

Online Foreign Language Learning: A Systematic Review of Self-Regulated Learning, Digital Platforms, Learner Readiness, and Engagement

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DOI: <https://doi.org/10.47772/IJRISS.2026.102100180>

Received: 03 September 2026; Accepted: 08 September 2026; Published: 06 October 2026

ABSTRACT

This systematic literature review critically examines the evolving landscape of online foreign and second language learning through a synthesis of empirical studies published between 2021 and 2026. Drawing upon Self-Regulated Learning (SLR) Theory, Social Cognitive Theory, the Technology Acceptance Model, and the Community of Inquiry framework, the review investigates the interrelated roles of self-regulatory competencies, learner readiness, digital learning environments, and student engagement in shaping language learning outcomes. By integrating evidence across diverse educational contexts, the study provides a comprehensive understanding of the factors that influence the effectiveness of online language learning and their implications for foreign language acquisition in higher education settings. Following the PRISMA 2020 guidelines and the PICO framework, a structured search across Scopus and Web of Science databases yielded 32 empirical primary studies after a rigorous quality appraisal process. The thematic synthesis identified four primary domains: Self-Directed Learning, Learner Autonomy, and SRL emerged as the dominant theme (n = 14), highlighting the critical role of self-management and goal-setting in virtual settings. Online Learning Readiness, Self-Efficacy, and Motivation (n = 10) underscored psychological preparedness in overcoming demotivation and learning loss. Digital Technologies and Applications (n = 9) demonstrated the pedagogical affordances of MOOCs, CALL systems, mobile apps, and Generative AI platforms. Finally, Learner Engagement and Interaction (n = 6) proved essential for fostering meaningful learning experiences and optimizing academic achievement. These findings emphasize that higher education institutions must pair technological integration with targeted instructional strategies that actively foster learner autonomy, self-efficacy, and interactive online environments.

Keywords: Foreign language learning, Self-regulated learning, Digital platforms, Learner readiness, Higher education

INTRODUCTION

The rapid expansion of online higher education has fundamentally transformed foreign and second language instruction through learning management systems (LMS), mobile applications, and artificial intelligence platforms. In technology-mediated environments, self-regulated learning (SRL) plays a critical role, requiring proactive learners to independently set goals, monitor progress, and sustain motivation with reduced direct instructional supervision (Zimmerman, 2000). Grounded in Social Cognitive Theory (Bandura, 1997) and the Technology Acceptance Model (Davis, 1989), successful online language

acquisition relies heavily on students' psychological readiness, self-efficacy, and positive perceptions regarding the usefulness and ease of use of digital tools.

Despite the pedagogical affordances of digital platforms, transitioning to online language modes introduces significant challenges, including student demotivation, psychological unreadiness, and potential learning loss (Zaim et al., 2023; Zhou et al., 2023). Furthermore, a notable research gap exists in how these factors interrelate within higher education. Although learner autonomy and psychological readiness have received substantial scholarly attention, dimensions such as active engagement, social presence, and online interaction remain comparatively under-synthesized (Garrison et al., 2000). To address this gap, this systematic literature review synthesizes empirical research published between 2021 and 2026 using the PRISMA guidelines and PICO framework to evaluate the collective impact of SRL, platform affordances, readiness, and engagement on foreign language learning outcomes.

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

RQ1: How have self-directed learning, learner autonomy, and self-regulated learning been developed and examined in online foreign language learning environments?

RQ2: What learner-related factors influence success in online foreign language learning?

RQ3: What digital technologies and online learning platforms are utilized to support self-directed language learning, and what pedagogical affordances do they provide?

RQ4: How do engagement and interaction contribute to learners' experiences and language learning outcomes in technology-enhanced foreign language contexts?

These four RQs align directly with the four identified themes and satisfy the PICO framework for a rigorous Prisma-Based Slr.

LITERATURE REVIEW

THEORETICAL FRAMEWORK

Self-Regulated Learning Theory (Zimmerman, 2000, 2008) provides a comprehensive framework for understanding how learners actively control and manage their own learning processes. According to Zimmerman (2000), self-regulated learners are proactive individuals who set learning goals, select appropriate strategies, monitor their progress, and evaluate their performance to achieve desired outcomes. The theory conceptualizes learning as a cyclical process consisting of three phases: forethought (goal setting and planning), performance (strategy implementation and self-monitoring), and self-reflection (self-evaluation and adaptation). This theoretical perspective is highly relevant to the focus area of Self-Directed Learning, Learner Autonomy, and Self-Regulated Learning because it explains how learners take responsibility for their learning beyond teacher-directed instruction. In online and technology-enhanced language learning environments, learners are often required to manage their own learning schedules, select digital resources, maintain motivation, and assess their progress independently. Consequently, self-regulation becomes a critical mechanism that enables learner autonomy and self-directed learning. Therefore, Zimmerman's Self-Regulated Learning Theory serves as a fundamental theoretical foundation for understanding how autonomy and self-direction are developed and sustained in online foreign language learning contexts.

Social Cognitive Theory (Bandura, 1997) provides a strong theoretical foundation for understanding learning readiness, self-efficacy, motivation, and psychological factors in language learning environments. The theory argues that learning occurs through the reciprocal interaction of personal factors, behaviours, and environmental influences, a concept known as reciprocal determinism. Bandura (1997) found that self-efficacy plays a particularly important role, referring to an individual's belief in their ability to successfully perform specific tasks and achieve desired outcomes. In online language learning contexts, students who possess higher self-efficacy are more likely to feel prepared to use digital learning platforms, manage learning activities independently, and persist when confronted with academic challenges. This confidence enhances learners' motivation, engagement, and willingness to participate actively in online learning. The theory also explains how psychological factors such as confidence, outcome expectations, and self-beliefs affect learners' readiness to adapt to virtual learning environments. Furthermore, supportive learning environments, positive feedback from instructors, access to technological resources, and successful prior learning experiences can strengthen learners' self-efficacy and motivation. Overall, Social Cognitive Theory comprehensively explains how learners' beliefs and psychological characteristics influence their preparedness, participation, and success in language learning environments.

Technology Acceptance Model (TAM) (Davis, 1989) is one of the most widely adopted theories for explaining users' acceptance and utilization of information technologies in educational settings. The model proposes that an individual's intention to use a technology is primarily influenced by two key factors: perceived usefulness and perceived ease of use. Perceived usefulness refers to the extent to which learners believe that a particular technology will enhance their learning performance, while perceived ease of use concerns the degree to which they expect the technology to be user-friendly and require minimal effort. This theory is highly relevant to the research studies of Online Learning Platforms, Digital Technologies, and Language Learning Applications. TAM helps explain why some technologies are readily embraced by learners while others face resistance. When learners perceive digital tools as useful for improving language proficiency and easy to navigate, they are more likely to engage with these platforms consistently and incorporate them into their learning routines. Furthermore, positive perceptions of technology can enhance autonomous learning opportunities, increase learner satisfaction, and support meaningful language learning experiences. Therefore, Davis's Technology Acceptance Model provides a robust theoretical framework for understanding the adoption, effectiveness, and educational value of technology-enhanced language learning platforms and applications.

Community of Inquiry (CoI) Framework (Garrison et al., 2000) is a prominent theoretical model for understanding meaningful learning experiences in online and blended learning environments. The framework proposes that effective learning emerges through the interaction of three interconnected elements: cognitive presence, social presence, and teaching presence. Cognitive presence refers to learners' ability to construct and confirm meaning through reflection and discourse; social presence involves the capacity of learners to present themselves as real individuals and develop interpersonal relationships in the learning environment; and teaching presence encompasses the design, facilitation, and direction of learning activities by instructors. This framework strongly supports the study of learner engagement, interaction, learning outcomes, and learning experiences because it explains how engagement and interaction contribute to successful learning. In language learning contexts, meaningful interactions among learners and instructors stimulate active participation, collaborative knowledge construction, and a sense of belonging, all of which are essential for sustaining engagement. Furthermore, effective teaching presence helps guide learners through learning tasks, while cognitive presence encourages critical thinking and deeper language learning. As a result, learners are more likely to experience positive learning outcomes, greater satisfaction, and enhanced learning experiences. The studies reviewed under this framework consistently highlight the importance of interaction, participation, and engagement in influencing achievement and overall learning effectiveness, making the CoI Framework an appropriate lens for interpreting the relationships in language learning environments.

Conceptual Framework

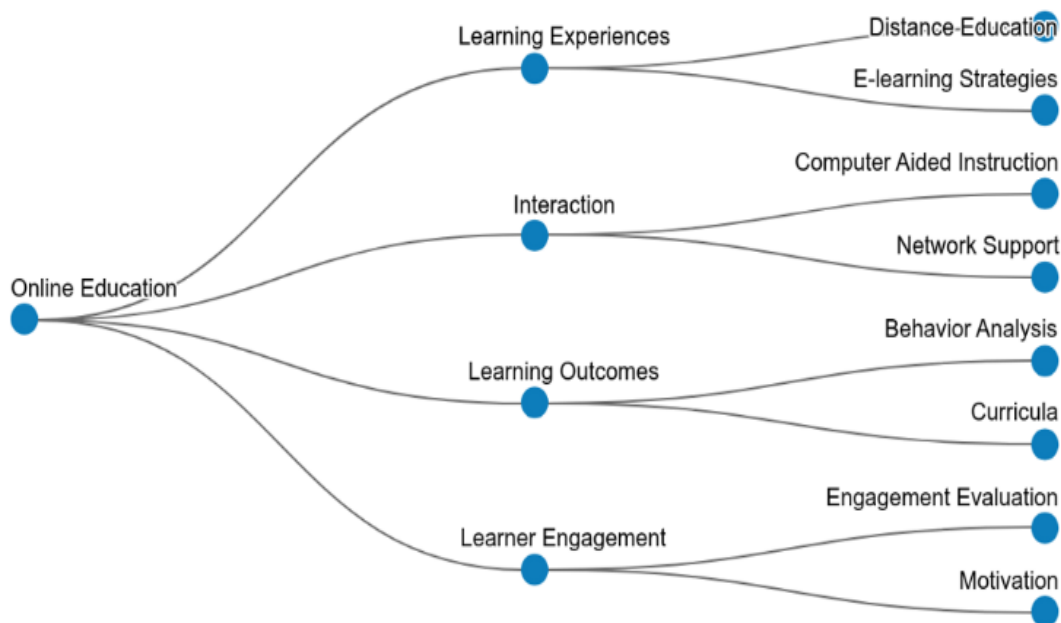


Figure 1: Conceptual Framework of the Study

Figure 1 presents the proposed conceptual framework for this systematic literature review (SLR), illustrating how online language learning in higher education is shaped by the interrelationships among learning experiences, interaction, learning outcomes, and learner engagement. At the core of the framework is online education, which encompasses various technology-enhanced learning environments such as distance education, e-learning strategies, computer-aided instruction, and network-supported learning. The first component of the framework is grounded in Self-Regulated Learning (SRL) Theory (Zimmerman, 2000, 2008), which emphasizes learners' ability to set goals, monitor their progress, reflect on their performance, and regulate their learning behaviours. In online language learning contexts, learners are often required to manage their own learning processes with limited direct supervision. Therefore, SRL serves as a fundamental mechanism through which students develop autonomy and take responsibility for achieving learning objectives. This theoretical perspective supports the dimension of learning experiences by explaining how self-directed learning behaviours enable learners to navigate digital learning environments effectively and sustain continuous language development.

The framework further incorporates Social Cognitive Theory (Bandura, 1997) and the Technology Acceptance Model (TAM) (Davis, 1989) to explain learner readiness and technology-mediated learning behaviours. Social Cognitive Theory highlights the importance of self-efficacy, motivation, confidence, and learning behaviours in determining learners' willingness and capability to participate in online learning activities. Learners who possess strong beliefs in their capabilities are more likely to engage actively and overcome challenges in digital environments. Complementing this perspective, TAM explains how students' acceptance and adoption of online learning technologies are influenced by their perceptions of usefulness and ease of use. As online language learning increasingly relies on platforms such as learning management systems, mobile applications, AI-powered tools, and virtual learning environments, learners' positive perceptions of these technologies play a critical role in shaping their learning experiences and outcomes.

Together, these theories explain how learner readiness and technology adoption facilitate successful participation in online language learning. Finally, the framework is anchored in the Community of Inquiry (CoI) Framework (Garrison, Anderson, & Archer, 2000), which explains how meaningful online learning emerges through the interaction of social presence, cognitive presence, and teaching presence. These three dimensions contribute directly to learner engagement and interaction, which in turn influence learning outcomes and overall learning experiences. Social presence fosters collaboration and communication among

learners, cognitive presence promotes critical thinking and knowledge construction, while teaching presence provides instructional guidance and support. In the context of online language learning, higher levels of interaction and engagement are expected to enhance language acquisition, learner satisfaction, and academic achievement. Therefore, the proposed conceptual framework suggests that effective online language learning in higher education is driven by the combined effects of self-regulation, learner readiness, technology acceptance, and meaningful engagement, ultimately leading to improved learning outcomes and enriched learning experiences.

METHODOLOGY

The PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) approach is a widely accepted standard for conducting systematic literature reviews, ensuring transparency, completeness, and consistency throughout the procedure by Page et al. (2021), guide how to systematically identify, screen, and include studies in their review. In the context of this SLR, the writers involved in this article serve as researchers, collaborating to evaluate articles that are relevant to the title. This investigation included two important databases, Web of Science and Scopus, due to their broad coverage and robustness.

The PRISMA approach is divided into four stages: (i) identification, (ii) screening, (iii) eligibility, and (iv) data abstraction. During the identification stage, databases are searched to find all relevant research. The screening phase then involves evaluating these studies to preset criteria in order to eliminate irrelevant or low-quality research. During the eligibility phase, all remaining research is rigorously evaluated to ensure that they meet the inclusion requirements. Finally, data abstraction focuses on obtaining and synthesising data from the included studies, which is required for deriving relevant and valid findings. This structured analysis assures that the systematic review is conducted rigorously, yielding reliable data that can guide future research and practice. The PRISMA framework lists three main stages for analysis: (i) identification, (ii) screening, (iii) eligibility, (iv) data abstraction and analysis, as well as (v) quality of appraisal.

Identification

In accordance with the PRISMA framework, the identification stage is a crucial starting point in the systematic literature review process, which is intended to ensure exhaustive coverage of pertinent research while lowering the risk of selection bias. The keywords "foreign language," "online," "self-learning," and "higher education" were used in this study's systematic and thorough search across two of the top bibliographic databases, Scopus and Web of Science (WoS). The search string is displayed in Table 1.

These databases were carefully chosen due to their broad multidisciplinary coverage, strict indexing standards, and robust representation of excellent, peer-reviewed publications. Before duplicates were eliminated, the search technique produced 119 records from Scopus and 100 records from Web of Science, for a total of 219 records. While WoS contributed a more focused collection of highly cited and methodologically robust studies, Scopus's greater coverage in the social sciences and wider inclusion of journals are responsible for the greater number of results produced from it.

As shown in Table 1, the identification of 219 records reflects the growing academic interest in online language learning within higher education and highlights the conceptual diversity of research spanning linguistic, pedagogical, and psychological perspectives. Employing multiple databases enhances the methodological robustness of the review by minimizing database-specific bias and increasing the likelihood of capturing diverse research traditions and geographical contexts.

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

Table 1- The search string.

Scopus	TITLE-ABS-KEY (("foreign language" OR "second language" OR "foreign tongue" OR "language learning") AND ("online learning" OR "e-learning" OR "distance learning" OR "virtual learning") AND ("self-learning" OR "self-directed learning" OR "autonomous learning" OR "independent learning") AND (university OR "higher education" OR "tertiary education" OR college*))
Web of Science	TITLE-ABS-KEY (("foreign language" OR "second language" OR "foreign tongue" OR "language learning") AND ("online learning" OR "e-learning" OR "distance learning" OR "virtual learning") AND ("self-learning" OR "self-directed learning" OR "autonomous learning" OR "independent learning") AND (university OR "higher education" OR "tertiary education" OR college*)) Extracted July 2026

Screening

Potentially relevant papers were assessed during the screening phase of the systematic literature review to make sure they aligned with the four predetermined study questions. By eliminating duplicates and using predetermined inclusion and exclusion criteria, this phase concentrated on improving the initial pool of records. As shown in Figure 2, 73 (Scopus=31; Wos=42) articles were left for further evaluation after 146 publications were eliminated for not meeting the study's scope and relevance requirements. The kind of literature was the main criterion for inclusion, and academic sources that provide substantial and empirical insights were prioritised. As a result, materials such as book reviews, book series, meta-syntheses, meta-analyses, conference proceedings, and book chapters not directly related to the core focus of the review were excluded. To ensure consistency and relevance to contemporary academic discourse, only peer-reviewed publications written in English and published between 2021 and 2026 were retained. Additionally, a duplication check led to the removal of 0 repeated records across the databases. This systematic and criteria-driven screening process enhanced the focus and quality of the evidence base, ensuring that only the most relevant and methodologically sound studies progressed to the subsequent stages of analysis.

Eligibility

For the third step, known as eligibility, a total of 73 articles have been prepared. All articles' titles and key content were thoroughly reviewed at this stage to ensure that the inclusion requirements were fulfilled and fit into the present study with the current research aims. Finally, 32 articles are available for review (see Table 3).

Table 2- The selection criterion is searching

Criterion	Inclusion	Exclusion
Language	English	Non-English
Time line	2021 – 2026	< 2021
Literature type	Journal (Article)	Conference, Book, Review
Publication Stage	Final	In Press
Subject Area	Online Self-learning	Besides Online Self-learning

Data Abstraction and Analysis

A number of research designs (qualitative, mixed, and quantitative) were examined and synthesised in this study using an integrative analysis as one of the assessment procedures. The writers meticulously examined 32 publications for relevant content pertaining to the study's subjects in order to develop themes. The writers looked at the study findings and methodology of important studies on online language learning. They collaborated to develop themes based on the data that was provided throughout the investigation. They maintained a log of their data analysis procedure to record relevant perspectives, analyses, or concepts. The writers ensured that the theme design was consistent by contrasting the outcomes and discussing

disagreement among themselves. Each subtheme's validity was established throughout this expert review process by ensuring clarity, importance, and suitability.

Quality of Appraisal

Kitchenham and Charters (Kitchenham, 2007) state that the researchers must evaluate the calibre of the selected research. The next step is applying the quality assessment suggested by Abouzahra et al. (2020), which consists of six questions that adhere to a scoring procedure for evaluating each criterion. The potential ratings are: "Yes" (Y) with a score of 1 if the criterion is fully met, "Partly" (P) with a score of 0.5 if the criterion is somewhat met but contains some gaps or shortcomings, and "No" (N) with a score of 0 if the criterion is not met at all.

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

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

Each author independently assesses the study according to these criteria, and the scores are then totalled across all experts to determine the overall mark. For a study to be accepted for the next process, the total mark, derived from summing the scores from all three experts, must exceed 3.0. This threshold ensures that only studies meeting a certain quality standard proceed further. The results are shown in Table 4.

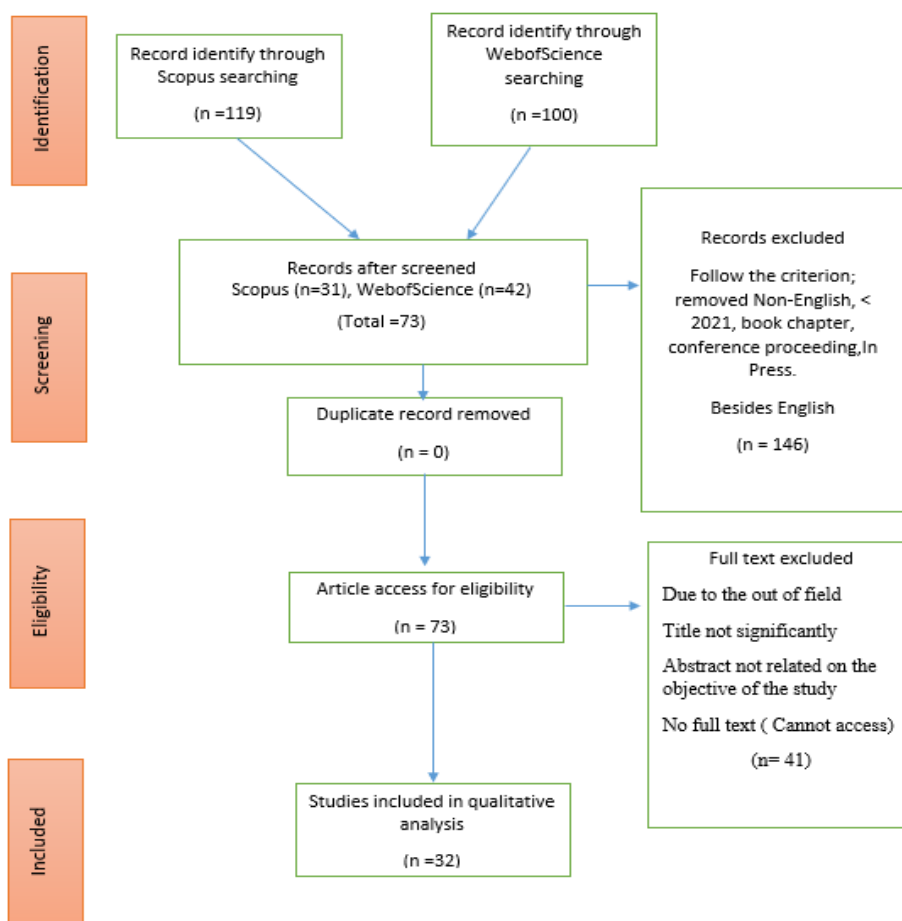


Figure 2. Flow diagram of the proposed searching study (Moher D, Liberati A, Tetzlaff J, 2009)

FINDINGS AND DISCUSSION

Quality of Assessment

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

High quality ($\geq 80\%$): Majority of studies

Moderate quality (60–79%): Conceptual or descriptive studies

Lower quality ($<60\%$): Primarily survey-only or exploratory abstracts

Table 4- Quality Assessment for the selected 32 papers

PS	Author (Year)	Article Title	QA1	QA2	QA3	QA4	QA5	QA6	Total	%
PS1	Muslem et al. (2024)	The Correlation between the Use of Online Learning Platforms and Undergraduate Students' Self-Efficacy	Y	Y	Y	Y	N	N	4	66.7
PS2	Baharun (2023)	Effectiveness of Using MOOC in Learning Arabic During COVID-19	Y	Y	Y	Y	P	N	4.5	75
PS3	Muharom et al. (2022)	Self-Regulated Learning in Online Classes	Y	Y	P	Y	N	N	3.5	58.3
PS4	Ibrahim et al. (2025)	The Affordances of Online Self-Learning	Y	Y	Y	P	N	N	3.5	58.3
PS5	Xodabande & Atai (2022)	Using Mobile Applications for Self-Directed Learning of Academic Vocabulary	Y	Y	Y	Y	Y	N	5	83.3
PS6	Lian et al. (2021)	Modelling the Relationship Between Authentic Language Learning and English Self-Efficacy	Y	Y	Y	Y	P	N	4.5	75
PS7	Suriaman et al. (2023)	Students' Perceptions Toward LMS in English Language Learning	Y	Y	Y	Y	N	N	4	66.7
PS8	Marwan & Wahyudi (2025)	Cambridge Online Learning as a Medium for English Language Learning	Y	Y	Y	Y	N	N	4	66.7
PS9	Yang (2023)	Language Learner Autonomy in a Blended Self-Directed Learning Program	Y	Y	Y	Y	P	P	5	83.3
PS10	Vijayakumar et al. (2024)	Autonomous Language Learning in CALL Environments	Y	Y	Y	Y	Y	N	5	83.3
PS11	Ismail et al. (2024)	Foreign Language Students' Readiness for Online Learning	Y	Y	Y	Y	P	N	4.5	75
PS12	Li et al. (2024)	Supporting Learners Self-Management for Self-Directed Language Learning	Y	Y	Y	Y	P	Y	5.5	91.7
PS13	Brega & Kruglyakova (2022)	Students Readiness to Online English Language Self-Learning Module	Y	Y	Y	Y	N	P	4.5	75

PS14	Pan et al. (2026)	GenAI-Empowered Platform for Self-Directed Out-of-Class Reading	Y	Y	Y	Y	Y	N	5	83.3
PS15	Ismail et al. (2022)	Readiness for Online Learning Among Foreign Language Undergraduates	Y	Y	Y	Y	N	N	4	66.7
PS16	Alkodimi & Al-Ahdal (2022)	Foreign Language Literature in the Online Mode	Y	Y	Y	Y	P	N	4.5	75
PS17	Xu et al. (2026)	Multilateral Interactive Teaching Model	Y	Y	Y	P	N	N	3.5	58.3
PS18	Chen et al. (2022)	Social Strategy Use in Online Chinese Learning	Y	Y	Y	Y	P	N	4.5	75
PS19	Genc et al. (2024)	EFL Learners Readiness for Online Learning	Y	Y	Y	Y	P	N	4.5	75
PS20	Altinsoy & Boyraz (2025)	Online Learning Readiness and Satisfaction in EFL	Y	Y	Y	Y	P	N	4.5	75
PS21	Almayez et al. (2025)	Motivation and English Self-Efficacy in Online Learning Applications	Y	Y	Y	Y	P	N	4.5	75
PS22	Zheng & Xiao (2024)	A Structural Equation Model of Online Learning	Y	Y	Y	Y	P	N	4.5	75
PS23	Zaim et al. (2023)	Learning Loss in English Speaking Class	Y	Y	Y	Y	N	N	4	66.7
PS24	Zhou et al. (2023)	Analyzing EFL Learners Demotivating Factors	Y	Y	Y	Y	P	N	4.5	75
PS25	Fang et al. (2025)	Impact of IDLE on EFL Learners Engagement	Y	Y	Y	Y	P	N	4.5	75
PS26	Han et al. (2024)	Learning Environment Matters for University EFL Learners	Y	Y	Y	Y	P	N	4.5	75
PS27	Sun & Zhang (2024)	Effects of Online Engagement on EFL Learning Outcomes	Y	Y	Y	Y	P	N	4.5	75
PS28	Luo & Wang (2023)	Enjoyment, Boredom and Effectiveness in Language MOOCs	Y	Y	Y	Y	P	N	4.5	75
PS29	Ip & To (2025)	Online Learning Readiness and Self-Regulated English Learning	Y	Y	Y	Y	P	N	4.5	75
PS30	Lin et al. (2021)	Online Self-Regulated Learning Profiles	Y	Y	Y	Y	P	N	4.5	75
PS31	Alshammari & Alrashidi (2024)	Effect of Students Engagement on Learning Achievement	Y	Y	Y	Y	P	N	4.5	75
PS32	Gaffas (2023)	Students Perceptions of E-learning ESP Course	Y	Y	Y	Y	Y	N	5	83.3

The quality assessment results (Table 4) indicate that the selected studies generally demonstrated moderate to high methodological quality, with scores ranging from 3.5 (58.3%) to 5.5 (91.7%). Among the 32 studies reviewed, most articles achieved scores between 4.0 and 5.0, suggesting that they fulfilled the majority of the quality assessment criteria. Only four studies (PS3, PS4, and PS17) obtained the lowest score of 3.5, while Li et al. (2024) (PS12) recorded the highest score of 5.5 (91.7%). Several studies, including Xodabande and Atai (2022), Yang (2023), Vijayakumar et al. (2024), Pan et al. (2026), and Gaffas (2023), achieved strong ratings of 5.0 (83.3%).

Table 5 - The quality score of the selected studies

Quality	Score	No. of studies	%
High	≥80%	6	18.8
Moderate	60–79%	23	71.9
Low	<60%	3	9.4
Total		32	

Table 5 indicates the quality assessments score for the 32 selected studies. Although the studies generally demonstrated clearly stated purposes and established methodologies, only six studies (18.8%) achieved high-quality scores, while 23 (71.9%) were classified as moderate and three (9.4%) as lower quality. This limitation concerns the weak reporting of comparisons with previous research and study limitations, with most studies receiving partial or negative ratings for QA5 and QA6. However, the overall findings suggest that the reviewed literature on online learning and self-directed language learning provides reliable evidence, with most studies meeting acceptable standards of research quality.

Themes

Table 6- Analysis for Themes

Theme	Theme Name	Number of Studies
Theme 1	Self-Directed Learning, Learner Autonomy, and Self-Regulated Learning	14
Theme 2	Online Learning Readiness, Self-Efficacy, Motivation, and Psychological Factors	10
Theme 3	Online Learning Platforms, Digital Technologies, and Language Learning Applications	9
Theme 4	Learner Engagement, Interaction, Learning Outcomes, and Learning Experiences	6

Table 6 presents the thematic analysis of the 32 studies included in this systematic literature review. The findings indicate that Theme 1: Self-Directed Learning, Learner Autonomy, and Self-Regulated Learning was the most frequently investigated area, accounting for 14 studies. This highlights the growing scholarly interest in understanding how language learners independently manage, regulate, and take responsibility for their learning processes in online environments. The second most prominent theme was Theme 2: Online Learning Readiness, Self-Efficacy, Motivation, and Psychological Factors, with 10 studies, reflecting the importance of learners' psychological preparedness, confidence, and motivation in influencing successful online language learning experiences. Theme 3: Online Learning Platforms, Digital Technologies, and Language Learning Applications comprised 9 studies, demonstrating the increasing integration of digital tools such as learning management systems, MOOCs, mobile applications, and AI-powered platforms in language education. Finally, Theme 4: Learner Engagement, Interaction, Learning Outcomes, and Learning Experiences contained 6 studies, indicating that although engagement and interaction are recognized as critical determinants of learning success, they have received comparatively less attention than learner autonomy and psychological factors. Overall, the distribution of studies suggests that current research on online foreign learning is primarily centered on fostering learner independence and self-regulation, while also emphasizing the role of readiness, motivation, and technology in supporting effective language learning outcomes.

Theme 1: Self-Directed Learning, Learner Autonomy, and Self-Regulated Learning

Table 7- Self-Directed Learning, Learner Autonomy, and Self-Regulated Learning

PS	Author (Year)	Article Title	Research Focus
PS3	Muharom et al. (2022)	Self-Regulated Learning in Online Classes: A Study of Indonesian and	Self-regulated learning in online language learning

		Malaysian Language Learners	
PS4	Ibrahim et al. (2025)	The Affordances of Online Self-Learning	Online self-learning strategies and motivation
PS5	Xodabande & Atai (2022)	Using Mobile Applications for Self-Directed Learning of Academic Vocabulary	Mobile-assisted self-directed vocabulary learning
PS6	Lian et al. (2021)	Modelling the Relationship Between Authentic Language Learning and English Self-Efficacy	SDL and collaborative learning
PS9	Yang (2023)	Flexibility as a Double-Edged Sword?	Learner autonomy beyond classroom
PS10	Vijayakumar et al. (2024)	Autonomous Language Learning in CALL Environments	Autonomy in CALL environments
PS12	Li et al. (2024)	Supporting Learners Self-Management for Self-Directed Language Learning	Self-management in Duolingo learning
PS13	Brega & Kruglyakova (2022)	Students Readiness to Online English Language Self-Learning Module	Readiness for self-learning modules
PS14	Pan et al. (2026)	GenAI-Empowered Platform for Self-Directed Out-of-Class Reading	GenAI-supported self-directed reading
PS17	Xu et al. (2026)	Multilateral Interactive Teaching Model	Autonomous learning ability development
PS19	Genc et al. (2024)	EFL Learners Readiness for Online Learning and Self-Directed Learning Ability	Self-directed learning ability
PS28	Luo & Wang (2023)	Enjoyment, Boredom, and Effectiveness in MOOCs	SRL in language MOOCs
PS29	Ip & To (2025)	Online Self-Regulated English Learning and Satisfaction	Online self-regulated English learning
PS30	Lin et al. (2021)	Online Self-Regulated Learning Profiles	SRL learner profiles

Theme 1 comprises 14 studies (Table 7), making it the most frequently identified theme in the review and highlighting the growing importance of learner independence in online language learning. The studies collectively emphasize that learners' ability to regulate, manage, and direct their own learning is a key determinant of successful language acquisition in digital environments. Several studies specifically investigate self-regulated learning (SRL) in online classes, MOOCs, and online English learning, demonstrating its positive influence on learner satisfaction, academic performance, and effective learning strategies (Muharom et al., 2022; Luo & Wang, 2023; Ip & To, 2025; Lin et al., 2021). Other studies focus on self-directed learning and learner autonomy through various technology-enhanced environments, including mobile applications, computer-assisted language learning (CALL), Duolingo, and GenAI-supported reading platforms (Xodabande & Atai, 2022; Vijayakumar et al., 2024; Li et al., 2024; Pan et al., 2026). In addition, researchers highlight the importance of learner readiness, motivation, flexibility, self-management, and collaborative learning in fostering autonomous learning skills (Ibrahim et al., 2025; Lian et al., 2021; Yang, 2023; Brega & Kruglyakova, 2022; Genc et al., 2024; Xu et al., 2026). Overall, this theme demonstrates that developing self-directed, autonomous, and self-regulated learners has become a central focus of online language education, as these competencies enable learners to adapt effectively to technology-mediated learning environments and achieve sustainable language learning outcomes.

Theme 2: Online Learning Readiness, Self-Efficacy, Motivation, and Psychological Factors

Table 8- Online Learning Readiness, Self-Efficacy, Motivation, and Psychological Factors

PS	Author (Year)	Article Title	Research Focus
PS1	Muslem et al.	The Correlation between the Use of Online	Online learning self-efficacy

	(2024)	Learning Platforms and Undergraduate Students Self-Efficacy	
PS1 1	Ismail et al. (2024)	Foreign Language Students Readiness for Online Learning	Online learning readiness
PS1 5	Ismail et al. (2022)	Readiness for Online Learning Among Foreign Language Undergraduates	Readiness for online language learning
PS2 0	Altinsoy & Boyraz (2025)	Online Learning Readiness and Satisfaction in EFL	Readiness, engagement and satisfaction
PS2 1	Almayez et al. (2025)	Motivation and English Self-Efficacy in Online Learning Applications	Motivation and self-efficacy
PS2 2	Zheng & Xiao (2024)	A Structural Equation Model of Online Learning	Self-efficacy and satisfaction
PS2 4	Zhou et al. (2023)	Analyzing EFL Learners Demotivating Factors	Demotivation factors
PS2 5	Fang et al. (2025)	Impact of IDLE on EFL Learners Engagement	Online self-efficacy and engagement
PS2 6	Han et al. (2024)	Learning Environment Matters for University EFL Learners	Emotions and perceptions
PS2 9	Ip & To (2025)	Effects of Online Learning Readiness and Online Self-Regulated English Learning	Readiness and satisfaction

Theme 2 consists of 10 studies (Table 8) that examine the psychological and personal factors influencing learners' success in online language learning. The reviewed studies consistently identify online learning readiness and self-efficacy as fundamental determinants of learners' engagement, satisfaction, and academic achievement in digital learning environments. Several studies investigate learners' readiness to participate effectively in online language courses, emphasizing the importance of technological preparedness, learning skills, and positive attitudes toward online learning (Ismail et al., 2022; Ismail et al., 2024; Altinsoy & Boyraz, 2025; Ip & To, 2025). Self-efficacy is another prominent focus, with research demonstrating that learners who possess greater confidence in their language abilities are more likely to remain motivated, actively participate, and achieve better learning outcomes (Muslem et al., 2024; Almayez et al., 2025; Zheng & Xiao, 2024). In addition, several studies explore motivational and psychological factors, including learner engagement, emotions, perceptions, and demotivation, which significantly influence online learning experiences (Zhou et al., 2023; Fang et al., 2025; Han et al., 2024). Overall, this theme highlights that beyond technological access, learners' psychological readiness, confidence, motivation, and emotional well-being play critical roles in determining the effectiveness and sustainability of online language learning.

Theme 3: Online Learning Platforms, Digital Technologies, and Language Learning Applications

Table 9- Online Learning Platforms, Digital Technologies, and Language Learning Applications

PS	Author (Year)	Article Title	Research Focus
PS2	Baharun (2023)	Effectiveness of Using MOOC in Learning Arabic	MOOC effectiveness
PS5	Xodabande & Atai (2022)	Using Mobile Applications for Self-Directed Learning of Academic Vocabulary	Mobile learning applications
PS7	Suriaman et al. (2023)	Perceptions Toward LMS in English Language Learning	LMS usage and perceptions
PS8	Marwan & Wahyudi (2025)	Cambridge Online Learning as a Medium for English Language Learning	Cambridge online platform
PS1 0	Vijayakumar et al. (2024)	Autonomous Language Learning in CALL Environments	CALL technology
PS1 2	Li et al. (2024)	Study Within Duolingo	Duolingo platform
PS1 4	Pan et al. (2026)	GenAI-Empowered Reading Platform	GenAI learning platform

PS1 6	Alkodimi & Al-Ahdal (2022)	Foreign Language Literature in the Online Mode	Online learning platforms
PS3 2	Gaffas (2023)	Students Perceptions of e-Learning ESP Course	Virtual and blended e-learning

Theme 3 comprises nine studies (Table 9) that focus on the use of online learning platforms, digital technologies, and language learning applications to enhance language education. The reviewed studies demonstrate that technological innovations have become essential tools for supporting flexible, accessible, and interactive language learning experiences. Several studies evaluate the effectiveness of specific online platforms, including MOOCs for Arabic language learning (Baharun, 2023), Cambridge Online (Marwan & Wahyudi, 2025), Duolingo (Li et al., 2024), and GenAI-powered reading platforms (Pan et al., 2026), highlighting their potential to improve learner engagement, independent learning, and language proficiency. Other research examines the use of mobile learning applications, computer-assisted language learning (CALL), and learning management systems (LMS), emphasizing their role in facilitating vocabulary acquisition, autonomous learning, and positive learner perceptions (Xodabande & Atai, 2022; Vijayakumar et al., 2024; Suriaman et al., 2023). Additionally, studies on online literature courses and blended e-learning environments suggest that integrating virtual learning platforms can provide more flexible and learner-centered educational experiences (Alkodimi & Al-Ahdal, 2022; Gaffas, 2023). Overall, this theme highlights the expanding role of digital technologies in transforming language education by creating innovative, engaging, and accessible learning environments that support diverse learner needs.

Theme 4: Learner Engagement, Interaction, Learning Outcomes, and Learning Experiences

Table 10 - Learner Engagement, Interaction, Learning Outcomes, and Learning Experiences

PS	Author (Year)	Article Title	Research Focus
PS1 8	Chen et al. (2022)	Social Strategy Use in Online Chinese Learning	Interaction and social strategies
PS2 3	Zaim et al. (2023)	Learning Loss in English Speaking Class	Learning outcomes and loss
PS2 5	Fang et al. (2025)	Impact of IDLE on EFL Learners Engagement	Learner engagement
PS2 7	Sun & Zhang (2024)	Effects of Online Engagement on EFL Learning Outcomes	Engagement and outcomes
PS3 1	Alshammari & Alrashidi (2024)	Effect of Students Engagement on Learning Achievement	Achievement and engagement
PS3 2	Gaffas (2023)	Students Perceptions of e-Learning ESP Course	Learning experiences

The studies presented in Table 10 highlight the significant role of online learning environments in influencing learners' engagement, interaction, learning experiences, and academic outcomes in language education. Chen et al. (2022) examined the use of social strategies in online Chinese learning, emphasizing the importance of interaction and collaborative practices in supporting language development. Similarly, Zaim et al. (2023) investigated learning loss in English speaking classes, focusing on how online learning disruptions may affect learners' language outcomes. Fang et al. (2025) explored the impact of Interactive Digital Language Environment (IDLE) on EFL learners' engagement, demonstrating the potential of digital platforms to enhance learner participation. Sun and Zhang (2024) further examined the relationship between online engagement and EFL learning outcomes, highlighting engagement as a key factor in achieving successful learning results. In addition, Alshammari and Alrashidi (2024) investigated the effect of student engagement on learning achievement, while Gaffas (2023) explored students' perceptions of e-learning ESP courses, emphasizing learners' experiences and satisfaction. Overall, these studies demonstrate that online learning effectiveness is strongly associated with learner engagement, social interaction, and positive learning experiences, providing valuable insights into the development of effective digital language learning approaches.

CONCLUSION

Summary of Findings

This systematic literature review synthesizes 32 empirical studies (2021–2026) on online language learning in higher education across four core themes. The findings demonstrate that self-regulated learning (SRL) and learner autonomy are pivotal to successful digital language acquisition, as learners who actively direct their learning exhibit greater satisfaction and academic performance (Muharom et al., 2022; Xodabande & Atai, 2022). Furthermore, psychological readiness and self-efficacy significantly shape student engagement and mitigate demotivation in virtual classrooms (Muslem et al., 2024; Ismail et al., 2024). The integration of diverse digital platforms such as MOOCs, CALL tools, and GenAI platforms provides essential pedagogical affordances that foster flexible learning environments (Baharun, 2023; Pan et al., 2026; Gaffas, 2023), while high levels of engagement and social interaction directly enhance overall language outcomes (Sun & Zhang, 2024; Alshammari & Alrashidi, 2024). Therefore, these findings offer significant pedagogical and practical implications for higher education institutions. Universities must move beyond simply providing technological tools by actively designing curricula that cultivate self-regulation strategies and technological readiness among students. Educators should leverage interactive platforms to maintain social presence, build student self-efficacy, and minimize learning loss or demotivation in virtual environments (Zhou et al., 2023; Zaim et al., 2023).

Implications and Suggestions for Future Research

The reviewed studies show a geographical concentration of evidence in relatively well-researched contexts, particularly China, Malaysia, Indonesia, Saudi Arabia, and Türkiye, while other regions remain largely unexplored. Furthermore, most studies focus on English as a Foreign Language (EFL) learners, with limited attention to other foreign language learning contexts. Methodologically, many investigations employ cross-sectional surveys and self-reported measures, providing limited insight into how self-directed learning, self-efficacy, and online engagement develop over time. Research also remains limited on how infrastructure disparities, institutional policies, socioeconomic status, and cultural learning norms jointly shape online language learning outcomes. Future studies should adopt longitudinal, mixed-methods, and cross-cultural comparative designs to capture contextual variations and causal relationships more effectively. Future research should also focus on longitudinal studies to evaluate the sustained impact of emerging innovations, such as GenAI-empowered learning platforms, on language autonomy across diverse geographical contexts.

ACKNOWLEDGEMENT

The authors express their sincere appreciation to Akademi Pengajian Bahasa, Universiti Teknologi MARA, Shah Alam for the continuous support, research facilities, and conducive academic environment provided throughout the completion of this study and its publication.

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