International Journal of Modern Languages and Applied Linguistics
e-ISSN: 2600-7266

Scaffolding and Reading Comprehension: A Literature Review

Huiling Zhang[1], Charanjit Kaur Swaran Singh[2]*

[1 & 2] Faculty of Languages and Communication, Sultan Idris Education University, Malaysia

[1] zhanghuiling621@163.com
[2] charanjit@fbk.upsi.edu.my

**Corresponding author*

Article history:
Received: 3 September 2024 *Accepted: 15 February 2025* *Published: 1 April 2025*

Abstract

This literature review critically examined the role of scaffolding in enhancing reading comprehension among English as a Foreign Language and English as a Second Language learners. Grounded in Vygotskian theory, which posited that scaffolding provides temporary support enabling learners to perform tasks beyond their current capabilities, the review aimed to synthesise findings from 17 past studies. The guiding research questions included: What are the relevant past studies related to scaffolding and reading comprehension? What were the interventions used? What insights can be drawn from the results? Methodologically, this review involved a rigorous selection process, with studies chosen from the Scopus database based on their citation rankings and relevance. The findings revealed a diversity of scaffolding techniques, including technological scaffolding, collaborative learning, assessment-based interventions, and cognitive/metacognitive strategies. While most studies reported positive outcomes, such as improved reading comprehension and reduced learning anxiety, the effectiveness of these interventions was often influenced by contextual factors like learner characteristics and task complexity. The discussion emphasised the need for future research to optimise scaffolding techniques, particularly in technology-enhanced environments. This review contributed to the existing literature by offering educators and researchers a comprehensive reference for understanding the impact of scaffolding on reading comprehension. It underscored the importance of context-sensitive, adaptable scaffolding strategies to meet the evolving needs of learners in diverse educational settings. Future recommendations include exploring innovative scaffolding techniques and refining existing methods to enhance their efficacy across different learning environments.

Keywords: *scaffolding, reading comprehension, EFL education, ESL education*

Introduction

Scaffolding refers to the temporary support provided by an expert to a learner, enabling the completion of tasks that would otherwise exceed the learner's current capabilities (Gunawardena & Wilson, 2021). This pedagogical approach has gained considerable prominence in educational settings due to its capacity to enhance student learning and engagement. Reading comprehension, a complex cognitive process requiring multiple linguistic and cognitive skills, is fundamental to both academic success and lifelong learning. Scaffolding strategies function as an instructional bridge, facilitating students' progression from their existing abilities to more advanced levels of text comprehension.

Extensive research has documented the effectiveness of scaffolding in reading comprehension across diverse educational contexts. By enabling the gradual transfer of responsibility from teacher to student, scaffolding fosters learner autonomy and enhances reading proficiency. Previous studies have identified various

scaffolding approaches—cognitive, metacognitive, and motivational—as effective interventions for improving reading comprehension, particularly in relation to challenging or unfamiliar content (Clark & Graves, 2005). However, despite the well-established benefits of scaffolding, significant gaps persist in the literature regarding its optimal implementation and the comparative effectiveness of different scaffolding strategies.

A key limitation of existing research is the insufficient attention given to the integration of motivational scaffolding alongside cognitive and metacognitive support. While cognitive and metacognitive scaffolding have been extensively examined, the role of motivational scaffolding in sustaining student engagement and perseverance in reading tasks remains underexplored (Beek et al., 2018). Furthermore, there is no clear consensus on how scaffolding techniques should be adapted based on student characteristics, including age, proficiency level, and learning environment. Addressing these gaps is crucial for refining instructional practices and maximising the benefits of scaffolding in reading comprehension.

This literature review contributes to the field by synthesising existing research on the implementation and outcomes of scaffolding strategies, with particular emphasis on underexamined areas such as motivational scaffolding. In doing so, it seeks to provide educators with a nuanced understanding of how different forms of scaffolding interact to support reading comprehension. Moreover, this review aims to identify the underlying mechanisms that contribute to scaffolding's effectiveness, thereby offering evidence-based recommendations for optimising its application in diverse educational settings. Given the dynamic nature of reading comprehension, a more responsive and tailored approach to scaffolding is essential to ensure that instructional support aligns with students' evolving needs (Reynolds & Daniel, 2018). By addressing these gaps, this study advances the discourse on scaffolding and offers practical insights for educators seeking to improve students' reading comprehension outcomes. The research questions are:

1. What are the relevant past studies related to scaffolding and reading comprehension?
2. What were the interventions used?
3. What insights can be drawn from the results?

Literature Review

Researchers have been looking This section explores the concepts of scaffolding and reading comprehension. The term "scaffolding" was originally introduced by Bruner (Wood et al., 1976) to describe the various forms of support that allow learners to perform at more advanced levels within their zones of proximal development. Currently, the concept of "scaffolding" is utilised to explain the process by which a knowledgeable individual assists the learner in transitioning from guided assistance to independent performance (Berk & Winsler, 1995).

The instructional technique referred to as "scaffolding" is not intended to simplify the task at hand. Instead, it empowers learners to successfully complete the activity with the support of a teacher or instructor. Initially, it is essential to provide the student with the highest level of assistance to maximise their performance potential. Over time, the level of support is gradually reduced as the learner develops the capability to perform tasks with increasing independence. At this point, the instructor transitions the responsibility for task execution to the learner, thereby removing the scaffolding. The learner then becomes capable of operating autonomously at a level of proficiency comparable to their earlier performance when supported by scaffolding. Vygotsky (1987) argues that tasks a child can accomplish collaboratively in the present will eventually be achievable independently in the future.

For scaffolding to produce positive outcomes, educators must focus on helping students develop problem-solving strategies that can be applied to unfamiliar situations, rather than merely providing answers to specific questions. For instance, when a child encounters an unfamiliar word, instead of directly supplying the meaning, the educator can use a scaffolding approach to nurture problem-solving skills. This can be accomplished by encouraging the child to employ strategies within their cognitive capabilities, such as using visual aids or contextual clues. Gradually, the child will reach a stage where they no longer require the teacher's assistance and can independently initiate the necessary strategy without any prompting.

The term "scaffolding" is a relatively recent concept that emerged within Western academic discourse. It is important to note that Vygotskian scholars did not use this specific terminology in their own works. However, the concept of scaffolding closely aligns with a theoretical framework developed by Pyotr Galperin, Daniel Elkonin, and their colleagues. Galperin's (1969, 1985) framework revolves around the notion of "step-by-step formation," emphasising the gradual transfer of responsibility from a more experienced individual to a less experienced one. This transfer is facilitated through two key strategies: materialisation and private speech. Thus, the processes of materialisation and private speech function as the scaffolding necessary for learning, as described in Western psychological discourse.

The interpretation and application of the scaffolding metaphor in educational research demonstrate considerable diversity and are sometimes employed in a broad sense to denote various concepts (Hammond, 2002, p.2). Scaffolding has been broadly defined as "a means of providing assistance for the growth and education of children and adolescents" (Rasmussen, 2001, p.570). The term can be used as an overarching metaphor to describe how educators or peers provide students with the necessary resources to acquire knowledge (Jacobs, 2001, p.125). The integration of a systematic theoretical framework, alongside multiple educational theories (Jacobs, 2001; Rasmussen, 2001), enriches the context in which the scaffolding metaphor is implemented, making it more generalised. Hammond et al. (2002) argue that there is a pressing need for a more in-depth exploration of scaffolding within the context of language and literacy education, highlighting the crucial role of language in the scaffolding process.

The cognitive process of reading comprehension represents a highly intricate and multifaceted behaviour in which individuals engage. Scholars in the field of reading have undertaken rigorous examinations to determine the most effective approaches for thoroizughly and meaningfully depicting the complex nature of reading comprehension. Over the past few decades, numerous theoretical frameworks have been proposed by esteemed researchers such as Perfetti and Stafura (2014). The current array of models encompasses a range of theoretical frameworks that elucidate the intricate connections and interplay among various subcomponents of comprehension. Furthermore, these models delve into the complexities of specific comprehension processes.

One theoretical framework, commonly known as the Simple View of Reading (SVR), posits that the cognitive process of reading comprehension is attributable to the combined influence of two fundamental components: word decoding and linguistic comprehension (Gough & Tunmer, 1986). Numerous linguistic studies have demonstrated that reading comprehension can be explained through the lens of individual differences in these two core constituents. However, it is important to recognise that the interaction between these components undergoes temporal variations, as highlighted by Catts (2018).

In the early stages of development, the process of decoding demonstrates a stronger correlation with reading comprehension than linguistic competence. However, once decoding proficiency is attained, linguistic comprehension becomes a more reliable predictor of reading comprehension (Catts et al., 2005). The Simple View of Reading (SVR) has proven to be a valuable tool for both researchers and practitioners, offering a comprehensive framework for understanding the diverse profiles of individuals who experience reading difficulties. These profiles include students who face challenges primarily due to word-level obstacles, commonly referred to as dyslexic readers.

Additionally, the Simple View of Reading (SVR) helps in understanding individuals who struggle with comprehension issues, known as poor comprehenders. It also provides insight into those who experience a combination of both word-level difficulties and comprehension challenges, often referred to as garden variety poor readers. While this model has proven to be highly useful, it unfortunately does not account for the intricate subcomponents of language or the cognitive processes that underlie reading comprehension (Catts, 2018).

Methodology

To conduct a comprehensive literature review, the researcher initially selected the keywords "scaffolding" and "reading comprehension." A preliminary search on Google Scholar yielded 17,100 results published since 2020, which was deemed unmanageable. Consequently, the researcher turned to the Scopus database, employing the same keywords. This search identified a total of 45 relevant studies. After a thorough screen-

ing and filtering process, 26 studies were deemed suitable for inclusion in the review. Ultimately, 17 of these studies were successfully downloaded for further analysis, owing to their open-access availability. A flowchart is displayed below for better understanding.

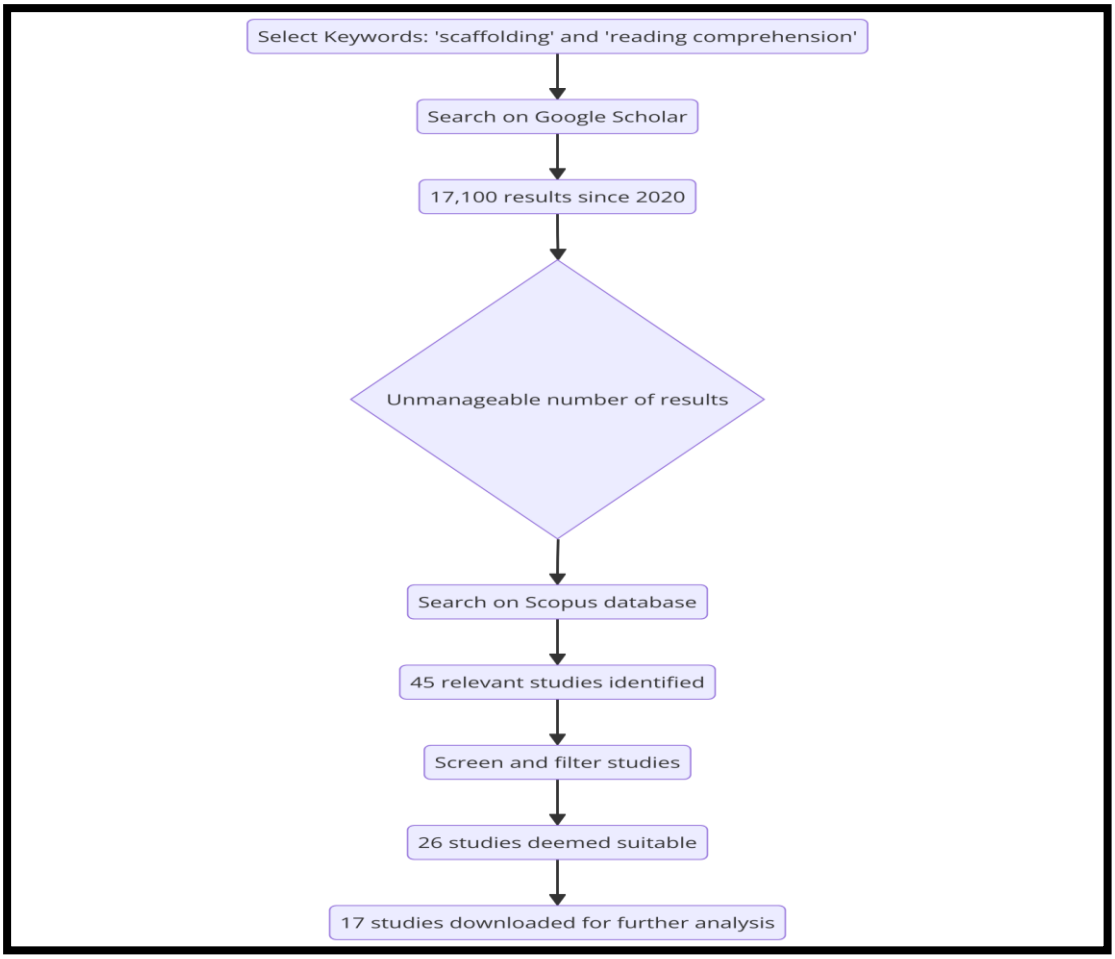

Figure 1: Flowchart of Research Methodology

Findings

The findings related to each research question were reported systematically.

What are the relevant past studies related to scaffolding and reading comprehension?

To address this research question, a table is provided below. It includes a total of 17 past studies relevant to scaffolding and reading comprehension, all of which were downloaded with open access from Scopus. These studies were selected based on their top citation rankings, highlighting their significance and relevance in the fields of scaffolding and reading comprehension.

Table 1: Relevant Past Studies

No.	Author(s)	Year	Title	Journal	Citation
1	Jamali Kivi et al.	2021	The Comparative Effects of Teacher Versus Peer-Scaffolding on EFL Learners' Incidental Vocabulary Learning and Reading Comprehension: A Socio-Cultural Perspective	Journal of Psycholinguistic Research	19
2	Rafi & Morgan	2024	Translanguaging as a Transformative Act in a Reading Classroom: Perspectives from a Bangladeshi Private University	Journal of Language, Identity and Education	16
3	Wang et al.	2021	Technological solutions for sustainable development: Effects of a visual prompt scaffolding-based virtual reality approach on EFL learners' reading comprehension, learning attitude, motivation, and anxiety	Sustainability	14
4	Kazemi et al.	2020	Dynamic assessment in English classrooms: Fostering learners' reading comprehension and motivation	Cogent Psychology	14
5	Kuhn	2020	Whole class or small group fluency instruction: A tutorial of four effective approaches	Education Sciences	9
6	Ahmed Abdel Al-Ibrahim et al.	2023	Collaborative learning, scaffolding-based instruction, and self-assessment: impacts on intermediate EFL learners' reading comprehension, motivation, and anxiety	Language Testing in Asia	5
7	Maharsi et al.	2021	Evaluating Flipped Classroom Approach In EFL Students' Reading Classes	LLT Journal: Journal on Language and Language Teaching	5

8	Diprossimo et al.	2023	The associations between child and item characteristics, use of vocabulary scaffolds, and reading comprehension in a digital environment: Insights from a big data approach	Contemporary Educational Psychology	4
9	Liu et al.	2023	Effects of an article-structure strategy-based spherical video-based virtual reality approach on EFL learners' English reading comprehension and learning conceptions	Interactive Learning Environments	4
10	Zarei & Alipour	2020	Shadowing and scaffolding techniques affecting L2 reading comprehension	Applied Research on English Language	4
11	Song & Glazewski	2023	Scaffolding self-regulated learning in student-generated questioning using mobile phones	Education and Information Technologies	3
12	Cholsakorn & Piamsai	2022	The effects of differentiated reading instruction on reading comprehension and self-efficacy of Thai undergraduate students	Kasetsart Journal of Social Sciences	3
13	Berenji	2021	Enhancing Metacognitive Scaffolding and Comprehension Ability through Problem-Based Learning in an EFL Context	Education Research International	3
14	Michalsky	2021	When to Scaffold Motivational Self-Regulation Strategies for High School Students' Science Text Comprehension	Frontiers in Psychology	2
15	Ozaki & Ueda	2020	The effects of digital scaffolding on adolescent English reading in Japan: An experimental study on visual-syntactic text formatting	JALT CALL Journal	2
16	Noor	2021	Integrating reading and writing in testing reading comprehension of the Afghan EFL language learners	Cogent Education	1

17	Arora et al.	2024	Scaffolding instruction for improvement in learning English language skills	International Journal of Evaluation and Research in Education	0

The provided table summarises various research articles that examine the impact of different scaffolding techniques on English as a Foreign Language (EFL) learners' reading comprehension, motivation, and related aspects. The following is a synthesised account of the findings based on the titles, journals, and citations of these articles. Several studies have investigated the comparative effectiveness of different scaffolding strategies. First of all, Jamali Kivi et al. (2021) examined the relative impact of teacher versus peer scaffolding on EFL learners' incidental vocabulary acquisition and reading comprehension, adopting a sociocultural lens. This study has garnered 19 citations, reflecting its significance in the field. Next, Rafi and Morgan (2024) explored the transformative potential of translanguaging in a reading classroom at a Bangladeshi private university. Their research has received 16 citations, indicating considerable scholarly interest. Following that, Wang et al. (2021) focused on the effects of visual prompt scaffolding within a virtual reality environment on EFL learners' reading comprehension, learning attitude, motivation, and anxiety. This study has been cited 14 times, demonstrating the growing attention to technological scaffolding in EFL contexts. Next, Kazemi et al. (2020) explored dynamic assessment as a tool to enhance reading comprehension and motivation in EFL settings. Their work has similarly been cited 14 times, underscoring the relevance of dynamic assessment in language education. In another study, Kuhn (2020) provided a comprehensive tutorial on effective approaches to fluency instruction in both whole-class and small group contexts. This article has received 9 citations, suggesting its utility as a resource for educators.

Additionally, Ahmed Abdel Al-Ibrahim et al. (2023) investigated the effects of collaborative learning, scaffolding-based instruction, and self-assessment on EFL learners' reading comprehension, motivation, and anxiety. This study has been cited 5 times, indicating its emerging influence. To continue, Maharsi et al. (2021) evaluated the flipped classroom approach in EFL reading classes with 5 citations, highlighting the continued exploration of innovative instructional methods. On the other hand, Diprossimo et al. (2023) utilised big data approaches to examine the interplay between child and item characteristics, vocabulary scaffold use, and reading comprehension within a digital environment. Their research has received 4 citations. Moreover, Liu et al. (2023) studied the impact of a strategy-based spherical video virtual reality approach on EFL learners' reading comprehension and learning conceptions. This study has also been cited 4 times, reflecting interest in virtual reality as an educational tool. Furthermore, Zarei and Alipour (2020) explored the effects of shadowing and scaffolding techniques on L2 reading comprehension. Their work has garnered 4

citations. Similarly, Song and Glazewski (2023) investigated scaffolding self-regulated learning through student-generated questioning using mobile phones. This study has been cited 3 times, indicating an interest in mobile technology as a scaffolding tool.

Subsequently, Cholsakorn and Piamsai (2022) examined the effects of differentiated reading instruction on the reading comprehension and self-efficacy of Thai undergraduate students. Their research has been cited 3 times. Berenji (2021) discussed the enhancement of metacognitive scaffolding and comprehension ability through problem-based learning in an EFL context. This paper has received 3 citations. In the same year, Michalsky (2021) explored the timing of scaffolding motivational self-regulation strategies to improve high school students' comprehension of science texts. This study has been cited 2 times.

To add on, Ozaki and Ueda (2020) analysed the effects of digital scaffolding on adolescent English reading in Japan. This study has received 2 citations. Also, Noor (2021) investigated the integration of reading and writing in assessing the reading comprehension of Afghan EFL learners. This study has been cited once. Finally, Arora et al. (2024) discussed scaffolding instruction to improve English language skills. This study has yet to be cited. These studies underscored the broad array of strategies being explored and implemented to improve the educational outcomes of EFL learners across various contexts.

What were the interventions used?

The 17 past studies present a diverse range of scaffolding interventions aimed at enhancing reading comprehension in English as a Foreign Language (EFL) contexts. These interventions can be categorised into several broader themes based on their underlying principles and approaches: Pedagogical Approaches, Technological Scaffolding, Collaborative Learning Strategies, Assessment-Based Interventions, and Cognitive and Metacognitive Scaffolding Techniques.

Pedagogical Approaches

Translanguaging Pedagogy, as explored by Rafi and Morgan (2024), utilised translanguaging as a transformative classroom practice. This approach allowed students to draw upon their entire linguistic repertoire, thereby enhancing reading comprehension by treating language as a dynamic and fluid process. Similarly, Kuhn (2020) examined fluency-oriented instructional methods, such as wide fluency-oriented reading instruction and oral reading approaches, which focussed on repeated reading and fluency practice to bolster comprehension. Chosakorn and Piamsai (2022) delved into differentiated reading instruction tailored to individual learners' needs, thereby fostering reading comprehension and self-efficacy through personalised teaching strategies. Additionally, Arora et al. (2024) investigated various scaffolding techniques, including chunking, modelling, bridging, and contextualising, offering a nuanced approach that can be adjusted according to learner needs and content complexity.

Technological Scaffolding

In technological scaffolding, Wang et al. (2021) introduced a virtual reality (VR) intervention that employed visual prompts to scaffold learning, which can enhance motivation and reduce anxiety while improving reading comprehension. Liu et al. (2023) further explored technological innovation through a spherical video-based VR approach that integrated an article-structured strategy to scaffold reading comprehension. Diprossimo et al. (2023) leveraged a gamified digital reading platform embedded with vocabulary scaffolds to support comprehension in a digitally immersive environment, capitalising on the motivational aspects of gamification. Moreover, Ozaki and Ueda (2020) implemented a digital scaffolding method that restructures text visually and syntactically, particularly aiding adolescents in reading comprehension.

Collaborative Learning Strategies

Collaborative learning strategies are also prominent in these interventions. Ahmed Abdel-Al Ibrahim et al. (2023) combined collaborative learning with scaffolding and self-assessment, thereby promoting deeper engagement and autonomy in reading comprehension tasks. Zarei and Alipour (2020) explored various forms of peer-based scaffolding, such as distributed and reciprocal scaffolding, where students support each other's learning in cooperative environments.

Assessment-Based Interventions

Assessment-based interventions also play a critical role. Kazemi et al. (2020) focussed on dynamic assessment as an intervention model that adapts to learners' immediate needs, providing real-time scaffolding to enhance comprehension and motivation. The flipped classroom approach, evaluated by Maharsi et al. (2021), involved learners being introduced to new content at home, followed by more interactive and scaffolded classroom activities, which promote a deeper understanding of reading materials. Michalsky (2021) presented a metamotivational self-regulated learning model that scaffolds students' motivational strategies, directly impacting their reading comprehension and engagement with scientific texts.

Cognitive and Metacognitive Scaffolding Techniques

Finally, cognitive and metacognitive scaffolding techniques are explored through various approaches. Berenji (2021) introduced problem-based learning (PBL) as a scaffolding technique, where students tackle complex, real-world problems, thereby enhancing their metacognitive abilities and comprehension skills in an EFL context. Song and Glazewski (2023) focussed on scaffolding student-generated questioning, which promotes self-regulated learning and critical thinking, directly influencing reading comprehension. Additionally, Noor (2021) investigated synthesis writing as a scaffolding technique that integrates reading and writing tasks, reinforcing comprehension through the synthesis of information across texts.

Overall, the diversity of scaffolding interventions aimed at improving reading comprehension among EFL learners reflects the complexity of language acquisition and the necessity for tailored approaches. The categorisation of these interventions underscored the variety of pedagogical, technological, collaborative, assessment-based, and cognitive strategies employed across different contexts. Each approach offered unique advantages, contingent upon the learners' needs, the learning environment, and the instructional goals. The effectiveness of these scaffolding strategies highlights the importance of providing structured support that adapts to learners' evolving competencies and challenges. A figure is shown below illustrating all of the 17 interventions employed.

Figure 2: Interventions Used

What insights can be drawn from the results?

To draw insights from previous studies, the results of each study were first reported. To initiate, Jamili Kivi et al. (2021) examined the application of various forms of scaffolding (i.e., teacher versus peer scaffolding) on EFL learners' incidental vocabulary acquisition and reading comprehension performance from a sociocultural perspective. The findings revealed that both experimental groups outperformed the control group, with a significant difference between teacher scaffolding and peer scaffolding in both vocabulary knowledge and reading comprehension performance. Notably, the peer-scaffolding group demonstrated superior performance compared to the teacher-scaffolding group. Next, Rafi and Morgan (2024) explored the role of translanguaging pedagogy in the reading comprehension of first-year students in an English-medium classroom at a Bangladeshi private university. Their results indicated that the translanguaging space provided op-

portunities at each stage of the intervention to maximise the use of students' linguistic and semiotic resources, facilitating their comfort and enhancing epistemic access to and comprehension of complex English texts. The intentional design of the lecture, incorporating scaffolding with multilingual words and expressions, as well as guided reading with Bangla text and topics relevant to students' lives, deeply engaged them with the content while also transforming their knowledge and perceptions of the subject matter.

Similarly, Wang et al. (2021) proposed a visual prompt scaffolding-based virtual reality (VPS-VR) approach to create a more immersive EFL learning environment and to enhance students' reading comprehension skills. To assess the effectiveness of this approach, an experiment was conducted in an English reading course at a Chinese university. The findings indicated that the VPS-VR approach had a positive impact on students' EFL reading comprehension, learning motivation, and English learning anxiety. Additionally, it was observed that the experimental group showed significant improvement in lower-level reading comprehension skills, such as information location and text comprehension, while higher-level skills, including reflection and evaluation, were less affected. Additionally, Kazemi et al. (2020) examined whether implementing an interventionist model of dynamic assessment (DA), characterised by a repetitive process of pretest-teach-retest, could enhance reading comprehension and positively influence learners' reading motivation in the EFL context of Iran. Descriptive and inferential analyses of the data collected over four months revealed that the experimental group significantly outperformed the control group in reading comprehension skills, suggesting that the use of DA provides effective scaffolding to support students' understanding of reading texts. A noticeable improvement in the reading motivation levels of the experimental group was also observed.

Moreover, Kuhn (2020) reviewed four scientifically validated approaches to fluency instruction: Fluency-Oriented Reading Instruction, Wide Fluency-Oriented Reading Instruction, Fluency-Oriented Oral Reading, and Wide Fluency-Oriented Oral Reading. All four approaches employed challenging texts, positioned at the upper end of learners' zones of proximal development, thereby granting learners access to a broader vocabulary and a wider array of concepts than would be possible with texts at the instructional level. Moreover, these approaches offered highly effective procedures for both whole-class and small-group reading instruction. Subsequently, Ahmed Abdel-Al Ibrahim et al. (2023) investigated the effects of collaborative learning (CL), scaffolding instruction, and self-assessment on the reading anxiety, reading motivation, and reading comprehension of Iranian EFL learners. The data analysis revealed that the experimental group significantly outperformed the control group in all three areas: reading anxiety, reading motivation, and reading comprehension. The study concluded that the implementation of CL, self-assessment, and scaffolding instruction enabled Iranian EFL learners to enhance their reading comprehension and motivation while simultaneously reducing their reading anxiety.

In addition, Maharsi et al. (2021) examined the implementation of the flipped classroom approach in an EFL private university in Indonesia, focusing on its impact on students' reading comprehension and their perceptions of the flipped classroom in their learning process. The results indicated that students in traditional classrooms experienced a greater increase in their post-test scores compared to their counterparts in flipped classrooms. This difference may be attributed to the teacher-led instruction and scaffolding commonly provided in traditional settings, where students benefit from direct explanations and the ability to ask questions immediately. Additional factors contributing to this outcome include students' hesitation or discomfort with using technology in learning, challenges in task-related time management, and the increased workload associated with technology use. Nonetheless, many students perceived the flipped classroom as fostering independent, responsible, active, and flexible learning. Later, Diprossimo et al. (2023) explored the increasingly common use of scaffolding features that provide multimodal support for pronunciation and meaning in digital reading environments. These vocabulary scaffolds were designed to enhance the accurate pronunciation and comprehension of words within context, thereby supporting both vocabulary development and overall text comprehension. However, evidence regarding their effectiveness remains inconclusive. This study contributed to the existing literature by examining: 1) whether child characteristics predict the use of vocabulary scaffolds; 2) whether the use of vocabulary scaffolds is associated with improved reading comprehension; and 3) whether the relationship between scaffold use and reading comprehension is influenced by child and/or item characteristics. Confirmatory analyses using Generalized Linear Mixed Models (GLMMs) revealed that children with lower literacy skills, beginning readers, girls, and bilingual students were more likely to use scaffolds. Overall, scaffold use was associated with better reading comprehension performance, and this association was modulated by both child and item characteristics.

Subsequently, Liu et al. (2023) highlighted the critical yet challenging nature of reading comprehension in the English learning process. EFL (English as a Foreign Language) learners frequently struggle to grasp the meaning of texts due to a lack of authentic learning contexts, often leading to a superficial, literal understanding of the material. To address this issue, the study proposed an Article-Structure Strategy-based Spherical Video-based Virtual Reality (ASS-SVVR) approach, where SVVR was utilised to immerse EFL learners in a realistic environment, while the article-structure strategy provided step-by-step reading scaffolding to enhance reading efficiency, accuracy, and comprehension. The research findings indicated that EFL students employing the ASS-SVVR approach demonstrated positive outcomes in reading comprehension, extrinsic learning motivation, and metacognitive awareness of reading strategies. Additionally, there were no significant differences between the groups concerning cognitive load and sense of presence. On the other hand, Zarei and Alipour (2020) investigated the effects of three scaffolding techniques (peer scaffolding, distributed scaffolding, and reciprocal scaffolding) compared to three types of shadowing (complete shadowing, partial shadowing, and interactive shadowing) on L2 reading comprehension. The results re-

vealed that among the scaffolding techniques, distributed scaffolding was the most effective in enhancing reading comprehension. In the shadowing groups, interactive shadowing emerged as the most effective technique. Furthermore, a significant difference was observed between the shadowing and scaffolding techniques, with the scaffolding techniques proving to be more effective overall.

To continue, Song and Glazewski (2023) explored the sustainability and affordability of using information technology in the context of reading comprehension tasks, specifically focusing on the mechanism of student-generated questioning (SGQ) and the scaffolding for SGQ within a self-regulated learning framework. The analysis of both quantitative and qualitative data indicated that SGQ enhances reading comprehension by promoting engaged reading, supported by metacognitive guidance. Next, Cholsakorn and Piamsai (2022) examined the effects of differentiated reading instruction (DRI) on the reading comprehension and self-efficacy of undergraduate students. The findings revealed significant improvements in both reading comprehension and self-efficacy, with the most substantial gains observed in students with lower proficiency levels. Similarly, Berenji (2021) aimed to implement a problem-based learning (PBL) method in an EFL instructional setting to assess its impact on learners' awareness and use of metacognitive reading strategies, as well as their comprehension abilities. The results, based on univariate analysis of covariance, indicated that the experimental group showed a high level of awareness of metacognitive reading strategies and significantly enhanced their comprehension abilities. Moreover, Michalsky (2021) investigated the optimal timing for the implementation of metamotivational scaffolding in the self-regulation of scientific text comprehension. The findings suggested that delivering metamotivational scaffolding could be a critical strategy for promoting students' science literacy and persistence with challenging scientific tasks. This was particularly effective at the reflection-before-action stage, where students anticipate future actions, and at the reflection-on-action stage, where they review past actions.

Following that, Ozaki and Ueda (2020) investigated the effects of Visual-Syntactic Text Formatting (VSTF)-based text on reading speed, comprehension, efficiency, and retention among middle and high school students. The study found that while middle school students did not exhibit significant differences between block-formatted text and VSTF-based text, low-proficiency high school students demonstrated significant improvements in reading speed, comprehension, efficiency, and retention when using VSTF-based text. High-proficiency high school students showed significant increases in reading speed and retention. Subjective feedback from students across all grades indicated a general preference for VSTF-based text, with many believing it to be more effective than block-formatted text. Also, Noor (2021) conducted a study to evaluate a potential new method for assessing reading comprehension at the college level in Afghanistan. The study assessed whether synthesis writing, as a form of reading-writing integration, could effectively measure the reading comprehension of Afghan sophomore students. Additionally, a gap-filling activity was used to determine if a cognitively less challenging task could provide scaffolding support for completing a

more complex task. The results indicated that the order of task presentation influenced participants' performance. Contrary to expectations, presenting the reading-to-write-a-synthesis activity before the gap-filling activity led to better performance on the more challenging synthesis task. Finally, Arora et al. (2024) explored the effectiveness of scaffolding instruction for university-level EFL/ESL students in enhancing their language learning skills, specifically critical reading and study skills. Both quantitative and qualitative data revealed that scaffolding instruction significantly improved the participants' language learning abilities. The findings highlighted the importance of conducting scaffolding instruction in small groups, assigning preplanned and well-structured tasks with clear instructions, and providing scaffolding on an as-needed basis, particularly in mixed-ability groups of EFL/ESL students. This approach was emphasised as crucial for promoting sustainable education.

A comprehensive and critical analysis of seventeen studies on scaffolding in EFL (English as a Foreign Language) and ESL (English as a Second Language) contexts underscored the varied effectiveness of different scaffolding strategies in enhancing language learning outcomes. These studies, which explored a range of instructional methods, consistently emphasised the importance of scaffolding in improving reading comprehension, vocabulary acquisition, and overall learner motivation. However, the effectiveness of these techniques was influenced by contextual factors such as learners' proficiency levels, the educational environment, and the integration of technology. In terms of comparing peer and teacher scaffolding, Jamili Kivi et al. (2021) found that both approaches were effective, with peer scaffolding proving more beneficial in enhancing EFL learners' vocabulary acquisition and reading comprehension. This suggested that peer interactions may offer a more supportive and relatable environment for language learning, possibly due to the collaborative nature of peer scaffolding, which fosters shared understanding and mutual support. Further emphasising the role of language in scaffolding, Rafi and Morgan (2024) explored translanguaging pedagogy in a Bangladeshi university. Their findings revealed that leveraging students' linguistic resources in the classroom significantly enhanced reading comprehension. This approach allowed students to engage more deeply with complex texts by using their native languages alongside English, highlighting the value of a multilingual approach, particularly in contexts where full immersion in English may be challenging.

The integration of technology in scaffolding emerged as a significant theme in several studies. Wang et al. (2021) introduced a visual prompt scaffolding-based virtual reality (VPS-VR) approach, which improved reading comprehension and reduced English learning anxiety. However, the benefits were more pronounced for lower-level comprehension skills, suggesting that while technology can enhance basic comprehension, it may require supplementary strategies to support higher-order cognitive skills. In contrast, Maharsi et al. (2021) found that traditional teacher-led instruction resulted in higher post-test scores compared to flipped classrooms, where students had more autonomy. The challenges associated with technology use, such as time management and increased workload, might have contributed to the lower effectiveness of

the flipped classroom approach, highlighting the need for careful integration of technology in learning environments.

Dynamic assessment and collaborative learning were also highlighted as effective scaffolding strategies. Kazemi et al. (2020) demonstrated that dynamic assessment, characterised by a repetitive cycle of pretesting, teaching, and retesting, significantly improved both reading comprehension and motivation among Iranian EFL learners. This approach emphasises the value of ongoing formative assessment as a scaffolding tool, particularly in contexts where continuous support is required. Extending this discussion, Ahmed Abdel-Al Ibrahim et al. (2023) incorporated collaborative learning and self-assessment into scaffolding strategies, finding these methods particularly effective in reducing reading anxiety and improving motivation and comprehension in mixed-ability groups.

The studies also explored multimodal and structured scaffolding techniques. Diprossimo et al. (2023) examined the use of multimodal scaffolding in digital reading environments, focusing on pronunciation and vocabulary development. While scaffolding was associated with improved reading comprehension, its effectiveness varied depending on learner characteristics such as literacy skills and language background, indicating the need for tailoring scaffolding to individual learner needs. Zarei and Alipour (2020) compared various scaffolding techniques, including peer, distributed, and reciprocal scaffolding, with shadowing techniques, finding distributed scaffolding to be the most effective for reading comprehension.

In terms of reading fluency and comprehension, Kuhn (2020) reviewed fluency-oriented reading instruction approaches that employed challenging texts positioned at the upper end of learners' zones of proximal development. These approaches were effective in expanding learners' vocabulary and conceptual understanding, reinforcing the importance of selecting appropriately challenging materials in scaffolding interventions. Similarly, Liu et al. (2023) employed a spherical video-based virtual reality (SVVR) approach combined with an article-structure strategy, which not only improved reading comprehension but also enhanced metacognitive awareness of reading strategies, demonstrating the potential of immersive environments to support complex cognitive skills.

Problem-based and differentiated learning were also explored as scaffolding strategies. Berenji (2021) examined the impact of problem-based learning (PBL) on metacognitive strategy awareness and reading comprehension, finding significant improvements in learners' comprehension abilities, particularly in applying metacognitive strategies during reading tasks. This suggests that PBL can effectively foster higher-order thinking skills. Cholsakorn and Piamsai (2022) investigated differentiated reading instruction (DRI), noting significant improvements in reading comprehension and self-efficacy, particularly among lower-proficiency students, indicating that DRI, when combined with scaffolding, can effectively support diverse learners.

Innovations in scaffolding techniques were highlighted by Michalsky (2021), who focused on the timing of metamotivational scaffolding in the self-regulation of scientific text comprehension. The study concluded that providing scaffolding at critical points, such as before or after reading tasks, significantly improved students' persistence and comprehension, particularly in challenging scientific texts. Ozaki and Ueda (2020) investigated the effects of Visual-Syntactic Text Formatting (VSTF) on reading comprehension and retention, finding it particularly beneficial for low-proficiency high school students, enhancing both comprehension and retention. Finally, Noor (2021) evaluated a new method for assessing reading comprehension through synthesis writing and gap-filling activities, revealing that task sequencing plays a crucial role in scaffolding, with the order of tasks significantly impacting performance on more complex tasks.

In conclusion, the collective findings of these studies underscored the critical role of scaffolding in EFL/ESL education. While peer interactions, dynamic assessments, and technology-enhanced environments all contribute positively to language learning, the effectiveness of scaffolding depends heavily on contextual factors such as learner characteristics, task complexity, and the integration of technology. To maximise the benefits of scaffolding, educators must carefully consider these variables and tailor their instructional approaches accordingly.

Discussion

A review of seventeen studies on scaffolding in English as a Foreign Language (EFL) and English as a Second Language (ESL) contexts provides valuable insights into its effectiveness and challenges. The findings indicate that scaffolding improves reading comprehension, vocabulary learning, and student engagement. Peer scaffolding appears to be more effective than teacher-led scaffolding, as it encourages collaboration and deeper understanding (Jamali Kivi et al., 2021). Translanguaging pedagogy supports multilingual learners by allowing them to use their full linguistic repertoire, making it easier to understand texts in diverse classrooms (Rafi & Morgan, 2024). Additionally, technology-based scaffolding, such as visual prompts in virtual reality environments, enhances engagement and reduces anxiety among learners (Wang et al., 2021). However, the effectiveness of scaffolding depends on the learning context, requiring strategies to be tailored to different student needs. These results align with earlier research showing that scaffolding enhances language learning and reading skills. However, this review highlights the growing importance of integrating technology and multilingual approaches into scaffolding practices. The effectiveness of translanguaging aligns with the broader movement towards inclusive and culturally responsive teaching, while studies on digital scaffolding reflect a shift towards interactive and immersive learning environments. A key strength of these studies is their diverse research methods, including experimental, longitudinal, and case study approaches, which provide a well-rounded understanding of scaffolding across different settings. However, some limitations exist, such as variations in study design, differences in participant backgrounds, and incon-

sistent ways of measuring scaffolding outcomes. Studies on technology-based scaffolding also highlight challenges such as cognitive overload, accessibility issues, and differences in students' familiarity with digital tools, which could affect the effectiveness of these methods in different classrooms. These findings have important implications for teaching, policy, and future research. Educators should consider using peer scaffolding and translanguaging strategies to create more inclusive and collaborative learning environments. Policymakers should support the use of technology-based scaffolding while ensuring that such tools are accessible and fairly implemented. Future research should focus on refining the sequencing of scaffolding techniques, improving technological interventions, and investigating the long-term impact of scaffolding on language learning. Addressing these areas will deepen our understanding of scaffolding and its role in improving reading comprehension in EFL and ESL education.

Conclusion

A consistent finding across the reviewed studies is the emphasis on the effectiveness of scaffolding in enhancing reading comprehension, vocabulary acquisition, and overall learner motivation. Peer interactions and translanguaging pedagogy have been identified as key strategies that foster supportive and engaging learning environments. These approaches facilitate comprehension while promoting a collaborative and inclusive classroom dynamic, particularly in multilingual settings.

Moreover, technology has emerged as a significant tool in scaffolding, with interventions such as virtual reality and digital scaffolds showing potential for enhancing reading comprehension and reducing learning anxiety. However, the effectiveness of these technological interventions depends on learners' familiarity with digital tools and the complexity of the tasks involved. This highlights the need for further research on optimising technological scaffolding to ensure accessibility and effectiveness for a broad range of learners.

Despite the positive outcomes, challenges remain in the implementation of scaffolding strategies. Factors such as students' comfort with technology, the complexity of scaffolding tasks, and individual learner characteristics influence the success of these interventions. Future research should focus on tailoring scaffolding techniques to better meet the diverse needs of learners, particularly in technology-enhanced learning environments.

This literature review provides educators and researchers with a critical reference for understanding the current landscape of scaffolding in EFL/ESL education. By identifying the strengths and limitations of various scaffolding interventions, it contributes to the development of more effective, evidence-based teaching practices that can be adapted to different educational contexts. Educators should consider contextual factors such as learner characteristics and the educational environment when designing and implementing scaf-

folding strategies. Future research should explore innovative scaffolding techniques and their application in diverse and technologically rich classrooms.

In conclusion, scaffolding is a valuable tool in EFL/ESL education, with its effectiveness closely linked to the specific context in which it is applied. As educational environments continue to evolve, particularly with the increasing integration of technology, ongoing research and adaptation of scaffolding techniques will be crucial to meeting the changing needs of learners. This literature review serves as a foundational resource for guiding these efforts, offering insights that can inform both teaching practice and future research in the field.

Author contributions

Conceptualisation, H.Z and C.K.S.S.; methodology, H.Z; writing—original draft preparation, H.Z.; writing—review and editing, H.Z and C.K.S.S. All authors have read and agreed to the published version of the manuscript.

Funding

None.

Data availability statement

The authors confirm that the data supporting the findings of this study are available within the article [and/or] its supplementary materials.

Conflicts of interest

No potential conflict of interest was reported by the authors.

Acknowledgement

Artificial intelligence was used ethically to enhance the language. However, the authors read and further edited the language for its preciseness and accuracy.

References

Ahmed Abdel-Al Ibrahim, K., Cuba Carbajal, N., Zuta, M. E., & Bayat, S. (2023). Collaborative learning, scaffolding-based instruction, and self-assessment: Impacts on intermediate EFL learners' reading comprehension, motivation, and anxiety. *Language Testing in Asia*, *13*(1). https://doi.org/10.1186/s40468-023-00229-1

Arora, B., Al-Wadi, H., & Afari, E. (2024). Scaffolding instruction for improvement in learning English language skills. *International Journal of Evaluation and Research in Education (IJERE)*, *13*(2), 1265. https://doi.org/10.11591/ijere.v13i2.26659

Berenji, S. (2021). Enhancing Metacognitive scaffolding and comprehension ability through problem-based learning in an EFL context. *Education Research International*, *2021*, 1-9. https://doi.org/10.1155/2021/6766793

Cholsakorn, P., & Piamsai, C. (2022). The effects of differentiated reading instruction on reading comprehension and self-efficacy of undergraduate students. *Kasetsart Journal of Social Sciences* , *43*(3), 715-720. https://doi.org/10.58837/chula.the.2020.184

Diprossimo, L., Ushakova, A., Zoski, J., Gamble, H., Irey, R., & Cain, K. (2023). The associations between child and item characteristics, use of vocabulary scaffolds, and reading comprehension in a digital environment: Insights from a big data approach. *Contemporary Educational Psychology*, *73*, 102165. https://doi.org/10.1016/j.cedpsych.2023.102165

Gunawardena, M., & Wilson, K. (2021). Scaffolding students' critical thinking: A process not an end game. *Thinking Skills and Creativity*, *41*, 100848. https://doi.org/10.1016/j.tsc.2021.100848

Jamali Kivi, P., Namaziandost, E., Fakhri Alamdari, E., Ryafikovna Saenko, N., Inga-Arias, M., Fuster-Guillén, D., Sirisakpanich, D., & Nasirin, C. (2021). The comparative effects of teacher versus peer-scaffolding on EFL learners' incidental vocabulary learning and reading comprehension: A socio-cultural perspective. *Journal of Psycholinguistic Research*, *50*(5), 1031-1047. https://doi.org/10.1007/s10936-021-09800-4

Kazemi, A., Bagheri, M. S., & Rassaei, E. (2020). Dynamic assessment in English classrooms: Fostering learners' reading comprehension and motivation. *Cogent Psychology*, *7*(1). https://doi.org/10.1080/23311908.2020.1788912

Kuhn, M. R. (2020). Whole class or small group fluency instruction: A tutorial of four effective approaches. *Education Sciences*, *10*(5), 145. https://doi.org/10.3390/educsci10050145

Liu, C., Guo, Y., Hwang, G., Tu, Y., & Wang, Z. (2023). Effects of an article-structure strategy-based spherical video-based virtual reality approach on EFL learners' English reading comprehension and learning conceptions. *Interactive Learning Environments*, 1-18. https://doi.org/10.1080/10494820.2022.2155840

Maharsi, I., Wijayanti, Y. R., & Astari, T. R. (2021). Evaluating flipped classroom approach in efl students reading classes. *LLT Journal: A Journal on Language and Language Teaching*, *24*(1), 92-102. https://doi.org/10.24071/llt.v24i1.2768

Michalsky, T. (2021). When to scaffold motivational self-regulation strategies for high school students' science text comprehension. *Frontiers in Psychology*, *12*, 658027. https://doi.org/10.3389/fpsyg.2021.658027

Noor, S. (2021). Integrating reading and writing in testing reading comprehension of the Afghan EFL language learners. *Cogent Education*, *8*(1). https://doi.org/10.1080/2331186x.2021.1919039

Ozaki, S., & Ueda, I. (2020). The effects of digital scaffolding on adolescent English reading in Japan: An experimental study on visual-syntactic text formatting. *The JALT CALL Journal*, *16*(3), 147-166. https://doi.org/10.29140/jaltcall.v16n3.287

Rafi, A. S., & Morgan, A. (2024). Translanguaging as a transformative act in a reading classroom: Perspectives from a Bangladeshi private University. *Journal of Language, Identity & Education*, *23*(4), 543-558. https://doi.org/10.1080/15348458.2021.2004894

Song, D., & Glazewski, K. (2023). Scaffolding self-regulated learning in student-generated questioning using mobile phones. *Education and Information Technologies*, *28*(8), 10781-10802. https://doi.org/10.1007/s10639-023-11627-6

Wang, Z., Guo, Y., Wang, Y., Tu, Y., & Liu, C. (2021). Technological solutions for sustainable development: Effects of a visual prompt scaffolding-based virtual reality approach on EFL learners' reading comprehension, learning attitude, motivation, and anxiety. *Sustainability*, *13*(24), 13977. https://doi.org/10.3390/su132413977

Zarei, A. A., & Alipour, H. (2020). Shadowing and scaffolding techniques affecting L2 reading comprehension. *Applied Research on English Language*, *9*(1), 53-74. http://doi.org/10.22108/are.2019.117030.1462