

## A Systematic Literature Review of ChatGPT for Vocabulary Mastery

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### Abstract

*Vocabulary mastery is a fundamental component in learning English as a Foreign Language (EFL) and English as a Second Language (ESL), but students often face obstacles in understanding and remembering new vocabulary. In this study, the researcher systematically examined the use of ChatGPT in vocabulary learning and explored its influence on vocabulary development. This study uses a Systematic Literature Review (SLR) design with PRISMA guidelines. Data were collected from academic journal articles published between 2018 and 2025 through the Google Scholar database, resulting in 16 relevant studies that were analyzed based on strict inclusion criteria. The analytical result indicates that teaching using ChatGPT significantly impacts students' vocabulary acquisition in the context of EFL and ESL. ChatGPT can be effective in improving vocabulary retention through interactive explanations, contextual examples, and direct feedback. In addition, the study findings highlight an increase in student engagement, motivation, and learning independence, as well as a decrease in anxiety in language use. Despite challenges related to response accuracy and digital literacy, this study concludes that ChatGPT is a potential instructional tool when integrated with appropriate pedagogical guidance.*

**Keywords:** Artificial Intelligence, ChatGPT, Vocabulary Mastery.

### INTRODUCTION

Vocabulary mastery is an essential part of language learning, especially for students learning English as a foreign language (EFL) and English as a Second Language (ESL) (T. Zhang & Liang, 2024). To communicate effectively, students need an adequate vocabulary. Dhuli, Lamo & Larsari (2023) explains that extensive vocabulary knowledge is consistently shown to be crucial for expressing ideas clearly and effectively in both EFL and ESL contexts, because vocabulary is a means of applying the structures and functions of the language that have been learned. With the support of teachers, students who have good vocabulary mastery tend to understand the material more easily and express their ideas orally in writing. Puspitasari, Ratminingsih, and Santosa (2024) also emphasize that students with a richer vocabulary usually have better writing skills because they can express their ideas and feeling more accurately. This shows that vocabulary is the main foundation for success in learning English, so it is important to explore new approaches, including technologies such as ChatGPT.

English plays a crucial role in connecting people worldwide through shared communication (Bhandari & Ghimire, 2025). Due to its crucial role, people are encouraging to learn it to open up opportunities for educations and broader access to information, as well as to interact with other cultures. To be able to communicate and convey ideas in English, students need adequate vocabulary mastery, because vocabulary complexity is often a major obstacle for learners in communicating (Abril Sanjines & Pila, 2025). Amid these challenges, technological developments present new opportunities in learning (Puspitasari et al., 2024).

The use of technology in education has modified conventional instructional approaches. As noted by Rahayu & Utami (2023) Rahayu, Innovations in technology have enhanced learning by promoting interaction, engagement, and adaptability. Rawas (2023) explains that one technology that is widely discussed in the world of education is ChatGPT. The emergence of ChatGPT in language learning highlights its relevance for academic investigation, given the increasing number of studies exploring its use in English language learning contexts (Xiao & Zhi, 2023). Traditional classrooms often struggle to provide personalized attention to every student. As emphasized by Kasneci et al. (2023), ChatGPT offers the opportunity to customize learning processes and provide individual feedback, which is difficult to achieve in traditional settings due to time constraints. This capability is crucial for supporting vocabulary acquisition, as learners require repeated exposure, contextualized input, and timely feedback to internalize new lexical items.

ChatGPT is an AI-based language model capable of generating text interactively, providing explanations, displaying examples of word usage, and giving immediate feedback (Kohnke et al., 2023). These features position ChatGPT as a promising tool for facilitating vocabulary development in EFL and ESL context. ChatGPT also can provide personalized feedback which reduces anxiety. This aligns with the perspective that meaningful and enjoyable learning can increase students' motivation and foster diverse ways of learning (Rahayu & Utami, 2023). Anjum et al., (2025) explain that through personalized and contextualized language practice, ChatGPT enables students to interact more actively with the language. Previous research suggest that the use of ChatGPT contributes to increase learner motivation and engagement, as well as improved vocabulary learning through meaningful interaction (Abu Khurma et al., 2024). Because these studies emphasize the context of EFL and ESL learners, only studies that utilize ChatGPT in vocabulary learning are included in the inclusion criteria.

Although vocabulary is widely recognized as a crucial component of language learning, there is still debate about the most effective strategies for teaching it (Chung et al., 2025). Despite the availability of tools, Ratminingsih et al. (2024) found that instructional activities failed to meet the requirements of 21<sup>st</sup> century learning, which emphasize the use of technology in education. This gap creates an opportunity for tools like ChatGPT to increase vocabulary mastery. With the increasing use of AI in education, various perspectives have emerged regarding the effectiveness of ChatGPT in supporting vocabulary acquisition. Some studies show that ChatGPT can help strengthen language skills through contextual practice and quick feedback (Santosa et al., 2025), while other studies highlight challenges such as dependence on technology, output errors, and low digital literacy (Kohnke et al., 2023). These differing results make systematic review important, especially with inclusion criteria such as the publication period 2018-2025 and the EFL and ESL context, to ensure that the studies analyzed are truly relevant and up to date.

Various studies show that learners often experience difficulties in understanding and remembering new vocabulary (Bhandari & Ghimire, 2025). Therefore, teachers need to consider more interactive strategies to improve student's vocabulary learning outcomes. Technology-based approach, including the use of digital tools and artificial intelligent, are becoming increasingly important (Z. Zhang & Huang, 2024). ChatGPT enables more engaging vocabulary learning by providing students with opportunities for independent practice as well as guided support (Siswanto et al., 2025). Through direct interaction,

students can read, understand, and practice new vocabulary livelier context. Therefore, the integration of ChatGPT can make significant contribution to vocabulary mastery, and studies with these characteristics are included in this research.

Recognizing the various obstacles faced by EFL and ESL students in learning English, this study was conducted to compile a systematic literature review of studies discussing the use of ChatGPT as a vocabulary learning medium. A number of studies have shown that ChatGPT is an innovative method with the potential to be applied ESL classrooms (Kohnke et al., 2023). However, there remains a limited number of studies that specifically examine the impact of ChatGPT on students' vocabulary mastery. The focus of this study is on vocabulary development as an important component in learning English as a foreign language and English as second language. As students often face constraints related to the limited vocabulary and restricted learning strategies, this systematic review aims to explore how the use of ChatGPT can improve students' vocabulary development. All reviewed studies were selected according to the inclusion criteria, which required them to be conducted in EFL and ESL contexts and to address the use of ChatGPT in vocabulary learning.

Rapid advances in technology have led to the development of diverse digital tools aimed at supporting language learning processes, especially vocabulary mastery (Ren & Su, 2025). ChatGPT, with its interactive capabilities and adaptive nature, presents a new approach to delivering material and facilitating interaction between learners and the target language. This technology is capable of providing various forms of exercises, such as providing example sentences, paraphrasing, and explaining word meanings, which can help enrich the learning experience (Bin-Hady et al., 2023). These potentials make ChatGPT one of the relevant innovations to be studied through a systematic review, especially considering the inclusion criteria of this study, which include studies in English, conducted in an EFL and ESL context, and discussing ChatGPT-based vocabulary learning. Although the use of ChatGPT shows increasingly widespread development in the field of education, various aspects still need to be carefully examined, such as the accuracy of responses, the need for digital literacy, and adjustments to the learning context (Kohnke et al., 2023). These issues highlight the need for a comprehensive understanding of how AI technology functions, its possible limitations, and its appropriateness for different learner profiles in language learning. Therefore, this systematic review applies strict limitations in the article selection process based on inclusion criteria so that only relevant, contextual, and credible studies are analyzed further.

Based on this urgency, this systematic review was designed to gain a deeper understanding of the role of ChatGPT in vocabulary learning in the context of EFL and ESL. Specifically, this study aims to: (1) identify how ChatGPT is used in teaching English vocabulary, and (2) explore the influence or contribution of ChatGPT use on learners' vocabulary development. In line with these objectives, the research questions posed are: (1) How is ChatGPT utilized in the vocabulary learning process in the context of EFL and ESL? and (2) To what extent does the use of ChatGPT contribute to the development of learners' vocabulary skills? These questions were formulated to ensure that the scope of the study remained focused and relevant to the established inclusion criteria.

## METHOD

This study employed a Systematic Literature Review (SLR) design, following the methodological framework proposed by Shaffril et al. (2021). According to Shaffril et al. (2021), SLR is a structured and transparent method used to identify, evaluate, and synthesize existing research relevant to a specific topic or research question. The data and information were obtained from journal articles and academic publications published between 2018-2025. The researcher conducted the search using the keywords “ChatGPT,” “AI-based learning,” “vocabulary mastery,” and “ELT” to locate relevant studies. All sources identified during the search were reviewed and selected carefully to ensure their relevance and suitability for the present research.

## RESULTS AND DISCUSSION

The researcher selected sixteen articles related to the use of ChatGPT in English vocabulary learning in the context of English as a Foreign Language (EFL) and English as a Second Language (ESL). As shown in Table 2, the sixteen articles were selected because it met the research inclusion criteria, namely discussing the use of ChatGPT in teaching or learning English vocabulary, involving English learners or educators, and being published within the specified time frame. These articles represent various technology-based learning approaches in vocabulary development.

Table 1. An Overview of Selected Articles

No	Author	Location	Method	Findings
1	Abdelhalim, S., & Alsehibany, R. (2025).	Saudi Arabia	Mix-method	The study showed that learners who utilized ChatGPT outperformed those receiving traditional instruction in productive vocabulary acquisition and overall test performance, with stronger vocabulary retention as well. Although receptive vocabulary gains were similar between the two groups, students reported increased motivation, engagement, and confidence when using new vocabulary through ChatGPT. The findings indicate that structures implementation of ChatGPT is effective in supporting vocabulary learning.
2	Abril, B., Carlosama, K., & Pachay, J. (2025).	Ecuador	Mix-method	According to the findings, using ChatGPT as a teaching tool significantly improves students' English vocabulary acquisition. The experimental group, which learned with ChatGPT, showed a notable increase in scores from

				7.52 (pre-test) to 8.83 (post-test), while the control group did not show comparable progress. Students' perceptions were also largely positive; they felt that ChatGPT motivated them and supported their vocabulary learning effectively. The study also notes that effective use of ChatGPT depends on students having clear learning goals to guide their use of the tool.
3	Aldowsari, B., & Aljebreen, S. (2024).	Saudi Arabia	Quantitative	The findings revealed statistically significant gains in vocabulary acquisition for the experimental group relative to the control group. In addition, students expressed positive attitudes toward the use the application. Overall, the result underscore the promising role of ChatGPT in EFL vocabulary teaching and learning.
4	Alharbi, K., & Khalil, L. (2023).	Pakistan	Mix-method	Students generally demonstrate positive perceptions of AI-assisted vocabulary learning, valuing its efficiency, adaptability to individual needs, and greater instructional support than traditional approaches.
5	Bui, D. B. H., & Le, T. N. U.	Vietnam	Mix-method	The open-ended responses revealed that combining ChatGPT 3.5 with Quizlet improves vocabulary learning by accelerating the learning process through guided support, offering more accurate definitions, and providing personalized contextual usage compared to traditional approaches. These result underscore the pedagogical value of integrating AI tools in EFL contexts to create a more adaptive, engaging, and learner-centered vocabulary learning environment.
6	Hezam, A. M. M.,	Yemen	Mix-method	ChatGPT emerged as the most



	& Mahyoub, R. A. M. AI-			widely used tool, with 73.3% of participants reporting its use, substantially exceeding that of other platforms. This indicates its broad applicability, particularly for activities such as creation, problem solving, and interactive learning that gain vocabulary.
7	Kurniawan, M. A., Husain, N., Badu, H., Ibrahim, M. S., & Kau, M. E. W. (2025).	Indonesia	Quantitative	According to the finding, integrating AI which is ChatGPT in English learning can provide engaging, interactive, personalized and effective support for vocabulary acquisition.
8	Lew, R., Ptasznik, B., & Wolfer, S. (2024).	Poland	Quantitative	ChatGPT has potential to replace traditional dictionaries as a vocabulary learning aid, particularly in assisting learners with productive English use.
9	Losi, R. V., Putra, E., Ali, N., & Dewi, A. S. (2024, March).	Indonesia	Quantitative	The results showed that, most students are familiar with English vocabulary using artificial intelligence tools such as ChatGPT. They understand the purpose of ChatGPT and perceive it as a beneficial learning resource. In addition, Generation Z students tend to demonstrate higher enthusiasm for using ChatGPT in English learning and are more inclined to utilize it to enhance their vocabulary development.
10	Mugableh, A. I. (2024).	Saudi Arabia	Quantitative	The findings indicated that vocabulary growth significantly increased for Saudi EFL students across both groups, with the experimental group exposed to ChatGPT-generated activities showing superior gains in vocabulary size and word family strength compared to the control group.
11	Murgayah, M., Nair, H., & Yunus,	Malaysia	Qualitative	The finding indicates that students who took part in six-week

	M. (2025).			ChatGPT-based module experienced an expanded vocabulary repertoire, enhanced contextual accuracy in their writing, and increased confidence in expressive writing, which indicates an improvement in vocabulary acquisition.
12	Napitupulu, A. T., Sinurat, B., & Silalahi, D. E. (2025).	Indonesia	Qualitative	The finding show that students regarded ChatGPT as a user-friendly and accessible tool for writing. With 314 agreement responses on perceived usefulness, students acknowledged its contribution to vocabulary development, grammatical improvement, and assistance in generating ideas.
13	Ngo, T. (2024).	Vietnam	Literature Review	ChatGPT supports vocabulary learning in EFL contexts by improving word retention, reducing cognitive load, and promoting autonomous learning. It is more effective than traditional tools such as dictionaries.
14	Ramlan & Aziz (2025).	Malaysia	Mix-method	Forty fourth-grade elementary school students (ESL) in Malaysia created comics with the help of ChatGPT; vocabulary scores rose significantly from 7.78 to 13.65 ( $p < .05$ ), with particularly large increases among low-ability students; visual and narrative context improved long-term retention.
15	Salsabil, A. D., & Rakhmawati, L. A. (2025).	Indonesia	Mix-method	Findings reveal that learners perceive ChatGPT favorably, reporting gains in fluency, vocabulary, grammar, and confidence during oral communication. ChatGPT's features, including individualized feedback, real-time conversational simulation, and a supportive low-stress environment, contribute to

				its instructional value.
16	Siswanto, S., Mirza, A. A., & Qamariah, Z. (2025).	Indonesia	Quantitative	The result of the t-test revealed a t-value of -4.233 and a p-value below 0.05, confirming the significant impact of ChatGPT. This finding implies that incorporating ChatGPT into English instruction can promote higher student engagement, increased motivation, and greater independence in vocabulary learning.

This systematic literature seeks to address the research questions proposed in the study, namely: (1) How is ChatGPT utilized in the vocabulary learning process in the context of EFL and ESL? and (2) To what extent does the use of ChatGPT contribute to the development of learners' vocabulary skills? Based on the PRISMA-based selection process, sixteen relevant studies published between 2018-2025 were identified and analyzed. The findings indicate that teaching using ChatGPT has a significant and positive influence on students' vocabulary mastery across both EFL and ESL contexts.

The findings across the reviewed studies consistently indicate that incorporating ChatGPT into vocabulary instruction enhances vocabulary acquisition. Several quantitative studies reported statistically significant gains in students' vocabulary mastery when ChatGPT was used as a learning or teaching tool. Quantitative research, such as studies conducted by Aldowsari & Aljebreen (2024), Kurniawan et al. (2025), Mugableh (2024), Siswanto et al., (2025), and demonstrates that the use of ChatGPT leads to measurable improvements in students' vocabulary mastery. These gains are linked to ChatGPT's capacity to deliver interactive explanations, contextualized examples, and immediate feedback that facilitate students' comprehension and retention of new vocabulary. Across both EFL and ESL settings, ChatGPT was found to facilitate more autonomous and personalized vocabulary learning experiences.

The systematic review also reveals that teaching using ChatGPT offers multiple pedagogical advantages. Many studies highlight increased student engagement and motivation as key benefits of ChatGPT-supported vocabulary learning. Mixed-method and qualitative research, as exemplified by the study conducted by Abril et al. (2025), Ngo (2025), and Ramlan & Abdul Aziz (2025), emphasize that ChatGPT promotes learner autonomy, engagement, and motivation through interactive and personalized learning activities. Learners can interact with vocabulary items through dialogue-based prompts, example generation, paraphrasing, and contextual usage, which promotes deeper lexical processing. Both students and teachers perceive ChatGPT as an accessible and flexible tool that supports individualized learning pace and learning needs, particularly in vocabulary development.

In addition to vocabulary gains, several studies report that ChatGPT supports the development of other language-related skills. Research conducted in both EFL and ESL contexts indicates that vocabulary learning through ChatGPT is closely linked to improvements in writing accuracy, speaking confidence, and reading comprehension.



Studies by Laila et al. (2024), Murgayah et al. (2025), and Salsabil & Rakhmawati (2025) reveal that ChatGPT-assisted vocabulary learning also contributes to the enhancement of productive and receptive language skills. The ability of ChatGPT to generate context-rich input and provide explanations of word usage enhances learners' awareness of word form, meaning, and use, which are essential components of vocabulary mastery.

Learners' perceptions are an important factor influencing the effectiveness of ChatGPT-assisted vocabulary instruction. Evidence from qualitative and mixed-method studies indicates that students generally exhibit positive attitudes toward using ChatGPT for vocabulary development. Research by Alharbi & Khalil (2023), Bin-Hady et al. (2023), and Losi et al. (2024), indicate that students perceive ChatGPT as helpful in reducing anxiety, supporting independent learning, and increasing confidence in vocabulary use. Teachers also recognize ChatGPT's potential as a supplementary instructional tool that can enrich classroom activities and extend learning beyond traditional instruction.

Furthermore, the review highlights that ChatGPT is implemented across various educational levels, including secondary schools and higher education institutions. Studies conducted at different educational levels, such as those by Mugableh (2024) and Siswanto et al. (2025) demonstrate the applicability of ChatGPT across diverse learner groups. The reviewed studies demonstrate that ChatGPT can be effectively integrated into different instructional designs, such as guided classroom activities, blended learning environments, and self-directed vocabulary practice. This flexibility allows ChatGPT to be adapted to diverse learning contexts and learner proficiency levels in both EFL and ESL settings.

Although the findings are largely positive, the literature highlights several limitations in implementing ChatGPT, such as concerns about the reliability of its outputs, potential overreliance on AI, and the requirement for sufficient digital competence among teachers and learners. Study by Hezam & Mahyoub (2025) highlights the importance of structured guidance and pedagogical supervision when integrating ChatGPT into vocabulary instruction to ensure effective and responsible use.

Overall, the findings of this systematic literature review suggest that the use of ChatGPT in instruction holds significant potential for improving students' vocabulary mastery. The collective findings from the selected studies suggest that ChatGPT is an effective instructional support tool that promotes vocabulary acquisition, learner engagement, and autonomous learning in both EFL and ESL contexts. These findings offer a solid basis for further research on the pedagogical integration of AI-driven tools in vocabulary teaching.

## CONCLUSION

This study concludes that ChatGPT is a promising technology-enhanced learning tool for supporting vocabulary development in both EFL and ESL contexts. The systematic review of 16 studies indicates that ChatGPT positively influences vocabulary learning by promoting engagement through its interactive, adaptive, and context-based features. By enabling students to explore word meaning, form, and use through dialogue, examples, paraphrasing, and immediate feedback, ChatGPT supports deeper vocabulary understanding and long-term retention. Moreover, its use encourages independent, self-paced learning while fostering students' cognitive, metacognitive, motivational, and confidence-related aspects in vocabulary acquisition.

Despite these benefits, the integration of ChatGPT should be implemented carefully to address challenges such as learner dependency, response accuracy, and digital competence. Teachers are encouraged to employ ChatGPT as an assistive tool through structured activities that promote critical thinking and reflection, supported by adequate training in AI pedagogy and ethical use. Curriculum developers should integrate ChatGPT systematically across learning modes and design assessment instruments that capture not only vocabulary mastery but also learner autonomy and engagement. Future research is recommended to examine the long-term effects of ChatGPT, its impact across educational levels, and comparative effectiveness in diverse learning contexts to optimize its role in enhancing vocabulary learning.

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