

Reframing AI-Supported Language Learning in Higher Education: A Systematic Literature Review of Learner, Teacher, and Institutional Roles

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ABSTRACT

Artificial intelligence (AI) is reshaping language learning in higher education through personalized learning, AI-mediated interaction, immediate feedback, and opportunities for independent practice. However, the educational value of AI depends not only on technological affordances but also on learner agency, teacher competence, and institutional capacity. This systematic literature review (SLR) therefore reframes AI-supported language learning as a multi-level educational process and synthesizes evidence concerning the interconnected roles of learners, teachers, and higher-education institutions. Following the PRISMA framework, a structured search of Scopus and Web of Science was conducted, resulting in 357 initial records. After screening, eligibility assessment, and quality appraisal, 36 studies were included in the qualitative synthesis. The findings reveal a substantial imbalance in the literature: 23 studies focused on learners, six on teachers, and seven on institutions. Learner-focused studies primarily addressed AI-enhanced language development, perceptions, motivation, engagement, autonomy, AI literacy, and self-regulated learning. Teacher-focused research highlighted AI adoption, pedagogical integration, professional development, and institutional support, whereas institution-focused studies emphasized inclusion, accessibility, ethics, infrastructure, cultural context, and digital inequality. The review demonstrates that effective AI-supported language learning cannot be reduced to technology adoption; it requires coordinated learner agency, pedagogically informed teacher practices, and institutional readiness and governance. The study consequently advocates a human-centred, inclusive, and ethically grounded approach to AI integration and calls for future longitudinal and mixed-methods research examining interactions among these three levels.

Keywords: Artificial Intelligence; AI-Supported Language Learning; Higher Education; Learner Agency; Teacher and Institutional Roles

INTRODUCTION

Background of the Study

The rapid development of Artificial Intelligence (AI) has created new possibilities for language learning in higher education, particularly through personalized learning, AI-mediated interaction, immediate feedback, and opportunities for independent practice. The literature reviewed in this study demonstrates that AI is increasingly being used to support different language competencies, including pronunciation, reading, vocabulary, grammar, writing, and communication. At the same time, AI-supported language learning extends beyond the use of technological tools because learners' motivation, autonomy, engagement, self-regulated learning, and AI literacy influence how effectively these tools are used. The conceptual framework in the study therefore positions AI-supported language learning as a multi-level process involving learners, teachers, and higher-education institutions, with learner agency, teacher pedagogical competence, and institutional capacity forming interconnected elements of effective AI integration.

Statement of Problem

Despite the growing adoption of AI, its integration into higher-education language learning presents several challenges. The reviewed studies indicate concerns related to learner readiness and AI literacy, responsible use, teacher competence and professional development, institutional policies, infrastructure, accessibility, academic integrity, privacy, cultural differences, and digital inequality. In particular, institutional conditions can determine whether AI benefits are distributed equitably, as some contexts face limitations in teacher training, internet access, infrastructure, affordability, and support for vulnerable learners. Consequently, viewing AI simply as a technological solution may overlook the complex roles and responsibilities of the people and institutions involved in its implementation.

Research Gap

Although existing studies provide valuable evidence on AI applications, learner perceptions, motivation, teacher adoption, and institutional challenges, the literature remains predominantly learner-focused. Of the 36 studies included in this review, 23 examined learner-related issues, compared with six studies on teachers and seven on institutions. This imbalance indicates a need for a more integrated understanding of how learner, teacher, and institutional roles interact in shaping AI-supported language learning. Therefore, this systematic literature review seeks to reframe AI-supported language learning as a shared and multi-level educational process, rather than a technology-centred intervention, by synthesizing evidence across these three interconnected dimensions.

Research Questions

Research questions are important to a systematic literature review (SLR). The questions provide the foundation and direction for the entire review process. A well-defined research question ensures that the literature search is exhaustive and systematic, covering all relevant studies that address key aspects of the topic (Kitchenham, 2007). The research questions in this SLR are formulated based on the PICO framework. This framework is a mnemonic style used to formulate research questions, particularly in qualitative research, proposed by Lockwood et al. (2015). PICO stands for Population, Interest, and Context. This SLR is done to answer the four research questions below;

RQ1 What is the role of learners in AI-supported language learning in higher education?

RQ2 What is the role of teachers in the integration of AI into language learning and teaching in higher education?

RQ3 What is the role of higher-education institutions in enabling and governing AI-supported language learning?

LITERATURE REVIEW

Theoretical Framework

Self-Determination Theory

Self-Determination Theory (SDT), developed by Deci and Ryan (1985), provides a useful theoretical foundation for understanding learners' roles in AI-supported language learning in higher education. The theory emphasizes that learners' motivation and engagement are influenced by the satisfaction of three basic psychological needs: autonomy, competence, and relatedness. In AI-supported language learning, autonomy refers to learners' ability to take greater control of their learning by selecting learning activities, setting goals, and interacting independently with AI tools according to their individual needs. Competence concerns learners' perceptions of their ability to improve their language skills through AI-supported practice, personalised feedback, and opportunities for repeated learning. Relatedness involves learners' sense of connection and meaningful interaction within the learning environment, including interactions mediated by AI. From an SDT perspective, AI can therefore support learners as active participants rather than passive recipients of instruction. The theory is particularly relevant to higher education because AI-supported learning may enhance learner autonomy, motivation, engagement, and self-directed learning, while also requiring learners to exercise critical judgement

and responsibility in their interactions with AI.

Technological Pedagogical Content Knowledge (TPACK)

Technological Pedagogical Content Knowledge (TPACK), developed by Mishra and Koehler (2006), provides a relevant theoretical framework for understanding the role of teachers in integrating AI into language learning and teaching in higher education. TPACK proposes that effective technology integration requires the interaction of three fundamental domains of teacher knowledge: technological knowledge (TK), pedagogical knowledge (PK), and content knowledge (CK). In AI-supported language education, teachers need technological knowledge to understand and critically use AI tools, pedagogical knowledge to determine appropriate teaching strategies and learning activities, and content knowledge to ensure that AI applications are aligned with language-learning objectives and linguistic content. The interaction of these domains enables teachers to make informed decisions about when, why, and how AI should be incorporated into language instruction. Consequently, teachers are not merely users of AI technologies but act as pedagogical designers, facilitators, evaluators, and mediators who guide students in using AI effectively and responsibly. TPACK is therefore particularly valuable for examining teachers' AI competencies, pedagogical decision-making, professional development needs, and capacity to integrate AI meaningfully into higher-education language learning environments (Mishra & Koehler, 2006).

Technology-Organization-Environment (TOE) framework

The Technology-Organization-Environment (TOE) framework, developed by Tornatzky and Fleischer (1990), provides a useful theoretical foundation for understanding the role of higher-education institutions in enabling and governing AI-supported language learning. The framework explains technology adoption through three interconnected dimensions: technological, organizational, and environmental contexts. The technological context concerns the characteristics, availability, compatibility, complexity, and security of AI technologies that influence their implementation. The organizational context focuses on institutional factors such as leadership support, infrastructure, financial resources, staff expertise, organizational culture, and institutional policies that determine the capacity of universities to adopt and sustain AI-supported language learning. The environmental context encompasses external influences, including government regulations, professional standards, ethical expectations, technological developments, and wider societal demands. In higher education, the TOE framework therefore positions institutions as active agents that create the conditions necessary for effective and responsible AI integration. It highlights that successful AI-supported language learning requires more than access to technology; it depends on institutional readiness, supportive policies, adequate infrastructure, professional development, governance mechanisms, and alignment with the broader educational environment (Tornatzky & Fleischer, 1990).

Conceptual Framework

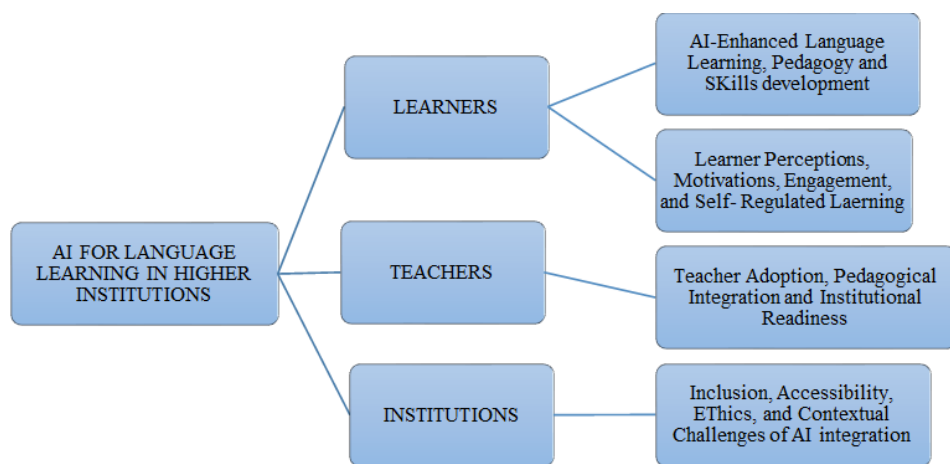


Figure 1- Conceptual Framework

The conceptual framework in Figure 1 above conceptualizes AI-supported language learning as a multi-level process involving interconnected roles of learners, teachers, and higher-education institutions. At the learner

level, Self-Determination Theory (SDT) by Deci and Ryan (1985) provides the theoretical foundation for understanding learners as active participants in AI-supported language learning. The theory emphasizes autonomy, competence, and relatedness, which correspond closely with the identified sub-category of learner perceptions, motivation, engagement, and self-regulated learning. AI tools may provide learners with opportunities for personalized practice, immediate feedback, independent learning, and greater control over learning activities. At the same time, the theme of AI-enhanced language learning, pedagogy, and skills development reflects the direct use of AI tools to support language skills and learning practices. Thus, SDT frames learners not merely as users of AI but as active agents whose motivation, autonomy, engagement, and self-regulation shape AI-supported learning experiences.

At the teacher level, the framework is anchored in Technological Pedagogical Content Knowledge (TPACK) developed by Mishra and Koehler (2006). TPACK explains teachers' capacity to integrate technological knowledge with pedagogical and content knowledge. This perspective corresponds to the theme teacher adoption, pedagogical integration, and institutional readiness, which focuses on teachers' adoption of AI, professional roles, training, institutional support, and implementation. Teachers therefore function as pedagogical designers, facilitators, evaluators, and mediators who determine how AI can be meaningfully aligned with language-learning objectives and instructional practices.

At the institutional level, the Technology–Organization–Environment (TOE) framework of Tornatzky and Fleischer (1990) explains how institutions create the technological, organizational, and environmental conditions required for AI integration. This aligns with inclusion, accessibility, ethics, and contextual challenges of AI integration, encompassing digital inequality, infrastructure, cultural considerations, ethical concerns, and the needs of vulnerable or non-mainstream learners. Collectively, the three theories establish a learner–teacher–institution framework in which effective AI-supported language learning depends on learner agency, teacher pedagogical competence, and institutional capacity and governance.

MATERIAL AND METHODS

For conducting systematic literature reviews, the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) approach is a widely accepted standard that guarantees transparency, completeness, and consistency throughout the procedure by Page et al. (2021). guide how to systematically identify, screen, and include studies in their review. In the context of this SLR, the writers involved in this article act as researchers and work together to analyse the articles deemed relevant for the title. Two important databases, Web of Science and Scopus, were used in this analysis because of their wide coverage and robustness.

The PRISMA approach is organized into four key stages: (i) identification, (ii) screening, (iii) eligibility, and (iv) data abstraction. In the identification phase, databases are searched to locate all relevant studies. The screening phase then involves evaluating these studies against predefined criteria to eliminate irrelevant or low-quality research. During the eligibility phase, the remaining studies are thoroughly assessed to confirm they meet the inclusion criteria. Finally, data abstraction focuses on extracting and synthesizing data from the included studies, which is essential for deriving meaningful and reliable conclusions. This structured method ensures that the systematic review is conducted with rigor, leading to trustworthy results that can guide future research and practice. The PRISMA framework lists three main stages for analysis: (i) identification, (ii) screening, (iii) eligibility, (iv) data abstraction and analysis, and (v) quality of appraisal.

Identification

In accordance with the PRISMA framework, the identification phase represents a critical starting point in the systematic literature review process, as it is designed to ensure exhaustive coverage of relevant studies while reducing the risk of selection bias. In this study, a structured and comprehensive search was conducted across two leading bibliographic databases, Scopus and Web of Science (WoS), using the keywords “language learning,” “AI,” and “higher ieducation.” Table 1 below shows the search string.

These databases were deliberately selected because of their extensive multidisciplinary coverage, stringent indexing criteria, and strong representation of high-quality, peer-reviewed journals. The search process resulted

in the retrieval of 257 records from Scopus and 100 records from Web of Science, yielding a combined total of 357 records prior to the removal of duplicates.

The higher number of results obtained from Scopus can be attributed to its broader inclusion of journals and stronger coverage in the social sciences, whereas WoS contributed a more targeted collection of highly cited and methodologically rigorous studies. As shown in Table 1, the identification of 357 records reflects the growing academic interest in writing within higher education and highlights the conceptual diversity of research spanning linguistic, pedagogical, and psychological perspectives. Employing multiple databases enhances the methodological robustness of the review by minimizing database-specific bias and increasing the likelihood of capturing diverse research traditions and geographical contexts.

Additionally, the use of carefully designed search terms ensured sensitivity to terminological variation while maintaining alignment with the review's objectives. Overall, this transparent and systematic identification process establishes a strong foundation for subsequent screening and eligibility stages, consistent with PRISMA standards and expectations for rigorous, replicable research

Table 1 The search string.

Scopus	\TITLE-ABS-KEY ((challenges OR difficulties OR obstacles OR barriers) AND ("language learning" OR "language acquisition" OR "language education") AND ("university students" OR "college students" OR "higher education") AND (AI OR "artificial intelligence" OR "machine learning" OR "intelligent systems"))
Web of Science	TITLE-ABS-KEY ((challenges OR difficulties OR obstacles OR barriers) AND ("language learning" OR "language acquisition" OR "language education") AND ("university students" OR "college students" OR "higher education") AND (AI OR "artificial intelligence" OR "machine learning" OR "intelligent systems")) Extracted August 2026

Screening

During the screening stage of the systematic literature review, potentially relevant studies were evaluated to ensure their alignment with the four established research questions. This phase focused on refining the initial pool of records by removing duplicates and applying predefined inclusion and exclusion criteria. Following the initial review, 357 publications were excluded for failing to meet the scope and relevance requirements of the study, leaving 80 (Scopus=53; Wos; 27) articles for further consideration, as outlined in Figure 2. The primary inclusion criterion was the type of literature, with priority given to scholarly sources that offer substantive and empirical insights. As a result, materials such as book reviews, book series, meta-syntheses, meta-analyses, conference proceedings, and book chapters not directly related to the core focus of the review were excluded. To ensure consistency and relevance to contemporary academic discourse, only peer-reviewed publications written in English and published between 2022 and 2027 were retained. Additionally, a duplication check led to the removal of 0 repeated record across the databases. This systematic and criteria-driven screening process enhanced the focus and quality of the evidence base, ensuring that only the most relevant and methodologically sound studies progressed to the subsequent stages of analysis.

Eligibility

For the third step, known as eligibility, a total of 80 articles have been prepared. All articles' titles and key content were thoroughly reviewed at this stage to ensure that the inclusion requirements were fulfilled and fit into the present study with the current research aims. Therefore, two reports were omitted because they were not pure science articles based on empirical evidence. Finally, 40 articles are available for review (see Table 2).

Table 2 The selection criterion is searching

Criterion	Inclusion	Exclusion
Language	English	Non-English
Time line	2022 – 2026	< 2022
Literature type	Journal (Article)	Conference, Book, Review
Publication Stage	Final	In Press
Subject Area	Language learning, AI, higher education	Educational research

Data Abstraction and Analysis

An integrative analysis was used as one of the assessment strategies in this study to examine and synthesize a variety of research designs (quantitative, qualitative, and mixed methods). To develop themes, the authors carefully analyzed 40 publications for relevant material related to the study's topics. They examined the methodology and research results of significant studies on PIU and mental health in children. The authors collaborated to develop themes based on the evidence presented throughout the study. They kept a log of their data analysis process to document relevant perspectives, analyses, or ideas. The authors ensured consistency in theme design by comparing the results and discussing disagreements between themselves. This expert review phase established the validity of each subtheme by ensuring clarity, importance, and suitability (Refer to Appendix 1).

Quality of Appraisal

According to Kitchenham and Charters (Kitchenham, 2007), the researchers need to assess the quality of the research chosen. The next stage is applying quality assessment suggested by Abouzahra et al., (2020), which consists of six questions complying to a scoring procedure for evaluating each criteria. The possible ratings are ;

"Yes" (Y) with a score of 1 if the criterion is fully met, "Partly" (P) with a score of 0.5 if the criterion is somewhat met but contains some gaps or shortcomings, and "No" (N) with a score of 0 if the criterion is not met at all.

Table 3- Possible ratings for 6 question by Abouzahra et al., (2020),

No	Question
QA1	Is the purpose of the study clearly stated?
QA2	Is the interest and the usefulness of the work clearly presented?
QA3	Is the study methodology clearly established?
QA4	Are the concepts of the approach clearly defined?
QA5	Is the work compared and measured with other similar work?
QA6	Are the limitations of the work clearly mentioned?

Each writer independently assesses the study according to these criteria, and the scores are then totalled across all experts to determine the overall mark. For a study to be accepted for the next process, the total mark, derived

from summing the scores from all three experts, must exceed 3.0. This threshold ensures that only studies meeting a certain quality standard proceed further. The results are shown in Table 4.

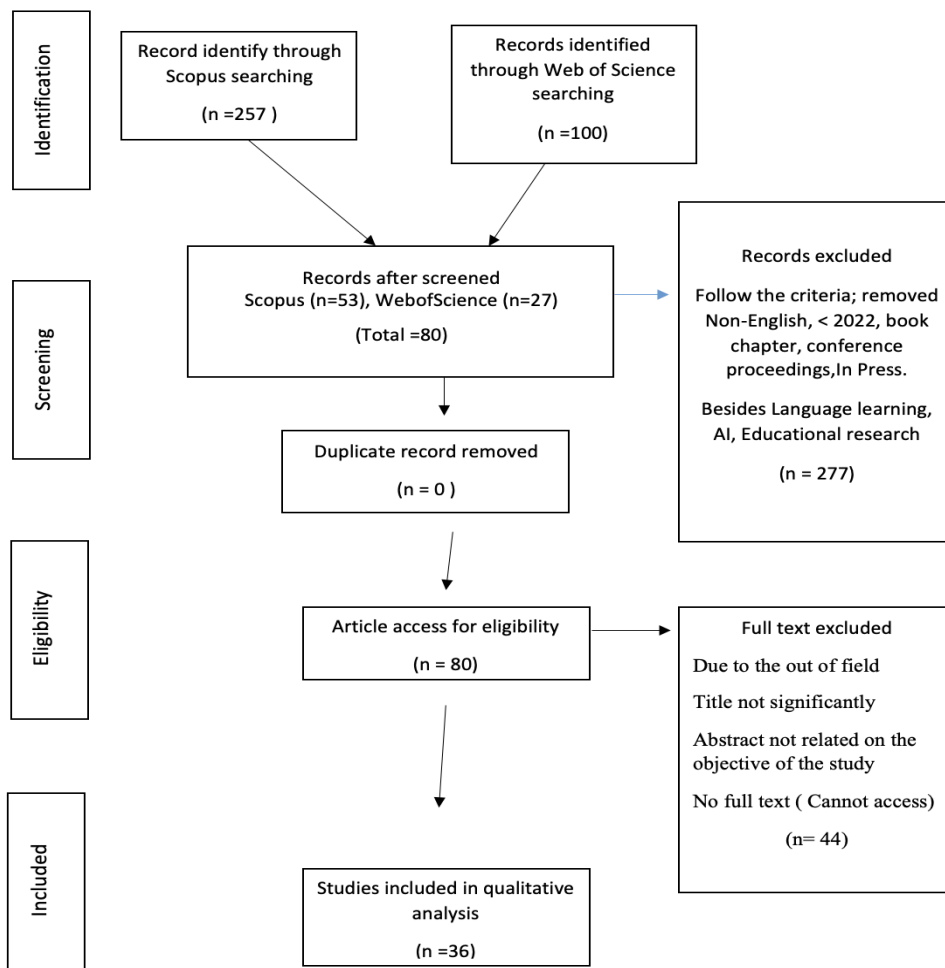


Figure 2. Flow diagram of the proposed search strategy (Moher D, Liberati A, Tetzlaff J, 2009)

RESULT AND FINDING

Quality of Assessment

Table 4 shows the result of the assessment performance for 36 selected primary studies. The overall quality of the articles is as follows;

- **High quality ($\geq 80\%$):** Majority of studies
- **Moderate quality (60–79%):** Conceptual or descriptive studies
- **Lower quality ($< 60\%$):** Primarily survey-only or exploratory abstracts

Table 4- Quality of Assessment

PS	Author	Year	Title Document of	QA 1	QA 2	QA 3	QA 4	QA 5	QA 6	Total Mark	Percentage (%)
PS1	Alhamam, A. A.	2025	Investigating the Role of AI Tool Interactions in	Y	Y	Y	Y	N	P	4.5	75.0

			Enhancing English Language Acquisition Among Saudi College Students								
PS2	Alotaibi, A. N.	2026	Perceptions and Challenges of Artificial Intelligence in the EFL Context: A Quantitative Study of Saudi Learners	Y	Y	Y	Y	N	N	4.0	66.7
PS3	Hasan, R. A., & Miah, M. J.	2026	Problems and Prospects of Technology-Assisted Language Learning Among Undergraduate Students in Selected Bangladeshi Universities	Y	Y	Y	P	N	N	3.5	58.3
PS4	Carrascal Tris, D., & Yuan, Q.	2025	AI-Enhanced Multisensory Learning Intervention to Improve Pronunciation in EFL Students	Y	Y	Y	Y	Y	N	5.0	83.3
PS5	Van Horn, K. R.	2024	ChatGPT in English Language Learning: Exploring Perceptions and Promoting Autonomy in a University EFL Context	Y	Y	Y	P	N	P	4.0	66.7
PS6	Alian, E. M. I., Alhaj, A. A. M., Ali, D. A. A., & Abdelkarim, M. B. A.	2026	Artificial Intelligence Integration in English Language Teaching: Current Practices,	Y	Y	Y	Y	N	P	4.5	75.0

			Perceptions, and Future Prospects among Saudi University Lecturers								
PS7	Ivanytska, N., Koliassa, O., Kovalevska, T., Matsera, O., & Tkachuk, T.	2024	Analyzing the Possibilities of Implementation of AI and Social Networks in Teaching Foreign Language Students: Ukrainian Universities Case Study	Y	Y	Y	Y	P	N	4.5	75.0
PS8	Alshakhi, A.	2025	Use of AI Tools in Navigating Reading Difficulties of Adult EFL Learners	Y	Y	Y	P	Y	N	4.5	75.0
PS9	Boiko, O., Norik, G., Vyshnevskaya, G., Derevianko, L., & Gruba, T.	2026	Interactive Learning of the Ukrainian Language Among Students Using AI-Based Chatbots	Y	Y	Y	Y	Y	Y	6.0	100.0
PS10	Tien, C.-Y., & Haji-Othman, N. A.	2025	Exploring AI-Mediated Linguistic and Cognitive Support for Non-Native English Speakers in English-Only Higher Education	Y	Y	Y	P	Y	Y	5.5	91.7
PS11	Maharani, A. A. P., Budiarta, I. K., Sawitri, N. L. P. D., & Negi, H. K.	2025	Bridging AI and ELL in Indonesia and India: International Insights on Perceptions and Challenges	Y	Y	Y	P	Y	N	4.5	75.0

PS1 2	Vasodavan, V., & Jain, J.	2026	AI-Supported Language Learning for Non-Native English-Speaking Students: An Action Research	Y	Y	Y	Y	P	Y	5.5	91.7
PS1 3	Parviz, M., & Arthur, F.	2025	Exploring EFL Teachers' Behavioral Intentions to Integrate GenAI Applications: Insights From PLS-SEM and fsQCA	Y	Y	Y	Y	P	P	5.0	83.3
PS1 4	Li, S., & Lin, J.	2025	Enhancing Academic Engagement and Needs Satisfaction Through AI: A Mixed-Methods Study in Chinese EFL Tertiary Education Context	Y	Y	Y	Y	N	P	4.5	75.0
PS1 5	Yusri, Y., Haliq, A., Nurfadhilah, A. S., et al.	2026	Knowledge Resilience in AI-Mediated Foreign Language Learning: Challenges and Responses of Indonesian Lecturers	Y	Y	Y	Y	N	P	4.5	75.0
PS1 6	Alghazali, F., & Hogshire, E.	2025	Artificial Intelligence as a Catalyst for Overcoming Barriers to English Language Learning in Higher Education	Y	Y	P	P	P	P	3.5	58.3
PS1 7	Taher Qutub, M. M., Ferheen Bukhari, S. S.,	2023	The Future of English as a Foreign	Y	Y	Y	P	P	N	4.0	66.7

	Fadel, S. A., & Abdulkader Aljuhani, H. S.		Language Teaching and Learning in View of the Fourth Industrial Revolution in the MENA Region								
PS1 8	Annamalai, N., Bervell, B., Mireku, D. O., & Andoh, R. P. K.	2025	Artificial Intelligence in Higher Education: Modelling Students' Motivation for Continuous Use of ChatGPT Based on a Modified Self-Determination Theory	Y	Y	Y	Y	P	N	4.5	75.0
PS1 9	Abdelrady, A. H., Akram, H., Mohamed, A. T. A., et al.	2026	Harnessing AI for Pronunciation Development: Investigating the Impact of Elsa Speak on EFL Learners' Oral Proficiency	Y	Y	Y	Y	Y	N	5.0	83.3
PS2 0	Aliyeva, N., Orujova, N., Aliyeva, G., Asgarova, G., & Oksanen, L.	2026	Integrating Artificial Intelligence in Higher Education Language Teaching: Insights from Academic Discourse	Y	Y	Y	Y	P	N	4.5	75.0
PS2 1	Karadağ, E., Çalışkan, N., Çiftçi, Ş. S., & Polat, M.	2026	Adoption and Integration of Artificial Intelligence in Foreign Language Teaching: Multi-Institutional Analysis of	Y	Y	Y	Y	P	N	4.5	75.0

			Higher Education								
PS2 2	Tran, N. T., Nguyen, T. T., & Tran, P. H.	2026	Transforming Foreign Language Acquisition: A Perception-Based Study on Artificial Intelligence in Language Education Across Asia	Y	Y	Y	Y	Y	Y	6.0	100.0
PS2 3	Akinsemolu, A. A., & Onyeaka, H.	2025	The Role of Artificial Intelligence in Transforming Language Learning: Opportunities and Ethical Considerations	Y	Y	P	P	P	N	3.0	50.0
PS2 4	Ali, Z., Bhar, S. K., Abd Majid, S. N., & Masturi, S. Z.	2025	Exploring Student Beliefs: Does Interaction with AI Language Tools Correlate with Perceived English Learning Improvements ?	Y	Y	Y	P	Y	N	4.5	75.0
PS2 5	Liu, G. L., Zou, M. M., Soyooof, A., & Chiu, M. M.	2025	Untangling the Relationship Between AI-Mediated Informal Digital Learning of English, Foreign Language Enjoyment and the Ideal L2 Self	Y	Y	Y	Y	Y	N	5.0	83.3
PS2 6	Zhang, W. X., & Hu, J. Y.	2026	AI Literacy and Student Engagement in AI-Assisted Chinese EFL Contexts: The	Y	Y	Y	Y	P	N	4.5	75.0

			Roles of Basic Psychological Needs and Self-Regulated Learning								
PS2 7	Luo, S. Q., & Zou, D.	2024	University Learners' Readiness for ChatGPT-Assisted English Learning: Scale Development and Validation	Y	Y	Y	Y	Y	N	5.0	83.3
PS2 8	Wang, X. Q., & Zhang, L. J.	2026	Fostering Generative AI-Supported Self-Regulated Learning in Informal Digital Language Learning Through Literacy and Interactions: A Two-Stage PLS-SEM-ANN Approach	Y	Y	Y	Y	P	N	4.5	75.0
PS2 9	Solhi, M., Derakhshan, A., & Noughabi, M. A.	2026	The Potential of AI-Driven Informal Digital Learning of English for Shaping L2 Learners' Willingness to Communicate and Speaking Motivation: Does L2 Grit Mediate?	Y	Y	Y	Y	P	N	4.5	75.0
PS3 0	Liu, G. L., Ghorbandordinejad, F., Zhao, X., & Esirgapov, M. N.	2026	Social Support, Resilience, and (AI-Mediated) Informal Digital Learning of English among Multilingual	Y	Y	Y	Y	P	N	4.5	75.0

			Learners in Uzbekistan								
PS3 1	Hasan, M. M., & Mehnaz, M.	2026	Artificial Intelligence in Personalized Language Learning: Benefits, Attitudes, and Motivation of Bangladeshi Higher Education EFL Students	Y	Y	Y	Y	P	P	5.0	83.3
PS3 2	Huang, F., & Derakhshan, A.	2025	Learning Motivation and Digital Literacy in AI Adoption for Self-Regulated English Learning	Y	Y	Y	Y	P	N	4.5	75.0
PS3 3	Borham, S. R., Ramli, S., & Ghani, M. T. A.	2024	AI Concepts Integration in Developing E-Muhadathat Kits for Non-Arabic Speakers	Y	Y	Y	Y	P	N	4.5	75.0
PS3 4	Karatas, F., Abedi, F. Y., Gunyel, F. O., Karadeniz, D., & Kuzgun, Y.	2024	Incorporating AI in Foreign Language Education: An Investigation into ChatGPT's Effect on Foreign Language Learners	Y	Y	Y	Y	P	N	4.5	75.0
PS3 5	Braha, M.	2026	Kosovan EFL Students' Acceptance of AI Tools for English Language Learning: Practices, Perceptions, Challenges, and Suggestions	Y	Y	Y	Y	P	P	5.0	83.3

			for Improvement								
PS3 6	Rojas, M. D. H., Basilio, M. D. A., Fernández-López, G., & Cruz, A. B.	2024	The Era of Artificial Intelligence: Transforming the English Learning Experience in the University Context	Y	Y	Y	P	N	P	4.0	66.7

The quality assessment table presents the evaluation of 36 selected studies on artificial intelligence and language learning using six quality assessment criteria (QA1–QA6), where Y represents full compliance (1 point), P represents partial compliance (0.5 points), and N represents non-compliance (0 points). Overall, most studies clearly stated their research purpose (QA1), demonstrated the relevance or usefulness of the research (QA2), and established an appropriate methodology (QA3). QA4 was also generally well addressed, although several studies provided only partial definitions of their underlying concepts or theoretical approaches. Greater variation was observed in QA5, as some studies explicitly compared interventions, groups, or findings, whereas others did not provide sufficient evidence of comparison with similar research. QA6 was the least consistently satisfied criterion because many abstracts did not explicitly report study limitations, resulting in several N ratings. The total scores ranged from 3.0 (50.0%) to 6.0 (100.0%). PS9 and PS22 achieved the highest quality scores of 100%, followed by PS10 and PS12 with 91.7%. PS23 received the lowest score at 50.0%, while most studies achieved between 66.7% and 83.3%, indicating generally moderate to high methodological and reporting quality across the selected literature.

Themes

Table 5- Analysis of all Themes

O	THEME/ROLE	SUB-CATEGORY	MAIN FOCUS	NO.OF STUDIES
1	LEARNERS	AI-Enhanced Language Learning, Pedagogy and Skills Development	Direct use of AI tools/interventions to improve language skills, classroom learning and instructional practices	8
		Learner Perceptions, Motivation, Engagement and Self-Regulated Learning	Learners' attitudes, acceptance, motivation, engagement, readiness, AI literacy, autonomy and informal learning	15
2	TEACHERS	Teacher Adoption, Pedagogical Integration and Institutional Readiness	Teachers' adoption of AI, professional roles, institutional support, training and implementation	6
3	INSTITUTION	Inclusion, Accessibility, Ethics and Contextual Challenges of AI Integration	Digital inequality, accessibility, cultural issues, ethical concerns, infrastructure and vulnerable/non-mainstream learners	7
			TOTAL	36

The thematic distribution is presented in Table 5 above and shows the 36 studies on AI-supported language learning in higher education is predominantly focused on the learner role, followed by institutional and teacher perspectives. Within the learner theme, 15 studies examine *learner perceptions, motivation, engagement, and self-regulated learning*, focusing on students' attitudes and acceptance of AI, motivation, engagement, readiness, AI literacy, autonomy, and informal learning. A further 8 studies address *AI-enhanced language learning, pedagogy, and skills development*, emphasizing the direct application of AI tools and interventions to improve language skills, classroom learning, and instructional practices. Together, these 23 studies indicate a strong research emphasis on how learners experience and use AI and how AI can support language development. The teacher role is represented by 6 studies, focusing on teacher adoption, pedagogical integration, professional roles, institutional support, training, and implementation. In contrast, 7 studies examine the institutional role, particularly inclusion, accessibility, ethics, and contextual challenges, including digital inequality, cultural issues, infrastructure, ethical concerns, and vulnerable learners. Overall, the distribution shows that the literature increasingly recognizes AI-supported language learning as a multi-level phenomenon involving learners, teachers, and institutional conditions, although learner-focused research remains dominant.

Theme 1 : LEARNERS' ROLE

This section presents data to answer research question 1- What is the role of learners in AI-supported language learning in higher education? This role is manifested in terms of (i) AI-Enhanced Language Learning, Pedagogy and Skills Development, and (ii) Learner Perceptions, Motivation, Engagement and Self-Regulated Learning.

Table 6-(i) AI-Enhanced Language Learning, Pedagogy and Skills Development

PS	Author(s)	Year	Title
PS4	Carrascal Tris & Yuan	2025	<i>AI-Enhanced Multisensory Learning Intervention to Improve Pronunciation in EFL Students</i>
PS8	Alshakhi	2025	<i>Use of AI Tools in Navigating Reading Difficulties of Adult EFL Learners</i>
PS9	Boiko et al.	2026	<i>Interactive Learning of the Ukrainian Language Among Students Using AI-Based Chatbots</i>
PS12	Vasodavan & Jain	2026	<i>AI-Supported Language Learning for Non-Native English-Speaking Students: An Action Research</i>
PS19	Abdelrady et al.	2026	<i>Harnessing AI for Pronunciation Development: Investigating the Impact of Elsa Speak on EFL Learners' Oral Proficiency</i>
PS33	Borham et al.	2024	<i>AI Concepts Integration in Developing E-Muhadathat Kits for Non-Arabic Speakers</i>
PS34	Karatas et al.	2024	<i>Incorporating AI in Foreign Language Education: An Investigation into ChatGPT's Effect on Foreign Language Learners</i>
PS36	Rojas et al.	2024	<i>The Era of Artificial Intelligence: Transforming the English Learning Experience in the University Context</i>

This sub-theme represents studies that primarily investigate what AI can do for language learning and how AI-supported interventions can improve specific language competencies. The studies cover pronunciation, reading, vocabulary, grammar, writing, communication and general language-learning experiences. For example, PS4 evaluates an AI-enhanced multisensory intervention for pronunciation, PS8 examines *Actively Learn* for reading comprehension, PS9 investigates an AI chatbot for Ukrainian-language learning, and PS19 evaluates ELSA Speak for pronunciation development. PS12 examines an AI learning buddy for linguistic and academic support, while PS33 proposes an AI-supported Arabic conversation kit. PS34 investigates ChatGPT

in foreign-language instruction, and PS36 examines the impact of AI technologies on university students' English-learning experiences. These studies collectively demonstrate the pedagogical and performance-oriented dimension of AI, emphasizing AI as an instructional tool rather than simply an object of perception or acceptance.

Table 7-(ii) Learner Perceptions, Motivation, Engagement and Self-Regulated Learning

PS	Author(s)	Year	Title
PS1	Alhamam	2025	<i>Investigating the Role of AI Tool Interactions in Enhancing English Language Acquisition Among Saudi College Students</i>
PS2	Alotaibi	2026	<i>Perceptions and Challenges of Artificial Intelligence in the EFL Context: A Quantitative Study of Saudi Learners</i>
PS5	Van Horn	2024	<i>ChatGPT in English Language Learning: Exploring Perceptions and Promoting Autonomy in a University EFL Context</i>
PS14	Li & Lin	2025	<i>Enhancing Academic Engagement and Needs Satisfaction Through AI: A Mixed-Methods Study in Chinese EFL Tertiary Education Context</i>
PS18	Annamalai et al.	2025	<i>Artificial Intelligence in Higher Education: Modelling Students' Motivation for Continuous Use of ChatGPT Based on a Modified Self-Determination Theory</i>
PS24	Ali et al.	2025	<i>Exploring Student Beliefs: Does Interaction with AI Language Tools Correlate with Perceived English Learning Improvements?</i>
PS25	Liu et al.	2025	<i>Untangling the Relationship Between AI-Mediated Informal Digital Learning of English, Foreign Language Enjoyment and the Ideal L2 Self</i>
PS26	Zhang & Hu	2026	<i>AI Literacy and Student Engagement in AI-Assisted Chinese EFL Contexts: The Roles of Basic Psychological Needs and Self-Regulated Learning</i>
PS27	Luo & Zou	2024	<i>University Learners' Readiness for ChatGPT-Assisted English Learning: Scale Development and Validation</i>
PS28	Wang & Zhang	2026	<i>Fostering Generative AI-Supported Self-Regulated Learning in Informal Digital Language Learning Through Literacy and Interactions</i>
PS29	Solhi et al.	2026	<i>The Potential of AI-Driven Informal Digital Learning of English for Shaping L2 Learners' Willingness to Communicate and Speaking Motivation</i>
PS30	Liu et al.	2026	<i>Social Support, Resilience, and (AI-Mediated) Informal Digital Learning of English Among Multilingual Learners in Uzbekistan</i>
PS31	Hasan & Mehnaz	2026	<i>Artificial Intelligence in Personalized Language Learning: Benefits, Attitudes, and Motivation of Bangladeshi Higher Education EFL Students</i>
PS32	Huang & Derakhshan	2025	<i>Learning Motivation and Digital Literacy in AI Adoption for Self-Regulated English Learning</i>
PS35	Braha	2026	<i>Kosovan EFL Students' Acceptance of AI Tools for English Language Learning: Practices, Perceptions, Challenges, and Suggestions for Improvement</i>

The sub-theme concerns the learner dimension of AI-supported language education. These studies examine how students perceive, accept, use and respond to AI, including their motivation, engagement, readiness, enjoyment, autonomy, self-regulated learning and AI literacy. PS1 explores Saudi students' use of ChatGPT and their attitudes toward its benefits and risks, while PS2 investigates Saudi EFL learners' perceptions of AI usefulness, acceptance and challenges. PS5 focuses on ChatGPT, learner autonomy and metacognitive awareness. Other studies examine academic engagement and psychological needs (PS14), continuous ChatGPT use and motivation (PS18), students' beliefs and perceived learning improvement (PS24), foreign-language enjoyment and the ideal L2 self (PS25), AI literacy and engagement (PS26), readiness for ChatGPT-assisted learning (PS27), GenAI-supported self-regulated learning (PS28), willingness to communicate and L2 grit (PS29), social support and informal AI-mediated learning (PS30), personalized learning and motivation (PS31), and learning motivation and digital literacy (PS32). PS35 extends this theme through students' acceptance, usability and trust in AI tools.

Theme 2: TEACHERS' ROLE

This section presents data to answer research question 2: What is the role of teachers in the integration of AI into language learning and teaching in higher education?

Table 8-Teacher Adoption, Pedagogical Integration and Institutional Readiness

PS	Author(s)	Year	Title
PS6	Alian et al.	2026	<i>Artificial Intelligence Integration in English Language Teaching: Current Practices, Perceptions, and Future Prospects Among Saudi University Lecturers</i>
PS13	Parviz & Arthur	2025	<i>Exploring EFL Teachers' Behavioral Intentions to Integrate GenAI Applications: Insights From PLS-SEM and fsQCA</i>
PS15	Yusri et al.	2026	<i>Knowledge Resilience in AI-Mediated Foreign Language Learning: Challenges and Responses of Indonesian Lecturers</i>
PS17	Taher Qutub et al.	2023	<i>The Future of English as a Foreign Language Teaching and Learning in View of the Fourth Industrial Revolution in the MENA Region</i>
PS20	Aliyeva et al.	2026	<i>Integrating Artificial Intelligence in Higher Education Language Teaching: Insights from Academic Discourse</i>
PS21	Karadağ et al.	2026	<i>Adoption and Integration of Artificial Intelligence in Foreign Language Teaching: Multi-Institutional Analysis of Higher Education</i>

The theme focuses on teachers and educational institutions as key actors in successful AI implementation. Rather than concentrating primarily on student outcomes, these studies examine teachers' adoption behaviour, professional roles, institutional preparedness, curriculum requirements and barriers to pedagogical integration. PS6 investigates Saudi university lecturers' AI practices, perceptions and readiness and identifies gaps in professional development and institutional policy. PS13 examines EFL teachers' behavioural intentions to adopt GenAI through UTAUT and AI-TPACK. PS15 focuses on Indonesian lecturers' pedagogical challenges, knowledge resilience and changing professional roles. PS17 examines EFL readiness for the Fourth Industrial Revolution in the MENA region, including teachers and learning environments. PS20 analyses academic discourse concerning AI integration and the changing role of teachers, while PS21 provides a multi-institutional analysis of AI adoption among foreign-language teaching staff. Collectively, these studies suggest that AI integration is not solely a technological issue; it requires teacher competence, institutional support, policy, professional development and pedagogically informed implementation.

Theme 3 : INSTITUTIONS' ROLE

This section presents data to answer research question 3: What is the role of higher-education institutions in enabling and governing AI-supported language learning?

Table 9- Inclusion, Accessibility, Ethics and Contextual Challenges of AI Integration

PS	Author(s)	Year	Title
PS3	Hasan & Miah	2026	<i>Problems and Prospects of Technology-Assisted Language Learning Among Undergraduate Students in Selected Bangladeshi Universities</i>
PS7	Ivanytska et al.	2024	<i>Analyzing the Possibilities of Implementation of AI and Social Networks in Teaching Foreign Language Students: Ukrainian Universities Case Study</i>
PS10	Tien & Haji-Othman	2025	<i>Exploring AI-Mediated Linguistic and Cognitive Support for Non-Native English Speakers in English-Only Higher Education</i>
PS11	Maharani et al.	2025	<i>Bridging AI and ELL in Indonesia and India: International Insights on Perceptions and Challenges</i>
PS16	Alghazali & Hogshire	2025	<i>Artificial Intelligence as a Catalyst for Overcoming Barriers to English Language Learning in Higher Education</i>
PS22	Tran et al.	2026	<i>Transforming Foreign Language Acquisition: A Perception-Based Study on Artificial Intelligence in Language Education Across Asia</i>
PS23	Akinsemolu & Onyeaka	2025	<i>The Role of Artificial Intelligence in Transforming Language Learning: Opportunities and Ethical Considerations</i>

This theme captures studies in which contextual, ethical, infrastructural, cultural or inclusion-related issues are central to understanding AI-supported language education. PS3 examines technology-assisted language learning in Bangladesh and highlights inadequate teacher training, infrastructure, electricity and internet access. PS7 examines AI and social networks in Ukrainian universities while emphasizing academic integrity, discrimination and plagiarism. PS10 investigates non-native English-speaking students in English-only higher education and considers linguistic and cognitive support. PS11 compares AI perceptions and challenges among students in Indonesia and India. PS16 focuses specifically on dyslexic ESL learners and highlights equity, privacy, infrastructure and institutional readiness. PS22 addresses AI language education across culturally and linguistically diverse Asian contexts, including affordability and cultural mismatches. Finally, PS23 explicitly addresses ethical issues such as data privacy, algorithmic bias and unequal access. Thus, this theme highlights the conditions and risks that determine whether AI can be implemented equitably and responsibly, rather than assuming that technological availability automatically produces educational benefits.

CONCLUSION

Summary of Findings

This systematic literature review reframes AI-supported language learning in higher education as a multi-level phenomenon shaped by learners, teachers, and institutions, rather than as a technology-centred process. Analysis of the 36 included studies shows that learner-focused research predominates, with 23 studies addressing AI-enhanced language learning, skills development, perceptions, motivation, engagement, AI literacy, autonomy, and self-regulated learning. This finding is consistent with studies such as Karatas et al. (2024), Alhamam (2025), and Abdelrady et al. (2026), which demonstrate the potential of AI tools to support language development, while Annamalai et al. (2025), Huang and Derakhshan (2025), and Zhang and Hu (2026) highlight the importance of motivation, psychological needs, AI literacy, and self-regulation. Teacher-focused research, represented by six

studies, indicates that effective integration depends on teachers' adoption, pedagogical competence, training, and institutional support. Similarly, the seven institution-focused studies emphasize that infrastructure, accessibility, ethics, cultural context, and digital inequality remain critical conditions for equitable implementation.

Implications and Suggestions for Future Research

The findings have important implications for practice, policy, and research. Higher-education institutions should move beyond providing access to AI and develop integrated strategies encompassing AI literacy, teacher professional development, ethical governance, inclusive infrastructure, and pedagogically appropriate implementation. Teachers should be positioned as designers, facilitators, evaluators, and mediators of AI-supported learning, while learners should be encouraged to exercise autonomy, critical judgement, and self-regulation. Future research should therefore investigate the interaction among learner agency, teacher competence, and institutional readiness through longitudinal and mixed-methods studies. Greater attention should also be given to underrepresented learners, cross-cultural contexts, ethical governance, AI literacy, and the long-term effects of AI on language development and learner autonomy. This would strengthen the evidence base for developing responsible, inclusive, and human-centred AI-supported language learning in higher education.

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