



# The Implementation of ChatGPT as Pedagogical Tool for Vocabulary Learning at Tenth Grade Students

of Ma Miftahul Ulum Bettet Pamekasan

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Article Info	Abstract
<p><b>Received:</b> 2026-04-22 <b>Revised:</b> 2026-05-08 <b>Accepted:</b> 2026-05-12</p> <p><b>Keywords:</b> Artificial intelligence, ChatGPT, pedagogical tools, vocabulary learning, student engagement.</p> <p><b>DOI:</b> 10.24256/ideas.v14i1.10264</p> <p><b>Corresponding Author:</b> Ulfah <a href="mailto:Marialfahtaftazany@mail.com">Marialfahtaftazany@mail.com</a> Pendidikan bahasa inggris, universitas Islam Madura, Pamekasan, Jawa Timur</p>	<p><i>ChatGPT as a pedagogical tool in English vocabulary learning and exploring students' learning experiences in its use. This study used a qualitative approach with a case study design conducted in grades X-I of MA Miftahul Ulum Bettet Pamekasan. Data were collected through observation, semi-structured interviews, and documentation, then analyzed descriptively qualitatively. The results showed that ChatGPT implementation proceeded through three main stages: opening, core, and closing, reflecting the systematic integration of technology into the learning design. In the core stage, learning was dominated by interactive ChatGPT-based activities, such as creating prompts, vocabulary exercises, and quizzes, which encouraged active student engagement and shifted learning toward a student-centered approach. The teacher acted as a facilitator who provided scaffolding in the initial stages of technology use. Furthermore, students' learning experiences were dominated by cognitive aspects, as seen in increased vocabulary comprehension through repeated practice and exploration of meaning in context. Positive aspects emerged in the form of increased motivation and learning engagement. However, confusion was found in the initial stages of use and potential dependence on technology. Meanwhile, the effective aspect played a supporting factor in facilitating information access, but was not the main determinant of learning outcomes. This study concludes that the successful implementation of ChatGPT in vocabulary learning is not solely determined by technology, but by the interaction between pedagogical design, student engagement, and cognitive processes. These findings provide theoretical and practical contributions to the development of more purposeful and reflective AI-based learning.</i></p>

## **1. Introduction**

Language plays a fundamental role in communication, cognitive development, and cultural transmission. In the era of globalization, English serves as an important international lingua franca in education, science, and cross-cultural communication (Seidlhofer, 2012). In the context of learning English as a foreign language (EFL), vocabulary mastery is an essential component that supports other language skills, such as reading, writing, speaking, and listening (Nation, 2013). Without adequate vocabulary mastery, students will struggle to comprehend texts, express ideas effectively, and engage in meaningful communication (Bannert, 2023). Therefore, improving students' vocabulary mastery is crucial for improving their overall English language skills.

However, vocabulary learning practices in the classroom are still dominated by traditional methods such as memorization and translation, which often result in low engagement and limited retention (Mulis, 2025). With the development of digital technology, approaches to language learning have shifted toward more interactive, adaptive, and student-centered learning. One rapidly developing innovation is the use of artificial intelligence (AI), particularly large language models like ChatGPT, as a pedagogical tool. Recent studies have shown that using ChatGPT can improve vocabulary mastery, learning motivation, and student engagement through dynamic interactions and instant feedback (Syahrial & Dewi, 2023). One rapidly growing form of AI implementation is the use of large language models like ChatGPT as a pedagogical tool in language learning.

Several researchers have previously examined the use of artificial intelligence, particularly ChatGPT, in English vocabulary learning. First, a study conducted by Kurniawan (2025), examined the effectiveness of ChatGPT as an AI chatbot in improving vocabulary mastery among junior high school students in Indonesia. This study used a quantitative experimental approach with a direct measurement design for vocabulary improvement. Data were collected through vocabulary tests, short interviews, and classroom observations. The results showed that the use of ChatGPT had a significant positive impact on improving vocabulary, motivation, and student participation.

A second study conducted by Durazno Abril (2025), explored the effectiveness of ChatGPT in improving vocabulary acquisition among first-year university students at Lago Agrio. This study used a descriptive quantitative approach with a pre-test and post-test design and a student perception questionnaire. The results showed that ChatGPT not only improved vocabulary mastery but also boosted students' motivation and ability to use vocabulary in real communication contexts. A third study conducted Siswanto (2025), also examined the effect of ChatGPT on EFL students' vocabulary mastery. Using experimental quantitative methods, this study found that ChatGPT significantly improved students' vocabulary skills, while encouraging engagement, motivation, and learning independence.

Based on this review, previous studies and this research share similarities, namely examining the use of artificial intelligence, particularly ChatGPT, as a pedagogical tool in the context of vocabulary learning. However, there are differences: previous studies tended to use a quantitative approach that focused on learning outcomes, such as improved grades or academic achievement. These studies have not yet thoroughly explored how ChatGPT is implemented in classroom learning practices and the students' learning experiences during this process. Existing research rarely explores students' learning experiences in depth, including cognitive, affective, and practical dimensions, during the use of AI-based tools. Furthermore, research examining AI integration in classroom contexts still dominated by traditional approaches, particularly in madrasah (Islamic school) settings, is still limited.

Therefore, there is a need for a process-based qualitative analysis capable of capturing the dynamics of AI technology implementation in language learning contextually. This study aims to investigate how ChatGPT is implemented as a pedagogical tool in vocabulary learning for at tenth grade students at MA Miftahul Ulum Bettet Pamekasan and explore students' learning experiences during its use. The novelty of this research lies in its focus on the implementation process and students' experiences in the context of Islamic high schools (madrasah education), which is still rarely researched in the AI-based learning literature.

## **2. Method**

This study employed a qualitative approach with a case study design to gain an in-depth understanding of the implementation of ChatGPT as a pedagogical tool in English vocabulary learning. This approach was chosen because it allows exploration of the processes, meanings, and experiences of participants in a natural context (Borgstede & Scholz, 2021). The case study design was used because this study focuses on one specific case, namely the use of ChatGPT in vocabulary learning for at tenth grade students at MA Miftahul Ulum Bettet Pamekasan. This allows for an in-depth analysis of learning dynamics, teacher-student interactions, and student learning experiences throughout the learning process.

This study was conducted at MA Miftahul Ulum Bettet Pamekasan, which was selected based on initial observations indicating that vocabulary learning was still dominated by traditional methods. The study subjects were 41 X-I grade students, all of whom were female due to the school's gender-segregated learning system. From these, interview participants were selected using a purposive sampling technique, taking into account the varying abilities and levels of student engagement in English learning, resulting in 20 students as key informants.

The data sources in this study consisted of primary and secondary data. Primary data were obtained directly through observation and interviews with students, while secondary data were obtained through documentation in the form of photos, videos, and field notes during the learning process. Data collection was conducted using three main techniques: observation, semi-structured interviews,

and documentation (Creswell, J. W., & Poth, 2023). Observations were conducted in two meetings and used an observation checklist to obtain data related to the ChatGPT implementation process in vocabulary learning, including interactions between teachers and students. Semi-structured interviews were conducted to explore students' learning experiences, using guided questions covering aspects of understanding, engagement, and perceptions of ChatGPT use. Documentation in the form of photos, field notes, and recordings of learning activities were used as supporting data.

Data analysis was conducted using an interactive analysis model that includes data reduction, data presentation, and drawing conclusions (Miles, 2020). The data analysis process employed qualitative descriptive analysis. Data are presented in tabular form and described to facilitate the researcher's interpretation of the findings. The interview results were analyzed using open coding to identify meaningful units from the interview and observation data, which were then grouped into categories and themes. This process resulted in three main themes emerging: cognitive aspects, positive aspects, and learning effectiveness.

To ensure the validity and credibility of the data, this study employed triangulation techniques by Creswell, J. W., & Poth, (2023), including source triangulation, technical triangulation, and time triangulation. Source triangulation was conducted by comparing data obtained from students and observation results. Technical triangulation was conducted by comparing data from observations, interviews, and documentation.

Time triangulation was conducted by ensuring the consistency of data obtained at different times. Through the application of this triangulation, the resulting data is expected to have a high level of reliability and be able to describe the research phenomenon objectively and comprehensively. In addition, the researcher also carried out self-reflexivity by recognizing her position as an active observer involved in the research process, so that potential bias could be minimized through systematic recording and continuous data verification. However, this study has limitations, particularly the relatively short observation duration, so the findings need to be interpreted within a limited context.

### **3. Result**

Based on the observation results, the implementation of ChatGPT as a pedagogical tool in learning English vocabulary was carried out systematically through three main stages, namely the opening stage, the core stage, and the closing stage, as presented in Table 1 as follows:

Table 1. The Implementation of ChatGPT as a Pedagogical Tool in Vocabulary Learning

No	Stages	Learning Activities	Observation Findings
1.	Opening Stage (Pre-Activity)	The teacher opens the lesson with a greeting and attendance check.	All opening activities are carried out well as a form of initial learning preparation.
		The teacher conveys the learning objectives related to vocabulary + ChatGPT.	The learning objectives are conveyed clearly and directed towards the use of ChatGPT.
		The teacher explains the rules and learning flow.	Students understand the learning flow before using ChatGPT.
2.	Whilst-Activity (Implementation Stage)	The teacher introduces ChatGPT and how to access it.	Students are introduced to using ChatGPT as a learning tool.
		The teacher teaches how to create simple prompts.	Students understand the basics of using prompts in ChatGPT.
		Students try to create vocabulary practice prompts.	Students begin practicing independently using ChatGPT.
		Students follow the teacher's instructions in practice quizzes (ChatGPT-generated quizzes).	ChatGPT is used as an interactive practice medium.
		The teacher provides guidance when students experience difficulties.	The teacher plays an active role as a facilitator.
		Students discuss the results of the ChatGPT answers.	Interaction and discussion occur among students.
		Students demonstrate active participation.	Student engagement in learning increases.
3.	Closing Stage (Post-Activity)	The teacher conducts a brief reflection.	The teacher evaluates the learning process with the students.
		The teacher concludes the	The learning concludes

learning.

with material  
reinforcement.

Based on Table 1, observations indicate that the learning process was not only procedurally structured but also reflected pedagogically designed technology integration. In the opening phase, the teacher not only conveyed the learning objectives but also explicitly linked them to the use of ChatGPT. This demonstrates that technology has been positioned as an integral part of the learning strategy, not simply an additional tool.

In the core phase, ChatGPT implementation became more dominant and determined the learning dynamics. Observations revealed that the majority of learning time was spent on interaction-based activities using ChatGPT, such as developing prompts, vocabulary practice, and interactive quizzes. These activities indicate a shift from teacher-centered to student-centered learning. Furthermore, high student engagement throughout the activities indicates that the use of ChatGPT significantly contributed to increased class participation. Observations also revealed a scaffolding process implemented by the teacher, especially in the initial phase of ChatGPT use.

The teacher provided technical and pedagogical guidance, which was then followed by independent practice by students. This pattern indicates that technology integration is gradual, moving from teacher direction to student independence. Furthermore, student interactions that emerged during the discussion of ChatGPT responses demonstrate that learning is not only individual but also collaborative. This reinforces that the use of ChatGPT not only improves student interaction with technology, but also social interaction between students.

In the closing stage, teacher reflections demonstrated efforts to consolidate student understanding. This stage plays a crucial role in ensuring that technology use is not merely technical but also supports students' conceptual understanding. Overall, observations indicate that ChatGPT's implementation in vocabulary learning is dominated by core-stage activities, which emphasize active interaction, student engagement, and hands-on technology use. This demonstrates that ChatGPT functions not merely as a tool but as a central component in shaping students' learning experiences.

Based on interviews with 20 students, students' learning experiences using ChatGPT can be categorized into three main aspects: cognitive, positive, and effective, as shown in Table 2 below:

Table 2. Students' experiences in vocabulary learning using ChatGPT

No	Question	Answer	category		
			Cognitive	Positive	Effective
1.	How was your learning experience when using ChatGPT in learning English vocabulary in class?	The majority of students stated that learning using ChatGPT was fun, engaging, and easy to understand (S1, S5, S10, S12, S13, S18). Learning helped them understand vocabulary and overcome learning difficulties (S3, S6, S14, S15, S20; S4, S9, S17). Some students experienced initial confusion but adapted quickly (S7, S11).	✓	✓	
2.	How do you think using ChatGPT affects the way you understand, remember, and use English vocabulary?	ChatGPT helps students understand and remember vocabulary faster through repetition and quizzes (S1, S3, S5, S7, S10, S12, S13, S18, S20). ChatGPT facilitates access to information and the use of vocabulary in context (S2, S6, S8, S9, S11). Interactive activities such as quizzes and exercises enhance comprehension (S15, S16, S17, S19).	✓		✓
3.	How do you feel and how engaged are you in learning vocabulary using ChatGPT compared	The majority of students found learning more enjoyable and engaging than without		✓	



### *Positive Aspect*

From a positive perspective, the majority of students responded positively to the use of ChatGPT. They felt that learning was more enjoyable, engaging, and less monotonous than conventional learning methods.

*"Learning has become more fun and less boring." (S5).*

This positive response has resulted in increased student engagement in learning. Based on observations, students appeared more active in participating, both in answering quizzes and in discussions. Furthermore, several students stated that learning without ChatGPT tended to be more difficult and less engaging, indicating that using this technology provided a more emotionally enriching learning experience.

### *Effective Aspect*

Effectiveness emerged in several student responses, indicating that ChatGPT helped facilitate the learning process, particularly in terms of accessing information and using vocabulary in context.

*"With ChatGPT, I can immediately know the meaning of words and how to use them." (S6).*

This finding is also supported by observations, which show that students can quickly find word meanings and immediately use them in the assigned exercises. However, this aspect did not emerge as a primary finding compared to the cognitive and positive aspects. This suggests that students place more emphasis on the process of understanding and the learning experience than on the efficiency of using the technology itself.

These three aspects are interrelated in shaping students' learning experiences. Positive responses increase student engagement, which ultimately strengthens cognitive processes in understanding vocabulary. Meanwhile, easy access to information supports learning effectiveness, although it is not the primary factor. Thus, the use of ChatGPT not only impacts learning outcomes but also the overall quality of students' learning experiences.



Figure 1: The process of implementing English vocabulary learning using ChatGPT.



Figure 2: Student engagement in vocabulary learning using ChatGPT.

#### **4. Discussion**

##### *The Implementation of ChatGPT as a Pedagogical Tool in Vocabulary Learning*

The results of this study indicate that the implementation of ChatGPT in vocabulary learning proceeds through three main stages: an introduction, a core, and a conclusion. These findings not only confirm the existence of a systematic learning structure but also indicate that technology has been integrated as part of the pedagogical design. This aligns with the principles of structured learning proposed by Richards, J. C., & Farrell, (2022), which emphasize the importance of systematic stages in achieving learning objectives. However, in this context, the research findings expand on this framework by demonstrating that the learning structure in the digital age also includes the explicit integration of technology at each learning stage.

In the introduction stage, linking learning objectives to the use of ChatGPT demonstrates that technology integration is planned. This indicates that the effectiveness of technology-based learning is highly dependent on the pedagogical design from the outset, as emphasized by Rahman, (2024)). Thus, the introduction stage serves not only as an orientation but also as a conceptual foundation for guiding the use of technology throughout the learning process.

In the core stage, the dominance of ChatGPT-based activities indicates a shift toward student-centered learning. Direct interaction between students and technology enables active engagement in the knowledge construction process. This finding aligns with Chun & Barbara (2016), who stated that artificial intelligence-based technology can enhance student participation and learning autonomy. However, the results of this study indicate that this engagement is influenced not only by the presence of technology but also by the quality of the interactions established through activities such as generating prompts and exploring responses, reflecting a constructivist approach to learning (Vygotsky, 1978).

Furthermore, the need for initial guidance indicates that the use of ChatGPT still requires scaffolding from the teacher. This finding corroborates Lev Vygotsky's theory, particularly the concept of the Zone of Proximal Development (ZPD), which emphasizes the importance of support in helping students achieve higher levels of competence (Vygotsky, 1978). In this context, the role of the teacher is not replaced but shifts to that of a facilitator, helping students use technology effectively. This also aligns with the view of Dwivedi (2023), who asserted that the integration of AI in education complements the role of teachers.

The interactions between students that emerged during the discussions demonstrated that learning remained collaborative. Although technology was used individually, the process of sharing and discussing results strengthened social interactions among students. This finding aligns with the computer-supported collaborative learning theory proposed by Stahl (2006), which states that technology can facilitate the social construction of knowledge through interaction and negotiation of meaning.

In the closing stage, teacher reflection serves to consolidate student understanding and ensure that technology use is not merely technical. This finding supports the view of Farrokhnia (2024), who emphasized the importance of reflection in technology-based learning to achieve conceptual understanding. Reflection in this context also serves as an evaluative mechanism that connects technology-based learning experiences with deeper understanding.

Overall, the findings of this study indicate that the use of ChatGPT not only increases student engagement but also fosters more interactive and collaborative learning. However, its effectiveness depends heavily on the pedagogical design, the role of the teacher, and the quality of student interactions with the technology. Therefore, the integration of AI in learning needs to be understood as a planned and contextual pedagogical practice, not simply a mere use of technology.

### *Students' Experiences in Vocabulary Learning Using ChatGPT*

The results of this study indicate that students' learning experiences using ChatGPT are shaped by the interconnectedness of cognitive, positive, and effective aspects, not as separate dimensions. The dominance of the cognitive aspect indicates that ChatGPT plays a role in strengthening vocabulary comprehension through active interactions, such as repeated practice and exploration of meaning. However, this finding confirms that increased comprehension does not occur automatically, but rather depends on student engagement in utilizing the generated responses.

From a constructivist perspective, learning occurs when students actively construct knowledge through interaction (Vygotsky, 1978), so ChatGPT's primary function is not as a source of information, but as a medium that facilitates the construction of meaning. This reinforces the finding that the effectiveness of AI in learning is determined more by the quality of interactions than the technology

itself (Yifan, 2024).

The finding regarding confusion in the initial stages of use suggests that ChatGPT integration involves a process of cognitive adaptation. This indicates that technology does not inherently facilitate learning, but can create cognitive load if not balanced with appropriate usage strategies. Thus, the effectiveness of ChatGPT depends on students' ability to adapt to the system and the pedagogical support provided. This perspective aligns with cognitive load theory, which emphasizes that task complexity can impact information processing capacity (Sweller, 2011), and is reinforced by research showing that successful AI integration is determined by user readiness and supportive learning design (Dwivedi, 2023).

On the positive side, students' positive responses indicate that ChatGPT contributes to increased learning engagement. However, these findings also indicate that increased motivation is not entirely neutral, as it is accompanied by a tendency toward dependence on technology. The perception that learning without ChatGPT is more difficult indicates a shift in learning preferences, potentially reducing student independence. Thus, technology acts as a factor that strengthens engagement while simultaneously requiring pedagogical management to prevent dependence. This situation reflects the ambivalence surrounding the use of AI in education, as described in a recent study (Bannert, 2023), and is relevant to motivational theory, which emphasizes the importance of balancing external support and self-regulation (Ryan, R. M., & Deci, 2020).

Effectiveness emerged as a supporting dimension, facilitating easy access to information and the use of vocabulary in context. However, findings indicate that efficiency was not a primary factor in students' learning experiences. This suggests that learning success is determined not by speed of access, but by the depth of understanding developed. Therefore, ChatGPT is more appropriately positioned as a tool that supports the learning process, rather than as a learning goal in itself (Farrokhnia, 2024).

Overall, these three aspects form an interrelated pattern, where positive engagement drives participation, which in turn strengthens cognitive processes, while affectivity supports smooth interaction with the technology. This synthesis demonstrates that the ChatGPT-based learning experience is integrative and dynamic. Thus, the contribution of this research lies in affirming that the success of AI use in learning is not determined by technology alone, but by the interaction between student engagement, cognitive processes, and the accompanying learning design.

## **5. Conclusion**

This study aims to examine the implementation of ChatGPT as a pedagogical tool in English vocabulary learning and explore students' learning experiences. The results indicate that ChatGPT implementation proceeded systematically through three main stages: introduction, core, and closing. In the

core stage, ChatGPT was actively used in various learning activities such as prompt creation, vocabulary practice, and interactive quizzes, which encouraged student-centered learning and increased student interaction and participation in class.

In terms of learning experiences, the use of ChatGPT created an experience encompassing cognitive, positive, and effective aspects. The cognitive aspect was the most dominant dimension, with students demonstrating improvements in vocabulary comprehension and recall through repeated practice and contextual interactions. Furthermore, students also demonstrated positive responses in the form of increased motivation and engagement in learning, while affective aspects played a supporting role in facilitating information access and vocabulary use.

These findings indicate that the success of ChatGPT in learning is determined not only by technology but also by the learning design and the teacher's role as a facilitator. Therefore, it is recommended that technology integration be carried out in a planned manner while still considering the development of student learning independence. Further research is expected to examine the long-term impact of ChatGPT use to gain a more comprehensive understanding.

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