



Artificial Intelligence as a Safe Space for Linguistic Expression: A Phenomenological Study of Introverted Arabic Language Learners

Shobirin*

Universitas Islam Zainul
Hasan Genggong
Probolinggo, INDONESIA

Ahmad Muzammil

Universitas Islam Zainul
Hasan Genggong
Probolinggo, INDONESIA

M.Inzah

Universitas Islam Zainul
Hasan Genggong
Probolinggo, INDONESIA

Bahrudin Zaini

Universitas Islam Zainul
Hasan Genggong Probolinggo,
INDONESIA

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Abstract

The rapid integration of conversational artificial intelligence into language education has created new opportunities to address psychological barriers that often hinder learners' oral communication, particularly among introverted students. In Arabic language learning, where speaking activities frequently generate anxiety due to linguistic complexity and fear of negative evaluation, understanding learners' lived experiences with AI-supported interaction has become increasingly important. This study aimed to explore how introverted students experience ChatGPT as a psychologically safe space for Arabic linguistic expression. Employing an Interpretative Phenomenological Analysis (IPA) approach, the research involved seven introverted undergraduate students enrolled in the Arabic Language Teaching Program at Zainul Hasan Genggong Islamic University. Data were collected through semi-structured interviews, participant observations, reflective journals, and records of ChatGPT interactions over an eight-week period. The analysis identified five interconnected themes: psychological safety in the absence of social judgment, reduced linguistic anxiety, gradual growth of linguistic confidence, enhanced self-awareness and learner autonomy, and a strategic preference for AI-assisted practice before classroom communication. These findings demonstrate that conversational AI functions not merely as a technological tool but as a supportive pedagogical environment that enables introverted learners to engage in repeated language practice, develop confidence, and prepare for authentic classroom participation. The study extends the Affective Filter Hypothesis by illustrating how psychologically safe AI-mediated interaction facilitates oral Arabic communication through learners' lived experiences. It also contributes to Arabic language education by emphasizing the importance of incorporating learner personality characteristics into the design of AI-assisted instructional environments that promote inclusive participation, communicative competence, and autonomous language learning.

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INTRODUCTION

The rapid advancement of generative artificial intelligence (AI) has transformed the landscape of language education by enabling learners to engage in interactive, adaptive, and personalized learning experiences beyond conventional classroom settings. Conversational AI platforms such as ChatGPT have become increasingly integrated into foreign language learning because they provide immediate feedback, unlimited opportunities for practice, and individualized learning support. Rather than functioning solely as information retrieval systems, these technologies increasingly serve as conversational partners capable of facilitating authentic language interaction. Such developments have shifted the focus of technology-enhanced language learning from content

* Corresponding author:

Shobirin, Universitas Islam Zainul Hasan Genggong Probolinggo, INDONESIA
birinsho489@gmail.com

delivery toward learner-centered communication and autonomous practice. In Arabic language education, where opportunities for authentic interaction are often limited outside the classroom, AI-mediated communication offers promising alternatives for extending language exposure and encouraging active participation in meaningful linguistic exchanges.

Despite these technological advances, speaking remains one of the most challenging skills for learners of Arabic as a foreign language. Oral communication requires learners to process linguistic input rapidly while simultaneously managing pronunciation, grammatical accuracy, vocabulary retrieval, and social interaction. These demands frequently generate foreign language anxiety, particularly among learners who are reluctant to express themselves publicly or fear making mistakes in front of peers. Some studies identified foreign language anxiety as a distinct psychological construct that substantially hinders communicative performance (Ma, 2022; Teimouri et al., 2019; Zheng & Cheng, 2018), while Hadziq et al. (2026) argued that heightened anxiety raises the affective filter, thereby limiting language acquisition even when adequate input is available. These challenges are often more pronounced among introverted learners, who generally prefer reflective thinking and private interaction over immediate verbal participation. Consequently, conventional classroom practices that emphasize spontaneous oral performance may unintentionally constrain their opportunities for meaningful linguistic development.

The emergence of conversational AI has introduced new possibilities for addressing these affective barriers by providing psychologically safer environments for language practice (Ferrario et al., 2024; Sayed et al., 2024; Sethi & Jain, 2024). Unlike traditional classroom interactions, AI enables learners to communicate without fear of negative evaluation, peer comparison, or social embarrassment, allowing them to experiment with language more freely (Shi & Shakibaei, 2025; Wang & Zou, 2025). This characteristic has led researchers to increasingly conceptualize AI-supported learning environments as safe spaces that encourage linguistic risk-taking, repeated practice, and self-directed learning. Within such environments, learners may rehearse conversations, receive corrective feedback, and refine their language production at their own pace before engaging in real social communication. For introverted students, who often require additional time to formulate ideas before speaking, AI-mediated interaction may represent not merely a technological tool but also an emotionally supportive learning environment that facilitates greater confidence and participation.

The relevance of this issue is particularly evident in Arabic language learning, where linguistic complexity and classroom expectations often intensify learners' communicative apprehension. Arabic presents distinctive challenges due to its rich morphological system, complex syntactic structures, and sociolinguistic diversity, requiring sustained practice and repeated oral interaction to achieve communicative competence (Almelhes, 2024; Asadi & Asli-Badarneh, 2026). Although digital technologies have increasingly been incorporated into Arabic language instruction, many pedagogical practices continue to rely on teacher-centered interaction and public classroom participation, creating difficulties for learners with different personality characteristics (I. A. Ahmed & Mikail, 2023; Bernard et al., 2019; Mpho, 2018). As institutions increasingly adopt AI-assisted learning, understanding how individual differences shape learners' experiences becomes essential for designing more inclusive instructional environments. Investigating the perspectives of introverted learners is therefore important for expanding current knowledge regarding learner diversity in AI-supported Arabic language education.

Recent studies have consistently reported positive educational outcomes associated with the integration of artificial intelligence into language learning. Previous research demonstrates that conversational AI can improve speaking performance, writing quality, learner autonomy, motivation, and personalized feedback while simultaneously supporting adaptive instructional practices (I. Ahmed et al., 2025; Dekhakhena, 2025; Du, 2025; L. Liu, 2025; Mohebbi, 2024; Wei, 2023). Within Arabic language education, scholars have highlighted the potential of AI to facilitate vocabulary acquisition, pronunciation practice, conversational exercises, and individualized learning pathways (Moustafa et al., 2026; Yaqin et al., 2025; Zubair, 2026). Other studies have further emphasized the capacity of AI to reduce communication anxiety and increase learners' willingness to engage in target-language interaction through non-judgmental conversational experiences (Ding & Muhyiddin B Yusof, 2025; Naseer et al., 2024; Yan & Singh, 2026). Collectively, these findings suggest that AI

possesses considerable pedagogical potential for enhancing language learning across diverse educational contexts.

Nevertheless, existing literature remains dominated by quantitative investigations that primarily evaluate learning outcomes, technology acceptance, usability, or instructional effectiveness (Al-Nuaimi & Al-Emran, 2021; Lai & Bower, 2020; Lu et al., 2022). Comparatively little attention has been devoted to understanding how learners subjectively experience AI-mediated interaction during language learning, particularly from phenomenological perspectives (Bekdaş, 2026; G. L. Liu & Zhao, 2026; Xia & Guo, 2025). Furthermore, studies specifically examining Arabic language learning continue to be relatively limited compared with research conducted in English or other widely taught foreign languages. Even fewer investigations explicitly consider personality characteristics, despite evidence suggesting that introversion substantially influences learners' communication preferences, emotional responses, and classroom participation. Consequently, the intersection between artificial intelligence, introverted learners, psychological safety, and Arabic language learning remains insufficiently explored, representing an important gap in contemporary educational research.

Against this background, the present study aims to explore the lived experiences of introverted students using ChatGPT as a safe space for linguistic expression in Arabic language learning through an Interpretative Phenomenological Analysis (IPA) approach. Rather than measuring technological effectiveness, this study seeks to understand how learners perceive, interpret, and assign meaning to their interactions with conversational AI during the process of developing oral Arabic communication. By foregrounding the voices of introverted learners, this research contributes theoretically to discussions on affective dimensions of AI-supported language learning and extends the application of the Affective Filter Hypothesis within intelligent digital environments. Practically, the findings provide evidence-based insights for Arabic language educators and instructional designers seeking to develop AI-assisted learning environments that accommodate learner personality diversity while fostering greater confidence, participation, and communicative competence.

METHOD

This study employed a qualitative interpretive phenomenological design to explore how introverted students experienced the use of ChatGPT as a psychologically safe environment for Arabic language learning. Interpretive phenomenology was selected because the objective of the study was not to measure the effectiveness of artificial intelligence, but to understand the meanings participants attributed to their interactions with conversational AI in relation to linguistic anxiety, confidence, and oral communication. Following van Manen's phenomenology of practice, the study focused on interpreting participants' lived experiences within their authentic educational context, allowing psychological and pedagogical dimensions of AI-assisted Arabic learning to emerge naturally through participants' narratives. This design was considered appropriate because it facilitates an in-depth understanding of subjective experiences that cannot be adequately captured through quantitative measurement alone (Creswell & Poth, 2016; Van Manen, 2016).

The research was conducted in the Mathematics Education Program at Zainul Hasan Genggong Islamic University, Probolinggo, Indonesia, where Arabic is offered as a compulsory university course for non-Arabic majors. Data collection was carried out over an eight-week period during the 2024 academic year. The target population consisted of undergraduate students enrolled in the compulsory Arabic course, while participants were selected through purposive sampling based on their ability to provide rich information regarding the phenomenon under investigation. Seven students aged between 18 and 22 years participated in the study after meeting predetermined inclusion criteria. Introversion preference was initially identified using the digital version of the Myers–Briggs Type Indicator (MBTI) solely as a preliminary screening instrument and was subsequently confirmed through participants' self-reported learning characteristics, including reluctance to participate in classroom speaking activities, preference for reflective learning, and experiences of anxiety during oral Arabic communication. Students who had extensive prior experience using ChatGPT for Arabic learning or who did not complete all stages of the study were excluded from the final analysis.

Data were generated from multiple complementary sources to strengthen methodological rigor through triangulation. Semi-structured interviews served as the primary instrument, with each participant completing two individual interview sessions conducted before and after the eight-week learning period. The interview protocol explored previous experiences in Arabic speaking classes, perceptions of classroom communication anxiety, emotional responses during ChatGPT interaction, and perceived differences between communicating with artificial intelligence and human interlocutors. Participant observation was conducted during selected ChatGPT learning sessions using structured observation sheets documenting response latency, interaction patterns, linguistic risk-taking, revision behavior, and engagement throughout the learning process. In addition, participants completed weekly self-reflective journals describing their learning experiences, emotional responses, perceived progress, and emerging learning strategies while interacting with ChatGPT. The interview guide, observation protocol, and reflective-journal prompts were developed based on the constructs of psychological safety, linguistic anxiety, learner autonomy, and willingness to communicate derived from the study's theoretical framework. Instrument credibility was strengthened through expert review by a qualitative research specialist before data collection commenced, while methodological trustworthiness was established through triangulation of multiple data sources, member checking, reflexive memo writing, and external auditing of the coding process.

Data collection followed four sequential stages. The preparation stage included obtaining institutional approval, recruiting participants, conducting introversion screening, explaining research procedures, obtaining written informed consent, and providing standardized guidance on using ChatGPT for Arabic conversational practice. During the baseline stage, the first round of interviews documented participants' previous experiences with Arabic speaking activities and their expectations regarding AI-assisted learning. Participants then engaged in individual ChatGPT-assisted Arabic practice over eight consecutive weeks, during which they completed simulated conversations, vocabulary exercises, grammatical corrections, sentence reformulation tasks, and open-ended communicative interactions. Throughout this period, researchers conducted classroom observations, collected weekly reflective journals, and archived participants' ChatGPT interaction records with their permission. At the conclusion of the intervention period, a second round of interviews was conducted to explore changes in participants' perceptions of psychological safety, linguistic confidence, and willingness to communicate in Arabic after sustained interaction with conversational AI.

The collected data were analyzed using Creswell's phenomenological analysis procedure, which involved repeated reading of all transcripts, identification of significant statements, formulation of meaning units, clustering of related meanings into themes, construction of textual and structural descriptions, and synthesis of the essential structure of the lived experience (Creswell & Poth, 2018). Throughout the analytical process, bracketing was employed to minimize researchers' prior assumptions, while iterative coding and constant comparison were used to refine emerging themes across interviews, observations, reflective journals, and ChatGPT interaction records. The credibility of the findings was enhanced through member checking, whereby participants reviewed the preliminary thematic interpretations, and through triangulation across multiple sources of evidence. Confidentiality and anonymity were maintained by replacing participants' identities with coded identifiers, securely storing all digital records, and ensuring that participation remained voluntary, with participants retaining the right to withdraw from the study at any stage without academic consequences.

RESULTS AND DISCUSSION

Results

Phenomenological analysis of the interview transcripts, participant observations, reflective journals, and ChatGPT interaction records revealed five interconnected themes describing how introverted students experienced the use of artificial intelligence as a psychologically safe environment for learning spoken Arabic. Although each theme represents a distinct aspect of the participants' experiences, together they illustrate a gradual process through which AI-mediated interaction reduced psychological barriers, encouraged greater linguistic engagement, and

supported more autonomous learning. Table 1 summarizes the five themes identified during the analysis before each theme is presented in greater detail.

Table 1. Summary of Themes Emerging from the Phenomenological Analysis

No. Theme	Description of the Experience
1 Psychological Safety in the Absence of Social Judgment	Participants experienced a strong sense of linguistic freedom because interaction occurred without peer observation or fear of negative evaluation.
2 Reduced Linguistic Anxiety	Participants reported a gradual reduction in anxiety when practicing Arabic in a private AI-supported environment.
3 Gradual Growth of Linguistic Confidence	Repeated interaction with ChatGPT fostered increasing confidence in expressing ideas in Arabic.
4 Self-Awareness of Linguistic Weaknesses and Learner Autonomy	Participants became more aware of their linguistic limitations and independently sought improvements through AI interaction.
5 Strategic Preference for Safe Interaction	ChatGPT was perceived as a preparatory environment before participating in face-to-face classroom communication.

Source: Results of phenomenological analysis of primary data (2024).

The first theme, psychological safety in the absence of social judgment, emerged consistently across all participants. Every participant described ChatGPT as an environment in which they could communicate in Arabic without worrying about embarrassment, criticism, or negative reactions from classmates. This perception differed markedly from their classroom experiences, where speaking activities were frequently associated with fear of making pronunciation or grammatical mistakes. One participant (F.M.) explained, *"When I speak with the program, I don't fear that someone will laugh at my mispronunciation, because no one is watching me."* Weekly reflective journals further indicated that this sense of safety became stronger throughout the eight-week learning period, suggesting that repeated interaction gradually reinforced participants' willingness to communicate.

The second theme concerned the reduction of linguistic anxiety in the digital learning environment. Participants consistently described ChatGPT as a communication partner that allowed them to practice Arabic without experiencing the immediate social pressure typically associated with classroom speaking activities. As participants became increasingly familiar with the AI-supported environment, they reported feeling more relaxed when experimenting with vocabulary, sentence structures, and spontaneous responses. One participant (R.A.) described the experience as *"like talking to the air, but it understands you,"* emphasizing the absence of interpersonal pressure during communication. Classroom observations supported these accounts, showing that participants attempted more complex Arabic expressions and were more willing to revise their responses than during conventional classroom interactions.

The third theme reflected the gradual growth of linguistic confidence. Participants reported that repeated opportunities to communicate with ChatGPT enabled them to express ideas more fluently and with less hesitation over time. Rather than occurring immediately, confidence developed progressively through continuous interaction and repeated practice. Reflective journals documented this gradual change across the eight-week period. One participant (M.Y.) wrote during the sixth week, *"I can now express what I want in Arabic with far greater freedom than I ever dreamed possible before."* Four of the seven participants also reported that the confidence they developed while practicing with ChatGPT eventually extended to classroom speaking activities, making them more willing to participate in discussions and oral presentations.

The fourth theme highlighted self-awareness of linguistic weaknesses and the development of learner autonomy. Participants demonstrated increasing ability to recognize their own limitations in vocabulary, grammar, and sentence construction while interacting with ChatGPT. Instead of depending exclusively on teacher correction, they actively reformulated questions, requested

alternative expressions, and repeated conversations until they were satisfied with their understanding. Reflective journals showed that participants gradually became more independent in identifying errors and determining appropriate learning strategies. This process encouraged a greater sense of ownership over their Arabic learning and promoted continuous self-improvement throughout the study period.

The fifth theme revealed a strategic preference for safe interaction before classroom communication. Although all participants preferred practicing with ChatGPT, they emphasized that this preference did not indicate avoidance of classroom interaction. Rather, they viewed AI-supported practice as a preparatory stage that enabled them to build sufficient confidence before speaking publicly. One participant (N.F.) explained, *"I practice with the computer until I become ready to speak in front of my classmates."* Participants consistently described ChatGPT as a rehearsal environment where they could experiment with Arabic expressions, correct mistakes, and strengthen their confidence before transferring those skills to face-to-face communication. Collectively, these findings indicate that participants perceived AI not as a substitute for classroom interaction but as a supportive environment that facilitated their readiness to participate more actively in formal Arabic learning contexts.

Discussion

The first two themes demonstrate that psychological safety constitutes the primary mechanism through which ChatGPT supports Arabic language learning among introverted students. Participants consistently described the AI environment as free from peer judgment and social embarrassment, allowing them to communicate in Arabic without the fear of making mistakes. This finding supports Krashen's Affective Filter Hypothesis, which argues that lower anxiety facilitates greater language acquisition by enabling learners to process linguistic input more effectively. However, the present study extends this perspective by showing that psychological safety is not merely a condition that reduces anxiety but also a prerequisite for encouraging sustained oral participation among introverted learners. This interpretation is consistent with recent studies reporting that conversational AI creates non-judgmental learning environments that promote language experimentation and communicative engagement (Ferrario et al., 2024; Sayed et al., 2024; Sethi & Jain, 2024). Unlike many previous studies that primarily measured learning outcomes quantitatively, this study reveals how psychological safety is experienced subjectively and gradually constructed through continuous interaction with AI, thereby enriching current understanding of affective dimensions in Arabic language learning.

The reduction of linguistic anxiety observed throughout the eight-week learning process further highlights the pedagogical role of conversational AI in supporting oral Arabic communication. Participants became increasingly willing to experiment with unfamiliar vocabulary, more complex sentence structures, and spontaneous responses because interaction occurred without immediate social evaluation. These findings reinforce previous evidence that AI-mediated communication can reduce foreign language anxiety while increasing learners' willingness to communicate (Ding & Muhyiddin B Yusof, 2025; Naseer et al., 2024; Yan & Singh, 2026). Nevertheless, the present findings suggest that anxiety reduction should not be interpreted solely as a technological effect. Instead, it emerged from the interaction between learners' personality characteristics and the psychological affordances provided by AI, indicating that the effectiveness of conversational AI depends substantially on individual learner differences. This interpretation broadens current discussions by positioning learner personality as an important contextual factor in the successful integration of artificial intelligence into Arabic language education.

Another important finding concerns the gradual development of linguistic confidence and learner autonomy through repeated interaction with ChatGPT. Rather than experiencing immediate improvement, participants described confidence as developing progressively through continuous opportunities to practice, receive feedback, and refine their linguistic production independently. This process reflects Bandura's concept of mastery experience, whereby repeated successful performance strengthens learners' self-efficacy and confidence in future communication. Similar findings have been reported in recent studies demonstrating that AI supports learner autonomy, personalized feedback, and self-directed language learning (I. Ahmed et al., 2025; Dekhakhena, 2025; Du, 2025; Wei, 2023). However, this study extends previous research by illustrating that confidence

development is closely associated with participants' increasing awareness of their own linguistic weaknesses and their ability to regulate learning independently. Consequently, conversational AI functions not only as a feedback provider but also as a catalyst for reflective learning and autonomous language development.

The emergence of a strategic preference for AI-assisted practice before classroom participation represents one of the most significant contributions of this study. Participants consistently emphasized that ChatGPT was not intended to replace teachers or classroom interaction but rather to serve as a preparatory environment before engaging in public communication. This phenomenon, referred to as *safe practice before performance*, provides a new perspective on the relationship between artificial intelligence and language learning by suggesting that AI functions as a psychological scaffold rather than merely a technological tool. The finding complements Vygotsky's sociocultural perspective by illustrating that AI can temporarily assume a supportive instructional role while simultaneously reducing the emotional barriers that often accompany classroom interaction. Compared with previous studies focusing primarily on learning achievement or technology acceptance (Al-Nuaimi & Al-Emran, 2021; Lai & Bower, 2020; Lu et al., 2022), the present study highlights the psychological mechanisms underlying learners' engagement with conversational AI, particularly among introverted students learning Arabic as a foreign language.

Taken together, these findings position conversational artificial intelligence as a pedagogical environment that accommodates learner diversity rather than as a simple instructional technology. The study contributes to the growing body of literature by integrating the Affective Filter Hypothesis, learner personality, and AI-supported language learning into a single explanatory perspective grounded in participants' lived experiences. Unlike earlier research that has largely emphasized technological effectiveness or learning performance, this phenomenological investigation demonstrates how emotional safety, confidence, and learner autonomy develop through sustained interaction with conversational AI. These findings therefore address an important gap in Arabic language education by providing empirical evidence that individual personality characteristics should be considered when designing AI-assisted instructional environments. From a practical perspective, the results suggest that integrating conversational AI as a preparatory learning space before classroom communication may create more inclusive Arabic learning environments that foster confidence, participation, and communicative competence across diverse learner profiles.

CONCLUSION

The analysis of 71 publications from 2010 to 2024 shows that Arabic language teaching in Indonesia has evolved through the continued coexistence of established and emerging instructional approaches. Traditional pesantren and Grammar–Translation Methods remain visible as foundations for textual and grammatical learning, while Audio-Lingual, Communicative, and Integrated Approaches appear more selectively in response to specific pedagogical needs. The most prominent change is the rapid growth of Technology-Based Learning after 2020, which indicates a clear shift toward more flexible, interactive, and digitally mediated learning environments. Overall, the findings suggest that the development of Arabic language education in Indonesia is not characterized by the replacement of traditional methods, but by their gradual integration with communicative, integrated, and technology-supported practices.

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AUTHOR CONTRIBUTIONS STATEMENT

Shobirin: Conceptualization, methodology, investigation, data collection, formal analysis, and writing the original draft preparation. M. Inzah: Methodology, theoretical framework development, data analysis, and writing included the review and editing process. Ahmad Muzammil: Investigation, data curation, literature review, and validation. Bahruddin Zaini: Supervision, project administration, critical review, and manuscript editing. All authors have read and approved the final version of the manuscript and agree to be accountable for all aspects of the work.

REFERENCES

- Ahmed, I. A., & Mikail, M. A. (2023). Interactive instructor for a synergistic student-centered and personalized teaching: A biosocial approach. *Education and Urban Society*, 55(8), 996–1018. <https://doi.org/10.1177/00131245221106717>
- Ahmed, I., Ghafoor, A., Liliuara, D., & Akyuningrum, V. Q. (2025). The impact of AI learning tools on ESL learners' motivation and success: A systematic literature review. *English Learning Innovation*, 6(1), 134–142. <https://doi.org/10.22219/englie.v6i1.38961>
- Almelhes, S. (2024). Enhancing Arabic language acquisition: Effective strategies for addressing non-native learners' challenges. *Education Sciences*, 14(10), Article 1116. <https://doi.org/10.3390/educsci14101116>
- Al-Nuaimi, M. N., & Al-Emran, M. (2021). Learning management systems and technology acceptance models: A systematic review. *Education and Information Technologies*, 26(5), 5499–5533. <https://doi.org/10.1007/s10639-021-10513-3>
- Asadi, I., & Asli-Badarneh, A. (2026). Diglossia and orthographic complexity as multiplicative but not additive challenges in Arabic: A critical review. *Journal of Psycholinguistic Research*, 55(3), Article 37. <https://doi.org/10.1007/s10936-026-10214-3>
- Bekdaş, M. (2026). ChatGPT: The artificial intelligence for fostering grit in second language writing classes. *Humanities and Social Sciences Communications*, 13(1), Article 203. <https://doi.org/10.1057/s41599-026-06557-w>
- Bernard, R. M., Borokhovski, E., Schmid, R. F., Waddington, D. I., & Pickup, D. I. (2019). Twenty-first century adaptive teaching and individualized learning operationalized as specific blends of student-centered instructional events: A systematic review and meta-analysis. *Campbell Systematic Reviews*, 15(1–2), Article e1017. <https://doi.org/10.1002/cl2.1017>
- Creswell, J. W., & Poth, C. N. (2016). *Qualitative inquiry and research design: Choosing among five approaches*. SAGE Publications.
- Dekhakhena, A. (2025). AI-powered personalized learning in EFL acquisition: Exploring adaptive instruction and feedback systems. *Journal of Studies in Language, Culture and Society*, 8(1), 111–131.
- Ding, D., & Muhyiddin B Yusof, A. (2025). Investigating the role of AI-powered conversation bots in enhancing L2 speaking skills and reducing speaking anxiety: A mixed methods study. *Humanities and Social Sciences Communications*, 12(1), Article 1223. <https://doi.org/10.1057/s41599-025-05550-z>
- Du, Q. (2025). How artificially intelligent conversational agents influence EFL learners' self-regulated learning and retention. *Education and Information Technologies*, 30(15), 21635–21701. <https://doi.org/10.1007/s10639-025-13602-9>
- Ferrario, A., Sedlakova, J., & Trachsel, M. (2024). The role of humanization and robustness of large language models in conversational artificial intelligence for individuals with depression: A critical analysis. *JMIR Mental Health*, 11(1), Article e56569. <https://doi.org/10.2196/56569>
- Hadziq, M. F., Muzadi, N. H., Algatnaini, R. A. S., & Rinaldo, A. R. (2026). Comprehensible input, affective filter, and communicative environment: A case study of Krashen's five hypotheses

- in an Indonesian pesantren. *Alsuna: Journal of Arabic and English Language*, 9(1), 71–90. <https://doi.org/10.31538/alsuna.v9i1.9802>
- Lai, J. W. M., & Bower, M. (2020). Evaluation of technology use in education: Findings from a critical analysis of systematic literature reviews. *Journal of Computer Assisted Learning*, 36(3), 241–259. <https://doi.org/10.1111/jcal.12412>
- Liu, G. L., & Zhao, X. (2026). A scoping review of AI-mediated informal language learning: Mapping out the terrain and identifying future directions. *ReCALL*, 38(1), 111–130. <https://doi.org/10.1017/S0958344025100359>
- Liu, L. (2025). Impact of AI gamification on EFL learning outcomes and nonlinear dynamic motivation: Comparing adaptive learning paths, conversational agents, and storytelling. *Education and Information Technologies*, 30(8), 11299–11338. <https://doi.org/10.1007/s10639-024-13296-5>
- Lu, J., Schmidt, M., Lee, M., & Huang, R. (2022). Usability research in educational technology: A state-of-the-art systematic review. *Educational Technology Research and Development*, 70(6), 1951–1992. <https://doi.org/10.1007/s11423-022-10152-6>
- Ma, Y. (2022). The triarchy of L2 learners' emotion, cognition, and language performance: Anxiety, self-efficacy, and speaking skill in lights of the emerging theories in SLA. *Frontiers in Psychology*, 13, Article 1002492. <https://doi.org/10.3389/fpsyg.2022.1002492>
- Mohebbi, A. (2024). Enabling learner independence and self-regulation in language education using AI tools: A systematic review. *Cogent Education*, 12(1), Article 2433814. <https://doi.org/10.1080/2331186X.2024.2433814>
- Moustafa, A. H. A., Fayez Al-Hamad, M., Asif Qureshi, M., & Qadir, J. (2026). Generative AI for learning and teaching Arabic: Opportunities, challenges, and ethical considerations. *IEEE Access*, 14, 7379–7395. <https://doi.org/10.1109/ACCESS.2026.3651864>
- Mpho, O.-M. (2018). Teacher-centered dominated approaches: Their implications for today's inclusive classrooms. *International Journal of Psychology and Counselling*, 10(2), 11–21. <https://doi.org/10.5897/IJPC2016.0393>
- Naseer, F., Khalid, U., Qammar, M. Z., & Kashif, H. (2024). Chatbots as conversational partners: Their effectiveness in facilitating language acquisition and reducing foreign language anxiety. *Journal of Applied Linguistics and TESOL*, 7(4), 238–255.
- Sayed, B. T., Bani Younes, Z. B., Alkhayyat, A., Adhamova, I., & Teferi, H. (2024). To be with artificial intelligence in oral test or not to be: A probe into the traces of success in speaking skill, psychological well-being, autonomy, and academic buoyancy. *Language Testing in Asia*, 14(1), Article 49. <https://doi.org/10.1186/s40468-024-00321-0>
- Sethi, S. S., & Jain, K. (2024). AI technologies for social emotional learning: Recent research and future directions. *Journal of Research in Innovative Teaching & Learning*, 17(2), 213–225. <https://doi.org/10.1108/JRIT-03-2024-0073>
- Shi, W., & Shakibaei, G. (2025). Insights into the effectiveness of artificial intelligence-integrated speaking instruction in enhancing speaking skills and social-emotional competence as well as reducing demotivation and shyness. *European Journal of Education*, 60(3), Article e70174. <https://doi.org/10.1111/ejed.70174>
- Teimouri, Y., Goetze, J., & Plonsky, L. (2019). Second language anxiety and achievement: A meta-analysis. *Studies in Second Language Acquisition*, 41(2), 363–387. <https://doi.org/10.1017/S0272263118000311>
- Van Manen, M. (2016). *Researching lived experience: Human science for an action sensitive pedagogy* (2nd ed.). Routledge. <https://doi.org/10.4324/9781315421056>
- Wang, C., & Zou, B. (2025). AI versus teachers and peers: A comparative study on speaking performance, willingness to communicate, self-perceived communicative competence, and

- foreign language anxiety. *International Review of Applied Linguistics in Language Teaching*. Advance online publication. <https://doi.org/10.1515/iral-2024-0310>
- Wei, L. (2023). Artificial intelligence in language instruction: Impact on English learning achievement, L2 motivation, and self-regulated learning. *Frontiers in Psychology*, 14, Article 1261955. <https://doi.org/10.3389/fpsyg.2023.1261955>
- Xia, M., & Guo, S. (2025). Understanding learners' perceptions of artificial intelligence-mediated informal digital learning of English: A Q methodology approach. *Acta Psychologica*, 261, Article 105980. <https://doi.org/10.1016/j.actpsy.2025.105980>
- Yan, H., & Singh, M. K. S. (2026). The impact of AI-mediated instruction on speaking proficiency, enjoyment, anxiety, and emotional engagement: A mixed-methods approach. *Humanities and Social Sciences Communications*, 13(1), Article 568. <https://doi.org/10.1057/s41599-026-06705-2>
- Yaqin, M. A., Adlani, H., Ridwan, & Laili, M. I. (2025). Artificial intelligence in Arabic language learning: A systematic literature review of educational trends and future directions. *Al-Muyassar: Journal of Arabic Education*, 4(2). <https://doi.org/10.31000/vpmkc594>
- Zheng, Y., & Cheng, L. (2018). How does anxiety influence language performance? From the perspectives of foreign language classroom anxiety and cognitive test anxiety. *Language Testing in Asia*, 8(1), Article 13. <https://doi.org/10.1186/s40468-018-0065-4>
- Zubair, K. M. A. A. (2026). Artificial intelligence in Arabic language education: Applications, perceptions, and pedagogical integration. *Journal of Digital Learning and Distance Education*, 4(11), 1977–1985. <https://doi.org/10.56778/jdlde.v4i11.701>