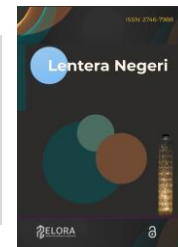




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Linking linguistic intelligence and speaking anxiety in foreign language learning: a systematic review and integrative conceptual synthesis

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Article Info

Article history:

Received Aug 02th, 2026

Revised Aug 08th, 2026

Accepted Aug 11th, 2026

Keyword:

Linguistic intelligence,
Speaking anxiety,
Foreign language learning,
Speaking skills,
Systematic literature review

ABSTRACT

Speaking anxiety is a major affective barrier to oral performance in foreign language learning, while linguistic intelligence provides cognitive resources for vocabulary use, language organization, and verbal communication. Previous reviews have largely examined speaking anxiety separately, with limited attention to its interaction with linguistic intelligence across learning contexts. Guided by Gardner's Multiple Intelligences framework and an affective perspective on foreign language anxiety, this study systematically synthesizes evidence on their relationship. Following PRISMA 2020, 35 studies published between 2020 and 2025 were selected from international databases. Eligible studies addressed foreign language learning and examined linguistic intelligence or competence, speaking anxiety, or related cognitive-affective factors. Methodological quality was appraised using the Mixed Methods Appraisal Tool (MMAT) Version 2018. Study selection and thematic coding were conducted by a single reviewer, and themes were developed through comparison and grouping of recurring findings. The synthesis indicates that stronger linguistic competence generally supports communicative readiness and lower speaking anxiety, although the relationship is context-dependent. Three broader conditions emerged: learner-affective factors, instructional-social conditions, and technology-supported practice. This review offers an integrative conceptual synthesis in which linguistic intelligence supports cognitive readiness for speaking, while affective and contextual conditions influence how effectively these resources are translated into speaking performance, rather than functioning as independent determinants of oral communication outcomes.



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Introduction

Speaking is widely recognized as one of the most essential yet challenging skills in foreign language learning because it requires learners to integrate linguistic knowledge, cognitive processing, emotional regulation, and social interaction in real-time communication (Yan et al., 2024). Unlike receptive language skills, speaking demands the simultaneous use of vocabulary, grammatical accuracy, pronunciation, fluency, and interactive communication strategies (Angamo et al., 2026; Fathi et al., 2024). Consequently, many learners experience considerable difficulty expressing their ideas effectively despite possessing adequate knowledge of the target language.

Among the numerous factors influencing speaking performance, speaking anxiety has consistently been identified as one of the most significant affective barriers to successful oral communication. Speaking anxiety

is characterized by feelings of fear, nervousness, apprehension, and reduced self-confidence when learners are required to communicate in a foreign language (Suryadi, 2023). High levels of anxiety may impair cognitive processing, reduce learners' willingness to communicate, limit classroom participation, and negatively affect speaking fluency and overall language achievement (Lin et al., 2025; Wang et al., 2022). Foundational studies established that learners experiencing high speaking anxiety are more likely to avoid oral interaction and perform below their actual linguistic competence (Horwitz et al., 1986; MacIntyre & Gardner, 1994).

More recent evidence demonstrates that speaking anxiety continues to be one of the most influential affective variables in foreign language learning despite advances in communicative teaching approaches and educational technology (Gao, 2022). Contemporary research consistently associates speaking anxiety with lower willingness to communicate, reduced speaking performance, diminished self-confidence, and limited classroom engagement across diverse educational contexts (Dewaele et al., 2023). Furthermore, recent systematic reviews suggest that speaking anxiety should not be understood as an isolated emotional construct but rather as a multidimensional phenomenon shaped by the interaction of learner characteristics, cognitive abilities, motivational factors, and technology-enhanced learning environments (Ady & Mardiah, 2024). These developments indicate that understanding speaking anxiety requires greater attention to the interaction between cognitive and affective dimensions of language learning.

In addition to affective factors, cognitive abilities also play a crucial role in determining learners' speaking performance. One of the most influential cognitive constructs is linguistic intelligence, proposed in Gardner's Theory of Multiple Intelligences (Gardner, 1983, 1999). Linguistic intelligence refers to an individual's capacity to understand, process, and use language effectively in both spoken and written communication. Individuals with stronger linguistic intelligence are generally assumed to demonstrate more efficient language-processing abilities, including vocabulary retrieval, grammatical organization, and verbal expression. Nevertheless, recent evidence suggests that the contribution of cognitive abilities to speaking performance is influenced by affective variables such as speaking anxiety, self-efficacy, and learning environments rather than cognitive aptitude alone (Zuniga & Simard, 2022). Accordingly, linguistic intelligence should be understood within the broader framework of individual differences in foreign language learning rather than as an isolated predictor of speaking performance.

Several empirical studies have reported a negative association between linguistic intelligence and speaking anxiety. Learners with stronger linguistic abilities are generally better equipped to organize ideas, retrieve vocabulary efficiently, and construct grammatically appropriate utterances during oral communication, which may contribute to greater confidence when speaking in a foreign language (Suzuki & Kormos, 2023). Conversely, learners with more limited linguistic competence may experience greater concern about making mistakes, receiving negative evaluation, and encountering communication breakdowns (Rodriguez, 2022; Suryadi, 2023). In addition, positive classroom experiences, supportive teacher feedback, and effective instructional strategies have been shown to reduce speaking anxiety while strengthening learners' confidence during oral communication (Dewaele & MacIntyre, 2014; Hartono et al., 2022). Collectively, these findings indicate that linguistic intelligence may function as a cognitive resource associated with lower levels of speaking anxiety, although the strength and consistency of this relationship appear to differ across learning contexts.

The literature also indicates that speaking anxiety is influenced by the interaction of internal and external factors. Internal factors include limited vocabulary knowledge, inadequate grammatical competence, pronunciation difficulties, low self-confidence, weak self-efficacy, and fear of negative evaluation (Gunawan, 2026; Ramli et al., 2024). External factors encompass teacher-centered instructional practices, excessive performance pressure, limited opportunities for authentic communication, and unsupportive classroom environments. Conversely, learner-centered instructional approaches, constructive feedback, collaborative learning activities, and supportive teacher-student relationships have been shown to reduce anxiety while encouraging greater classroom participation and oral interaction.

Recent advances in educational technology have introduced additional opportunities to reduce speaking anxiety while simultaneously improving speaking performance. Artificial Intelligence (AI), Automatic Speech Recognition (ASR), intelligent tutoring systems, and digital language-learning platforms enable learners to engage in independent speaking practice and receive immediate formative feedback within relatively low-pressure learning environments. These technologies not only facilitate improvements in pronunciation, fluency, and vocabulary development but also strengthen learners' confidence by allowing repeated practice without fear of negative peer evaluation (Bashori et al., 2022).

Although speaking anxiety has been extensively examined in foreign language learning, recent empirical studies and systematic reviews have primarily focused on its relationships with speaking performance, willingness to communicate, self-efficacy, technology-enhanced language learning, and other affective variables rather than its interaction with learners' linguistic intelligence (Chen, 2024; Ma, 2022; Mingshen et al., 2026; Evitarini et al., 2025). As a result, current knowledge concerning the relationship between linguistic intelligence and speaking anxiety remains comparatively limited. Existing findings are dispersed across different educational settings, participant characteristics, and methodological approaches, making it difficult to determine whether linguistic intelligence consistently functions as a cognitive resource associated with lower speaking anxiety or whether this relationship varies according to contextual and instructional factors (Huang & Li, 2024; Lestiono & Lee, 2024). Consequently, the available evidence has yet to provide a coherent conceptual explanation of how cognitive abilities interact with affective responses during foreign language speaking.

Furthermore, although previous studies have contributed valuable empirical findings, differences in educational settings, cultural backgrounds, participant characteristics, and instructional approaches have produced inconsistent conclusions regarding the interaction between linguistic intelligence and speaking anxiety. To date, no recent systematic review has comprehensively synthesized this body of evidence to explain how these cognitive and affective constructs interact across diverse foreign language learning contexts. This unresolved issue limits the development of integrated theoretical perspectives and evidence-based pedagogical strategies that simultaneously address learners' cognitive resources and affective challenges.

Therefore, this study aims to systematically identify, critically evaluate, and synthesize empirical evidence concerning the relationship between linguistic intelligence and speaking anxiety in foreign language learning by conducting a Systematic Literature Review (SLR) based on the PRISMA 2020 guidelines. Unlike previous reviews that primarily examined speaking anxiety or technology-assisted language learning independently, this review integrates evidence concerning linguistic intelligence, speaking anxiety, psychological variables, and technology-enhanced learning within a unified conceptual perspective. By consolidating findings from previous empirical studies, this review seeks to clarify the current state of knowledge, identify unresolved issues, strengthen theoretical understanding of the interaction between cognitive and affective dimensions of language learning, and provide evidence-based recommendations for future research and pedagogical practice.

Method

This study employed a Systematic Literature Review (SLR) to systematically identify, critically evaluate, and synthesize empirical evidence regarding the relationship between linguistic intelligence and speaking anxiety in foreign language learning. The review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) guidelines, which provide a transparent and reproducible framework for identifying, screening, assessing, and synthesizing relevant evidence. The review process consisted of four sequential stages: identification, screening, eligibility assessment, and inclusion.

A comprehensive literature search was conducted from January to July 2026, while eligible studies were limited to publications issued between January 2020 and July 2026. To maximize the coverage of relevant studies, the search was performed across seven electronic databases, namely Scopus, Web of Science (WoS), ScienceDirect, ERIC, SpringerLink, Taylor & Francis Online, and Google Scholar, which was used as a supplementary source to identify potentially relevant studies that were not indexed in the primary databases. To increase the precision of the search results, searches were restricted to the article title field, and Boolean operators (AND and OR) were applied to combine the search terms. The search strategy included combinations of the keywords "linguistic intelligence", "multiple intelligences", "speaking anxiety", "foreign language anxiety", "foreign language learning", "second language learning", and "English as a Foreign Language (EFL)". An example of the search string used in Scopus is presented below: TITLE ("linguistic intelligence" OR "multiple intelligences") AND ("speaking anxiety" OR "foreign language anxiety") AND ("foreign language learning" OR "second language learning" OR "English as a Foreign Language" OR "EFL").

Studies were considered eligible if they met the following criteria: (1) empirical, peer-reviewed journal articles; (2) published between 2020 and 2026; (3) investigated linguistic intelligence, speaking anxiety, or the relationship between these variables in foreign or second language learning; (4) employed quantitative, qualitative, or mixed-methods research designs; (5) were available in full text; and (6) were published in

English or Indonesian. Conference proceedings, books, book chapters, theses, dissertations, editorials, review articles, and studies lacking empirical evidence were excluded.

All retrieved references were imported into Mendeley Desktop for reference management and duplicate removal. After duplicate records had been eliminated, the remaining studies were screened by the author through title and abstract review, followed by full-text eligibility assessment according to the predefined inclusion and exclusion criteria. The entire study selection process was documented using the PRISMA 2020 flow diagram, thereby ensuring transparency throughout the review process.

To enhance the methodological rigor of the review, the quality of the included studies was assessed using the Mixed Methods Appraisal Tool (MMAT) Version 2018. The MMAT was selected because this review included quantitative, qualitative, and mixed-methods studies. The appraisal examined the clarity of the research questions, the appropriateness of the research design, sampling procedures, data collection methods, measurement validity and reliability, analytical procedures, and the consistency between the reported findings and the conclusions. Rather than functioning as the sole basis for excluding studies, the quality appraisal was undertaken to support the critical interpretation and synthesis of evidence, ensuring that the conclusions of the review were grounded in methodologically sound research.

Following study selection and quality assessment, relevant information was systematically extracted from each included study using a standardized data extraction form. The extracted information comprised publication characteristics, research objectives, participant characteristics, sample size, research design, research instruments, variables investigated, principal findings, and educational implications. The extracted data were subsequently synthesized using a thematic synthesis approach. This approach enabled the identification of recurring themes concerning the relationship between linguistic intelligence and speaking anxiety, factors contributing to speaking anxiety, instructional strategies for reducing anxiety, the role of educational technology, and implications for foreign language teaching and learning. Finally, cross-study comparisons were conducted to identify common patterns, explain inconsistencies across previous studies, highlight unresolved research gaps, and formulate recommendations for future research and educational practice.

Results and Discussions

The literature search was conducted across seven academic databases, namely Scopus, Web of Science, ScienceDirect, ERIC, SpringerLink, Taylor & Francis Online, and Google Scholar, using the predefined search strategy described in the research methodology. The article selection process followed the PRISMA 2020 guidelines to ensure a systematic, transparent, and reproducible review.

A total of 486 records were initially identified from all databases. After duplicate removal using Mendeley Desktop, 118 duplicate records were excluded, resulting in 368 unique articles for the screening stage. During title and abstract screening, 259 articles were excluded because they did not address linguistic intelligence or speaking anxiety within the context of foreign language learning. Consequently, 109 articles were retained for full-text assessment.

The eligibility assessment involved evaluating the full texts according to the predefined inclusion and exclusion criteria. Seventy-four articles were excluded because they lacked empirical evidence, were not original research articles, were unavailable in full text, or did not investigate the relationship between linguistic intelligence and speaking anxiety. Ultimately, 35 studies satisfied all eligibility criteria and were included in the final qualitative synthesis.

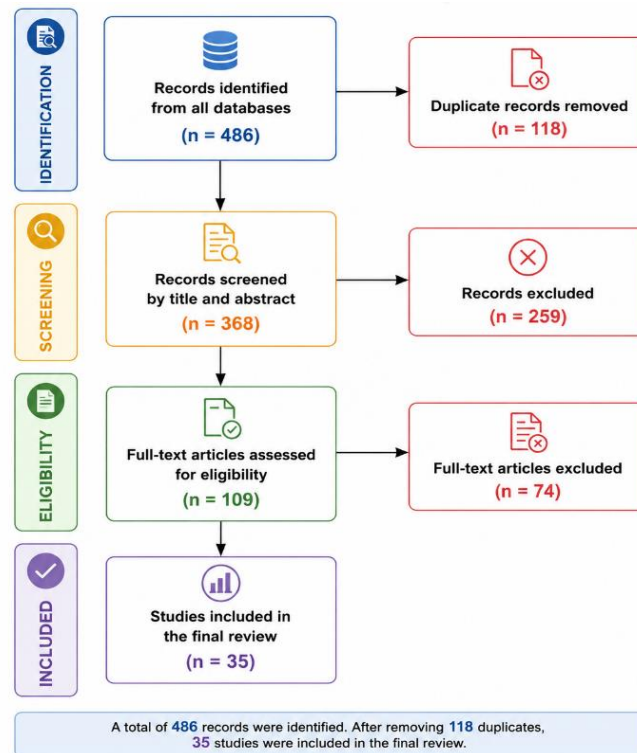


Figure 1. PRISMA 2020 Flow Diagram

The PRISMA flow diagram demonstrates that only 7.2% of the initially identified records met all methodological requirements for inclusion. This relatively small proportion indicates that empirical studies explicitly examining the relationship between linguistic intelligence and speaking anxiety remain limited despite the growing number of publications addressing each construct independently. Consequently, the selected studies provide valuable evidence for understanding the interaction between cognitive and affective factors in foreign language learning while also highlighting the need for further empirical investigation.

Table 1. Articles Synthesis

Authors	Year	Title	Journal	Research Focus
Bashori, M., van Hout, R., Strik, H., & Cucchiari, C.	2020	Web-Based Language Learning with Automatic Speech Recognition and Speaking Anxiety	Computer Assisted Language Learning	Investigates the effectiveness of Automatic Speech Recognition (ASR) in reducing speaking anxiety and improving EFL speaking performance.
Suadiyatno, T., et al.	2020	The Effect of Contextual Teaching and Learning on Students' Speaking Achievement	Journal of Languages and Language Teaching	Examines the effect of Contextual Teaching and Learning (CTL) on students' speaking achievement.
Noviyanti, S. D.	2022	Students' Speaking Anxiety in Online English Learning	International Journal of English and Applied Linguistics	Identifies factors causing speaking anxiety during online English learning.
Bakhshayesh, J., Jafarpour, A., & Hashemian, M.	2023	Relationship among Critical Thinking, Multiple Intelligence, and Iranian EFL Learners' Speaking Skill	Language and Education	Examines the relationship between multiple intelligences, critical thinking, and EFL speaking skills.
Bai, S.	2023	The Predictive Effects of Foreign Language Anxiety and Boredom on Willingness to Communicate among Chinese Struggling EFL Learners	Heliyon	Investigates how foreign language anxiety predicts willingness to communicate.

Authors	Year	Title	Journal	Research Focus
Daflize	2024	Out-of-Class Speaking Anxiety among Indonesian EFL Students and Its Relationship with Self-Perceived Speaking Skills, Vocabulary Proficiency, and Gender	Journal of Languages and Language Teaching	Examines relationships among speaking anxiety, vocabulary, gender, and speaking skills.
Alamri, W., & Qasem, F.	2024	Foreign Language Speaking Anxiety in Relation to Gender: Students' and Teachers' Perceptions	Cogent Education	Examines the relationship between gender and foreign language speaking anxiety.
Gunawan, I. D.	2025	Speaking Anxiety in EFL Learners: A Systematic Review of Causes, Strategies, and Pedagogical Interventions	EduLite: Journal of English Education, Literature and Culture	Synthesizes causes of speaking anxiety and effective pedagogical interventions.
Muhyidin, M., & Pupiales Chuquin, E. G.	2025	Assessing the Levels and Prevalence of Public Speaking Anxiety among Indonesian EFL University Students	Journal on English as a Foreign Language	Measures the prevalence of public speaking anxiety among Indonesian EFL university students.
Anugrawan, R., Samad, I. S., & Musdalifah	2025	Exploring the Impact of Learning Styles on Speaking Anxiety: A Qualitative Study of English Education Students in Indonesia	Seltics Journal	Investigates how learning styles influence speaking anxiety among Indonesian EFL students.
Fauzi, I., & Asi, N.	2023	Examining Speaking Anxiety of Indonesian Learners of English: A Case of University Students	Indonesian Journal of English Language Teaching and Applied Linguistics (IJELTAL)	Examines the level, sources, and characteristics of speaking anxiety among Indonesian EFL university students.
Utari, L. W., Salam, U., Ikhsanudin, & Rosnija, E.	2023	Speaking Anxiety in Oral Presentation of EFL Students	Journal of English as a Foreign Language Education (JEFLE)	Investigates speaking anxiety experienced by EFL students during oral presentations using the FLCAS framework.
Wu, H.	2024	The More, the Better? A Multivariate Longitudinal Study on L2 Motivation and Anxiety in EFL Oral Presentations	Frontiers in Education	Investigates the longitudinal relationship between L2 motivation, foreign language speaking anxiety, and oral presentation performance among EFL learners, identifying how motivational changes influence speaking anxiety over time.
Xu, Y., & Xie, Z.,	2024	Exploring the Predictors of Foreign Language Anxiety	Frontiers in Psychiatry	Examines the effects of language proficiency, language exposure, and cognitive control on foreign language anxiety, identifying key predictors of speaking anxiety in second language learning.
Qiao, H., & Zhao, A.	2023	Artificial Intelligence-Based Language Learning: Illuminating the Impact on Speaking Skills and Self-Regulation in Chinese EFL Context	Frontiers in Psychology	Explores the impact of artificial intelligence-assisted language learning on EFL learners' speaking skills, self-regulated learning, and communication confidence in English language learning.
Afifah, M., Ningrum, A. S. B., Wahyuni, S., & Syaifulloh, B.	2024	Self-Efficacy, Anxiety, and Emotional Intelligence: Do They Contribute to Speaking Performance?	JOLLT Journal of Languages and Language Teaching.	Examines the contributions of self-efficacy, speaking anxiety, and emotional intelligence to EFL students' speaking performance and identifies the extent to which

Authors	Year	Title	Journal	Research Focus
Wang, Zou, Du, & Wang	2024	The Impact of Different Conversational Generative AI Chatbots on EFL Learners	System	these psychological factors predict oral communication achievement. Investigates the effects of conversational Generative AI chatbots on willingness to communicate, foreign language speaking anxiety, and self-perceived communicative competence among EFL learners.
Khan, R. M. I., Radzuan, N. R. M., Shahbaz, M., Ibrahim, A. H., & Mustafa, G.	2021	The Role of Vocabulary Knowledge and Speaking Anxiety in EFL Speaking Performance	Arab World English Journal	Examines the contribution of vocabulary knowledge and speaking anxiety to speaking performance.
Chen, Y., Ke, N., Huang, L., & Luo, R.	2025	The Role of Generative AI in EFL Speaking: Effects on Oral Proficiency, Anxiety, and Risk-Taking	RELC Journal	Examines the effects of Generative AI-assisted speaking practice on oral proficiency, speaking anxiety, and learners' willingness to take linguistic risks.
Rahayu, B., Budiono, E. A. A., & Rumaseb, S. H.	2023	Multiple Intelligence and the Performance of Indonesian EFL Learners.	International Linguistics Research.	Investigates the relationship between multiple intelligences and Indonesian EFL learners' English language performance, identifying which intelligence domains contribute most to language achievement.
Afidawati, H., Arrasyid, F. I., & Ikawati, L (2024)	2024	Minimizing EFL Learners' Speaking Anxiety in the Post-Pandemic Era	JEELS	Investigates pedagogical strategies for reducing speaking anxiety among EFL learners in post-pandemic classrooms.
Chen, I.-J., Cheng, K.-R., & Chuang, C.-H.	2022	Relationship Between Language Anxiety and English Speaking Performance	English Language Teaching	Examines the relationship between language anxiety and English speaking performance.
Han, S., Li, Y., & Haider, S. A.	2022	Impact of Foreign Language Classroom Anxiety on Higher Education Students' Academic Success: Mediating Role of Emotional Intelligence and Moderating Influence of Classroom Environment	Frontiers in Psychology	Explores the mediating role of emotional intelligence and classroom environment in foreign language anxiety.
Habiburrahim, H., Risdaneva, R., Putri, G., Dahliana, S., & Muluk, S.	2020	The Effects of Anxiety toward Acehnese Students' English Speaking Ability	The Qualitative Report	Investigates the influence of anxiety on English speaking ability.
Hasibuan, A. R., & Irzawati	2020	Students' Speaking Anxiety and Their Speaking Performance: A Study of EFL Learners	Advances in Social Science, Education and Humanities Research	Examines the relationship between speaking anxiety and speaking performance.
Das, C. R.	2020	Students' Perceptions of Their English Language Anxiety and Its Role in Classroom Participation	International Journal of English Literature and Social Sciences	Explores students' perceptions of language anxiety and classroom participation.
Budayanti, I. D. A. A., Permana, I. G. Y., & Putra, N. C. A.	2023	Students' Anxiety in Speaking English in the Classroom	Celtic: A Journal of Culture, English Language Teaching, Literature and Linguistics	Examines classroom speaking anxiety among Indonesian EFL students.

Authors	Year	Title	Journal	Research Focus
Quvanch, Z., Qasemi, A. S., & Na, K. S.	2024	Analyzing Levels, Factors and Coping Strategies of Speaking Anxiety among EFL Undergraduates in Afghanistan	Cogent Education	Investigates the levels, contributing factors, and coping strategies related to speaking anxiety among EFL undergraduate students in Afghanistan.
Rahman, H., Mohammad, S., & Swarna, S. T.	2024	Voices in Peril: Understanding English Public Speaking Anxiety among University Students in Bangladesh	Cogent Education	Examines the causes and characteristics of English public speaking anxiety among university students and discusses implications for language instruction.
Rizky Sepa Phalosa, & Zaqiatul Mardiah	2024	Foreign Language Speaking Anxiety: A Systematic Review of a Decade in South East Asia	Ethical Lingua: Journal of Language Teaching and Literature	Synthesizes research trends, methodologies, contributing factors, and pedagogical implications of foreign language speaking anxiety in Southeast Asia over the last decade.
Ding, D., & Yusof, A. M. B.	2025	Investigating the Role of AI-Powered Conversation Bots in Enhancing L2 Speaking Skills and Reducing Speaking Anxiety	Humanities and Social Sciences Communications	Examines AI-assisted speaking practice and its effect on reducing speaking anxiety.
Dai, Y., & Wang, L.	2024	Effects of AI-Based Speaking Practice on Foreign Language Speaking Anxiety and Oral Performance	Education and Information Technologies	Examines the effects of artificial intelligence-assisted speaking practice on foreign language speaking anxiety and oral performance among EFL learners.
Dincer, A., Yeşilyurt, S., Noels, K. A., & Vargas Lascano, D. I.	2025	Self-Determination Theory and Foreign Language Anxiety: A Meta-Analysis	Studies in Second Language Acquisition	Examines the relationship between learner motivation based on Self-Determination Theory and foreign language anxiety through a meta-analysis, identifying psychological factors that influence EFL learners' speaking anxiety and language achievement.
Tsang, A.	2025	The Relationships Between EFL Learners' Anxiety in Oral Presentations, Self-Perceived Pronunciation, and Speaking Proficiency	Language Teaching Research	Examines oral presentation anxiety, pronunciation confidence, and speaking proficiency.
Lee, S. M.	2024	Effects of Generative Artificial Intelligence on EFL Learners' Speaking Performance, Anxiety, and Willingness to Communicate	Education and Information Technologies	Investigates the effects of generative artificial intelligence on speaking performance, foreign language anxiety, and willingness to communicate among EFL learners.

The 35 selected studies were conducted across various countries and educational contexts, employing quantitative, qualitative, and mixed-methods approaches. Most studies investigated university students, whereas relatively few focused on secondary school learners. Quantitative research dominated the literature, indicating that existing evidence has primarily emphasized statistical relationships among linguistic intelligence, speaking anxiety, and speaking performance rather than exploring learners' experiences in depth.

Table 2. Characteristics of Reviewed Articles

Features	Category	Number of Articles	Percentage
Year of Publication	2020	6	17.1%
	2021	1	2.9%
	2022	4	11.4%
	2023	8	22.9%

Features	Category	Number of Articles	Percentage
Types of Research	2024	10	28.6%
	2025	6	17.1%
	Total	35	100%
	Quantitative	22	62.9%
	Qualitative	5	14.3%
	Mixed Methods	2	5.7%
	Systematic Review	3	8.6%
	Bibliometric Analysis	1	2.9%
	Longitudinal Study	1	2.9%
	Phenomenological Study	1	2.9%
Participant Level	Total	35	100%
	University Students	23	65.7%
	Senior High School (SMA)	3	8.6%
	Junior High School (SMP)	1	2.9%
	Others (mixed participants, reviews, bibliometric studies, teachers, documents)	8	22.8%
Country of Research	Total	35	100%
	Indonesia	14	40.0%
	China	6	17.1%
	Turkey	1	2.9%
	Malaysia	2	5.7%
	Iran	2	5.7%
	Other Countries (Saudi Arabia, Afghanistan, Bangladesh, Taiwan, Pakistan, Aceh case studies with international context, multi-country studies, reviews)	10	28.6%
	Total	35	100%

Geographically, the reviewed studies were concentrated in Asian countries, particularly Indonesia, China, Turkey, Iran, Malaysia, and Bangladesh. This distribution reflects the growing scholarly interest in speaking anxiety within English as a Foreign Language (EFL) contexts, where learners often experience limited opportunities for authentic English communication. The reviewed studies consistently identified linguistic intelligence as an important factor supporting oral communication. Learners demonstrating stronger vocabulary knowledge, grammatical competence, language organization, and verbal reasoning generally reported lower levels of speaking anxiety and achieved better speaking performance. Nevertheless, the relationship between these variables was frequently influenced by contextual factors such as self-efficacy, learning motivation, classroom climate, instructional approaches, teacher support, and educational technology.

Table 2 summarizes the characteristics of the 35 empirical studies included in this systematic literature review. Overall, the findings reveal a growing scholarly interest in the relationship between linguistic intelligence and speaking anxiety in foreign language learning, as reflected by the increasing number of publications between 2020 and 2025. The highest publication frequency was recorded in 2024 (28.6%), followed by 2023 (22.9%). This trend suggests that researchers have increasingly recognized the importance of investigating the interaction between cognitive abilities and affective factors in English as a Foreign Language (EFL) learning, particularly in response to the growing emphasis on communicative competence and technology-enhanced language instruction.

Regarding research methodology, quantitative studies accounted for 62.9% of the reviewed publications, indicating that statistical approaches remain the dominant method for examining the relationships among linguistic intelligence, speaking anxiety, and speaking performance. Nevertheless, the inclusion of qualitative studies (14.3%), mixed-methods research (5.7%), systematic literature reviews (8.6%), bibliometric analyses (2.9%), longitudinal studies (2.9%), and phenomenological research (2.9%) demonstrates increasing methodological diversity. This variety enriches the existing body of knowledge by providing complementary perspectives on the cognitive, psychological, and contextual dimensions of foreign language speaking anxiety.

The participant characteristics indicate that university students constituted the largest research population, representing 65.7% of the selected studies. This predominance suggests that speaking anxiety has become a significant concern in higher education, where learners are frequently required to participate in academic presentations, classroom discussions, and professional communication in English. In contrast, studies involving senior high school students (8.6%), junior high school students (2.9%), and other participant groups (22.8%) remain relatively limited. This imbalance highlights the need for future research involving younger learners and more diverse educational contexts to improve the generalizability of current findings.

The geographical distribution of the reviewed studies further illustrates the global relevance of the topic. Indonesia contributed the largest proportion of publications (40.0%), followed by China (17.1%), while additional studies were conducted in Malaysia, Iran, Turkey, Bangladesh, Saudi Arabia, Afghanistan, and several other countries. The predominance of Asian contexts reflects the substantial challenges encountered by learners studying English as a foreign language, particularly in educational systems where opportunities for authentic English communication remain limited. At the same time, the geographical diversity of the reviewed studies suggests that speaking anxiety is a widespread educational issue influenced by linguistic, cultural, and instructional differences rather than by a single contextual factor.

Overall, the reviewed studies demonstrate a clear shift in research emphasis over recent years. Earlier studies primarily investigated speaking anxiety as an independent psychological construct, whereas more recent research increasingly explores its interaction with cognitive abilities, including linguistic intelligence, vocabulary knowledge, language proficiency, self-efficacy, emotional intelligence, learning motivation, and technology-enhanced language learning. This evolution reflects a broader understanding that speaking anxiety is a multidimensional phenomenon shaped by the complex interaction of cognitive, affective, sociocultural, and pedagogical factors. Consequently, the reviewed literature provides a strong empirical foundation for explaining how linguistic intelligence contributes to reducing speaking anxiety while simultaneously highlighting the importance of supportive learning environments and innovative instructional practices.

Following the PRISMA 2020 procedures for identification, screening, eligibility assessment, and inclusion, the selected studies were synthesized using a thematic synthesis approach to develop a comprehensive understanding of the relationship between linguistic intelligence and speaking anxiety in foreign language learning. Rather than merely summarizing individual studies, the synthesis aimed to identify recurring patterns, explain variations across research findings, and establish conceptual connections among the reviewed evidence.

To enhance the methodological rigor of the review, the quality of the included studies was appraised using the Mixed Methods Appraisal Tool (MMAT) Version 2018 (Hong et al., 2018). Overall, the methodological quality of the reviewed studies was considered satisfactory. Most studies demonstrated clearly defined research objectives, appropriate research designs, valid and reliable data collection procedures, and analytical methods that were consistent with their research questions. A small number of studies provided limited information regarding sampling procedures or instrument validation; however, these limitations did not substantially affect the overall synthesis. Therefore, all 35 studies were retained and included in the thematic synthesis because they satisfied the minimum methodological standards established for this review.

Table 3. Summary of Methodological Quality Assessment Using MMAT (Version 2018)

Quality Category	Number of Studies	Percentage (%)
High Quality	29	82.9
Moderate Quality	6	17.1
Low Quality	0	0.0
Total	35	100

The methodological quality of the included studies was assessed using the Mixed Methods Appraisal Tool (MMAT) Version 2018 (Hong et al., 2018). Overall, the methodological quality of the reviewed studies was satisfactory. Twenty-nine studies (82.9%) were categorized as high quality, demonstrating clearly defined research objectives, appropriate research designs, valid data collection procedures, and analytical methods consistent with their research questions. The remaining six studies (17.1%) were classified as moderate quality because they provided limited information regarding sampling procedures or instrument validation. No study was classified as low quality. Therefore, all included studies were retained for the thematic synthesis, as each met the minimum methodological standards required for this review.

Table 4. Summary of Findings

Theme	Synthesis of Findings	Theoretical Interpretation
Linguistic Intelligence	Across the reviewed studies, linguistic intelligence consistently emerged as an important cognitive resource that facilitates vocabulary acquisition, grammatical competence, pronunciation, verbal expression, and the organization of ideas during oral communication. However, the reviewed evidence also indicates that linguistic intelligence alone does not guarantee successful speaking performance, as its influence varies according to learners' affective and contextual conditions.	The findings extend Gardner's concept of linguistic intelligence by suggesting that cognitive aptitude should be understood as one component of a broader system of individual differences influencing foreign language learning.
Speaking Anxiety	The reviewed studies consistently identify speaking anxiety as a multidimensional construct associated with fear of negative evaluation, low self-confidence, insufficient language competence, communication apprehension, and limited speaking opportunities. Although these factors were consistently reported, their relative influence differed across educational settings and learner populations.	Speaking anxiety cannot be explained solely as an emotional response but should be interpreted as the product of interactions between cognitive, psychological, and contextual variables.
Relationship between Linguistic Intelligence and Speaking Anxiety	Most empirical studies indicate a negative association between linguistic intelligence and speaking anxiety, suggesting that learners with stronger linguistic competence generally demonstrate greater confidence and experience lower anxiety during oral communication. Nevertheless, several studies indicate that this relationship is influenced by contextual factors such as instructional practices, classroom climate, and learner characteristics, resulting in variations across learning environments.	The synthesis suggests that linguistic intelligence functions as a protective cognitive resource rather than an independent determinant of speaking anxiety. The relationship is context-dependent and mediated by other learner and instructional variables.
Supporting Factors	The reviewed evidence consistently demonstrates that supportive classroom environments, constructive teacher feedback, collaborative learning activities, frequent speaking practice, and positive teacher–student relationships contribute to lower speaking anxiety and greater communication confidence.	These findings indicate that cognitive resources become more effective when supported by positive instructional environments, emphasizing the interaction between learner characteristics and pedagogical practices.
Technology-Enhanced Language Learning	The reviewed studies show that AI-based applications, Automatic Speech Recognition (ASR), Learning Management Systems (LMS), and other digital learning technologies provide low-pressure speaking environments that encourage repeated practice, immediate feedback, and greater learner autonomy, thereby improving speaking confidence while reducing anxiety.	Educational technology strengthens the interaction between cognitive competence and affective support by providing opportunities for repeated oral practice with reduced fear of negative evaluation.
Research Gap	Although both linguistic intelligence and speaking anxiety have received considerable research attention, studies explicitly examining their interaction remain limited and fragmented across different educational contexts, participant characteristics, and methodological approaches. Existing evidence has largely emphasized speaking performance or technology-assisted language learning rather than explaining how linguistic intelligence influences learners' affective experiences during oral communication.	The reviewed evidence highlights the need for future research integrating cognitive, affective, instructional, and technological perspectives to develop a more comprehensive theoretical explanation of speaking anxiety in foreign language learning.

The thematic synthesis of the 35 reviewed studies revealed five interrelated themes that collectively explain the relationship between linguistic intelligence and speaking anxiety in foreign language learning. Rather than representing isolated findings, the reviewed evidence demonstrates several recurring patterns across diverse educational contexts. First, linguistic intelligence consistently emerged as an important cognitive resource supporting vocabulary development, grammatical competence, pronunciation, and the organization of ideas during oral communication. Second, speaking anxiety was consistently associated with affective factors such as fear of negative evaluation, low self-confidence, limited language competence, and communication apprehension. Third, the relationship between linguistic intelligence and speaking anxiety was predominantly negative, indicating that learners with stronger linguistic competence generally experienced lower levels of speaking anxiety, although this relationship varied according to contextual and instructional conditions. Fourth, supportive classroom environments, constructive teacher feedback,

collaborative learning, and technology-enhanced language learning were repeatedly identified as factors contributing to reduced speaking anxiety and increased speaking confidence. Finally, the reviewed studies consistently highlighted the limited number of investigations directly examining the interaction between linguistic intelligence and speaking anxiety, indicating the need for more integrative research combining cognitive, affective, instructional, and technological perspectives.

The findings suggest that linguistic intelligence and speaking anxiety are closely related in foreign language learning. Linguistic intelligence provides the cognitive capacity to use language effectively, whereas speaking anxiety represents an affective barrier that may hinder oral performance. Consequently, strong linguistic competence alone does not guarantee successful communication, as learners' emotional states and learning environments also play critical roles.

The synthesis of the 35 selected studies demonstrates that the relationship between linguistic intelligence and speaking anxiety in foreign language learning cannot be understood as a simple association between cognitive ability and emotional response. Instead, the reviewed evidence reveals a broader pattern in which linguistic competence, affective readiness, instructional conditions, and technological support interact in shaping learners' oral communication. Linguistic intelligence provides important cognitive resources for processing and producing language, whereas speaking anxiety may interfere with learners' ability to effectively mobilize those resources during communicative situations. This indicates that strong linguistic competence alone does not automatically lead to successful speaking performance, particularly when learners experience psychological pressure, fear of evaluation, or insufficient opportunities to communicate.

Within this broader pattern, technology-enhanced language learning emerges as an increasingly important contextual mechanism. Artificial Intelligence (AI), Automatic Speech Recognition (ASR), and digital learning platforms provide learners with greater opportunities for independent speaking practice while simultaneously reducing some of the interpersonal pressure associated with conventional classroom communication (Bashori et al., 2020). The importance of these technologies therefore extends beyond their capacity to improve linguistic performance. By creating relatively low-pressure environments for repeated practice, they may also help learners translate linguistic competence into communicative performance more effectively. Nevertheless, the limited integration of linguistic intelligence, speaking anxiety, and educational technology within a single conceptual framework indicates that the cognitive and affective functions of technology remain insufficiently connected in the existing literature.

A consistent pattern across the reviewed evidence concerns the role of linguistic intelligence as a cognitive resource for oral communication. Research by Rahayu et al. (2023), Bakhshayesh et al. (2023), together with Gardner's theory of Multiple Intelligences, suggests that learners with higher linguistic intelligence tend to possess broader vocabulary knowledge, stronger grammatical competence, better idea organization, and greater verbal fluency. These abilities do more than facilitate the technical production of language; they may also increase learners' perceived readiness to communicate by reducing uncertainty during vocabulary retrieval, sentence construction, and idea formulation. From this perspective, linguistic intelligence contributes to the affective dimension of language learning indirectly, because greater control over linguistic resources may strengthen communicative confidence and reduce the cognitive uncertainty that often accompanies speaking anxiety.

However, the synthesis also demonstrates that speaking anxiety cannot be reduced to insufficient linguistic competence alone. Studies conducted by Bashori et al. (2022), Noviyanti (2022), Fauzi and Asi (2023), Habiburrahim et al. (2020), Hasibuan and Irzawati (2020), Das (2020), Budayanti et al. (2023), and several other researchers consistently report that speaking anxiety originates from fear of making mistakes, limited vocabulary, insufficient grammatical knowledge, low self-confidence, fear of negative evaluation by teachers and peers, and unsupportive learning environments. Taken together, these findings indicate that speaking anxiety is a multidimensional phenomenon produced through the interaction of linguistic limitations, psychological vulnerability, social evaluation, and classroom conditions. Consequently, learners with comparable linguistic abilities may experience substantially different levels of anxiety depending on how they perceive themselves, how others respond to their performance, and how supportive the learning environment is.

This interpretation is further strengthened by evidence showing that the relationship between linguistic competence and speaking performance is not entirely direct. Research by Afifah et al. (2024), Han et al. (2022), Liu and Zhang (2023), Alamri and Qasem (2024), and Chen et al. (2022) highlights the important roles of self-efficacy, emotional intelligence, foreign language enjoyment, and classroom environment in reducing speaking anxiety while simultaneously improving speaking performance. Rather than positioning

linguistic intelligence as an independent predictor of successful communication, these findings suggest that its influence is conditioned by learners' psychological resources and learning experiences. Linguistic competence may therefore provide the capacity to communicate, but self-efficacy, emotional regulation, enjoyment, and supportive classroom conditions appear to influence whether learners are willing and able to use that capacity in actual speaking situations.

A similar interaction can be observed in recent technology-assisted language learning research. Studies by Wang et al. (2024), Ding and Yusof (2025), Chen et al. (2025), and other AI-related investigations indicate that technologies such as Generative AI, AI-powered conversational agents, and Automatic Speech Recognition (ASR) provide learners with flexible, interactive, and low-pressure speaking practice environments. The theoretical significance of these findings lies not merely in the effectiveness of technology itself, but in the way technological environments alter the conditions under which linguistic competence is practiced. Repeated interaction without immediate peer judgment may reduce evaluative pressure, increase willingness to experiment with language, and strengthen communicative confidence. Technology therefore appears to function as a contextual facilitator that helps bridge the gap between possessing linguistic knowledge and confidently applying that knowledge in oral communication.

The reviewed evidence also indicates that instructional design plays a comparable role. Learner-centered approaches such as Contextual Teaching and Learning (CTL), collaborative learning, gradual oral presentation practice, technology-enhanced instruction, and constructive feedback have been found to promote learner participation while reducing speaking anxiety. These findings challenge interpretations that locate speaking anxiety primarily within the learner. Instead, the quality of classroom interaction appears to determine, at least partly, whether learners experience speaking as a threatening performance situation or as an opportunity for progressive communication practice. Thus, the relationship between linguistic intelligence and speaking anxiety should be interpreted not only at the individual level but also within the instructional environments that either facilitate or constrain the use of learners' linguistic resources.

Taken together, the evidence suggests that linguistic intelligence and speaking anxiety are interconnected but not through a simple linear relationship. Linguistic intelligence facilitates vocabulary knowledge, grammatical competence, idea organization, and verbal fluency, while speaking anxiety may restrict learners' ability to effectively utilize these competencies in authentic communicative situations. The presence of self-efficacy, emotional intelligence, foreign language enjoyment, learning motivation, classroom environment, and AI-supported language learning technologies further demonstrates that the relationship operates within a broader system of cognitive, affective, and contextual influences. Accordingly, improvements in speaking performance cannot be expected from linguistic development alone; they also depend on whether learners have sufficient psychological and environmental support to activate their linguistic resources during communication.

Importantly, the reviewed studies do not indicate an entirely uniform relationship between higher linguistic intelligence, lower speaking anxiety, and better speaking performance. Several inconsistencies across the literature appear to reflect differences in cultural contexts, educational environments, participant characteristics, and research methodologies. These variations are theoretically important because they indicate that linguistic intelligence does not function identically across learning contexts. The same level of linguistic competence may be expressed differently depending on learners' expectations of classroom participation, perceived risks of making mistakes, prior exposure to English, and access to supportive communication environments.

From a cultural perspective, the concentration of evidence in Asian contexts including Indonesia, China, Iran, Bangladesh, and Turkey suggests that speaking anxiety needs to be interpreted within particular norms of classroom interaction and social evaluation. In contexts where learners are strongly concerned with maintaining social harmony, avoiding mistakes, respecting teacher authority, or preventing loss of face, linguistic competence may not automatically translate into communicative confidence. Learners may possess adequate vocabulary and grammatical knowledge while still hesitating to speak because the perceived social consequences of error remain high. Conversely, educational environments that normalize participation, experimentation, and communicative interaction may enable learners to use existing linguistic competence with less anxiety. This contrast further supports the view that cognitive ability alone is insufficient to explain oral communication outcomes.

Differences across educational levels provide another indication that the relationship is context-dependent. University learners may possess greater linguistic experience, broader vocabulary, and more exposure to English for academic purposes than secondary school learners, potentially allowing them to

manage speaking demands differently. At the same time, institutions that implement communicative language teaching, collaborative learning, project-based learning, or technology-enhanced instruction including Artificial Intelligence (AI), Automatic Speech Recognition (ASR), and digital speaking platforms may create conditions in which learners can practice communication with lower perceived risk. These contextual differences help explain why similar levels of linguistic competence do not necessarily produce similar levels of speaking anxiety across populations.

Variation across countries further reinforces this interpretation. Differences in access to educational technology, institutional support, exposure to English outside the classroom, and opportunities for authentic communication may shape how learners use their linguistic abilities. Consequently, differences in speaking anxiety across contexts should not automatically be interpreted as differences in linguistic intelligence. They may instead reflect unequal opportunities to convert linguistic competence into meaningful communicative experience. This distinction is important because it shifts the theoretical explanation away from an exclusively individual model toward one that recognizes the interaction between learner characteristics and educational opportunities.

Methodological differences among the reviewed studies also help explain inconsistencies in the reported relationship between linguistic intelligence and speaking anxiety. The predominance of cross-sectional quantitative designs and self-report measures provides substantial evidence regarding associations among variables but offers limited capacity to establish causal direction or explain how these relationships develop over time. In contrast, qualitative, mixed-methods, and longitudinal approaches offer greater potential to examine how linguistic competence, anxiety, confidence, and contextual experiences interact dynamically. Consequently, variations across findings should not necessarily be interpreted as contradictory evidence; they may reflect different methodological lenses applied to a relationship that is inherently multidimensional and context-sensitive.

Overall, the synthesis indicates that the relationship between linguistic intelligence and speaking anxiety is neither universal nor linear. Linguistic intelligence should therefore not be interpreted as an isolated determinant of successful speaking performance, and speaking anxiety should not be viewed solely as an emotional consequence of limited language competence. Rather, foreign language speaking appears to emerge from the dynamic interaction between learners' cognitive resources, psychological characteristics, sociocultural expectations, instructional experiences, and technological learning environments. This integrated interpretation extends a purely cognitive understanding of linguistic intelligence by demonstrating that the practical value of linguistic competence depends substantially on the affective and contextual conditions under which it is used. At the same time, it extends affective explanations of speaking anxiety by showing that anxiety is closely connected to learners' perceived capacity to process and produce language effectively.

Accordingly, the theoretical contribution of this synthesis lies in positioning linguistic intelligence and speaking anxiety within an integrated cognitive-affective-contextual framework rather than treating them as separate predictors of language performance. From this perspective, linguistic intelligence represents the cognitive capacity that enables language production, while affective and contextual conditions influence whether that capacity can be successfully mobilized in communication. Such an interpretation helps explain why learners with relatively strong linguistic competence may nevertheless experience considerable speaking anxiety, while learners in supportive and low-pressure environments may communicate more confidently despite differences in linguistic ability. Therefore, future theoretical models should integrate cognitive, affective, sociocultural, instructional, and technological perspectives to provide a more comprehensive explanation of foreign language speaking development.

Conclusions

This systematic review indicates that foreign language speaking performance is shaped by the interaction between linguistic intelligence and affective conditions rather than by linguistic competence alone. Linguistic intelligence provides cognitive resources such as vocabulary knowledge, grammatical competence, idea organization, and verbal fluency, whereas speaking anxiety may inhibit learners from effectively using these resources during oral communication. Based on the thematic synthesis of the reviewed studies, the conceptual relationship can be summarized as Linguistic Intelligence, Cognitive Readiness, Speaking Performance, with speaking anxiety and other affective factors influencing this process, while instructional, sociocultural, and technological conditions shape the strength of these relationships. Accordingly, this review

offers an integrative conceptual synthesis rather than a fully validated theoretical model, and technology-enhanced learning is interpreted as a contextual facilitator that may provide repeated, lower-pressure opportunities for speaking practice. The contribution of this review is primarily synthetic and scoping, as studies directly examining linguistic intelligence and speaking anxiety within the same empirical model remain limited. The findings should also be interpreted cautiously because the review did not employ independent inter-rater assessment during study selection and thematic interpretation, and publication bias may have influenced the available evidence. In addition, methodological and contextual differences across the reviewed studies limit causal interpretation and generalizability. Future research should therefore employ longitudinal and quasi-experimental designs to examine how linguistic intelligence and speaking anxiety interact over time and to test whether cognitive, affective, instructional, and technology-supported interventions can improve foreign language speaking performance.

Acknowledgments

The authors express their sincere gratitude to God Almighty for His blessings and guidance throughout this study. The authors also thank their supervisors for their invaluable advice, constructive feedback, and continuous support during the preparation of this manuscript. Appreciation is extended to all researchers whose work formed the foundation of this Systematic Literature Review (SLR), as well as to the editors and reviewers of Lentera Negeri Journal for their valuable comments and suggestions. Their contributions have greatly improved the quality of this manuscript. It is hoped that this study will contribute to the advancement of foreign language education and serve as a valuable reference for future research.

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