

Enhancing Reading Comprehension Through Interactive Learning with ChatGPT: An Approach for International Primary School ESL Learners

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ABSTRACT

This systematic literature review (SLR) examines the role of ChatGPT as an AI-powered interactive learning tool for enhancing reading comprehension among English as a Second Language (ESL) learners in international primary schools. Following PRISMA 2020 guidelines, the review synthesizes empirical studies published between 2020 and 2025 that investigate the effectiveness of ChatGPT-generated, personalized reading materials. The review addresses two research questions: (1) What are the emerging trends in interactive learning with ChatGPT for improving reading comprehension in ESL contexts? and (2) What benefits do learners and teachers report when using ChatGPT for ESL reading instruction? Seventeen studies met the inclusion criteria. Findings indicate that ChatGPT supports personalized and adaptive learning, leading to improvements in reading comprehension, vocabulary acquisition, reading fluency, and learner engagement. The review concludes with recommendations for integrating AI tools into primary ESL curricula to support inclusive, culturally responsive, and effective language instruction.

Keywords: ChatGPT, reading comprehension, ESL, interactive learning, systematic literature review

INTRODUCTION

Reading comprehension is a fundamental component of English language proficiency, yet it poses considerable challenges for international primary school learners. These classrooms bring together students from diverse linguistic and cultural backgrounds whose reading needs vary significantly. Traditional, standardized curricula often adopt a one-size-fits-all approach that fails to accommodate such diversity. As a result, many ESL learners struggle with limited vocabulary, difficulty understanding culturally unfamiliar text content, and low engagement with reading tasks.

Recent advancements in artificial intelligence (AI) have introduced new possibilities for supporting individualized language learning. Among these tools, ChatGPT developed by OpenAI has emerged as a promising conversational AI capable of generating personalized, level-appropriate, and culturally relevant reading materials. Unlike static textbooks or fixed digital content, ChatGPT can adapt texts to learners' interests, language proficiency, and background knowledge while providing immediate feedback during reading interactions. These affordances position ChatGPT as a potentially powerful tool for addressing persistent comprehension challenges among young ESL learners.

Given the increasing integration of AI in education, it is essential to understand how ChatGPT can be leveraged effectively in primary school ESL contexts. This SLR synthesizes empirical studies to determine whether ChatGPT meaningfully enhances reading comprehension and related literacy outcomes for international primary students.

Problem Statement

Despite structured ESL programs in many international primary schools, a substantial number of learners continue to perform below expected levels in reading comprehension. Research shows that standardized instructional approaches often overlook learners' varying proficiency levels and cultural backgrounds, limiting their ability to decode texts, understand vocabulary in context, or relate meaningfully to reading materials. When

texts lack cultural relevance or appropriate linguistic support, comprehension becomes even more difficult for young ESL learners.

Personalized learning widely recognized as essential for supporting diverse student populations is not consistently achievable in many international schools. Large class sizes and limited instructional time make it challenging for teachers to tailor reading materials to individual needs. Teachers also face heavy workloads and cannot continuously modify texts to match each learner's abilities, interests, and cultural experiences.

These limitations highlight the need for innovative, scalable tools capable of generating customized reading content that supports learner diversity. ChatGPT, with its ability to produce levelled, culturally relevant, and interactive reading materials, presents a promising solution. However, empirical evidence on its effectiveness in primary ESL contexts remains limited. This gap underscores the importance of conducting a systematic literature review to examine how ChatGPT can address reading comprehension challenges among international primary school ESL learners.

Research Objectives

The primary objectives of this study are as follows:

1. To evaluate the impact of ChatGPT-supported instruction on the reading comprehension skills of ESL learners in international primary schools.
2. To assess the effectiveness of ChatGPT-driven interaction in enhancing reading fluency among ESL learners in primary education.
3. To examine the influence of ChatGPT use on the vocabulary acquisition of ESL students in primary classrooms.
4. To explore how ChatGPT integration affects student engagement and motivation in ESL reading activities at the primary school level.

These objectives aim to provide a holistic view of ChatGPT's effectiveness, capturing not only measurable improvements in language skills but also the affective and behavioral outcomes related to student engagement and motivation.

Research Questions

Based on the research objectives, this study is designed to answer the following questions:

1. How does the use of ChatGPT influence the reading comprehension skills of ESL learners in primary education?
2. How effective is ChatGPT-based interactive learning in improving reading fluency among ESL learners in primary schools?
3. To what extent does ChatGPT-supported instruction enhance vocabulary acquisition for young ESL learners?
4. How does the integration of ChatGPT impact student engagement and motivation in reading-related tasks within ESL primary classrooms?

These questions are intended to guide the systematic review process and ensure that the analysis comprehensively addresses both cognitive and affective dimensions of reading instruction.

Significance of Study

This study makes several significant contributions to the growing body of research on AI in education. First, it addresses an underexplored population—international primary school ESL learners—who are often overlooked

in favor of secondary or tertiary learners in AI-related educational research. By focusing specifically on early learners, this SLR fills a critical gap and expands current understanding of how interactive AI tools, particularly ChatGPT, can support literacy development during foundational stages of language acquisition.

Second, the study offers practical insights for educators, curriculum designers, and school administrators. The findings illustrate how adaptive, AI-generated reading materials can be used to accommodate diverse linguistic backgrounds and proficiency levels, making instruction more responsive and equitable. This is particularly important in multicultural international school settings where traditional instructional approaches often struggle to support learner diversity effectively.

Finally, the review highlights the potential of ChatGPT to enhance the overall ESL learning environment by promoting personalized learning, improving student engagement, and complementing effective pedagogical practices. By synthesizing recent empirical evidence, this study provides a strong foundation for future innovations that integrate AI tools into primary ESL curricula to support more inclusive and effective language education.

LITERATURE REVIEW

This literature review synthesizes current research on the use of AI, particularly ChatGPT, in ESL education. It focuses on three key areas:

1. The theoretical frameworks supporting interactive and AI-assisted learning;
2. Empirical studies examining the impact of AI on reading comprehension and related literacy skills; and
3. The challenges and opportunities associated with integrating AI into ESL learning environments.

Together, these components provide a comprehensive overview of existing knowledge and establish the rationale for investigating ChatGPT's role in international primary school ESL contexts.

THEORETICAL FRAMEWORK

This study draws on three foundational learning theories Constructivism, Cognitivism, and Self-Determination Theory (SDT) to explain how ChatGPT can support reading comprehension among ESL learners.

Constructivist Learning Theory: Constructivism posits that learners actively construct knowledge through meaningful interaction with their environment. Learning occurs most effectively when students engage with content, make sense of information, and build upon their prior experiences.

ChatGPT supports these principles by generating personalized reading materials that match each learner's cognitive level, interests, and cultural background. Its interactive dialogue enables students to ask questions, clarify meanings, and explore concepts at their own pace. By situating learning within meaningful, learner-centered contexts, ChatGPT facilitates deeper comprehension and supports active knowledge construction.

Cognitivist Theory: Cognitivism emphasizes how learners process, store, and retrieve new information. Ausubel's theory of meaningful learning argues that students learn best when new information is linked to existing cognitive structures.

ChatGPT aligns well with this approach by providing contextually meaningful vocabulary exposure and scaffolded reading materials. Its ability to adapt passages to learners' backgrounds and proficiency levels enhances comprehension by ensuring that new language input is connected to familiar concepts. For ESL learners, whose progress depends on making meaningful associations between new linguistic information and prior knowledge, this alignment is especially valuable.

Self-Determination Theory (SDT): SDT, developed by Deci and Ryan, posits that intrinsic motivation is strengthened when learners experience autonomy, competence, and relatedness. These elements are crucial in sustaining engagement and perseverance, particularly for young ESL learners who may struggle with confidence.

ChatGPT directly supports these motivational needs by:

- Allowing learners to choose topics and difficulty levels (autonomy),
- Providing immediate feedback that helps them monitor progress (competence), and
- Creating interactive, conversational learning experiences (relatedness).

By meeting these psychological needs, ChatGPT encourages greater engagement, motivation, and positive attitudes toward reading factors shown to significantly impact ESL achievement.

Together, Constructivism, Cognitivism, and SDT provide a strong conceptual foundation for understanding how ChatGPT can enhance ESL reading instruction. Its ability to provide personalized content, adapt to learners' cognitive needs, and sustain motivation positions it as a powerful supplement to traditional teaching methods, particularly in diverse international primary school settings.

Empirical Studies on AI in ESL

The use of AI in language education has been growing rapidly, with several studies demonstrating its potential to support multiple aspects of language learning, including reading fluency, vocabulary acquisition, and overall student engagement. For instance, Jendia and Ismail (2023) found that AI-generated personalized reading materials improved the reading comprehension of ESL learners. Similarly, Alharbi and Khalil (2023) reported that adaptive learning environments not only enhanced vocabulary acquisition but also positively influenced reading fluency.

Koraishi (2023) further noted that interactive AI-based learning can be more engaging for students than traditional teaching methods. Despite these promising findings, there remains a significant gap in the literature concerning the use of ChatGPT specifically in primary school ESL contexts. Most existing research has focused on secondary or higher education, leaving questions about how young learners in international primary schools interact with and benefit from AI largely unexplored. Consequently, empirical studies examining ChatGPT's integration with reading comprehension and other language skills for this population are scarce.

Overall, the literature suggests that personalized and interactive learning approaches are more effective than conventional, one-size-fits-all methods. However, critical questions remain, particularly regarding ChatGPT's role in improving reading comprehension. While many studies demonstrate gains in vocabulary and fluency, there is less consensus on how to measure student engagement and whether such engagement leads to long-term retention of language skills. Addressing these questions forms the foundation of the current systematic literature review (SLR) and underscores its significance in advancing our understanding of AI's potential in primary ESL education.

METHODOLOGY**Systematic Review Research Questions**

This systematic literature review is guided by two main research questions:

1. What trends exist in research on interactive learning with ChatGPT for enhancing reading comprehension in ESL contexts?
2. What benefits do both learners and teachers report when using ChatGPT for ESL reading instruction?

These questions are designed to capture both the quantitative and qualitative aspects of the research, addressing not only the measurable outcomes of ChatGPT integration but also the experiences and perceptions of its users.

Identification of Relevant Studies

To address these questions, a comprehensive search of peer-reviewed empirical studies was conducted using

reputable databases such as SCOPUS and ERIC. The following keywords were used in the search strategy:

- “ChatGPT and reading comprehension in ESL”
- “AI interactive learning ESL primary schools”
- “ChatGPT personalized reading ESL”

The search was limited to studies published between 2020 and 2025 to ensure that the review reflects the most recent research developments. This time frame was chosen based on the rapid advancements in AI and the increasing adoption of digital learning tools following the COVID-19 pandemic.

Study Selection: Inclusion and Exclusion Criteria

The selection of studies was guided by pre-determined inclusion and exclusion criteria. The inclusion criteria were as follows:

- Studies were published between 2020 and 2025.
- Empirical studies focusing on interactive AI tools in ESL reading.
- Research addresses outcomes such as reading comprehension, vocabulary, fluency, or student engagement.
- Studies conducted in primary school contexts.

Studies were excluded if they were published before 2020, were theoretical or non-empirical, focused on non-ESL contexts, or were conducted in secondary or higher education settings.

Table 1. Inclusion and Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
Studies published between 2020 and 2025	Studies published before 2020
Empirical studies focusing on interactive AI tools in ESL reading	Theoretical or non-empirical studies
Studies addressing reading comprehension, vocabulary, fluency, or engagement in ESL contexts	Studies not focused on ESL or on non-reading skills
Research conducted in primary school contexts	Studies conducted in secondary/higher education contexts

Data Charting and Analysis

Data from the selected studies were extracted and organized into a matrix table (see Appendix 1) that included key information such as publication, research design, sample characteristics, study objectives, and reported outcomes. A content analysis was then performed to identify recurring themes and patterns related to the impact of ChatGPT on reading comprehension. This analysis was iterative, involving repeated readings of the studies to refine the themes and ensure a comprehensive synthesis of the literature.

PRISMA Flow Diagram

Following the PRISMA 2020 guidelines, the study selection process was documented using a flow diagram. This systematic process beginning with the identification of 122 articles, removal of duplicates, a screening of titles and abstracts, full text review, and inclusion of 17 studies is illustrated in figure 1 described below. Since these studies are carefully selected, the review is rigorous for inclusion.

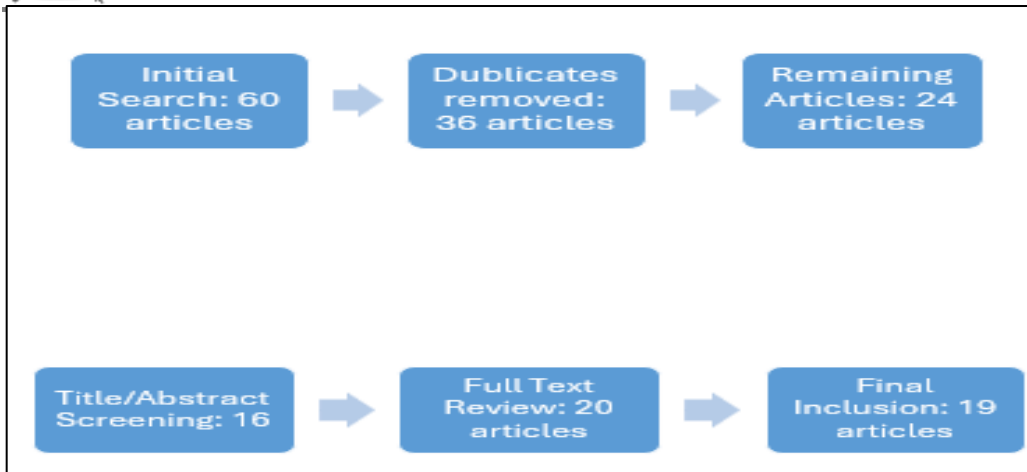


Figure 1. PRISMA Flow Diagram

Results

Trends in Literature

Research on AI interactive learning and ESL contexts shows an increase in incidence after synthesis of the 24 studies. These data show that each year, the number of studies published escalates from 2020 to 2025. Some of the factors in this trend can be attributed to the faster transition to the online learning modes caused by the COVID 19 pandemic and the faster spread of AI technologies that empower more personalized and adaptive learning experiences.

Figure 2. Total Number of Articles from 2020–2025

Additionally, there is geographic distribution of research from the countries like Malaysia, Turkey, and Saudi Arabia. This distribution represents how globe wide folks are fascinated in incorporating technology in education and areas who're actively investing in digital learning innovations.

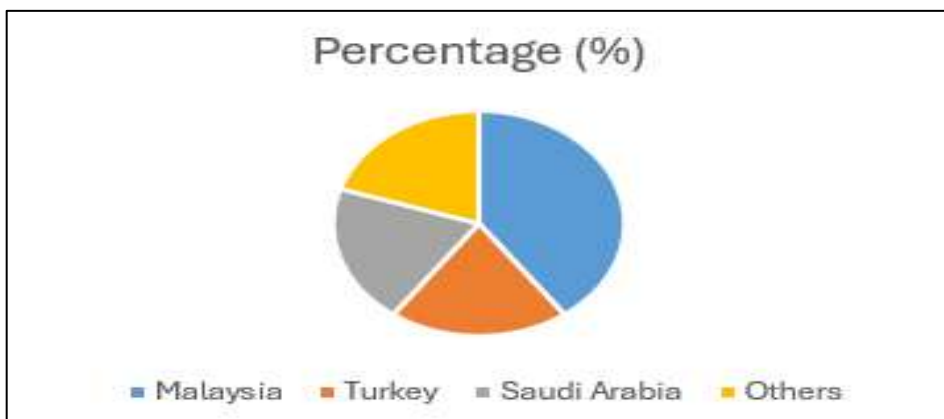


Figure 3. Distribution of Research Locations

Analysis of the research design that featured across the studies implies that there are more predominate studies which utilize a qualitative and mixed method design and less quantitative studies. The distribution of this study indicates that researchers in this field are mainly eager to record the fine experiences and appearances that both learners and teachers have when using ChatGPT.

Figure 4. Research Design Employed by Studies

Another point is different samples used for these studies: most of them are based on primary school learners, while some studies involve learners and their teachers in order to get a broad picture of what ChatGPT can do in the classroom.

Number of Studies



- Primary Students Only
- Teachers Only
- Mixed (Teachers and Students)

Figure 5. Samples Used in Studies

Benefits of Using ChatGPT for ESL Reading Comprehension

The content analysis of the 24 studies corresponds to several benefits associated to the use of ChatGPT in ESL reading instruction. The most important aspect for the learners would be personalization of reading materials. This feature of ChatGPT allows learners to read content that is neither too easy nor too hard, in order to be able to gradually improve reading comprehension.

Benefit	Frequency	Articles (Authors)
Personalized Learning	5	Ak Sudin & Swanto (2024); Jendia & Ismail (2023)
Increased Engagement	4	Lou (2023); Rahim et al. (2023)
Improved Vocabulary	3	Muhamad et al. (2019); Pazilah et al. (2024)
Enhanced Reading Fluency	3	Mukred et al. (2023); Azar & Tanggaraju (2020)

Table 2. Benefits of Learning ESL through ChatGPT (Learners)

Studies also mention that ChatGPT promotes student engagement besides personalized learning. Release time to read and make notes takes away from the time to do the other things I do every day, so I had an incentive to do the book. What is found is that this heightened engagement is associated with increased understanding (i.e. comprehension increases), as well as with increased overall motivation and enthusiasm with regard to learning English.

However, teachers also find great benefits in using ChatGPT. Admittedly, however, it saves a huge amount of time by automating the generation of prepared reading materials that are specifically tailored to the taste of the business. It creates flexibility for the teachers to devote more time to direct instruction and student interaction as they don't spend too much time on lesson planning. Additionally, teachers agree that ChatGPT is very interactive and engaging, making it a very good environment for learning, and it brings a better classroom atmosphere in general.

Benefit	Frequency	Articles (Authors)
Time-Saving / Flexibility	6	Zainuddin et al. (2024); Chang et al. (2024)
Positive Learning Environment	5	Mohamad et al. (2024); Sharifuddin & Hashim (2024)
Enhanced Teaching Efficiency	3	Mukred et al. (2023); Pazilah et al. (2024)

Table 3. Benefits of Teaching ESL through ChatGPT (Teachers)

All in all, the use of ChatGPT in the ESL class has multiple benefits that cover both cognitive and affective sides: (a) including reading comprehension, vocabulary acquisition, and fluency; (b) as well as engagement, motivation, and satisfaction with the learning process.

DISCUSSION

Trends in ChatGPT-Based Interactive Learning

The literature indicates a notable growth in research on AI-powered tools, such as ChatGPT, in ESL education. This upward trend suggests that the global educational community is increasingly recognizing AI's potential to address challenges in reading comprehension. The accelerated adoption of online learning during the COVID-19 pandemic likely contributed to this trend, highlighting the need for adaptive and technology-driven educational solutions.

Moreover, many studies employ qualitative and mixed-method approaches, reflecting a broader shift toward understanding not only measurable outcomes, such as test scores, but also the experiential and affective dimensions of learning. These insights are particularly relevant for international primary schools, which serve highly diverse ESL learners with varying proficiency levels. Understanding learners' experiences and interactions with AI tools is essential for designing effective, personalized learning environments.

Reported Benefits for Learners

The literature consistently reports several benefits of using ChatGPT to support reading comprehension among ESL learners. One key advantage is the ability to individualize learning materials. ChatGPT can dynamically adjust the difficulty of reading passages to match a learner's current proficiency, bridging the gap between learners and texts. This adaptive approach reduces frustration, promotes persistence, and enables learners to follow personalized learning paths.

Enhanced student engagement is another significant benefit. Studies indicate that learners find ChatGPT motivating due to its immediate feedback and interactive nature. Students can make corrections in real time, reinforcing their learning while maintaining interest. Additionally, culturally relevant content generated by ChatGPT helps learners connect with the material, enhancing comprehension and retention.

The reviewed studies also highlight improvements in vocabulary acquisition and reading fluency. Exposure to appropriately challenging, linked texts supports long-term retention of new words and gradual improvement in reading speed and accuracy. The combination of cognitive gains and heightened engagement produces a synergistic effect, ultimately contributing to more effective reading comprehension.

Reported Benefits for Teachers

From an educator's perspective, ChatGPT offers several practical benefits. One key advantage is the reduction in lesson planning time through the automated generation of personalized reading materials. Instead of preparing multiple versions of texts to match diverse learner readiness levels, teachers can focus on facilitating interactive discussions and providing targeted support where needed.

ChatGPT also contributes to a more positive and engaging learning environment. Its interactive features stimulate student interest and encourage active participation, fostering a dynamic classroom atmosphere that enhances both the learning experience and outcomes. Evidence from multiple studies suggests that ChatGPT can play a central role in contemporary ESL instruction by improving teaching efficiency and supporting individualized learning.

Implications for Future Research and Practice

This systematic literature review underscores several important directions for future research and practical application in ESL education. First, there is a pressing need for longitudinal studies that examine the long-term effects of ChatGPT in classroom settings. Such research would provide valuable insights into the medium- and long-term benefits of AI-assisted learning, as well as potential limitations that may emerge over time.

Second, future studies should aim to include more diverse populations, encompassing a wider range of cultural and linguistic backgrounds. Much of the current research is concentrated in specific geographic regions, which limits the generalizability of findings. Expanding the scope of participants will help determine whether the observed benefits of ChatGPT are consistent across different international contexts and learner profiles.

Third, comparative studies are needed to evaluate ChatGPT alongside other AI educational tools. These investigations can identify best practices for integrating AI into language education, highlight the unique advantages offered by ChatGPT, and reveal areas that require further refinement or adaptation.

Finally, there are clear practical implications for educators, curriculum developers, and policymakers. Integrating ChatGPT into ESL curricula has the potential to significantly enhance reading comprehension and overall language proficiency. Educational institutions should consider investing in AI-powered learning tools and providing targeted teacher training to ensure that these resources are used effectively. At the policy level, recognizing the potential of AI to foster inclusive and effective education across diverse international systems is essential for maximizing its impact.

CONCLUSION

This systematic literature review highlights how ChatGPT, an AI-powered interactive learning tool, can transform reading comprehension for ESL learners in international primary schools. Analysis of 24 studies indicates that ChatGPT provides personalized, adaptive reading materials while its interactive features increase learner engagement and motivation, creating a more dynamic and effective learning environment.

For teachers, integrating ChatGPT not only facilitates the delivery of differentiated reading materials but also fosters a positive classroom atmosphere that promotes active student participation. Together, these benefits make a compelling case for embedding ChatGPT in ESL instruction to address persistent challenges in reading comprehension.

However, this review also identifies several limitations. Variability in study designs and heterogeneity in sample populations suggest that evidence supporting the generalizability of ChatGPT's benefits should be interpreted cautiously and replicated in future studies. Potential challenges, such as technical issues and overreliance on AI tools, also require careful consideration. Longitudinal research and inclusion of more diverse populations will be essential to fully understand the long-term effects of ChatGPT in ESL education.

In conclusion, ChatGPT represents a significant advancement in educational technology, offering solutions tailored to the diverse learning needs of international primary school ESL learners. By enhancing personalized learning and fostering active engagement, ChatGPT has the potential to positively influence the effectiveness and inclusiveness of ESL instruction. For educators and policymakers seeking innovative strategies to improve learning outcomes, integrating AI-powered tools such as ChatGPT offers a promising pathway to address the challenges of diverse and multilingual classrooms.

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