

**Cognitive Strategies and Vocabulary Retention in Islamic Boarding School
EFL Contexts**

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ABSTRACT

This study investigates the effect of cognitive learning strategies on vocabulary retention and retrieval among EFL learners in an Islamic boarding school context. While previous studies have explored cognitive strategies in general EFL settings, limited research has specifically examined their combined effects on both vocabulary retention and retrieval within Islamic boarding school contexts. The research addressed two main questions: to what extent cognitive learning strategies influence students' vocabulary retention and how these strategies affect vocabulary retrieval. The study employed a quantitative pre-experimental design using a one-group pre-test and post-test approach. The participants consisted of 30 third-grade students at Pendidikan Diniyah Formal Ulya Putri Sengkang. Data were collected using a structured vocabulary test measuring both retention (recognition and recall) and retrieval (productive use). The data were analyzed using descriptive statistics and paired sample t-tests to determine the significance of improvement. The findings showed a substantial increase in both vocabulary retention and retrieval scores, with the mean retention score improving from 29.47 to 42.83 and retrieval from 25.43 to 42.10. The results also indicated that retention gains were slightly more consistent than retrieval improvements, although both were statistically significant ($p < 0.05$). These findings suggest that cognitive learning strategies effectively enhance both the storage and active use of vocabulary. The study contributes to cognitive learning theory by reinforcing the role of encoding, storage, and retrieval processes, and offers practical implications for integrating structured cognitive strategies into EFL instruction to improve vocabulary learning outcomes.

Key words: Cognitive Learning Strategies; EFL Learning; Vocabulary Acquisition; Vocabulary Retrieval; Vocabulary Retention.

INTRODUCTION

English proficiency is important in EFL contexts such as Indonesia, including Islamic boarding school education, where students often have limited exposure to authentic language use. However, many learners still struggle to retain and actively use vocabulary in meaningful communication. This issue highlights a persistent gap between vocabulary acquisition and functional language use. Vocabulary learning is widely recognized as a foundational component of language acquisition, as it directly supports learners' ability to understand and produce language. Two critical aspects of vocabulary knowledge are vocabulary retention and vocabulary retrieval. Vocabulary retention refers to the ability to store newly learned words in long-term memory, while vocabulary retrieval refers to the ability to access and use those words accurately during communication tasks (Li et al., 2025). For example, a student may remember the word "prepare" after a lesson (retention), but may struggle to use it appropriately in a sentence such as "I prepare food in the kitchen" during a speaking activity (retrieval). This distinction is crucial because vocabulary knowledge that is retained but not retrievable limits learners' communicative competence. To address these challenges, cognitive learning strategies have been proposed as an effective approach to improving vocabulary learning outcomes. Cognitive learning strategies refer to the mental processes learners use to encode, organize, and retrieve information, such as repetition, illustration, organization, and visualization (Sakale & Ayoub, 2022). These strategies promote deeper processing of information, which leads to more durable memory traces and improved retrieval performance. In classroom practice, for instance, repetition involves repeated exposure and use of vocabulary, illustration connects words with meaningful contexts, organization groups words into categories, and visualization creates mental images to support memory. Together, these strategies provide structured ways for learners to interact with vocabulary more actively and meaningfully.

A growing body of research has explored the role of cognitive strategies in vocabulary learning. In one study, (Teng & Mizumoto, 2024) investigated the effect of retrieval-based practice on vocabulary retention using an experimental design. Their findings showed that learners who engaged in contextualized retrieval activities demonstrated stronger long-term retention compared to those who relied on passive exposure. Similarly, the impact of elaborative cognitive strategies on vocabulary depth and found that learners who used strategies such as semantic mapping and imagery achieved more comprehensive vocabulary knowledge (Fan, 2020). These findings suggest that deeper cognitive engagement enhances both retention and quality of vocabulary knowledge. In another study, (Zhou et al., 2024) compared intentional and incidental vocabulary learning approaches. Using an experimental design, they found that intentional learning involving cognitive strategies resulted in more stable vocabulary retention than incidental exposure.

Likewise, (Sok & Han, 2020) emphasized the effectiveness of retrieval-based learning, demonstrating that active recall significantly improves long-term memory compared to repeated reading. These studies collectively highlight the importance of active cognitive processing in strengthening vocabulary retention and retrieval. In the Indonesian EFL context, research has also examined vocabulary learning strategies. (Fatimah et al., 2026) conducted a correlational study and found a significant relationship between self-regulated learning strategies and vocabulary mastery among high school students. Furthermore, the integration of digital technology in English language teaching has been identified as both a challenge and an opportunity, particularly in vocational and specialized educational settings, where technological tools can support more interactive and meaningful learning experiences (Rahmaniar et al., 2026). Similarly (Zuhairi & Mistar, 2023), used a qualitative approach and reported that students who actively used cognitive and metacognitive strategies were more successful in retaining and recalling vocabulary. In contrast, it is found that metacognitive and motivational factors played a stronger role than cognitive strategies alone, suggesting that vocabulary learning is influenced by multiple interacting factors (Sun et al., 2023). These findings indicate that while cognitive strategies are important, their effectiveness may depend on broader learning contexts and learner characteristics.

Overall, existing literature consistently shows that cognitive learning strategies play a significant role in vocabulary acquisition. Prior studies suggest that strategies involving elaboration, organization, and retrieval practice can enhance memory retention and recall. However, several important limitations remain. First, many studies examine cognitive strategies as part of broader constructs such as self-regulated learning, making it difficult to isolate their specific effects. Second, most research focuses on general vocabulary mastery rather than explicitly distinguishing between vocabulary retention and vocabulary retrieval as separate outcomes. Third, previous studies predominantly involve older learners, such as university students, while research on younger learners in specific educational contexts, particularly Islamic boarding schools (*pesantren*), remains limited. These gaps indicate that it is still unclear how cognitive learning strategies differentially influence vocabulary retention (the ability to store words in long-term memory) and vocabulary retrieval (the ability to access and use those words in communication), especially within the unique learning environment of *pesantren*-based EFL education. Without this distinction, instructional approaches may fail to address specific cognitive processes required for effective vocabulary use. Therefore, this study directly addresses this gap by separately examining the effects of cognitive learning strategies on vocabulary retention and vocabulary retrieval in a *pesantren* context. Based on this focus, the study examines the extent to which cognitive learning strategies affect students' vocabulary retention and vocabulary retrieval.

To achieve this objective, the study employs a quantitative experimental design involving pre-test and post-test measures. Students are exposed to structured cognitive strategy instruction, including repetition, illustration, organization, and visualization, designed to enhance both encoding and retrieval processes. It is predicted that learners who engage in these strategies will exhibit improved

memory stability and more effective vocabulary use in communicative tasks. This study contributes to the existing literature by isolating cognitive learning strategies as the primary variable and examining their direct effects on both vocabulary retention and retrieval. It also provides a novel perspective by focusing on an underexplored educational context, namely Islamic boarding school-based EFL education. The findings are expected to offer both theoretical contributions, by refining understanding of cognitive processes in vocabulary learning, and practical implications, by informing instructional practices that promote long-term vocabulary mastery and communicative competence.

LITERATURE REVIEW

Previous Related Studies

A growing body of research has examined the role of cognitive learning strategies in vocabulary acquisition, particularly in English as a Foreign Language (EFL) context. However, these studies differ in their focus, methodological approaches, and the specific aspects of vocabulary learning they emphasize. In one experimental study, (Thảo et al., 2023) investigated retrieval-based practice and found that learners who engaged in active retrieval demonstrated significantly higher long-term vocabulary retention compared to those relying on passive exposure. This finding emphasizes retrieval as a powerful mechanism for strengthening memory traces. Similarly, (Huang et al., 2025) also highlighted the effectiveness of retrieval practice, arguing that repeated retrieval is more beneficial than repeated study. While both studies support retrieval-based learning, they primarily focus on retention outcomes rather than examining how retrieval influences productive vocabulary use.

In contrast, (Chiu & Hawkins, 2023) explored elaborative cognitive strategies using a mixed-method approach and found that techniques such as semantic mapping and imagery improved not only vocabulary retention but also learners' ability to use words appropriately. Unlike retrieval-focused studies, this research emphasizes deeper cognitive processing and its role in enhancing both retention and contextualized vocabulary use. Furthermore, (Jonathans et al., 2021) compared intentional and incidental learning approaches, demonstrating that intentional learning involving conscious cognitive engagement resulted in stronger retention than incidental exposure. While this study highlights the importance of deliberate strategy use, it contrasts with retrieval-based studies by focusing more on learning conditions rather than specific cognitive processes such as retrieval or elaboration.

In the Indonesian context, (Jovita et al., 2025) identified a significant relationship between self-regulated learning (SRL) strategies and vocabulary mastery using a correlational design. Similarly, (Muslim & Mahbub, 2023) found that students employing cognitive and metacognitive strategies were more successful in retaining and recalling vocabulary. However, unlike experimental studies, these findings are

based on correlational and qualitative approaches, which limit the ability to establish causal relationships between cognitive strategies and vocabulary outcomes.

Despite these contributions, several limitations remain. First, previous studies often examine cognitive strategies within broader constructs such as self-regulated learning, making it difficult to isolate their specific effects. Second, while some studies focus on retention and others on vocabulary use, few explicitly distinguish between retention and retrieval as separate cognitive processes. Third, existing research predominantly involves general or higher education contexts, with limited attention to younger learners in Islamic boarding school-based educational settings.

Cognitive Learning Strategies and Their Role in Vocabulary Retention and Retrieval

Cognitive learning strategies refer to the mental processes that learners use to actively process information in order to facilitate encoding, storage, and retrieval. These strategies involve direct manipulation of learning materials through activities such as repetition, elaboration, organization, and visualization (Eteng-Uket & Effiom, 2024). Unlike metacognitive strategies, which focus on planning and monitoring, cognitive strategies operate directly at the level of memory processing. In vocabulary learning, cognitive strategies function across three interconnected stages of memory: encoding, storage, and retrieval. At the encoding stage, strategies such as repetition and organization help learners process new vocabulary and transfer it from working memory into long-term memory. For example, repetition reinforces phonological and semantic forms, while organization groups words into meaningful categories, facilitating structured encoding.

At the storage stage, deeper cognitive strategies such as elaboration and visualization strengthen memory traces by creating meaningful associations. Illustration connects vocabulary with real-life contexts, and visualization forms mental images that make words more memorable. According to levels of processing theory, deeper and more meaningful engagement results in more durable memory representations (Attygalle et al., 2025), which directly supports vocabulary retention. At the retrieval stage, these stored representations are accessed through retrieval cues formed during encoding and storage. Visualization and contextual associations, for instance, serve as cues that facilitate recall and productive use of vocabulary (Wollstein & Jabbour, 2022). Retrieval can take the form of recognition, recall, or productive use in communication (Muqaibal et al., 2023). Importantly, retrieval is not only an outcome of learning but also a process that further strengthens memory through repeated activation (Strong, 2023).

Based on this framework, vocabulary retention corresponds to the strength and stability of memory traces formed during encoding and storage, while vocabulary retrieval reflects the ability to access and use these stored representations in communicative contexts (Shen & Wu, 2026). Thus, retention and retrieval are

distinct but interdependent processes within the same cognitive system. This study conceptualizes the relationship as a unified model in which cognitive learning strategies enhance vocabulary learning through a sequential process: (1) encoding through repetition and organization, (2) storage through elaboration and visualization, and (3) retrieval through activation of memory cues. Therefore, cognitive learning strategies serve as a bridge between retention and retrieval by strengthening memory traces and facilitating access to vocabulary during language use.

METHOD

Design and Sample

This study employed a quantitative pre-experimental approach using a one-group pre-test and post-test design to examine the effect of cognitive learning strategies on students' vocabulary retention and retrieval. This design was selected because it allows the measurement of learning outcomes before and after treatment within the same group. Although the absence of a control group limits causal interpretation, several efforts were made to strengthen internal consistency, including the use of the same instrument in both testing phases, a short and controlled treatment period, and consistent instructional delivery across sessions. The study was conducted at Pendidikan Diniyah Formal (PDF) Ulya Putri Sengkang, an Islamic boarding school characterized by structured routines, memorization practices, and limited exposure to English outside the classroom. The participants were all 30 third-grade students in one intact class. Because the population was small and manageable, total sampling was applied, meaning that all students were included as the sample. These learners were considered suitable participants because they had acquired basic vocabulary but still experienced difficulties in retaining and retrieving words for communication.

This study was conducted at Pendidikan Diniyah Formal (PDF) Ulya Putri Sengkang, an Islamic boarding school that integrates religious and formal academic instruction. This setting is theoretically and practically significant because it is characterized by structured routines, memorization practices, and limited exposure to English outside the classroom, conditions that may influence how cognitive learning strategies function in vocabulary acquisition. The study was conducted over approximately one month, including pre-test, treatment, and post-test stages. The population of this study consisted of all third-grade students at PDF Ulya Putri Sengkang. These students were selected because they represent learners at an intermediate level of English as a Foreign Language proficiency and still face challenges in retaining and retrieving words for effective communication. The total population included 30 students from a single class. Due to the small and manageable size, a total sampling technique was employed, meaning all students were included as participants. Thus, the sample size was $N = 30$ students, representing the entire population. All participants received the same instructional

treatment involving cognitive learning strategies. The use of a single intact class reflects practical constraints, as random assignment to multiple groups was not feasible.

Instruments and Procedures

The primary instrument in this study was a vocabulary test developed to measure students' vocabulary retention and retrieval based on the target vocabulary and learning objectives taught during the treatment. The test consisted of two parts: a retention section assessing recognition and recall through multiple-choice and matching items, and a retrieval section assessing productive use through fill-in-the-blank items, short answers, and sentence construction tasks. Each correct answer was scored as one and each incorrect answer as zero. Content validity was established through expert judgment, while the test was piloted with similar students to evaluate clarity and level of difficulty. Reliability was examined using internal consistency analysis, and item analysis was conducted to revise or remove ineffective items. Data collection followed a pre-test–treatment–post-test procedure. The pre-test measured students' initial vocabulary retention and retrieval. The treatment was then conducted in two sessions using cognitive learning strategies: repetition and illustration in the first session, followed by organization and visualization in the second session. After the treatment, a post-test was administered to identify changes in students' vocabulary performance.

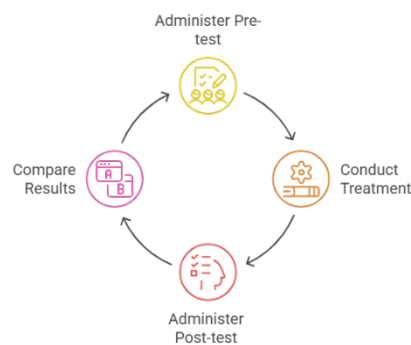


Figure 1. Research Procedure of Pre-Test–Treatment–Post-Test Design

Data Analysis

The data were analyzed quantitatively through scoring, descriptive statistics, assumption testing, and inferential analysis. Students' responses on the pre-test and post-test were scored by assigning one point to each correct answer and zero to each incorrect answer, then converting the total into percentage scores using the formula $\text{Score} = (\text{Correct Answers} / \text{Total Items}) \times 100$. Descriptive statistics, including the mean and standard deviation, were used to summarize students' vocabulary retention and retrieval performance. Before inferential testing, the Shapiro–Wilk test was applied to examine the normality of the score distribution. Because the analysis compared two related sets of scores from the same group, a paired sample t-test was used to determine whether the differences between pre-test and post-test scores were statistically significant. This analysis provided evidence of the

effectiveness of cognitive learning strategies in improving students' vocabulary retention and retrieval.

RESULT AND DISCUSSION

Descriptive Statistics of Vocabulary Retention and Retrieval

The descriptive statistics of vocabulary retention and retrieval were calculated based on the pre-test and post-test scores of 30 students, providing an overview of performance before and after the implementation of cognitive learning strategies. For vocabulary retention, pre-test scores ranged from 12 to 41, with a mean of 29.47. Following the treatment, post-test scores ranged from 36 to 50, with a mean of 42.83, indicating a substantial increase in students' ability to retain vocabulary. A similar pattern was observed in vocabulary retrieval. Pre-test scores ranged from 12 to 45, with a mean of 25.43, while post-test scores ranged from 32 to 49, with a mean of 42.10. This reflects stronger performance in recalling and using vocabulary in context after the intervention.

The comparison between pre-test and post-test results shows a consistent upward trend across both variables. Most students achieved higher scores in both retention and retrieval, although the magnitude varied. The rise in minimum scores suggests that lower-performing students also benefited from the treatment. In addition, post-test scores were more concentrated within a higher range, indicating greater consistency in students' performance. These results provide a clear descriptive summary of score distribution following the implementation of cognitive learning strategies.

Table 1. Descriptive Statistics of Vocabulary Retention and Retrieval

Metric	Retention_Pre	Retention_Post	Retrieval_Pre	Retrieval_Post
Mean	29.4	42.76667	24.43333	42.4
Min	12	36	12	32
Max	41	50	45	49

Table 1 presents summary statistics for vocabulary retention and retrieval. The data show higher mean scores in the post-test for both variables. The increase in minimum scores indicates progress among lower-performing students, while the higher maximum scores suggest continued advancement among high-performing students. Overall, the table highlights a consistent shift in performance across the dataset.

Improvement in Vocabulary Retention

Out of 30 students, 29 showed higher retention scores, while only one experienced a slight decrease. This result suggests that the treatment had a broadly positive effect at the group level. The magnitude of change varied across students, ranging from a decrease of 2 points to a maximum gain of 25 points, with most gains falling

between 8 and 18 points. The highest gain was observed in a student whose score increased from 12 to 37, while the lowest change involved a slight decline from 35 to 33. Despite this exception, the overall trend remains strongly positive. Notably, students with lower initial scores tended to achieve larger gains, indicating that the intervention was particularly beneficial for those with weaker vocabulary retention. The findings demonstrate substantial gains in vocabulary retention following the treatment.

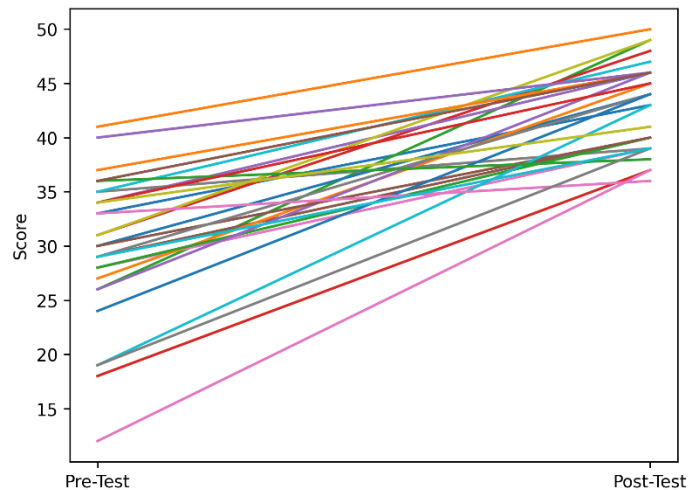


Figure 2. Visualization of Vocabulary Retention Improvement

Figure 2 presents a lollipop-style visualization, where each line connects pre-test and post-test scores for individual students. This format highlights both the direction and magnitude of change. Most lines show upward movement, reflecting consistent score increases, while also illustrating variation in gains across individuals. The chart effectively emphasizes individual progress alongside overall trends.

Improvement in Vocabulary Retrieval

The comparison between vocabulary retrieval pre-test and post-test scores shows a clear upward trend in students' ability to recall and use vocabulary after the implementation of cognitive learning strategies. Most students achieved higher post-test scores, reflecting improved retrieval performance. Out of 30 participants, nearly all showed higher scores, with only a few displaying minimal change. This pattern indicates a consistent effect of the intervention in enhancing students' ability to access and apply vocabulary in context. The results reflect stronger productive use of vocabulary in tasks such as sentence construction and contextual responses.

In terms of distribution, pre-test scores were relatively low and varied widely, indicating differences in initial retrieval ability. In contrast, post-test scores were more concentrated within a higher range, suggesting more consistent performance across students. This shift also indicates a reduction in performance gaps. Students with lower initial scores tended to achieve larger gains, while those with higher

starting points showed more moderate progress. Overall, the results demonstrate significant gains in vocabulary retrieval following the treatment.

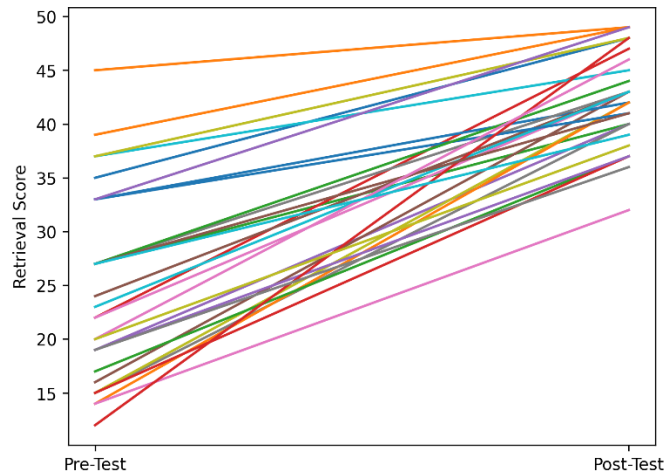


Figure 3. Visualization of Vocabulary Retrieval Improvement

Figure 3 presents a slopegraph illustrating changes in vocabulary retrieval scores from pre-test to post-test for each student. Each line represents an individual participant, connecting initial and final scores. Most lines show upward movement, indicating consistent gains across the group. The variation in slope steepness reflects differences in the magnitude of change. This visualization highlights both individual progress and overall trends in retrieval performance.

Comparative Analysis: Retention vs Retrieval and Statistical Analysis Results

The comparative analysis between vocabulary retention and vocabulary retrieval reveals distinct patterns of improvement following the implementation of cognitive learning strategies. Both variables showed positive changes from pre-test to post-test; however, the magnitude and consistency of improvement varied between retention and retrieval. Overall, vocabulary retention demonstrated slightly stronger gains in terms of score increase, as indicated by a higher average improvement compared to retrieval scores. This suggests that students were more successful in storing vocabulary in memory than in actively recalling and using it in context.

In terms of differences in improvement, retention scores exhibited a more stable and consistent increase across participants. Most students showed moderate to high gains in retention, indicating that cognitive strategies such as repetition, organization, and visualization were effective in strengthening memory encoding and storage processes. In contrast, retrieval improvement, while still evident, showed greater variability among students. Some students demonstrated substantial gains in retrieval ability, while others showed more modest progress. This pattern indicates that retrieval, which requires active recall and application of vocabulary, may involve more complex cognitive processes compared to retention.

Regarding consistency, both retention and retrieval showed an overall upward trend, with the majority of students improving in both areas. However, retention scores were more uniformly distributed in the post-test, suggesting a more consistent level of achievement among students. Retrieval scores, on the other hand, displayed a wider range of outcomes, reflecting differences in students' ability to transfer stored vocabulary into active use. To further examine these differences, inferential statistical analysis was conducted using paired sample t-tests for both retention and retrieval scores. The results indicated that the differences between pre-test and post-test scores were statistically significant for both variables. For vocabulary retention, the t-test showed a significant increase in scores with a p-value less than 0.05, indicating that the improvement was not due to chance. Similarly, the paired sample t-test for vocabulary retrieval also yielded a statistically significant result ($p < 0.05$), confirming that the treatment had a meaningful effect on students' ability to recall and use vocabulary. The statistical findings support the descriptive results, demonstrating that cognitive learning strategies significantly improved both vocabulary retention and retrieval. While retention showed slightly stronger and more consistent gains, retrieval also experienced significant improvement, highlighting the overall effectiveness of the intervention in enhancing students' vocabulary learning outcomes.

The findings of this study indicate that the implementation of cognitive learning strategies led to clear gains in both vocabulary retention and retrieval. Learners demonstrated stronger ability to retain newly learned vocabulary and improved performance in recalling and using vocabulary in context. However, the results also suggest that gains in retention were more consistent than those in retrieval. This difference can be explained through cognitive learning theory, particularly the distinction between storage strength and retrieval strength (Shen & Wu, 2026).

From the perspective of cognitive learning theory, learning involves encoding, storage, and retrieval processes (Aksak & Çubukçu, 2022). Cognitive strategies such as repetition and organization primarily strengthen encoding and storage by reinforcing memory traces and structuring information in long-term memory. As a result, learners are more likely to retain vocabulary because these strategies directly enhance memory stability. In contrast, retrieval requires not only stored knowledge but also the ability to access and apply that knowledge in real time, which involves more complex cognitive processing (Yeo, 2024).

This difference explains why retention tends to improve more than retrieval. Retention reflects the strength of memory traces, which can be reinforced through repeated exposure and meaningful organization. Retrieval, however, depends on the availability of effective retrieval cues and the learner's ability to activate stored information under contextual demands. Even when vocabulary is successfully stored, learners may still experience difficulty retrieving it due to limited practice in active recall or insufficient contextual integration (Agnes & Ranganathan, 2024).

Furthermore, retrieval involves higher cognitive load because it requires productive language use, such as constructing sentences and selecting appropriate vocabulary in context. According to levels of processing theory, deeper processing enhances retention, but successful retrieval also requires repeated activation and practice (Aljabri, 2024). In this study, although visualization and illustration supported retrieval, the relatively short duration of treatment may not have provided sufficient opportunities for repeated retrieval practice, resulting in slightly less consistent gains compared to retention.

The findings of this study are consistent with previous research emphasizing the role of cognitive engagement in vocabulary learning. Retrieval-based learning has been shown to strengthen long-term memory (Jaeger et al., 2025), while elaboration and organization improve retention (Izmalkova, 2024). However, this study extends previous findings by demonstrating that retention and retrieval do not develop at the same rate, particularly in contexts with limited exposure to active language use, such as Islamic boarding schools. This study demonstrates that cognitive learning strategies play a significant role in improving vocabulary retention and retrieval among EFL learners. The findings highlight the importance of active cognitive engagement in language learning and reinforce the relevance of cognitive strategies in enhancing vocabulary acquisition and supporting more effective EFL instruction.

CONCLUSION

This study examined the effect of cognitive learning strategies on vocabulary retention and retrieval among EFL learners in an Islamic boarding school context. The findings show that both retention and retrieval improved following the intervention. However, retention gains were more consistent than retrieval, indicating differences between memory storage and active recall processes. Most students benefited from the intervention, demonstrating higher performance in both storing and using vocabulary. These results confirm that cognitive strategies effectively support vocabulary learning, particularly in contexts with limited exposure to the target language. Theoretically, this study reinforces cognitive learning theory by highlighting the roles of encoding, storage, and retrieval, while emphasizing the distinction between retention and retrieval. Practically, the findings suggest several targeted instructional strategies for EFL classrooms, particularly in Islamic boarding school contexts.

First, teachers should prioritize retrieval-based activities, such as short quizzes, oral recall, and sentence construction, to strengthen active vocabulary use, as retrieval gains were less consistent than retention. Second, elaborative strategies, such as semantic mapping, imagery, and contextual association should be explicitly taught to support deeper processing and long-term retention. Third, spaced repetition should be applied by revisiting vocabulary across lessons rather than in a single session. Finally, instruction should integrate a sequence of encoding, practice, and communicative use (e.g., dialogue or role-play) to ensure that vocabulary is both retained and actively used. These strategies provide practical guidance for

improving vocabulary retention and retrieval in contexts with limited exposure to English.

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