https://doi.org/10.18421/TEM122-02

Sposato, M. (2025). Artificial intelligence in educational leadership: A comprehensive taxonomy and future directions. *International Journal of Educational Technology in Higher Education*, 22, 20. https://doi.org/10.1186/s41239-025-00517-1

Sutedjo, A., Liu, S., & Chowdhury, M. (2025). Generative AI in higher education: A cross-institutional study on faculty preparation and resources. *Studies in Technology Enhanced Learning*, 4(1), 1–17.

Wei, L. (2023). Artificial intelligence in language instruction: Impact on English learning achievement, L2 motivation, and self-regulated learning. Frontiers in Psychology. *Advance online publication*.

Williamson, B. (2017). Big data in education: The digital future of learning, policy and practice. *SAGE Publications.*

Yang, F. (2024). AI in language education: Enhancing learners' speaking awareness through AI-supported training. *International Journal of Information and Education Technology*, 14(6), 512–517.

Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education – Where are the educators? *International Journal of Educational Technology in Higher Education, 16*(1), 1–27.

Zou, B., Guan, X., Shao, Y., & Chen, P. (2023). Supporting speaking practice by social network-based interaction in artificial intelligence (AI)-assisted language learning. *Sustainability*, 15(4), 2872. https://doi.org/10.3390/su15042872

Zou, B., Liviero, S., Ma, Q., Zhang, W., Du, Y., & Xing, P. (2024). Exploring EFL learners' perceived promise and limitations of using an artificial intelligence speech evaluation system for speaking practice. *System*, 119, 103497. https://doi.org/10.1016/j.system.2024.103497