

Metacognitive Awareness in English Language Learning: A Systematic Review Across Listening, Speaking, Reading, and Writing Skills

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To cite this article. E. F. Aglina, P. Raja, M. Fuad, and B. Kadaryanto, “Metacognitive Awareness in English Language Learning: A Systematic Review Across Listening, Speaking, Reading, and Writing Skills,” *Lang. Technol. Soc. Media*, vol. 4, no. 2, pp. 355–382, 2026.

DOI: <https://doi.org/10.70211/ltsm.3026-7196.447>

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Published online: 17 June 2026



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Received: 29 April 2026

Revised: 22 May 2026

Accepted: 15 June 2026

Online: 17 June 2026

Abstract

Metacognitive awareness is widely associated with successful English language learning, yet empirical findings across listening, speaking, reading, and writing remain dispersed across different contexts, instruments, and instructional designs. This review synthesizes evidence on how metacognitive awareness contributes to four English language skills and how classroom and technology-mediated environments can support strategy instruction. A systematic literature review design was employed by searching Scopus, Web of Science, ERIC, ScienceDirect, SpringerLink, and Google Scholar for studies on metacognition, metacognitive strategy instruction, self-regulated learning, and English skill development. Ninety-eight records were identified; 61 focused on language learning, and 38 empirical studies were retained for skill-level synthesis after screening, eligibility checking, and quality appraisal. The evidence indicates that metacognitive awareness positively supports all four skills, but the strongest and most consistent support appears in reading and listening, where planning, monitoring, directed attention, problem solving, and evaluation directly regulate comprehension. Evidence for speaking and writing is also positive but more context-dependent because productive skills require learners to coordinate linguistic knowledge, task demands, anxiety, fluency, genre awareness, feedback, and revision. The review concludes that metacognitive awareness should be taught as an integrated, cross-skill competence rather than as isolated strategy training.

Keywords: Metacognitive awareness; English language skills; self-regulated learning; metacognitive strategy instruction; systematic literature review; EFL learners.

Publisher's Note:

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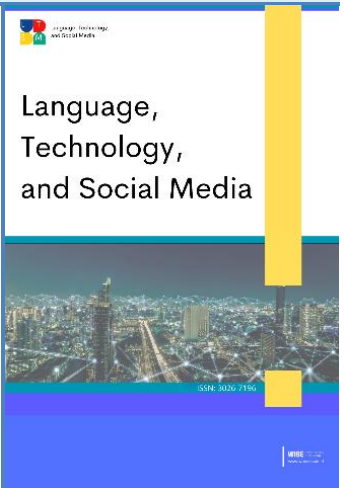
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INTRODUCTION

For successful learning in the twenty-first century, it is important to harness the potential to extend the influence of metacognitive and self-system thinking into the process of educational development [1], [2]. Marzano and Kendall's new taxonomy [1] positions metacognition as a dimension that should be developed alongside cognitive and affective dimensions. This taxonomy has encouraged educators and researchers to reform and investigate this dimension and use it as a guide to achieve educational purposes [1], [3].

Given the fact that the education development of self-regulated learning has established rapidly, the present education focuses on the students' learning procedure as the crucial components such as employing their metacognitive awareness, regulating their own learning procedure and promoting motivation for achieving the educational goals [2], [4]. In a similar vein [5] about independent learning or self-regulated learning (SRL) governs three basic components of learning, including learning strategies (behavior); responsiveness to self-oriented feedback about learning (metacognition); and the motivation process (motivation) [6].

In this metacognitive domain, the learning objectives can be designed to include knowledge, and related skills can likewise be explicitly taught in the classroom [2], [6], [7]. It is very crucial for integrating the explicit instruction of language learning strategies into the language curriculum [3]. Therefore, a strategic teacher must promote learners to have metacognitive awareness about their own thinking, and the ability to understand the tasks [6], [7], [8].

Metacognitive awareness has been widely acknowledged as a critical factor in successful language learning because it enables learners to plan, monitor, and evaluate their learning processes effectively. Since Flavell's seminal work [9], numerous studies have demonstrated that metacognitive awareness contributes positively to language achievement by fostering self-regulation, strategic learning, and learner autonomy [10], [11]. In English language learning, metacognitive awareness has been associated with improved listening comprehension, reading performance, speaking proficiency, and writing quality [12], [13]. Despite the growing body of research, the existing literature remains fragmented, as most empirical studies have examined metacognitive awareness within a single language skill or a specific instructional context. Consequently, there is still limited understanding of how metacognitive awareness contributes across the four English language skills collectively and whether its influence differs between receptive skills (listening and reading) and productive skills (speaking and writing).

Furthermore, previous reviews on metacognition and language learning have generally focused on particular language skills, metacognitive strategy instruction, or self-regulated learning frameworks, rather than providing a comprehensive synthesis of empirical evidence across all four English language skills. As a result, the comparative strength of evidence, methodological trends, and recurring patterns across listening, speaking, reading, and writing remain insufficiently explored. This gap limits the ability of researchers and practitioners to develop a holistic understanding of the role of metacognitive awareness in English language learning. Therefore, a comprehensive review is needed to integrate existing findings, identify areas of convergence and divergence, and evaluate the overall contribution of metacognitive awareness to language learning outcomes.

The present review addresses this gap by systematically synthesizing empirical studies investigating metacognitive awareness in listening, speaking, reading, and writing. Unlike previous studies that primarily focused on individual language skills, this review adopts a cross-skill

perspective to compare the nature and strength of evidence across the four domains. In doing so, the review contributes to the literature by identifying common patterns, highlighting methodological strengths and limitations, and clarifying the extent to which metacognitive awareness supports English language learning outcomes. Based on this rationale, the present study seeks to answer the following research question: To what extent does metacognitive awareness contribute to the improvement of listening, speaking, reading, and writing skills in English language learning?

Metacognition, which is simply defined as a critical analysis of thought or the ability to think about thinking, refers to the awareness of a learner's thought concerning his/her own cognitive processes and knowledge product, or anything related to them [14], [15]. In general, there are two basic components of metacognition which has been explained by psychologists [14], [15]: (1) Knowledge about cognition, which refers to general knowledge and individual possession about his own cognition which consists of declarative, procedural, and conditional knowledge, and (2) Regulation of cognition, which controls the individual's learning or thinking process that consists of three subcategories: planning, monitoring, and evaluation [14]. The use of metacognition in the classroom emphasizes how individuals think and manage their own thinking and learning in the applied context [2], [4].

Many studies suggest that metacognition plays a more significant role in the process of language learning [3], [4], [8], [16], [17]. Some of them claimed that the language learning process can be extremely faster when a learner understands how to regulate his/her own learning through the improvement of metacognitive awareness [3], [4], [8], [16], [17]. However, there is a dearth of studies investigating the pivotal role of metacognitive awareness on English language skills (listening, speaking, reading, and writing) either individually or collectively. This review study may add to the literature on this particular issue by reviewing previous studies focusing on the efficacy of metacognitive awareness in improving English skills in the classroom context.

LITERATURE REVIEW

Metacognitive Awareness and Self-Regulated Language Learning

Metacognitive awareness refers to learners' knowledge about their cognitive resources and their capacity to regulate learning through planning, monitoring, and evaluation. This concept is grounded in the view that successful learners do not only perform tasks but also observe the quality of their own performance, identify gaps, and make strategic adjustments [9], [14], [18], [19], [20]. In English language learning, this awareness is particularly important because learners frequently face unfamiliar input, limited vocabulary, time pressure, anxiety, and changing communicative demands.

The literature also connects metacognitive awareness with learner autonomy and self-regulated learning. Autonomous learners are able to set learning goals, select strategies, monitor progress, and evaluate whether their actions are effective [5], [10], [21], [22], [23], [24], [25]. Therefore, metacognition should be viewed not as an abstract psychological construct but as a practical instructional target that helps learners become more reflective, strategic, and responsible in managing English learning tasks.

Within classroom practice, metacognitive awareness can be developed through learning logs, dialogic reflection, explicit strategy modeling, self-questioning, peer discussion, and teacher scaffolding [2], [3], [6], [7], [15], [17]. These practices make thinking processes visible and

encourage learners to connect declarative knowledge about strategies with procedural and conditional knowledge about how and when to use them.

Metacognitive Awareness in Receptive English Skills

Receptive skills, particularly listening and reading, have received the strongest empirical attention in metacognitive research. Listening studies show that learners benefit when they are guided to predict content, maintain directed attention, monitor comprehension breakdowns, use problem-solving tactics, and evaluate their performance after listening [3], [8], [16], [26], [27], [28], [29], [30], [31], [32], [33]. The Metacognitive Awareness Listening Questionnaire and related instructional cycles have helped researchers explain how awareness of listening processes supports comprehension, autonomy, and reduced listening anxiety [12], [34].

Reading research similarly demonstrates that metacognitive awareness helps learners regulate interaction with academic texts. Skilled readers use global reading strategies, problem-solving strategies, and support strategies to preview texts, infer meaning, distinguish main ideas from details, and repair comprehension failure [35], [36], [37], [38], [39], [40], [41], [42], [43], [44], [45]. These findings suggest that reading achievement is influenced not only by vocabulary and grammar but also by learners' capacity to decide what strategies are appropriate for a specific text and purpose.

The receptive-skill literature indicates that metacognitive awareness is most effective when it is embedded in explicit instruction rather than assumed to develop automatically. Teachers need to model how expert listeners and readers plan, monitor, and evaluate comprehension, while students need repeated opportunities to verbalize their strategies and reflect on their outcomes [1], [4], [11], [13], [46].

Metacognitive Awareness in Productive English Skills

Productive skills require learners to transform metacognitive awareness into real-time and extended performance. In speaking, metacognitive strategies help learners prepare ideas, manage fluency, monitor interactional problems, use repair strategies, regulate confidence, and evaluate oral performance [47], [48], [49], [50], [51], [52], [53], [54], [55], [56], [57], [58]. The evidence indicates that speaking improves when students are not only asked to speak but are also taught how to plan, monitor, and reflect on communication.

Writing is even more dependent on metacognitive regulation because it involves planning content, organizing arguments, drafting, revising, editing, responding to feedback, and evaluating the text against rhetorical goals. Studies on writing show that metacognitive awareness is associated with stronger writing strategy use, lower anxiety, better genre control, improved revision, and more reflective writing practices [59], [60], [61], [62], [63], [64], [65], [66], [67], [68], [69], [70]. Recent work on AI and second-language writing further suggests that digital feedback and generative tools can support writing development only when learners critically monitor accuracy, relevance, authorship, and ethical use [71].

Across speaking and writing, the evidence is positive but more context-dependent than in receptive skills. Productive performance is influenced by affective factors, interactional pressure, genre knowledge, feedback quality, and learners' confidence [72]. Therefore, metacognitive instruction for productive skills should combine strategy modeling, reflective assessment, peer

feedback, and task-specific criteria so that learners can regulate both language production and the social demands of communication.

METHODS

Research Design

This study employed a systematic literature review (SLR) design to synthesize empirical evidence on the contribution of metacognitive awareness to English language skill development. The review was designed as a narrative-synthetic SLR rather than a statistical meta-analysis; therefore, it did not calculate pooled effect sizes or aggregate quantitative results. Instead, the review systematically identified, screened, evaluated, and synthesized relevant empirical studies to clarify how metacognitive awareness operates across listening, speaking, reading, and writing.

Data Sources and Search Strategy

Relevant studies were retrieved from Scopus, Web of Science, ERIC, ScienceDirect, SpringerLink, and Google Scholar. The search was conducted by combining terms related to metacognition and English language learning, including “metacognitive awareness,” “metacognition,” “metacognitive strategy,” “listening,” “speaking,” “reading,” “writing,” “English language learning,” “EFL,” and “ESL.” Boolean operators were used to broaden and refine the search so that studies addressing both individual language skills and integrated English language performance could be identified.

Eligibility Criteria

Studies were included when they met the following criteria: (1) published in peer-reviewed journals or academically traceable scholarly sources; (2) focused on metacognitive awareness, metacognitive knowledge, or metacognitive strategy use in English language learning; (3) reported empirical findings; (4) examined at least one English language skill, namely listening, speaking, reading, or writing; and (5) were written in English. Studies were excluded when they were duplicates, conference abstracts without full empirical data, book reviews, purely theoretical papers, or works unrelated to language learning outcomes.

Study Selection Procedure

The article selection process followed four stages: identification, screening, eligibility assessment, and inclusion. Initially, all retrieved records were exported into reference-management software. Duplicate records were removed automatically and checked manually. The remaining studies were screened through titles and abstracts. Full-text articles were then assessed against the inclusion and exclusion criteria. Disagreements regarding article eligibility were resolved through discussion until consensus was reached.

Data Extraction and Classification

Data were extracted using a structured review form that recorded author names, publication year, research context, participants, research design, data collection techniques, language skill investigated, and major empirical findings. The studies were classified into listening, speaking, reading, and writing categories according to their primary skill focus. Studies examining more than one skill were treated as integrated-skill studies and were analyzed to identify cross-skill patterns.

Quality Assessment and Data Synthesis

The methodological quality of each included study was assessed based on clarity of research design, adequacy of participant description, appropriateness of data collection procedures, rigor of analysis, and relevance to the review objective. Studies meeting the minimum quality requirements were retained for synthesis. The findings were analyzed through thematic narrative synthesis by identifying recurring patterns, methodological tendencies, and relationships between metacognitive awareness and English language learning outcomes.

Review Scope and Temporal Coverage

The review focused primarily on studies published between 2000 and 2020 because this period represents a significant phase in the development of research on metacognitive awareness in language learning. Additional studies published after 2020 were also consulted where relevant to strengthen the contemporary relevance of the synthesis. This approach enabled the review to combine historical coverage with current scholarly developments in metacognitive awareness and English language learning.

RESULTS AND DISCUSSION

Results

The findings reveal that the contribution of metacognitive awareness is not equally supported across the four English language skills. Reading emerged as the skill with the strongest empirical support, as the majority of studies employed experimental or quasi-experimental designs and consistently reported positive effects of metacognitive strategy instruction on reading comprehension, monitoring, and self-regulation. Listening also demonstrated substantial empirical support, particularly in studies examining metacognitive listening strategies and comprehension monitoring. These studies generally reported significant improvements in learners' ability to plan, monitor, and evaluate their listening processes.

In contrast, evidence related to speaking was comparatively less extensive. Although most studies reported positive associations between metacognitive awareness and speaking performance, many relied on correlational or descriptive designs, limiting the strength of causal inferences. Similarly, writing studies consistently highlighted the importance of planning, monitoring, and self-evaluation in the writing process; however, the overall number of experimental investigations remained relatively limited compared to reading and listening research.

A comparison of methodological approaches further revealed differences in evidential strength. Experimental and quasi-experimental studies provided the strongest support for the effectiveness of metacognitive awareness interventions, whereas correlational studies primarily demonstrated associations rather than causal relationships. Descriptive studies offered valuable contextual insights but generally provided weaker evidence regarding effectiveness. Consequently, the overall quality of evidence was strongest in reading and listening research, moderate in writing research, and comparatively less robust in speaking research due to the predominance of non-experimental designs.

Despite the generally positive findings, several limitations were identified across the reviewed literature. Many studies employed small sample sizes, short intervention periods, and context-specific populations, potentially limiting the generalizability of their findings. Furthermore, relatively few studies examined the integrated development of multiple language skills

simultaneously, indicating a need for future research adopting multidimensional and longitudinal approaches. These findings suggest that while metacognitive awareness is consistently associated with improved language learning outcomes, the strength and quality vary considerably across skill domains.

Ninety-eight articles about how metacognition affects a learning process in the classrooms have been collected by the writer, but only 61 articles were included in the English language learning (Figure 1). Having been screened and classified based on the Quality Assessment Criteria (Table 1). Thirty-eight articles mentioned the effectiveness of metacognition on improving English skills (listening, speaking, reading, and writing).

Table 1. Quality assessment criteria

1	Does the article describe the use of metacognition in language learning?
2	Are there any implicit or explicit descriptions about the effectiveness of metacognition in the four specific English skills?
3	Does the article describe the development of a learning model/language learning process with the metacognitive strategies?
4	Does the article mention the evidence of the effectiveness of metacognition in the language learning process?
5	Does the article mention the metacognitive strategies used in the classroom?

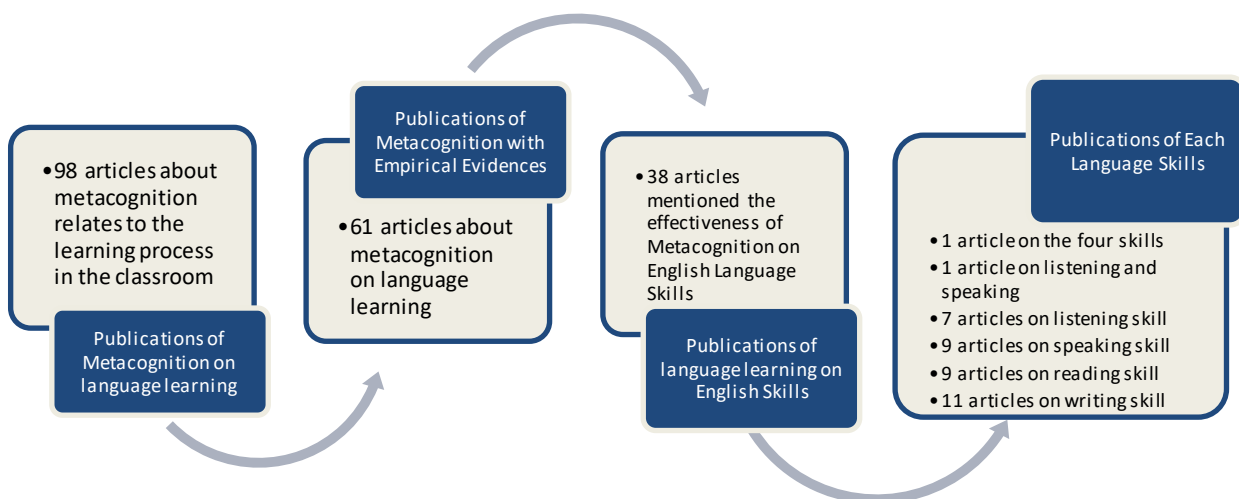


Figure 1. The screening and classifying process of meta-analysis

Kummin and Rahman [46] investigated the four English skills and found that metacognitive strategies contributed positively to English achievement in listening, speaking, reading, and writing. Their study implies that students who used metacognitive strategies in their learning process achieved more substantial performance improvement than those who did not. Ghapanchi and Taheryan [34] reported a similar finding in the Iranian EFL context, showing a significant relationship between metacognitive awareness and proficiency in listening and speaking skills.

All articles collected were classified into four English-skill categories: (1) listening, (2) speaking, (3) reading, and (4) writing. For listening, seven reviewed studies by Rahimirad [8], Li [16], Vandergrift [26], Cross [27], Bozorgian [28], Goh and Hu [29], and Fahim and Fakhri [30]

indicate that metacognitive strategies used in listening activities provide substantial benefits for EFL learners.

For speaking proficiency, nine studies by Lam [47], Forbes and Fisher [48], Seifoori [49], Lazarus and Ogunsola [50], Adam [51], Akman and Alagöz [52], Rastriaji [53], Karim [54], and Hermayani and Mbat0 [55] examined the effect of metacognitive awareness on students' speaking performance. Overall, these studies show that metacognitive awareness helps students overcome obstacles in completing speaking tasks.

Reading studies by Sheorey and Mokhtari [35], Karbalaei [36], Carrell [37], Carretti et al. [38], Tavakoli [39], Arrastia et al. [40], Iwai [41], Al-Mekhlafi [42], and Teng and Reynolds [43] reported the effectiveness of metacognition in English reading. Collectively, these studies indicate that metacognitive awareness influences students' ability to regulate reading comprehension in classroom contexts.

Writing studies by Guterman [59], Negretti and McGrath [60], Ruan [61], Azizi et al. [62], Negretti [63], Cer [64], Qin and Zhang [65], Aglina et al. [66], Colognesi et al. [67], and O'Loughlin and Griffith [68] showed that English writing can be improved through metacognitive strategy use. In other words, metacognitive awareness and metacognitive tasks used during writing performance can be positive predictors of successful language learning.

Table 2. Articles of Metacognition on English Skills Result

No	Authors	Skill	Aim	Empirical Evidence of Metacognition in Language Learning
1	Kummin and Rahman [46]	4 Skills	To determine the relationship between the use of metacognitive strategies and achievement in English Skills among students in Universiti Kebangsaan Malaysia.	a clearer picture of the metacognitive strategies used by successful students who are proficient in English often use a variety of strategies compared to students who are less successful because they are not able to use appropriate strategies in handling the task ahead and check their own understanding or their own performance.
2	Ghapanchi and Taheryan [34]	Listening & Speaking	To examine the influence of language knowledge, metacognitive knowledge and metacognitive strategy use on speaking and listening proficiency	The use language knowledge, metacognitive knowledge and metacognitive strategy were correlated significantly and substantially with speaking and listening proficiency. The more one possesses language knowledge, metacognitive knowledge, metacognitive strategy use, the more proficient he is in speaking and listening.
3	Vandergrift [26]	Listening	To examine student responses to three different listening tasks and accompanying instruments developed with metacognition.	An emphasis on the processes of listening equipped by instrument developed with metacognitive knowledge, can potentially help students to become more autonomous language learners, better capitalize on the language input they receive, and achieve greater success in language learning.
4	Cross [27]	Listening	To investigate the role of peer–peer dialogue in raising learners’ metacognitive awareness of L2 listening.	The findings of this study, which adopted an SCT perspective and explored comprehension awareness, text awareness, and strategy awareness in learners’ dialogue at several points of the same lesson and in post-lesson diaries, provide substance about the potential of dialogic interaction in a pedagogical cycle for raising metacognitive awareness of L2 listening with respect to the given text and task.

No	Authors	Skill	Aim	Empirical Evidence of Metacognition in Language Learning
5	Li [16]	Listening	To investigate the metacognitive awareness of non-English majors in English listening and the relationship between metacognitive awareness and listening comprehension	Through training in metacognitive strategies, students can shoulder more responsibilities in the process of learning and learner autonomy can be promoted. When the students can control their learning effectively, they will become more interested in language learning. As a result, they are more willing to invest more time in autonomous learning in English listening after class. To help students become more autonomous and successful learners is the ultimate objective of language teaching.
6	Bozorgian [28]	Listening	To investigate the impact of metacognitive instruction on the listening skill, and metacognitive knowledge of a group of students who were learning English as a Foreign Language (EFL) in Iran.	The importance of metacognitive instruction assists listeners to shift their focus on listening performance and develops the listening skill through practicing listening on their own. The Teachers should help listeners to develop a habit of using metacognitive strategies when approaching listening tasks.
7	Goh and Hu [29]	Listening	To provided further empirical evidence of language learners' metacognitive awareness of L2 listening through the administration of the MALQ to a large group of learners at the end of a listening class where they had completed their regular listening practice.	The learners reflect on their listening process with the help of the MALQ items acting as prompts and to report if they had used any particular strategies or felt any difficulty and anxiety. The responses from the 113 participants indicated that they were aware of their listening processes and of the challenges they faced as L2 listeners.
8	Rahimirad [8]	Listening	To investigate the impact of metacognitive strategy instruction on the listening performance of EFL university students.	Metacognitive strategy instruction can significantly improve listening performance among EFL students. It can also make the learners more independent and self-regulated thanks to monitoring and evaluation strategies. Thus, students take responsibility of their own learning through the cycle of planning, monitoring and evaluation.

No	Authors	Skill	Aim	Empirical Evidence of Metacognition in Language Learning
9	Fahim and Fakhri Alamdari [30]	Listening	To explore the effect of two different models of metacognitive instruction on the listening performance of EFL learners in Iran.	The finding provides some guidelines for both teachers and teacher educators on how to promote learners' metacognitive listening strategies through process-based approaches to listening. One important way to raise learners' metacognitive awareness is to incorporate the principles of process-based instruction in designing EFL instructional materials and activities.
10	Lam [47]	Speaking	To examine the effects of metacognitive strategy instruction (MCSI) on learners' performance and on strategy use.	Strategy instructions have an impact on the desirable noticing of strategy use in terms of awareness-raising, it may be worth implementing MCSI to help L2 speakers to cope with ESL oral tasks, thereby providing a means to help students improve in language and facilitate task completion. It may also be desirable to incorporate planning time and space into strategy instruction with a view to promoting the effective use of MCSs in the language classroom.
11	Forbes and Fisher [48]	Speaking	To examine how an explicit focus on metacognitive strategy use within secondary school foreign language lessons impacts pupils' confidence and proficiency in speaking.	The use of learning strategies seems to have had a positive impact on pupils' confidence and proficiency in speaking and after the intervention the participants reported an increase in how much they both valued and used a range of metacognitive strategies.
12	Seifoori [49]	Speaking	To inspect the impact of metacognitive awareness on the fluency of 114 Iranian TEFL learners' task-based oral output.	Iranian TEFL learners benefited from the metacognitive awareness-raising activities to boost their fluency emanates their need for strategic investment. This need also need to be addressed either officially by teacher educators and materials developers or by well-informed teachers who acknowledge the difference that metacognition can make in the process of foreign language learning.

No	Authors	Skill	Aim	Empirical Evidence of Metacognition in Language Learning
13	Lazarus and Ogunsola [50]	Speaking	To investigate the effects of metacognition and direct instruction on spelling abilities of pupils with learning disabilities in Ibadan, Oyo State, Nigeria.	The study has confirmed the basic assumption that metacognition and direct instruction strategies would give room to pupils' active participation in the process of knowledge acquisition with reference to spelling. It also shed more light on the role of the teacher in a child-centered package in the school setting through the use of metacognition and direct instruction strategies.
14	Adam [51]	Speaking	To investigate the relationship between students' metacognitive strategy and their self-efficacy in speaking skills and also investigates the overall level of students' use of metacognitive strategy and the level of their self-efficacy in speaking skills.	There is a significant correlation between students' metacognitive strategy and their self-efficacy in their speaking skill. The students with a good employment of metacognitive strategy have at least the connection with their self-efficacy in speaking. In other words, the students understanding what they know, what they should do, what they are doing, and what they did (implication of a metacognitive strategy) tend to have a good and higher self-efficacy in their speaking skill.
15	Akman and Alagoz [52]	Speaking	To assess the perceptions of prospective teachers related to the correlation between metacognitive awareness and participation in discussion.	There is a moderately significant positive relationship between participation in discussion and metacognitive awareness. Accordingly, as the participants' metacognitive awareness increases, their participation in discussion also increases.
16	Nafiulfaqih [56]	Speaking	To know how metacognitive strategies in terms of centering learning were used by the students of vocational high school during learning process and their speaking performance.	Metacognitive strategies in terms of centering learning help the students to enhance their self-confidence and knowledge. Moreover, most of students' speaking performance were good during learning and delivering the presentation since applying centering learning strategies. Most of them had fulfilled the criteria of good speaking performance.

No	Authors	Skill	Aim	Empirical Evidence of Metacognition in Language Learning
17	Karim [54]	Speaking	To investigate the independent language learners which in this case characterized as “High-Achiever Students” on how they implemented the metacognition into their learning to improve their speaking skill.	The various strategies used to accommodate the metacognitive strategy steps played a crucial role in forming the effectiveness of their speaking practices. In addition, The finding revealed that the use of an internet platform also took part in learning success.
18	Hermayani and Mbato [55]	Speaking	To measure the metacognitive awareness of some Civil Engineering students during their independent learning activities.	Cooperative learning builds up learners’ motivation through peer feedbacks and monitoring done by a tutor. Metacognitive awareness was built upon the realization of clear learning objectives, followed by self-determination, and planning. Consistency is also required to sustain self-regulated learning.
19	Sheorey and Mokhtari [35]	Reading	To examine differences in the reported use of reading strategies of native and non-native English speakers when reading academic materials who completed a survey of reading strategies aimed at discerning the strategies readers report using when coping with Academic reading tasks.	Both US and ESL students display awareness of almost all of the strategies included in the survey attribute the same order of importance to categories of reading strategies in the survey, regardless of their reading ability or gender: cognitive strategies (the deliberate actions readers take when comprehension problems develop), followed by metacognitive strategies (advanced planning and comprehension monitoring techniques), and support strategies (the tools readers seek out to aid comprehension).
20	Karbalaei [36]	Reading	To explore whether there were any significant differences in the metacognitive awareness and perceived use of reading strategies between EFL and ESL college students while reading academic materials.	The subjects in both groups reported a similar pattern of strategy awareness while reading academic texts although the two student groups had been schooled in significantly different socio-cultural environments. The importance of helping EFL and ESL college readers alike develop their metacognitive awareness of specific reading strategies deemed necessary for proficient reading.
21	Carrell [37]	Reading	To investigate the second language readers' awareness of reading strategies.	The effectiveness of second language reading pedagogy must include not only training and practice in the use of task-specific

No	Authors	Skill	Aim	Empirical Evidence of Metacognition in Language Learning
				strategies (i.e., strategy training), instruction in orchestrating, overseeing, and monitoring these skills (i.e., self-regulation training) but, more importantly, information about the significance and outcome of these skills and the range of their utility (i.e., awareness training).
22	Carretti et al. [38]	Reading	To find out the effectiveness of activities with a combined effect on metacognition and WM, confirming that these two factors are closely related to reading comprehension adequacy.	The findings indicate that the potential benefit of text comprehension training depends on the modality used, because the Reading group obtained larger and longer-lasting improvements than the Active control or Listening groups
23	Tavakoli [39]	Reading	To investigate the effectiveness of activities with a combined effect on metacognition and WM, confirming that these two factors are closely related to reading comprehension adequacy.	Iranian EFL learners are moderately aware of metacognitive strategy use in reading comprehension and all the three sub-metacognitive strategies were positively correlated with reading achievement. The awareness and use of reading strategies had a positive and strong correlation with reading comprehension achievement. EFL students who employ more strategies and use them as frequently as possible are likely to show higher success in reading comprehension.
24	Arrastia et al. [40]	Reading	To investigate the metacognitive awareness of reading strategies among 160 undergraduate students who enrolled the English major from the first and fourth year at the College of Education at a university in Egypt.	As an international effort to improve English instruction, metacognitive reading strategies may help students when first learning to read English until they become proficient, learn more vocabulary, and can automate some reading processes.

No	Authors	Skill	Aim	Empirical Evidence of Metacognition in Language Learning
25	Iwai [41]	Reading	To understand levels of metacognitive awareness among pre-service teachers at the initial, middle, and final stages of the teacher education program.	Literacy instructors and educators in the teacher education programs at the college level must recognize the essential role of metacognitive reading strategies and their positive impacts on students' reading comprehension. They must not only introduce students to these strategies, but also explicitly teach how to implement (procedural knowledge) and when to use them effectively (conditional knowledge) in their pedagogy classes. Emphasizing these strategies will support children's better reading comprehension.
26	Al-Mekhlafi [42]	Reading	To investigate how frequently EFL learners studying in higher education institutions think they use selected EFL reading strategies.	The findings reported that there is a high use of all the three types of reading strategies by Elementary, Intermediate and Advanced Level EFL students in Oman and There are significant differences in the use of two types of reading strategies (i.e., problem-solving strategies and support reading strategies) attributed to learners' gender of females.
27	Teng and Reynolds [43]	Reading	To investigate the effects that the presence or absence of metacognitive prompts for group or individual learning could have on reading comprehension and the incidental learning of vocabulary through reading.	These findings highlight the importance of training students' self-regulated learning and suggest that the use of metacognitive prompts in a group setting is an effective means to boost EFL reading comprehension and the incidental vocabulary learning for Chinese university students.
28	Guterman [59]	Writing	To test the effect of using Metacognitive Awareness Guidance (MCAG) as a vehicle for activating and engaging learners' existing prior knowledge before they begin a reading assessment task.	In increasing the learners' metacognitive awareness by means of well-planned guidance, built on prior knowledge, facilitates their learning and improves outcomes on a reading assessment task, this paper focuses on the linkage between three components of learner performance, which refer to as the 'Assessment Triangle': (1) achievement on reading assessment tasks; (2) performance on

No	Authors	Skill	Aim	Empirical Evidence of Metacognition in Language Learning
				metacognitive awareness guidance; and (3) awareness of metacognitive reading strategies.
29	Negretti [63]	Writing	To investigate how the metacognitive awareness changes over time and how it relates to students' perceptions of the writing task, metacognitive awareness of strategic choices, and evaluation of their writing.	The variety of task perceptions observed reinforces current research suggesting that mental representations of task have a strong link to students' metacognitive awareness of how the task can be tackled and, indirectly, to self-regulation and monitoring of performance. The nature of task perceptions and metacognitive dynamics must be therefore taken into account to understand how and why students make certain rhetorical choices while writing.
30	Ruan [61]	Writing	To investigate the metacognitive awareness of Chinese English as a foreign language (EFL) student writers, under a threefold metacognition framework – person, task, and strategy variables, and within the broader domain of cognitive writing theories.	The motivation, self-efficacy, and writing anxiety constitute students' awareness of person variables influencing their EFL writing, whereas their task awareness involves task purposes, task constraints, and cross-language task interference. Strategy awareness of planning, text generating, and revising was found typical of novice EFL student writers.
31	Azizi et al. [62]	Writing	To examine meta-cognitive awareness of writing strategy, use among Iranian EFL learners as well as the impact of the participants' meta-cognitive awareness of writing strategy use on their L2 writing performance.	There was a significant relationship between writing performance and all writing strategy categories (planning, monitoring, evaluation, and self-awareness). The result of this study responds to the ongoing problems students have in their meta-cognitive awareness of writing strategy use which can contribute to raising proficiency levels in shorter time frames.
32	Negretti and McGrath [60]	Writing	To investigate how genre knowledge and metacognition can be scaffolded in a genre-based course for doctoral students engaged in writing research articles.	The metacognitive tasks elicited an integrated view of genre and encouraged students' conceptualization of this knowledge as a tool for writing. In interviews, students reported using facets of genre knowledge metacognitively in their writing, by describing how they

No	Authors	Skill	Aim	Empirical Evidence of Metacognition in Language Learning
				engage with reader expectations, conventions, variation, and the possibility of strategic deliberate choices.
33	Cer [64]	Writing	To investigate the effect of the “knowledge of cognition” and “regulation of cognition,” which are processes of the metacognitive strategy for improving learners’ writing skills.	The metacognitive strategy should be used to effectively improve writing skills in the teaching/learning process because it emphasizes that the text should be restructured through planning and revising, monitoring, evaluating, and editing, instead of having students write compositions with only topics and simple instructions.
34	Qin and Zhang [65]	Writing	To investigate the relationship between English as a foreign language (EFL) writers reported metacognitive strategy knowledge and their English writing performance in multimedia environments in a Chinese tertiary context.	The participants’ metacognitive strategy knowledge was correlated significantly more metacognitive knowledge about three clusters of metacognitive strategies (planning, monitoring, and evaluating) than their low EFL-proficiency counterpart. These important findings point to pedagogical implication that there is a need to integrate metacognitive strategies into teaching and researching EFL writing.
35	Aglina et al. [66]	Writing	To verify the relationship between students’ metacognitive awareness and their writing anxiety.	There was a significant correlation between students’ metacognitive awareness and their writing anxiety. The finding proved that Metacognitive awareness played a necessary role in increasing students’ writing performance by reducing the anxious feeling in the writing activities.
36	Colognesi et al. [67]	Writing	To see the effects of metacognitive mediations integrated into a writing instruction program which incorporates the various principles of effective writing instruction: goal setting, peer support,	Students in both conditions made significant progress for the following elements: idea development, general organization of the text, textual consistency, vocabulary, spelling, and text presentation. In short, metacognition improved the students’

No	Authors	Skill	Aim	Empirical Evidence of Metacognition in Language Learning
			teacher feedback and instruction in writing strategies.	writing skills. The metacognitive condition allowed students to make better progress and achieve better writing products.
37	Arroyo Gonzalez et al. [69]	Writing	To find out the relationship between the structuring of written argumentation, metacognition of writing, and argumentative writing self-efficacy in the learning of writing.	It is the practical ability to structure a Conclusion and Bibliography when writing an SAE which predicts the students' writing metacognition. consulted highlights the importance of the structuring of written argumentation, metacognition of writing, and argumentative writing self-efficacy in the learning of writing.
38	O'Loughlin and Griffith [68]	Writing	To examine the use of 'blogs' (i.e., online journals) in an upper level of undergraduate human anatomy course. The blogs both facilitated development of students' metacognitive skills and provided researchers insight into students' metacognitive process.	Reflective writing in an undergraduate anatomy course not only facilitates improvement in student metacognitive skills, but also provides the instructor with evidence how a student progresses from novice to more experienced learner in anatomy. Frequent and regularly scheduled writing in an upper level of anatomy course allowed the authors to evaluate improvement in student metacognition, using a grounded theory approach of examining this writing. STEM instructors, especially those interested in articulating student learning processes in their subjects, should consider reflective writing assignments as a component of their courses.

Discussion

Patterns of Empirical Evidence Across English Language Skills

The findings of this review indicate that metacognitive awareness contributes positively to English language learning outcomes across the four major skills: listening, speaking, reading, and writing. However, the strength of empirical evidence is not equally distributed across these skill domains. Reading and listening appear to receive stronger empirical support than speaking and writing, particularly because many studies in receptive-skill domains employed experimental or quasi-experimental designs and reported consistent improvements in comprehension, monitoring, and self-regulation. This pattern suggests that metacognitive awareness may have a more direct and observable relationship with receptive language performance, where learners are required to construct meaning from oral or written input, identify comprehension breakdowns, and apply strategies to restore understanding.

In listening, studies by Rahimirad [8], Li [16], Vandergrift [26], Cross [27], Bozorgian [28], Goh and Hu [29], and Fahim and Fakhri [30] consistently show that metacognitive strategy instruction strengthens learners' ability to predict content, regulate attention, monitor comprehension, evaluate listening outcomes, and manage difficulties during listening tasks. These findings are important because listening is a real-time cognitive activity in which learners cannot easily revisit spoken input in the same way they can reread written text. Therefore, metacognitive awareness helps learners become more conscious of how they process oral input, what problems they encounter, and what strategies they can use to improve comprehension. Vandergrift and Goh [31] further emphasized that metacognitive listening instruction can guide learners to become more strategic, reflective, and autonomous listeners.

A similar pattern is evident in reading. Studies by Sheorey and Mokhtari [35], Karbalaeei [36], Carrell [37], Carretti et al. [38], Tavakoli [39], Arrastia et al. [40], Iwai [41], Al-Mekhlafi [42], Teng and Reynolds [43], Zhang and Seepho [44], and Ahmadi et al. [45] demonstrate that metacognitive reading strategies are strongly associated with reading comprehension achievement. These studies indicate that successful readers are not only those who possess vocabulary and grammatical knowledge, but also those who can plan reading goals, monitor comprehension, use problem-solving strategies, and evaluate whether the text has been understood accurately. Anderson [74] conceptualized reading as an interaction among the reader, the text, fluency, strategic reading, background knowledge, text schema, lexical and grammatical awareness, and the reader's purposes. This view supports the present review's finding that metacognitive awareness is essential because it enables readers to coordinate these multiple dimensions during the reading process.

Evidence in speaking and writing also supports the positive role of metacognitive awareness, although the relationship appears more complex. Speaking studies by Ghapanchi and Taheryan [34], Lam [47], Forbes and Fisher [48], Seifoori [49], Lazarus and Ogunsola [50], Adam [51], Akman and Alagöz [52], Rastriaji [53], Karim [54], Hermayani and Mbato [55], and Nakatani [57] show that metacognitive awareness can support oral performance by increasing learners' confidence, planning ability, self-monitoring, and strategic communication. Nevertheless, speaking is influenced by several additional factors, including vocabulary mastery, pronunciation, grammar, interactional competence, anxiety, turn-taking, time pressure, and communicative context. For this reason, the effect of metacognition on speaking may be mediated by self-confidence, self-efficacy, and communicative strategy use rather than appearing as a simple direct effect.

In writing, studies by Guterman [59], Negretti and McGrath [60], Ruan [61], Azizi et al. [62], Negretti [63], Cer [64], Qin and Zhang [65], Aglina et al. [66], Colognesi et al. [67], O’Loughlin and Griffith [68], Negretti [69], and McCutchen [70] indicate that metacognitive awareness supports planning, drafting, organizing, revising, editing, and evaluating written texts. Writing is frequently regarded as one of the most demanding language skills because it requires the integration of linguistic knowledge, content knowledge, genre awareness, critical thinking, rhetorical organization, and awareness of audience. Therefore, metacognitive awareness contributes to writing by helping learners regulate the writing process rather than merely producing written output. O’Loughlin and Griffith [68], for example, showed that reflective online journaling enabled learners to monitor their writing process and develop stronger metacognitive control. Overall, the evidence suggests that metacognitive awareness contributes to all English skills, but its manifestation differs according to the cognitive and communicative demands of each skill.

The Important Role of Metacognition in English Skills Improvement

The reviewed literature shows that metacognitive awareness plays an important role in English skills improvement because it enables learners to become more conscious, strategic, and self-regulated in their learning. Metacognition involves knowledge about cognition and regulation of cognition, including planning, monitoring, and evaluation [9], [73]. In English language learning, these processes help learners identify learning goals, select appropriate strategies, monitor task performance, recognize difficulties, and evaluate learning outcomes. Wenden [21] argued that successful language learners are distinguished not only by the strategies they possess, but also by their awareness of how, when, and why those strategies should be used. This view is consistent with the findings of Kummin and Rahman [46], who found that students who applied metacognitive strategies achieved better English performance across listening, speaking, reading, and writing.

The mechanism through which metacognitive awareness improves English skills can be understood as a continuous cycle of preparation, regulation, and reflection. Before completing a language task, learners use planning strategies to set goals, activate prior knowledge, predict possible challenges, and select appropriate learning strategies. During the task, they use monitoring strategies to check comprehension, observe their performance, identify errors, and adjust their approach. After completing the task, they use evaluation strategies to assess the effectiveness of their strategies and determine what should be improved in future learning. This cycle allows learners to transform language learning from a passive process into an active and reflective process.

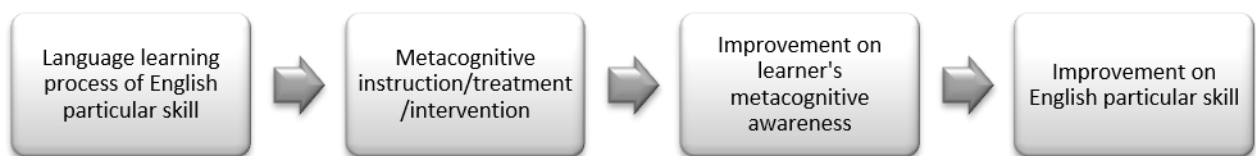


Figure 2. The Metacognition Influenced on the Language Learning Process

Figure 2 illustrates that metacognition influences language learning through the interaction between awareness, strategy use, self-regulation, and performance improvement. This relationship is evident across the four English skills. In listening, metacognitive learners are better able to predict content, focus attention, monitor understanding, and evaluate listening outcomes [8], [26], [28]. In

speaking, learners use metacognitive strategies to plan oral production, monitor communication breakdowns, manage anxiety, and evaluate their communicative effectiveness [47], [49], [54], [57]. In reading, metacognitive awareness helps learners regulate comprehension by using global reading strategies, problem-solving strategies, and support strategies [35], [37], [41], [43]. In writing, learners use metacognitive processes to plan ideas, organize arguments, revise drafts, evaluate coherence, and improve text quality [61], [63], [65], [68], [69].

The role of metacognition is also closely connected to self-regulated learning. Zimmerman [24] emphasized that self-regulated learners actively control their cognition, motivation, and behavior to achieve learning goals. In this review, metacognitive awareness appears to support self-regulated English learning by encouraging learners to take responsibility for their own progress. Learners with stronger metacognitive awareness are more likely to recognize their strengths and weaknesses, choose suitable strategies, persist when facing difficulties, and revise ineffective learning behaviors. Bandura [23] also argued that self-efficacy influences how individuals regulate effort and persistence. This indicates that metacognition does not work in isolation; rather, it interacts with motivational and affective factors such as confidence, anxiety, autonomy, and self-efficacy. Studies by Magogwe and Oliver [25] and Pishghadam et al. [72] support this relationship by showing that metacognitive awareness, self-efficacy, and language achievement are interconnected.

From a pedagogical perspective, the findings indicate that metacognitive awareness should be taught explicitly rather than assumed to develop automatically. Teachers can promote metacognitive awareness through strategy modeling, guided reflection, learning journals, peer discussion, self-questioning, performance checklists, and post-task evaluation. Jones [7] identified several teacher approaches relevant to English skills improvement, including dialogic teaching, developing metacognitive awareness, planning instruction, and assessing learning outcomes. These approaches suggest that teachers should not only teach language content, but also make learning processes visible to students. When students understand why a strategy is useful, how it should be applied, and when it should be modified, they are more likely to become autonomous and strategic language learners.

Implications for English Language Teaching and Future Research

The findings of this review have several implications for English language teaching. First, metacognitive awareness should be integrated into English instruction across all four skills rather than taught as an isolated learning concept. In listening classes, teachers can guide students to predict content, identify listening purposes, monitor comprehension, and reflect on listening difficulties. In speaking classes, teachers can encourage students to plan oral responses, use communication strategies, evaluate fluency and accuracy, and reflect on interactional challenges. In reading classes, teachers can teach students to preview texts, identify reading goals, monitor comprehension, use repair strategies, and evaluate their understanding. In writing classes, teachers can support learners through planning outlines, drafting, peer review, self-assessment, revision, and reflective writing. These practices show that metacognitive instruction is relevant not only to language knowledge but also to the process through which learners manage and improve their language performance.

Second, the review suggests that teachers need to balance skill-specific strategy instruction with integrated-skill pedagogy. Although many studies focused on individual skills, English

learning in real classroom contexts often requires the integration of listening, speaking, reading, and writing. For example, students may read a text, discuss its content, listen to peer responses, and write a reflection. In such integrated learning situations, metacognitive awareness helps students transfer strategies across tasks and skills. Therefore, future English instruction should encourage learners to see metacognitive strategies as flexible tools that can be adapted to different language tasks rather than fixed techniques limited to one skill.

Third, the findings point to important methodological considerations for future research. The reviewed studies generally support the positive contribution of metacognitive awareness, but the strength of evidence varies across skill domains. Reading and listening studies tend to provide stronger empirical evidence, while speaking and writing studies require more longitudinal, experimental, and mixed-methods investigations. Many existing studies are limited by small samples, short intervention periods, context-specific populations, and reliance on self-report instruments. Future research should employ more rigorous designs, larger and more diverse samples, classroom-based interventions, performance-based assessments, and longitudinal tracking to examine how metacognitive awareness develops over time and how it influences language achievement in different educational contexts.

Finally, this review contributes to the literature by showing that metacognitive awareness is not merely an additional factor in English language learning, but a central mechanism that supports learners' ability to regulate their cognitive, affective, and strategic engagement with language tasks. Its role is evident across listening, speaking, reading, and writing, although its influence differs depending on the nature of each skill. Therefore, English language teachers, curriculum designers, and researchers should give greater attention to metacognitive awareness as a foundation for developing autonomous, reflective, and effective language learners.

CONCLUSION

This review synthesized evidence from 98 studies examining the role of metacognitive awareness in the development of English language skills. The findings confirm that metacognitive awareness is positively associated with learning outcomes across listening, speaking, reading, and writing, although the strength of evidence differs across skill domains. Reading and listening studies provided the most consistent empirical support, particularly through experimental and quasi-experimental evidence showing improvements in comprehension, monitoring, and self-regulation. Speaking and writing studies also indicated positive contributions, but the evidence was generally less conclusive because many studies relied on correlational or descriptive designs. Overall, metacognitive awareness should be understood as part of a broader self-regulatory learning process involving strategy use, self-efficacy, motivation, learner autonomy, and reflective evaluation. The main contribution of this review lies in offering a cross-skill synthesis that clarifies common patterns, identifies methodological differences, and highlights the need for more rigorous experimental, longitudinal, and integrated-skill research in future English language learning studies.

LIMITATIONS

The study was limited to literature retrieved from selected academic databases, namely Scopus, Web of Science, ERIC, ScienceDirect, SpringerLink, and Google Scholar, so relevant studies

indexed elsewhere may not have been included. The review also focused primarily on studies within a specified publication period and on English-language publications, which may have introduced temporal and language bias. Although explicit inclusion, exclusion, classification, and quality assessment procedures were applied, the selection and synthesis process still involved reviewer judgment, and the included studies varied substantially in research design, participant characteristics, instructional context, measurement instruments, and methodological rigor. Moreover, this review used narrative synthesis rather than statistical meta-analysis, meaning that effect sizes and pooled quantitative estimates were not calculated. Therefore, the findings should be interpreted as an integrative qualitative synthesis that maps the strength, patterns, and gaps of existing evidence rather than as a definitive quantitative measure of the effectiveness of metacognitive awareness in English language learning.

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E.F.A. led conceptualization, literature mapping, methodology design, initial synthesis, and writing of the original draft. P.R. contributed to supervision, theoretical refinement, validation of the English language learning framework, and critical revision of the manuscript. M.F. contributed to data extraction review, synthesis of empirical evidence, reference consistency, and refinement of the results and discussion. B.K. contributed to formal analysis, template alignment, academic editing, and final proofreading. All authors reviewed, revised, and approved the final manuscript.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

DECLARATION OF USE OF AI IN SCIENTIFIC WRITING

The authors used ChatGPT during the preparation of this work to support language editing, structural refinement, and reference-style consistency. After utilising the tool, the authors reviewed and edited the content, verified the citations and DOI information, and assume full responsibility for the publication's content.

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