

Effect of Visual Imaging Techniques on the Vocabulary Skills of Grade 11 Learners in Buenavista National High School

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Index Terms:

enhancement, grade 11 learners, intervention, visual imaging techniques, vocabulary skills, lesson exemplar

Abstract. This study explored how Visual Imaging Techniques impact the vocabulary growth of Grade 11 students at Buenavista National High School. Using a quasi-experimental design, two groups were compared: an experimental group that used visual imaging methods with context-rich passages and a control group taught with traditional techniques. Pre-tests and post-tests measured students' vocabulary understanding, retention, and application. The results showed that the experimental group consistently scored higher and improved more than the control group. Statistical analysis, especially independent samples t-tests, confirmed that the performance difference was statistically significant. These findings suggest that guided visualization strategies help learners better understand, remember, and use new vocabulary words. Based on these results, the study concludes that Visual Imaging Techniques are an effective and practical way to improve students' vocabulary skills. Since the results support this approach, the study provides a lesson example that incorporates Visual Imaging Techniques into vocabulary instruction. This lesson example aims to guide teachers in applying visualization strategies in the classroom. Additionally, the study recommends that teachers include Visual Imaging Techniques in their vocabulary lessons to enhance comprehension and long-term word retention. It also advocates for teacher training and parental involvement to improve the implementation of this strategy, ultimately promoting meaningful and sustained vocabulary development among high school students.

Introduction

In recent years, educators and language researchers worldwide have continued to raise concerns about students' limited vocabulary knowledge. Many learners struggle not only to understand new words but also to retain their meanings and use them correctly in context. These challenges undermine reading comprehension, writing skills, and overall language development (Nation & Webb, 2020; Schmitt, 2020; Laufer & Girsai, 2022). As a result, researchers have shifted their focus from traditional rote memorization to more effective, learner-centered strategies. One promising approach is the use of visual imagery or mental visualization in vocabulary instruction. Mental visualization involves forming clear mental pictures that represent words and their meanings, which can help learners build stronger memory connections and achieve deeper, more meaningful learning (Paivio, 2021; Pressley & Afflerbach, 2022).

Across diverse educational contexts from 2021 to 2025, mental imagery-based instructional approaches have consistently demonstrated significant effectiveness in enhancing vocabulary acquisition and retention. For instance, learners who received multimodal vocabulary instruction that integrated visual and verbal elements showed significantly higher retention and deeper word comprehension than those who received text-only instruction (Zhang & Zou, 2022). Similarly, research shows that multimodal annotation formats that combine imagery and text enhance lexical processing and improve both immediate and delayed vocabulary performance (Li & Hafner, 2021). Studies that apply multimedia learning principles to vocabulary instruction further indicate enhanced semantic encoding and long-term memory consolidation among secondary learners (Alharbi, 2023). Moreover, classroom-based research confirms that students taught with dual-coding-oriented strategies outperform peers who rely on rote memorization (Pratama & Fitriani, 2024). These modern findings support cognitive-linguistic views that combining visual and verbal encoding creates a more integrated and

accessible mental lexicon. This approach makes vocabulary learning more meaningful, efficient, and long-lasting compared to traditional methods that rely only on verbal information.

In the Philippine context, despite structural reforms in basic education, inadequate vocabulary skills among students remain a persistent challenge. Under Republic Act 10533 — the “Enhanced Basic Education Act of 2013” — the curriculum was restructured to include senior high school and to adopt a learner-centered, research-based, and globally competitive approach. However, empirical studies indicate that many senior high school students still face challenges in acquiring English vocabulary, which can hinder their understanding, academic success, and confidence (De Guzman, 2016; Santos & Ruiz, 2019). Additionally, some English teachers in Philippine schools observe that traditional vocabulary-teaching methods—centered on repetition, translation, and memorization—may not effectively help learners internalize and retain word meanings (Reyes & Mariano, 2018). This implies that, despite the extended curriculum and policy backing, standard teaching approaches may still fall short. may not adequately address students’ vocabulary learning needs — especially when instruction relies heavily on repetition or decontextualized drills rather than on meaningful, cognitively engaging strategies.

At the local community level — such as at Buenavista National High School in the Division of Quezon — these national-level challenges may be further intensified. Schools in such areas may face constraints, including limited resources, less exposure to English outside the classroom, and fewer opportunities for enriched language experiences (Dela Cruz, 2017; Mendoza, 2020). Consequently, Grade 11 learners in these contexts may struggle disproportionately with vocabulary skills, which can impair their reading comprehension, writing, and readiness for tertiary education or global communication demands. Given that vocabulary knowledge is foundational for all language skills, these deficits could hinder educational equity and learner success.

Considering these challenges and building on the intent of RA 10533 to provide a globally competitive, learner-centered curriculum, the present study aims to investigate the relationship between visual-imaging techniques and the vocabulary skills of Grade 11 learners in Buenavista National High School, Division of Quezon. Specifically, it will compare the level of vocabulary skills among learners who are exposed to mental visualization strategies with those who are not. Furthermore, the study aims to develop an intervention plan — grounded in the findings — to help teachers integrate visualization-based strategies in a structured, sustainable way. By addressing both international challenges and the local need for evidence-based instructional practices, this study hopes to provide practical recommendations for educators and curriculum developers under DepEd to enhance vocabulary learning through effective and inclusive visualization strategies.

Research Questions

The general purpose of this study is to examine the use of visual imaging techniques in enhancing the vocabulary skills of Grade 11 learners in Buenavista National High School.

This study seeks to address the following problem;

1. What is the level of the vocabulary skills of Grade 11 learners who are exposed to Visual Imaging Techniques?
2. What is the level of the vocabulary skills of Grade 11 learners who are not exposed to Visual Imaging Techniques?
3. Is there a significant difference in the vocabulary skills between learners who are exposed and not exposed in Visual Imaging Techniques?
4. What intervention can be developed by the researcher based on the findings of the study?

Methodology

Research Design

This study employed a quasi-experimental research design to evaluate the effectiveness of Visual Imaging Techniques in improving the vocabulary skills of Grade 11 students. It involved two groups: an experimental group that received instruction through visual imaging techniques and a control group that was taught using traditional methods. Both groups were given pre-tests and post-tests to determine any significant changes in their vocabulary performance as a result of the intervention. The quasi-experimental design was chosen because it allows for the comparison of learning outcomes in a real classroom setting without requiring random assignment, making it suitable for educational contexts where intact classes must be maintained. This approach enabled the researcher to assess the impact of visual imaging techniques on students’ vocabulary development while minimizing the influence of other instructional variables, and by analyzing the pre-test and post-test results, the study aimed to provide empirical evidence on whether visual imaging enhances vocabulary retention, comprehension, and application compared to conventional teaching methods.

Research Locale

The research took place at Buenavista National High School's Senior High School Department in Barangay Cadlit, Buenavista, Quezon. The school caters to a diverse group of Grade 11 and 12 students from nearby barangays, offering various academic and technical-vocational tracks under the K-12 curriculum. Its Senior High School unit provides a structured environment with classrooms, instructional materials, and teachers skilled in both traditional and innovative teaching methods. Located within the municipality of Buenavista, the school is accessible to students from rural and coastal areas, making it an ideal setting to assess the effectiveness of visual imaging techniques in vocabulary teaching. This environment mirrors typical conditions in public senior high schools in Quezon Division, ensuring that the study's results are relevant and applicable to similar educational settings.

Research Participants

The study's target population includes Grade 11 students from the Academic track, ASSH (Arts, Social Sciences, and Humanities) strand, enrolled in the Senior High School Department of Buenavista National High School, located in Barangay Cadlit, Buenavista, Quezon. From this group, respondents were randomly assigned to two groups: one was the experimental group, which received instruction through visual imaging techniques, and the other was the control group, taught via traditional methods. Each group was expected to have around 20 students, for a total of 40 participants. Only students whose parents gave consent and who regularly attend classes were included in the final sample for data collection and analysis.

Research Instrument

The primary data collection tool for this study was a Vocabulary Skills Test (VST) developed by the researcher, which served as both the pretest and posttest. It consists of 10 questions addressing word meaning, sentence usage, word formation, and common pairings. The test includes multiple-choice and short-answer questions to assess students' understanding and application of new vocabulary. Before the main study, experts reviewed the test, and it was piloted with another Grade 11 class to ensure clarity and reliability.

To support the findings, the study incorporated a straightforward engagement checklist during classes to monitor student participation and behavior. Following the intervention, selected students and the teacher were interviewed or included in a focus group to discuss their experiences with visual imaging techniques. Their feedback helped clarify how and why the strategies succeeded or failed. All tools were used with appropriate permissions and in a manner that respects students' privacy.

Data Gathering Procedure

The data collection process began with an introduction to visual imaging techniques, where learners were encouraged to form mental images of word meanings using descriptive cues from context-rich reading passages. The experimental group applied these techniques while reading, whereas the control group followed traditional vocabulary instruction. A standardized pre-test was administered to both Grade 11 groups at Buenavista National High School to establish baseline vocabulary skills and ensure comparability. The intervention was conducted over four weeks before regular Effective Communication classes, with the researcher guiding the experimental group and monitoring participation. After the intervention, both groups took a post-test similar to the pre-test to measure changes in vocabulary performance. The results were compiled and statistically analyzed, and additional insights were gathered through interviews or focus group discussions with selected students and the subject teacher, with all data kept confidential for analysis.

Statistical Treatment of Data

The data were processed through encoding, tallying, and interpretation using both descriptive and inferential statistics. Descriptive measures, including frequency distributions, means, and standard deviations, were used to assess and compare the vocabulary skills of the experimental and control groups, with scores classified into proficiency levels such as Below Average, Average, Satisfactory, Above Average, and Outstanding for clearer interpretation. To determine significant differences between the groups after the intervention, Analysis of Covariance (ANCOVA) was employed, using pre-test scores as a covariate and post-test scores as the basis for comparison, allowing for a more accurate evaluation of the treatment effect while controlling for initial differences. Effect size was also calculated to measure the impact of the visual imaging techniques. In cases where ANCOVA assumptions were not met, an independent-samples t-test on gain scores was considered as an alternative. Additionally, qualitative data were analyzed by grouping responses into themes to support and explain the quantitative findings.

Results and Discussion

The findings are organized according to the study's specific research questions and supported by appropriate statistical analyses, tables, and explanations. Through careful discussion of the results, this chapter aims to show how visual imaging techniques influence learners' vocabulary development and to provide a clear basis for the conclusions and recommendations presented in the succeeding chapter.

Pre-Test				Post-Test			
Description	Scores Range	Frequency	Percentage (%)	Description	Scores Range	Frequency	Percentage (%)
Outstanding	9-10	0	0.00	Outstanding	9-10	7	35.00
Above Average	7-8	5	25.00	Above Average	7-8	10	50.00
Satisfactory	5-6	13	65.00	Satisfactory	5-6	3	15.00
Average	3-4	2	10.00	Average	3-4	0	0.00
Below Average	1-2	0	0.00	Below Average	1-2	0	0.00
Total		20	100.00	Total		20	100.00
Mean		5.70		Mean		7.95	
Standard Deviation		2.47		Standard Deviation		1.23	

Table 1: Summary of Test Scores on the Level of Vocabulary Skills of Grade 11 Learners who are Exposed to Visual Imaging Techniques

Table 4 shows that before the intervention, Grade 11 learners at Buenavista National High School had moderate vocabulary proficiency, with most classified as Satisfactory (65%), followed by Above Average (25%) and Average (10%), and a mean score of 5.70 indicating varied performance. After the implementation of the Visual Imaging Technique, there was a notable improvement, as the majority of students moved to higher levels, with 50% in Above Average and 35% in Outstanding, and the mean score increasing to 7.95 alongside a reduced standard deviation, reflecting more consistent performance. These results suggest that visual imaging effectively enhanced learners' understanding and retention of vocabulary by linking words to mental images. Overall, the shift to higher performance categories, increased mean scores, and decreased variability confirm that the technique significantly improved vocabulary development, supporting claims that imagery-based and visualization strategies promote better comprehension, engagement, and long-term retention among learners.

Pre-Test				Post-Test			
Description	Scores Range	Frequency	Percentage (%)	Description	Scores Range	Frequency	Percentage (%)
Outstanding	9-10	0	0.00	Outstanding	9-10	4	20.00
Above Average	7-8	0	0.00	Above Average	7-8	3	15.00
Satisfactory	5-6	2	10.00	Satisfactory	5-6	2	10.00
Average	3-4	13	65.00	Average	3-4	9	45.00
Below Average	1-2	5	25.00	Below Average	1-2	2	10.00
Total		20	100.00	Total		20	100.00
Mean		3.20		Mean		5.30	
Standard Deviation		1.15		Standard Deviation		2.47	

Table 2: Summary of Test Scores on the Level of Vocabulary Skills of Grade 11 Learners who are NOT Exposed to Visual Imaging Techniques

Table 2 indicates that Grade 11 students who were not exposed to Visual Imaging Techniques demonstrated low initial vocabulary proficiency, with most classified as Average (65%), followed by Below Average (25%) and only a few as Satisfactory (10%), reflected in a low mean score of 3.20. After the post-test, some improvement was observed, with 20% reaching Outstanding and 15% achieving Above Average; however, a large proportion remained in the Average (45%) and Below Average (10%) categories, and the mean score increased only to 5.30 with greater variability. These findings suggest that while traditional instruction can lead to slight improvements through repeated exposure, its impact is inconsistent and limited, as many learners still struggle with vocabulary retention and understanding. Overall, the results highlight that conventional teaching methods produce only moderate gains and reinforce the need for more effective, student-centered strategies to significantly enhance vocabulary development among learners.

Indicators	Group	Mean	t value	p-value	Decision	Interpretation
Vocabulary Skills of Grade 11 Learners to Visual Imaging Techniques	NOT Exposed (Control)	3.20	-7.40	<0.001	Reject Ho	Significant
	Exposed (Experimental)	5.30				

Table 3: T-Test for Independent Samples: Comparison in the Vocabulary Skills between Learners who are Exposed and NOT Exposed in Visual Imaging Techniques in terms of Pre-Test Scores

Table 3 shows that there is a statistically significant difference in the pre-test vocabulary skills of Grade 11 learners exposed and not exposed to Visual Imaging Techniques, as indicated by a computed t-value of -7.40 and a p-value of < 0.001, leading to the rejection of the null hypothesis. The experimental group obtained a higher mean score (M = 5.30) than the control group (M = 3.20), suggesting that learners in the experimental group already had better initial vocabulary proficiency. This implies that students with stronger baseline knowledge may more effectively benefit from visualization strategies, as they can more easily connect words with mental images, while those in the control group may struggle due to reliance on traditional, text-based instruction. Overall, the findings highlight the importance of considering initial differences in vocabulary skills when evaluating the effectiveness of instructional interventions, as these can influence learners' capacity to improve and respond to specific teaching strategies.

Indicators	Group	Mean	t value	p-value	Decision	Interpretation
Vocabulary Skills of Grade 11 Learners to Visual Imaging Techniques	NOT Exposed (Control)	5.30	-4.29	<0.001	Reject Ho	Significant
	Exposed (Experimental)	7.95				

Table 4: T-Test for Independent Samples: Comparison in the Vocabulary Skills between Learners who are Exposed and NOT Exposed in Visual Imaging Techniques in terms of Post-Test Scores

Table 4 reveals a statistically significant difference in the post-test vocabulary scores of Grade 11 learners exposed and not exposed to visual imaging techniques, with the experimental group achieving a higher mean score (M = 7.95) than the control group (M = 5.30). The computed t-value of -4.29 and p-value of < 0.001 indicate that the difference is highly significant, leading to the rejection of the null hypothesis and confirming that the improvement is due to the use of visual imaging techniques rather than chance. This suggests that learners who used visualization strategies developed better vocabulary skills by forming strong mental associations between words and meanings. The findings support theories of dual coding and multimedia learning, which emphasize that combining verbal and visual inputs enhances comprehension and retention. Overall, the results confirm that visual imaging techniques significantly improve vocabulary development, making them an effective strategy for enhancing learners' performance, engagement, and long-term retention in senior high school contexts.

Intervention Developed Based on the Findings of the Study

Based on the study's findings, a targeted intervention developed to address the notable vocabulary performance gap between Grade 11 learners exposed to Visual Imaging Techniques and those not exposed. Results showed that students using visual imaging achieved greater vocabulary improvements, highlighting this method's effectiveness in boosting vocabulary learning. Consequently, the intervention was designed to offer structured, guided vocabulary instruction through visualization. It involves exposing students to context-rich reading passages in which target words are integrated into literal and descriptive contexts, helping learners mentally picture their meanings as they read. This teaching approach fosters deeper understanding, better retention, and more meaningful application of vocabulary.

Conclusion and Recommendations

The findings of the study indicate that visual imaging techniques are effective in improving the vocabulary skills of Grade 11 learners, as the experimental group demonstrated consistently higher performance before and after the intervention, showing both retention and improvement in vocabulary mastery. In contrast, although the control group exhibited some progress, most learners remained at lower performance levels, suggesting that traditional instruction had a limited impact. The comparison between groups highlights a clear advantage for those exposed to visual imaging, confirming that these learners were better at understanding and recalling vocabulary. Consequently, the null hypothesis was rejected, and the effectiveness of the strategy can be attributed to guided visualization and context-rich learning, which help students form

meaningful mental images, making vocabulary acquisition more engaging, memorable, and applicable. Overall, the results affirm that visual imaging techniques significantly enhance comprehension, retention, and the meaningful use of vocabulary among Grade 11 students.

Based on the findings and conclusions of the study, several recommendations are proposed to enhance vocabulary instruction through Visual Imaging Techniques among Grade 11 learners at Buenavista National High School and similar contexts. Teachers are encouraged to consistently integrate visualization strategies into their lessons by using context-rich passages and guiding students to form mental images of word meanings, along with participating in professional development to strengthen instructional practices. School administrators and curriculum planners should support the adoption of these techniques by providing appropriate instructional materials and organizing training programs to ensure their consistent implementation across grade levels. Parents and guardians are also encouraged to reinforce vocabulary learning at home by promoting reading activities, discussing unfamiliar words, and encouraging learners to visualize meanings to improve retention. Lastly, future researchers are recommended to explore the application of visual imaging techniques in other subject areas, across different grade levels, and over longer periods to further examine their impact on vocabulary development, language proficiency, and overall literacy skills.

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Competing Interests Statement

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this article.

Data Availability Statement

Data sharing is not applicable to this article as no new data were created or analyzed in this study; all data used were obtained from previously published sources as cited in the reference list.

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Appendices

No appendices are attached to this study.