

The Effect of Cognitive Learning Strategies on Vocabulary Retention of Learners at Kasibu Central School, Kasibu, Nueva Vizcaya

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Abstract: A good vocabulary is essential for boosting students' language skills, reading comprehension, and overall success in school. To help students remember and use new words, it is key to use teaching methods that make learning meaningful. This study examined how cognitive learning strategies affect vocabulary retention among Grade 6 students at Kasibu Central School in Kasibu, Nueva Vizcaya. We used a quantitative approach with a one-group pretest-posttest pre-experimental design. We included 45 Grade 6 students, selected through total enumeration sampling. A 20-item vocabulary test, created by the researcher and checked by experts, was given to determine how well students remembered vocabulary before and after using cognitive learning strategies. We analyzed the data using frequency, percentage, mean, standard deviation, and paired-samples t-test. The results showed that students' vocabulary retention improved after the intervention. The average percentage score went up from 89.00% in the pretest to 95.00% in the posttest, showing improved mastery of vocabulary concepts. In addition, the calculated t-value (5.80) was higher than the tabular value (1.653), indicating a statistically significant difference between the pretest and posttest scores. These findings suggest that cognitive learning strategies are effective in enhancing students' vocabulary retention by promoting active engagement, meaningful processing, and long-term memory of vocabulary. The study concludes that using cognitive learning strategies in English teaching can improve vocabulary acquisition and lead to better language learning outcomes. It is recommended that teachers consistently use these strategies, and that future research involves larger samples and more rigorous experimental designs to further confirm the effectiveness of these teaching methods.

Keywords: *Cognitive learning strategies, vocabulary retention, English language learning, Grade 6 learners, pretest-posttest design*

INTRODUCTION

Vocabulary is a key part of language learning and developing literacy skills worldwide. It is the foundation for good communication and academic success. When you learn and remember new words, it helps you understand what you read and boosts your overall language skills. This means that you can break down and make sense of texts, have meaningful conversations, and do well academically (Rosyada-As & Apoko, 2023). Even with different teaching methods, there is still a concern about students not picking up enough vocabulary, which hinders their language growth and academic success. This issue highlights the importance of using cognitive learning strategies that get your memory working and help you remember vocabulary for the long haul. Strategies like focusing on meaning, planning how you learn, and using physical actions to learn words help you process meanings more deeply, leading to better vocabulary retention and language skills (Ariffin et al., 2023; Macedonia, 2025; Sahin & Yavuz, 2025). Research from around the world supports the effectiveness of these strategies, showing improvements in learning and remembering vocabulary and better academic results for different groups of learners (Ng Li Wen & Muhammad Naim, 2023; Wu et al., 2025) ...

In the Philippine context, English language proficiency continues to face challenges, as assessments show deficits in reading comprehension and vocabulary knowledge (Rosyada-As and Apoko, 2023). The Philippine education curriculum emphasizes vocabulary development to improve language proficiency, reflecting the role of vocabulary in literacy and communication skills. The Department of

Education (DepEd) has initiated programs to enhance English language outcomes through curriculum reforms and instructional support. However, more effective, evidence-based instructional strategies are urgently needed to foster vocabulary retention, particularly in elementary schools, where skills are developed (Jingyi & De Dios, 2024; Sahin & Yavuz, 2025). Leveraging cognitive learning strategies and digital tools, including storytelling and language development technologies, promises engaging experiences that enhance vocabulary acquisition and long-term retention (Bin Jwair 2023; Maspul 2024). Thus, strengthening vocabulary retention remains a priority for improving literacy and achievement among Filipino learners.

Classroom observations at Kasibu Central School indicate that Grade 6 learners often struggle to remember learned vocabulary, affecting language development and academic performance (Rosyada-As & Apoko, 2023). Teachers face challenges with conventional vocabulary teaching methods, which often fail to engage students or support long-term retention (Artaninda et al., 2025). Improving vocabulary retention is crucial because it is crucial for reading comprehension and communication skills (Rosyada-As & Apoko, 2023). Cognitive learning strategies, including meaning-focused instruction and collaborative learning, can increase participation, comprehension, and retention by promoting semantic processing and involvement (Sahin and Yavuz, 2025). Evaluating these strategies at Kasibu Central School is vital for tailoring instruction that improves vocabulary acquisition, addresses learning challenges, and supports sustainable language development (Artaninda et al., 2025; Sahin & Yavuz, 2025). Previous research has focused on reading comprehension or vocabulary acquisition rather than retention. Local studies on cognitive learning strategies among Grade 6 learners in elementary schools in Nueva Vizcaya are scarce, and few have used a pretest-post test design. Empirical data from Kasibu Central School remain insufficient. This study addresses these gaps by evaluating cognitive learning strategies for vocabulary retention to improve instructional practices and programs.

RESEARCH QUESTIONS

This study aimed to determine the effect of cognitive learning strategies on the vocabulary retention of Grade 6 learners at Kasibu Central School, Kasibu, Nueva Vizcaya. Specifically, this study sought to answer the following questions.

1. What is the demographic profile of the respondents in terms of:
 - 1.1 age; and
 - 1.2 gender?
2. What was the level of learners' vocabulary retention before the implementation of cognitive learning strategies as measured by the vocabulary pretest?
3. What is the level of learners' vocabulary retention after the implementation of cognitive learning strategies, as measured by the vocabulary posttest?
4. Is there a significant difference between the pretest and posttest vocabulary retention scores of the learners after the implementation of cognitive learning strategies?

METHODS

Research Design

This study employed a quantitative research approach using a one-group pretest-post test pre-experimental research design. This design was appropriate because it measured the vocabulary retention of the learners before and after the implementation of cognitive learning strategies. The pretest established the learners' initial level of vocabulary retention, while the post-test determined the effectiveness of the intervention after the learners had been exposed to the cognitive learning strategies.

Local of the Study

The study was conducted at the Kasibu Central School in Kasibu, Nueva Vizcaya, Philippines. The school is a public elementary school in the municipality that provides quality basic education to learners

from various communities. It was selected as the research locale because it serves the target population and provides a suitable setting for implementing cognitive learning strategies in vocabulary instruction in classrooms.

Respondents of the Study

The respondents of the study consisted of forty-five (45) Grade 6 learners enrolled at Kasibu Central School during the school year in which the study was conducted. These learners participated in both the pretest and posttest and were exposed to cognitive learning strategies throughout the intervention period.

Sampling Technique

This study utilized total enumeration sampling, in which all Grade 6 learners in the selected class were included as respondents. This sampling technique ensured that every learner in the class had an equal opportunity to participate and that the findings represented the entire target group of learners.

Research Instrument

The primary instrument used in the study was a researcher-prepared vocabulary achievement test consisting of twenty (20) multiple-choice items aligned with Grade 6 English learning competencies. The same test served as both the pretest and posttest to measure the learners' vocabulary retention before and after the intervention. The instrument was validated by experts in English education and research and pilot-tested to ensure its clarity, reliability, and suitability for the respondents.

Data Gathering Procedure

Approval of conducting the study was first secured by the head of the Kasibu Central School. After obtaining permission, the researcher administered a vocabulary pretest to determine the learners' initial level of vocabulary retention. Cognitive learning strategies, such as rehearsal, elaboration, organization, imagery, and mnemonic techniques, were integrated into vocabulary instruction during the intervention period. At the end of the implementation, the same vocabulary test was administered as a posttest. The collected data were organized, encoded, and prepared for statistical analysis.

Statistical Treatment of Data

Data were analyzed using appropriate descriptive and inferential statistical tools. Frequencies and percentages were used to describe the respondents' demographic profiles. The mean and standard deviation were used to summarize the pre- and post-test scores. A paired-samples t-test was employed to determine whether a significant difference existed between the pre-test and post-test scores of the learners at the 0.05 level of significance.

RESULT AND DISCUSSION

Table 1. Demographic Profile of the Respondents

Variable	Category	Frequency (f)	Percentage (%)
Gender	Male	24	53.33
	Female	21	46.67
	Total	45	100.00
Age	12 years old and under	29	64.44
	13 years old	12	26.67
	14 years old and above	4	8.89
	Total	45	100.00

Table 1 presents the demographic profiles of the 45 Grade 6 learners who participated in this study. More than half of the respondents were male (53.33%), while 46.67% were female, indicating nearly

balanced sex distribution. In terms of age, the majority (64.44%) were 12 years old and below, followed by 13-year-old learners (26.67%), with only 8.89% aged 14 years and above. These findings indicate that most participants belonged to the expected age range for Grade 6 learners, making them representative of the target population of the study. A balanced demographic profile enhances the credibility of the findings by reducing the likelihood of bias due to age or sex differences. Similar studies have noted that learner characteristics, such as age and gender, provide important context when interpreting vocabulary learning outcomes, although cognitive instructional strategies can be effective across different learner groups (Ariffin et al., 2023; Ng Li Wen & Muhammad Naim, 2023).

Table 2 Frequency and Percentage of the Vocabulary Pretest Results

Question Number	Frequency Distribution of Respondents that answered correctly	Percentage
1	38	84.44
2	40	88.89
3	42	93.33
4	40	88.89
5	38	84.44
6	43	95.56
7	38	84.44
8	40	88.89
9	39	86.67
10	41	91.11
11	39	86.67
12	41	91.11
13	40	88.89
14	41	91.11
15	41	91.11
16	39	86.67
17	42	93.33
18	39	86.67
19	41	91.11
20	39	86.67
Average		89.00

Table 2 shows the learners' performance in the vocabulary pretest before the implementation of cognitive learning strategies. Most items obtained high percentages of correct responses, ranging from 84.44% to 95.56%, with Question 6 recording the highest percentage of correct responses (95.56%). Questions 1, 5, and 7 had the lowest percentage of correct answers (84.44%). The overall average of 89.00% suggests that the learners already possessed a satisfactory level of vocabulary knowledge prior to the intervention, although some vocabulary concepts remained difficult. These findings highlight the need for instructional strategies that reinforce vocabulary retention and deepen learners' understanding. Previous research has shown that cognitive learning strategies strengthen memory retention by encouraging learners to organize, rehearse, and meaningfully process new vocabulary, leading to improved long-term learning outcomes (Rosyada-As & Apoko, 2023; Sahin & Yavuz, 2025).

Table 3 Frequency and Percentage of the Vocabulary Posttest Results

Question Number	Frequency Distribution of Respondents that answered correctly	Percentage
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1	45	100.00
2	41	91.11
3	45	100.00
4	42	93.33
5	42	93.33
6	44	97.78
7	41	91.11
8	42	93.33
9	41	91.11
10	45	100.00
11	44	97.78
12	43	95.56
13	45	100.00
14	43	95.56
15	43	95.56
16	40	88.89
17	44	97.78
18	41	91.11
19	42	93.33
20	42	93.33
Average		95.00

Table 3 presents the learners' vocabulary performance after the implementation of cognitive learning strategies. The results reveal an improvement in performance, with four items (Questions 1, 3, 10, and 13) achieving a perfect score of 100% correct responses. Although Question 16 obtained the lowest percentage (88.89%), it remained higher than several pretest results. The overall average increased from 89.00% in the pretest to 95.00% in the posttest, indicating that the learners retained more vocabulary after the intervention. This improvement suggests that cognitive learning strategies effectively enhanced vocabulary retention by promoting active engagement and meaningful processing of new words. These findings are consistent with previous studies reporting that cognitive and interactive instructional strategies significantly improve vocabulary acquisition and long-term retention among elementary learners (Maspul, 2024; Wu et al., 2025; Sakkir et al., 2023).

Table 4 Standard Deviation of Pretest and Posttest Results on the Vocabulary Test

Particulars	Average Frequency	Percentage
Pretest	40.60	89.00
Posttest	42.30	95.00
Standard Deviation		2.02

Table 4 shows the challenges in Mathematics 6, with deterrents rated as "Least Serious," with mean scores of 1.75 to 2.21. Deterrents involving instructional materials, methods, approaches, and administrative and supervisory support fall in this category, indicating minimal obstacles. Exception is evaluative tools, with a mean of 2.53, interpreted as "Moderately Serious," suggesting challenges.

Findings align with the literature showing that instructional material development challenges stem from limited time, skills, and administrative assistance in education settings (Cayabas Jr & Sumeg-Ang, 2023). Challenges in evaluative tools may reflect difficulties developing or applying effective assessments, which directly influence learning outcomes (Okoye et al., 2023). Low ratings for administrative and supervisory support deterrents contrast with studies emphasizing support in enhancing teaching effectiveness and competency acquisition (Aheisibwe & Barigye, 2025). Thus, while support structures function in Mathematics 6, evaluative tools should be refined to improve outcomes.

Table 5 The T-test Analysis on the Vocabulary Retention of Selected Respondents Kasibu Central School

Particulars	Pretest		Posttest		T Values		Decision
	Mean	S.D.	Mean	S.D.	Computed	Tabular	
Vocabulary Test	40.05	1.40	42.75	1.55	5.80	1.653	Reject

T-test analysis on the vocabulary retention of selected respondents from Kasibu Central School shows significantly improved scores from the pretest to the posttest. The pretest mean score was 40.05 with a standard deviation (S.D.) of 1.40, whereas the posttest mean increased to 42.75 with an S.D. of 1.55. The computed t-value of 5.80 exceeds the tabular t-value of 1.653, leading to the rejection of the null hypothesis and indicating a significant difference between the pretest and posttest vocabulary scores. This significant outcome demonstrates that respondents retained vocabulary better after the intervention, consistent with findings in similar educational studies. For instance, other research employing pretest-posttest designs in vocabulary acquisition has revealed similarly significant improvements, such as the use of Webtoon media to enhance English past verbs ($t = 22.595 > t\text{-table} = 1.694$) (Amelia et al., 2024) and gesture-based teaching methods ($t = 16.28 > t\text{-table} = 2.045$) (Simpuruh, 2021). Likewise, digital games such as Wordwall have been reported to significantly increase vocabulary mastery ($p < 0.05$) (Sakkir et al., 2023). Collectively, these results support the effectiveness of instructional interventions in promoting vocabulary retention, as reflected by significant t-test values surpassing critical thresholds, paralleling the results observed in the Kasibu Central School Study.

CONCLUSION

The findings demonstrate that the use of cognitive learning strategies positively influenced the vocabulary retention of Grade 6 learners at Kasibu Central School. The posttest results showed higher scores than the pretest, indicating that the learners were able to retain more vocabulary after participating in the intervention. The significant difference between the pretest and posttest scores further confirms that cognitive learning strategies effectively enhanced learners' vocabulary retention. These findings suggest that integrating cognitive strategies into vocabulary instruction can improve learners' language development and support better academic performance in English.

RECOMMENDATIONS

Teachers are encouraged to integrate cognitive learning strategies, such as rehearsal, elaboration, organization, imagery, and mnemonic techniques into regular vocabulary instruction to strengthen learners' vocabulary retention. School administrators should provide training and instructional resources to support the effective implementation of these strategies in English classes. Curriculum planners should incorporate more learner-centered and cognitively engaging vocabulary activities into instructional materials. Parents are encouraged to reinforce vocabulary learning at home through

regular reading and language-rich activities. Finally, future researchers should conduct similar studies using larger samples, different grade levels, or experimental research designs with control groups to further validate the effectiveness of cognitive learning strategies in improving vocabulary retention.

LIMITATIONS OF THE STUDY

This study was limited to Grade 6 learners of Kasibu Central School, Kasibu, Nueva Vizcaya, with a total of 45 respondents. The study employed a one-group pretest-post test pre-experimental design without a control group, which limits the ability to attribute observed improvements solely to cognitive learning strategies. The intervention focused only on vocabulary retention using a researcher-made achievement test and was conducted over a limited period. Therefore, the findings may not be generalizable to learners in other grade levels, schools, or educational settings.

FUTURE RESEARCH DIRECTIONS

Future studies should employ true experimental or quasi-experimental research designs with control groups to provide stronger evidence of the effectiveness of cognitive learning strategies. Researchers should also include larger samples from different schools and regions to improve the generalizability of their findings. Further investigations should examine the long-term effects of cognitive learning strategies on vocabulary retention and other language skills, such as reading, writing, and speaking. Future research should explore the integration of digital learning tools and technology-assisted cognitive strategies to enhance vocabulary learning among elementary students.

ETHICS STATEMENT

Approval to conduct the study was obtained from the appropriate school authorities prior to data collection. Informed consent was obtained from the parents or guardians of the learners, and assent was obtained from the participating learners. Participation was voluntary, and the respondents were informed of the purpose and procedures of the study. The confidentiality and anonymity of all participants were strictly maintained, and all collected data were used solely for academic and research purposes. This study adhered to the ethical principles governing research involving human participants.

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AI DISCLOSURE STATEMENT

During the preparation of this manuscript, I used Paraphraser AI to generate and refine the text, improve the grammar, and enhance the clarity of the writing. I also used to assist with the literature search and identify relevant scholarly references. After using these AI tools, I carefully reviewed, revised, and edited all the generated content as needed. I take full responsibility for the accuracy, originality, integrity, and content of this published work.

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