PANTAO
The International Journal of the Humanities and Social Sciences
Volume 5, Issue 1
ISSN 3028-0877 | DOI 10.69651/2022PIJHSS

Impact of digital visual aids on vocabulary retention

Guilvy R. Saga*
Bonbonon High School
Bohol, Philippines

Jollian A. Quiño
Bonbonon High School
Bohol, Philippines

Cherelyn M. Rin
Bonbonon High School
Bohol, Philippines

Prince I. Segun
Bonbonon High School
Bohol, Philippines

Jimmy C. Quiño
Bonbonon High School
Bohol, Philippines

Rica Mae F. Lanaria
Bonbonon High School
Bohol, Philippines

Ailyn T. Delfino
Bonbonon High School
Bohol, Philippines

Jerald M. Mayo
Bonbonon High School
Bohol, Philippines

Mark James B. Manatad
Bonbonon High School
Bohol, Philippines

*Corresponding author
DOI: http://doi.org/10.69651/PIJHSS0501847

Recommended citation:
Saga, G. R., Lanaria, R. M. F., Quiño, J. A., Delfino, A. T., Rin, C. M., Mayo, J. M., Segun, P. I., Manatad, M. J. B., Quiño, J. C., Duran, J., Dumayongan, R. A., & Perez, A. A. (2026). Impact of digital visual aids on vocabulary retention. Pantao (The International Journal of the Humanities and Social Sciences) 5 (1), 9558-9565. http://doi.org/10.69651/PIJHSS0501847

Jonill Duran
Bonbonon High School
Bohol, Philippines

Raffy A. Dumayongan
Bonbonon High School
Bohol, Philippines

April A. Perez, MAELT
Secondary School Teacher III
Bonbonon High School
Bohol, Philippines

ABSTRACT

The main objective of the study was to examine the impact of digital visual aids on the vocabulary retention among the grade 7 students of Bonbonon High School for the school year 2025-2026. The study employed quantitative research method with a quasi-experimental design. It involved one group: experimental. It was composed of pre-test, experimentation and post - test. The subject of this study was twenty (20). The data gathered were treated using t-test and z-test. The result of the study revealed that there was a significant difference between the level of vocabulary retention before and after exposure to digital visual aids. The researchers found out that digital visual aids are effective as medium of learning. In connection, the researchers recommend the following: the school administration can integrate digital visual aids as a medium of teaching; the English teacher may use digital visual aids to make interactive presentation that can help students to increase their vocabulary retention; and the students can engage actively with digital visual aids it can help their participation to become more active.

Keywords: Digital visual aids, quasi-experimental, vocabulary retention

Date Submitted: January 27, 2026
Date Accepted: February 5, 2026
Date Published: February 25, 2026

INTRODUCTION

Nowadays, digital visual aids have existed to enhance the learning of students all over the world. Digital visual aids include images, videos, animations and text. These boost vocabulary retention among students. Because of the high-tech technology, it opened to new way to enhance students learning through visual aids. These aids or digital visual aids can be presented in different digital platforms, such as smartphones, laptop, computers and tablets. Digital visual aids promote better understanding.

The use of digital visual aids offers several benefits, such as enhancing students' learnings, improved comprehension and retaining words or vocabulary retention. Digital visual aids help students in identifying the meaning behind those words making vocabulary learning effective. Thus, the impact of digital visual aids in vocabulary retention is not yet fully understood and worthy of a further study.

As cited by (Kusuma 2021), using of visual aids in the classroom is considered as form of multimodal teaching because it includes different modes of learnings and communication such as Text, Symbols, colors, and images. In their study, Kusuma and colleagues showed that

when teachers use visual aids, the students can understand better. Through the use of visual aids, it helps the learners to connect what they see with that they hear and write.

During the classroom teaching in Bonbonon High School, teachers observed that when they are using digital visual aids such as power point slides, videos and animations, it showed noticeable improvements as they were more confident in presenting lessons. Also, the school allows using of digital visual aids nowadays and the teachers observed that most students showed greater interest and focus. It means the students were able to understand and remember lessons more easily.

Based on the scenario above, the researchers are encouraged to conduct this study to examine the impact of digital visual aids on the vocabulary retention among the Grade 7 students of Bonbonon High School during the School Year 2025-2026.The outcome of this research can inform educators and policy makers about the feasible benefits and limitations of using digital visual aids and its influence to the vocabulary retention skills of the learners.

Statement of the problem

This study aims to examine and compare the impact of digital visual aids on the vocabulary retention of Grade 7 students of Bonbonon High School during the school year 2025 to 2026. Specifically, it seeks to determine the differences in vocabulary retention before and after exposure to digital visual aids and to provide recommendations based on the findings of the study.

1. What is the demographic profile of the participants in terms of age, section, and sex?
2. What is the level of vocabulary retention of the respondents before exposure to digital visual aids?
3. What is the level of vocabulary retention of the respondents after exposure to digital visual aids?
4. What is the level of vocabulary retention of the respondents before and after exposure to digital visual aids?
5. Is there a significant difference in the level of vocabulary retention of the respondents before and after exposure to digital visual aids?
6. Based on the findings of the study, what recommendations can be made?

METHODOLOGY

The study employed a quantitative research method utilizing a true experimental design involving one group experimental setup. The design consisted of a pretest, experimentation, and posttest. This design was considered appropriate for the study because it enabled the researchers to determine the differences in students' vocabulary retention when exposed to the conventional method and digital visual aids. Through this experimental approach, the researchers were able to measure changes in vocabulary retention levels before and after the intervention.

The study was conducted at Bonbonon High School located in Bonbonon, Pres. Carlos P. Garcia, Bohol. The school is a public secondary institution that caters to students from diverse social and cultural backgrounds. It has twenty two (22) teachers, one (1) school head, one (1) administrative assistant II, one (1) administrative officer II, and one (1) watchman. The school provides educational opportunities to learners who are still developing their communication and language skills, particularly in English, which is not their first language. This setting provided an appropriate environment to examine how digital visual aids can support Grade 7 students in improving vocabulary retention and overall comprehension.

The participants of the study were Grade 7 students of Bonbonon High School, from which twenty (20) students were selected to participate. The researchers identified the participants through a standardized pre survey test. After administering the pre survey, the students' answers were checked and ranked according to their scores. From this ranking, the researchers selected the top five (5) and bottom five (5) male students, as well as the top five (5) and bottom five (5) female students. As first year junior high school learners, these students are at a critical stage of adjusting to new subjects, lessons, and teaching methods. At this level, vocabulary retention is essential not only in English but also in other subjects where understanding terms and concepts is necessary. Many students encounter difficulties in remembering new words, which can influence their academic performance. The participants were chosen because the use of digital visual aids such as pictures, slideshows, and multimedia tools may enhance their ability to learn and retain vocabulary in a more engaging and understandable manner. By focusing on Grade 7 students, the study aimed to demonstrate how technology based visual tools can improve learning across subjects by making instruction more interactive, effective, and enjoyable.

The instrument used to collect data in this study consisted of standardized test items obtained from Google Scholar, administered in the form of pretest and posttest. The questionnaire was composed of two parts. The first part was a researcher made questionnaire that gathered the demographic profile of the respondents, including age, sex, and section. The second part consisted of 15 standardized multiple choice items, each with four choices. Both the pretest and posttest contained the same content. The pretest served as a baseline measure to assess the participants' vocabulary retention prior to the intervention and was conducted during the first meeting of the experiment. The post test, which was administered after the intervention, aimed to determine the effectiveness of digital visual aids as a medium of teaching vocabulary in enhancing students' retention. The results of these tests were used to evaluate the level of vocabulary retention among the respondents.

The data gathering process followed a systematic procedure. Initially, the researchers sought permission from the school head and the Grade 7 student advisers of Bonbonon High School by sending a formal letter indicating the purpose of the study and requesting approval to conduct the research. Upon approval, the researchers proceeded to identify the respondents through the administration of a standardized pre survey test, which served as the basis for selecting the twenty (20) participants. During the experimentation phase, the researchers conducted one experimental session that included the administration of the pretest, followed by instruction using both the conventional method of discussion and digital tool assisted learning discussion, and concluded with the post test. The respondents answered a 15 item multiple choice questionnaire, and the post test, which was similar to the pretest, was completed within one hour. After the post test, the researchers conducted a meeting to evaluate the individual performance of the respondents. In the final phase, the researchers collected and analyzed the data obtained from the pretest and posttest to compare the vocabulary retention levels of the students. The differences in scores between the two tests were examined to determine the impact of digital visual aids on vocabulary retention.

In terms of ethical considerations, the researchers expressed their appreciation to the student respondents who actively participated in the study, as well as to Teofilo S. Cutor, School Head of Bonbonon High School, whose support and involvement made the research possible. The researchers also declared that the study was conducted without any conflict of interest. They certified that the research was carried out objectively and without any financial or personal relationships that could have influenced the presentation or interpretation of the findings. Furthermore, they committed to disclosing any potential conflicts of interest that may arise in the future.

PANTAO
The International Journal of the Humanities and Social Sciences
Volume 5, Issue 1
ISSN 3028-0877 | DOI 10.69651/2022PIJHSS

RESULTS AND DISCUSSION

This chapter presents the results and discussion of the study based on data gathered from twenty (20) Grade 7 students of Bonbonon High School during the academic year 2025 to 2026. The study employed a quantitative approach using a one group experimental design consisting of pretest, experimentation, and posttest. The participants were selected through a pre survey using standardized test items, and the primary instrument used was a 15 item standardized multiple choice test administered as both pretest and posttest. The collected data were analyzed using descriptive statistics such as frequency, percentage, and mean, as well as inferential statistics through the t test to determine significant differences in vocabulary retention before and after exposure to digital visual aids. The discussion that follows is grounded in the data gathered and interpreted in direct relation to the objectives of the study, particularly in examining the impact of digital visual aids on vocabulary retention.

The demographic profile of the respondents revealed that in terms of age, 12 students or 50% were aged 12, 9 students or 45% were aged 13, and 1 student or 5% was aged 14 and above, indicating that the respondents were generally within the typical age range for Grade 7 students. In terms of section, 10 students or 50% belonged to Section Dates, 4 students or 20% belonged to Section Blueberry, while Sections Apple and Cherry each had 3 students or 15%, showing a fairly distributed representation across sections with Dates having the highest participation. In terms of sex, 13 students or 65% were male and 7 students or 35% were female, indicating a slightly higher number of male respondents while still maintaining a relatively balanced distribution. These demographic characteristics suggest that the participants represent early adolescent learners in a typical secondary school setting, providing a relevant context for examining vocabulary retention.

The level of vocabulary retention before exposure to digital visual aids was determined through the pretest results. The data showed that 8 students or 40% were classified under the "Fair" range of 4 to 7, 11 students or 35% were under the "Good" range of 8 to 11, 5 students or 25% were under the "Excellent" range of 12 to 15, and 0 students or 0 were under the "Poor" range of 0 to 3. The overall mean score was 8.2, interpreted as "Good." These results indicate that although students possessed foundational knowledge, many remained within the Fair to Good levels, suggesting room for improvement in achieving mastery. This pattern reflects the limitations of traditional instruction, which often relies on text based approaches. Consistent with the Cognitive Theory of Multimedia Learning proposed by Mayer (2001), the absence of integrated visual and verbal elements may limit students' ability to form strong mental connections, thereby affecting retention. Similarly, Teng (2023) emphasized that text only instruction may not sufficiently support deep vocabulary learning, reinforcing the need for more engaging instructional strategies.

After exposure to digital visual aids, the post test results revealed a substantial improvement in vocabulary retention. The data showed that 14 students or 70% were classified under the "Excellent" range of 12 to 15, 4 students or 20% were under the "Fair" range of 4 to 7, 2 students or 10% were under the "Good" range of 8 to 11, and 0 students or 0 were under the "Poor" range of 0 to 3. The overall mean score increased to 12.3, interpreted as "Excellent." This marked improvement demonstrates a clear upward trend in performance, with the Excellent category increasing from 25% in the pretest to 70% in the post test. The findings support Paivio's Dual Coding Theory (1971), which posits that learning is enhanced when information is presented through both visual and verbal channels. The integration of digital visual aids likely enabled students to encode and retrieve vocabulary more effectively through multiple cognitive pathways. These results are consistent with Karimi (2025), who found that

digital tools improve engagement and long term memory retention, and with Haq and Madany (2025), who reported a 33% increase in information retention when structured visual media are used.

The difference in vocabulary retention before and after exposure to digital visual aids was further examined using a t test. The analysis yielded a computed t value of -7.921 with 19 degrees of freedom, which exceeds the critical value of ±2.093 at $\alpha = 0.05$. This result indicates a statistically significant difference in vocabulary retention, leading to the rejection of the null hypothesis. The negative t value reflects the upward shift in post test scores compared to pre test scores, confirming that the intervention significantly improved students' vocabulary retention. This finding aligns with Mayer's Cognitive Theory of Multimedia Learning, which explains that combining words and images reduces cognitive load and enhances understanding. It also supports Teng (2023), who highlighted the effectiveness of multimodal instruction in strengthening memory, and Younes (2024), who demonstrated that audiovisual materials significantly improve student performance. From a constructivist perspective, as emphasized by Vygotsky and Piaget, digital visual aids facilitate active learning by enabling students to connect new vocabulary with meaningful contexts, thereby promoting deeper understanding.

Overall, the findings of the study demonstrate that the use of digital visual aids significantly enhances vocabulary retention among Grade 7 students. The transition from a mean score of 8.2 described as Good to 12.3 described as Excellent, along with the statistically significant t value of -7.921 at $\alpha = 0.05$, provides strong empirical evidence of the effectiveness of the intervention. These results directly address the objectives of the study by confirming the improvement in vocabulary retention before and after exposure to digital visual aids and establishing the presence of a significant difference between the two conditions. The study contributes to the growing body of literature supporting the integration of multimedia tools in language instruction and highlights the importance of adopting innovative teaching strategies to improve learning outcomes. The findings provide a foundation for future research and offer practical implications for educators seeking to enhance vocabulary instruction through the use of digital visual aids.

CONCLUSION

The findings of this study lead to the conclusion that the integration of digital visual aids is a highly effective instructional intervention that significantly enhances the vocabulary retention of Grade 7 students. The results demonstrated that while students initially exhibited a foundational level of knowledge with a mean score of 8.2 described as "Good," there existed a clear retention gap that limited their ability to achieve higher levels of mastery under traditional instructional approaches. Following the implementation of digital visual aids, the students' performance improved markedly, with the mean score increasing to 12.3 described as "Excellent" and a substantial 70% of the respondents attaining the highest performance level. The computed t value of -7.921, which exceeded the critical value of ±2.093 at $\alpha = 0.05$, confirmed that the observed improvement was statistically significant and not due to chance. These findings establish that the use of multisensory instructional tools effectively bridges the gap between basic understanding and advanced mastery by engaging both visual and verbal cognitive processes.

The results further validate established theoretical frameworks such as Dual Coding Theory and the Cognitive Theory of Multimedia Learning, which emphasize the importance of integrating visual and verbal elements in facilitating deeper learning and stronger memory retention. Within the context of Bonbonon High School, the study demonstrates that early adolescent learners are highly responsive to technology-based instructional strategies, which

are aligned with the demands of a 21st century learning environment. The reliance on traditional text based instruction alone was shown to limit students' capacity to process, retain, and retrieve vocabulary effectively, whereas the introduction of digital visual aids provided meaningful and engaging learning experiences that promoted long term retention. Consequently, digital visual aids emerge not merely as supplementary tools but as essential components of effective modern pedagogy that support sustained academic achievement.

In light of these conclusions, several recommendations are drawn to ensure the continued improvement of vocabulary instruction and learning outcomes. It is recommended that school administrators prioritize the procurement of information and communication technology resources and allocate sufficient budget for digital subscriptions such as Canva, educational applications, and multimedia software to support instructional delivery. Teachers are encouraged to engage in continuous professional development focusing on digital pedagogy and multimedia design to ensure that instructional materials are effectively structured to reduce cognitive load and maximize student engagement. Students are advised to utilize digital learning tools not only during classroom instruction but also as part of their independent study practices to enhance their understanding and retention of vocabulary. Parents are likewise encouraged to provide a supportive and supervised digital learning environment at home where educational resources can reinforce classroom learning. Furthermore, future researchers are recommended to conduct extended investigations over longer periods or across different subject areas such as Science and Mathematics to determine whether the high level of retention observed in this study can be sustained and generalized across disciplines.

Overall, the study affirms that the integration of digital visual aids is both beneficial and necessary in modern educational practice. By significantly improving vocabulary retention and supporting higher levels of academic performance, this approach contributes to the advancement of teaching strategies that are responsive to contemporary educational demands. The findings provide a strong empirical basis for the adoption of digitally integrated instructional frameworks and offer valuable insights for educators, administrators, and researchers seeking to enhance learning outcomes in secondary education.

REFERENCES

Department of Education. (1990). Regulating the showing of motion pictures or films in school (DepEd Order No. 108, s. 1990).

Haq, N., & Madany, A. (2025). The impact of visual media and infographics on language comprehension and retention. Journal of Educational Multimedia and Hypermedia, 34(1), 45–62.

Karimi, S. (2025). Digital vs. traditional flashcards: A comparative study on long-term vocabulary retention and student engagement. Technology, Knowledge and Learning. Advance online publication.

Kusuma, I. P. I. (2021). Multimodal teaching in the 21st century: The use of visual aids in EFL classrooms. Journal of English Education and Linguistics Studies, 8(1), 115–138.

Mayer, R. E. (2001). Multimedia learning. Cambridge University Press.

Paivio, A. (1971). Imagery and verbal processes. Holt, Rinehart and Winston.

Republic of the Philippines. (1987). The 1987 Constitution of the Republic of the Philippines, Article XIV. Official Gazette of the Republic of the Philippines.

Republic of the Philippines. (2013). An act enhancing the Philippine basic education system by strengthening its curriculum and increasing the number of years for basic education, appropriating funds therefor and for other purposes (Republic Act No. 10533). Official Gazette of the Republic of the Philippines.

Teng, F. (2023). Designing multimedia instruction for vocabulary learning: The role of visual-textual and audio balance. Computer Assisted Language Learning, 36(4), 582–605.

Younes, M. B. (2024). The effect of audiovisual aids on vocabulary retention among undergraduate students in Jordan: A quasi-experimental study. International Journal of Applied Linguistics and English Literature, 13(2), 22–35.