

Utilization of Interactive Multimedia Tools in Enhancing Reading Skills of Primary and Intermediate Learners at Leonardo Barrun Elementary School

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Publication history: Received: April 2, 2026; Revised: May 4, 2026; Accepted: May 12, 2026

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Abstract

This study examined the utilization of interactive multimedia tools in enhancing the reading skills of primary and intermediate learners at Leonardo Barrun Elementary School in San Jacinto, Masbate. Anchored on Mayer's Cognitive Theory of Multimedia Learning, Constructivist Learning Theory, and Vygotsky's Sociocultural Theory of Learning, the study investigated the relationship between teachers' multimedia utilization and learners' reading skills. A quantitative descriptive–correlational research design was employed involving 32 elementary teachers handling Grades 1–6. Data were gathered through a validated researcher-made questionnaire that measured the utilization of videos, animations, e-books, and educational applications, as well as learners' reading skills in terms of vocabulary development, reading comprehension, reading fluency, and critical thinking skills. Frequency count, percentage, weighted mean, ranking, and Pearson Product-Moment Correlation Coefficient were used in analyzing the data. Findings revealed that teachers often utilized videos, animations, and educational applications in reading instruction, while e-books were only sometimes utilized. Learners demonstrated a high level of vocabulary development and moderate levels of reading comprehension, reading fluency, and critical thinking skills. The study further revealed a strong positive and statistically significant relationship between teachers' utilization of interactive multimedia tools and learners' reading skills ($r = 0.78$), indicating that increased multimedia integration contributes positively to learners' reading performance. The study concluded that multimedia-supported instruction enhances learner engagement and strengthens literacy development among elementary learners. It recommended continuous teacher training, improved technological resources, and the institutionalization of multimedia-enhanced reading programs to further improve reading instruction and learner outcomes. The study supports Sustainable Development Goal (SDG) 4 on Quality Education by promoting inclusive and effective literacy instruction through technology-enhanced learning. It also aligns with SDG 9 on Industry, Innovation and Infrastructure through the integration of digital tools in classroom instruction. The study contributes to educational and technological sustainability by encouraging innovative instructional practices that strengthen literacy development, learner participation, and digital competence in elementary education.

Keywords: Animations, Critical Thinking Skills, Educational Applications, E-books, Interactive Multimedia Tools, Reading Comprehension, Reading Fluency, Reading Instruction, Vocabulary Development, Videos

1. Introduction

Reading is a fundamental academic skill that shapes learners' academic achievement, critical thinking, and lifelong learning opportunities. The growing integration of digital technologies in education has encouraged teachers to utilize interactive multimedia tools such as videos, animations, e-books, and educational applications to improve reading instruction and learner engagement. These multimedia tools provide visual, auditory, and interactive learning experiences that extend beyond traditional print-based instruction and support diverse learner needs (Nurhasanah & Firdaus, 2025). Research consistently indicates that multimedia-supported instruction improves vocabulary development, comprehension, fluency, and learner motivation in elementary education settings. International and Philippine studies emphasize that multimedia integration enhances reading performance by promoting engagement, contextualized learning, and multisensory experiences (Pujiarini & Cathrin, 2025); (Azores & Velasco, 2025); (Mohd Darus & Abdul Aziz, 2025). Digital storytelling, interactive videos, e-books, and educational applications have been associated with improved comprehension, vocabulary acquisition, and learner participation (Curammeng & Adviento, 2025). However, the effectiveness of multimedia integration depends on teacher preparedness, access to resources, instructional practices, and learners' digital reading strategies (Carvalho et al., 2025); (Alegre, 2025). These conditions highlight the need for localized research examining how interactive multimedia tools influence learners' reading skills within specific elementary school contexts such as Leonardo Barrun Elementary School.

1.1 Interactive Multimedia Tools and Reading Skills of Primary and Intermediate Learners

Interactive multimedia tools have become increasingly important in literacy instruction because they support learner engagement and improve reading performance through multimodal learning experiences. Multimedia-assisted instruction provides learners with opportunities to interact with text using audiovisual and interactive features that support vocabulary development, comprehension, fluency, and critical thinking (Nurhasanah & Firdaus, 2025). Studies conducted in both foreign and Philippine educational settings revealed that multimedia-supported instruction improves foundational literacy skills, particularly among elementary learners (Pujiarini & Cathrin, 2025); (Azores & Velasco, 2025). In the Philippine educational context, teachers increasingly integrate videos, animations, e-books, and educational applications into reading instruction to enhance learners' participation and understanding. Research demonstrates that technology-assisted reading instruction improves learner motivation, decoding ability, vocabulary acquisition, and inferential comprehension (Planos, 2025). Digital storytelling and multimedia narratives also contribute to culturally relevant and engaging reading experiences that strengthen comprehension and learner participation (Curammeng & Adviento, 2025). Despite the growing recognition of multimedia tools in literacy instruction, challenges such as limited technological resources, insufficient teacher training, and varying levels of digital competence continue to affect effective classroom integration (Alegre, 2025). These realities underscore the need to examine the extent of multimedia utilization and its relationship to learners' reading skills in localized public elementary school settings.

1.2 Interactive Multimedia Utilization and Learners' Reading Skills in Related Literature

Related literature consistently highlights the positive effects of interactive multimedia tools on reading instruction. Multimedia learning theory explains that learners process information more effectively when verbal and visual information are combined meaningfully (Mayer, 2020). Interactive multimedia tools enhance learner engagement, motivation, and comprehension by providing multiple representations of information and contextualized reading experiences (Sung et al., 2016). Videos and animations improve learners' vocabulary development, comprehension, sequencing skills, and phonological awareness by synchronizing spoken language with visual cues (Bus et al., 2015); (Takacs et al., 2015). Teacher-guided video instruction also promotes active discussion and critical engagement with texts (Kervin et al., 2018). Similarly, animated stories and instructional materials sustain learner attention and support conceptual understanding among young readers (Moreno & Mayer, 2018). E-books provide interactive features such as audio narration, embedded dictionaries, clickable visuals, and word highlighting that strengthen comprehension and vocabulary acquisition (Reich et al., 2019). Studies indicate that digital texts can produce comprehension outcomes comparable to printed materials when learners receive adequate instructional guidance (Delgado et al., 2018). However, excessive interactivity may distract learners without appropriate teacher mediation (Schugar et al., 2017). Educational applications support reading fluency, vocabulary development, comprehension, and learner autonomy through repetitive practice, adaptive learning activities, and immediate feedback (Neumann, 2018); (Kim & Smith, 2017). These tools promote individualized and self-paced learning experiences that strengthen reading performance across grade levels. Literature also emphasizes the importance of teacher competence in effective multimedia integration. Teachers' age, experience, pedagogical beliefs, and digital self-efficacy influence their frequency and quality of multimedia utilization in reading instruction (Tondeur et al., 2017); (Scherer et al., 2019). Professional development and institutional support are therefore essential for effective technology integration in literacy instruction (UNESCO, 2023).

1.3 Local, National, and Global Context of Multimedia-Assisted Reading Instruction

Globally, multimedia-assisted instruction is recognized as an effective approach for improving literacy development and supporting diverse learners. International systematic reviews confirm that multimedia learning platforms, augmented reality tools, digital storytelling, and educational applications positively influence vocabulary acquisition and reading comprehension among elementary learners (Mohd Darus & Abdul Aziz, 2025). Nationally, the Philippine Department of Education promotes the integration of digital tools and multimedia resources to strengthen literacy development and learner engagement (DepEd, 2020). Philippine studies reveal that videos, animations, e-books, and literacy applications improve reading comprehension, fluency, vocabulary development, and learner participation (Dizon, 2019); (Cabansag, 2020); (Ramos & Mercado, 2017). Locally, Leonardo Barrun Elementary School in San Jacinto, Masbate serves as the setting of the study. The school caters to primary and intermediate learners from Grades 1 to 6 and integrates multimedia tools into classroom instruction. The school's teaching workforce, educational environment, and learner population provide an appropriate context for examining the relationship between multimedia utilization and reading skills. The localized nature of the study addresses the limited availability of empirical evidence regarding multimedia-supported reading instruction in public elementary schools within Masbate Province and similar educational settings.

1.4 Theoretical and Conceptual Basis of Interactive Multimedia Utilization and Reading Skills

The study is anchored on the Cognitive Theory of Multimedia Learning by Richard E. Mayer (2020), Constructivist Learning Theory by Jean Piaget (1952) and Jerome Bruner (1961), and Sociocultural Theory of Learning by Lev Vygotsky (1978). The Cognitive Theory of Multimedia Learning posits that learners understand information more effectively when instruction combines words, visuals, and audio elements rather than text alone. The theory emphasizes dual-channel processing, limited cognitive capacity, and active knowledge construction, explaining why multimedia-supported

instruction enhances reading comprehension, vocabulary development, fluency, and critical thinking. Constructivist Learning Theory asserts that learners actively construct knowledge through interaction, exploration, and reflection. Interactive multimedia tools encourage active learner participation through digital texts, educational applications, animated stories, and interactive reading activities that support meaningful learning experiences. The Sociocultural Theory of Learning emphasizes that learning occurs through social interaction and guided instruction within the learner's Zone of Proximal Development. Multimedia tools serve as mediating resources that support scaffolded learning experiences through teacher guidance, collaborative activities, and technology-assisted instruction. Conceptually, the study adopts the Input–Process–Output (IPO) framework. The inputs include teachers' demographic profiles, the utilization of multimedia tools, and learners' reading skills. The process involves data gathering, statistical analysis, and interpretation using descriptive and inferential statistics. The outputs include the identified levels of multimedia utilization, assessed reading skills, the significant relationship between variables, and proposed recommendations for improving reading instruction.

1.5 Research Gaps on Multimedia Utilization and Reading Skills Among Elementary Learners

Existing literature strongly supports the effectiveness of multimedia-assisted instruction in improving learners' reading skills. However, many studies focus only on specific multimedia tools, isolated reading competencies, or higher educational levels without comprehensively examining the relationship between teachers' multimedia utilization and multiple reading skills among elementary learners. Limited empirical studies in Philippine public elementary schools simultaneously examine teachers' demographic characteristics, extent of multimedia integration, and learners' reading skills in terms of vocabulary development, comprehension, fluency, and critical thinking. Furthermore, localized studies within Masbate Province and similar educational contexts remain scarce. This study addresses these gaps by examining the utilization of videos, animations, e-books, and educational applications in reading instruction and determining their relationship with learners' reading skills among Grades 1–6 pupils at Leonardo Barrun Elementary School. The study provides context-specific evidence that may guide instructional planning, teacher development, and multimedia integration in elementary reading instruction.

1.6 Alignment of Multimedia-Assisted Reading Instruction with Sustainable Development Goals (SDGs)

The study aligns with several Sustainable Development Goals (SDGs), particularly: SDG 4 – Quality Education, because the study promotes inclusive and effective literacy instruction through multimedia-supported learning experiences that improve reading skills and learner engagement. SDG 9 – Industry, Innovation and Infrastructure, because the integration of digital technologies and educational applications supports innovative teaching practices and technology-enhanced learning environments. SDG 8 – Decent Work and Economic Growth, because improved literacy skills contribute to learners' future employability, productivity, and lifelong learning opportunities. SDG 10 – Reduced Inequalities, because multimedia-supported instruction can provide accessible and differentiated learning opportunities for diverse learners, including struggling readers and learners with varied educational needs. The study also supports educational sustainability by promoting innovative instructional practices that improve foundational literacy and learner participation. The integration of interactive multimedia tools contributes to digital sustainability and technological sustainability by encouraging responsible and meaningful use of educational technologies in elementary education.

1.7 Importance of Interactive Multimedia-Assisted Reading Instruction to Multidisciplinary Sustainability

The study contributes to multidisciplinary sustainability by supporting educational, technological, socio-economic, and community sustainability. In terms of educational sustainability, the study promotes effective literacy instruction that strengthens learners' vocabulary development, comprehension, fluency, and critical thinking. Improved reading proficiency supports long-term academic success and lifelong learning. In relation to technological sustainability, the study encourages the meaningful integration of digital tools and multimedia resources in elementary classrooms. This supports the development of teachers' digital competence and strengthens technology-assisted instructional practices. From a socio-economic sustainability perspective, stronger literacy skills contribute to learners' future educational attainment, employability, and participation in economic development. Reading proficiency also enhances learners' capacity to access information and participate effectively in society. The study also contributes to community sustainability by encouraging collaboration among teachers, parents, school administrators, and community stakeholders in supporting literacy development and technology-enhanced education. Through localized evidence, the study may guide future educational programs, teacher training initiatives, and policy development related to multimedia-supported reading instruction.

2. Material and methods

2.1 Research Design

This study employed a quantitative descriptive–correlational research design to determine the utilization of interactive multimedia tools in enhancing the reading skills of primary and intermediate learners at Leonardo Barrun Elementary School. The descriptive component focused on presenting the demographic profile of the teacher-respondents in terms of age, sex, grade level handled, and years of teaching experience. It also examined the level of utilization of interactive multimedia tools in reading instruction through videos, animations, e-books, and educational applications, as well as the

level of learners' reading skills in terms of vocabulary development, reading comprehension, reading fluency, and critical thinking skills. The correlational component determined whether a significant relationship existed between teachers' utilization of interactive multimedia tools and learners' reading skills in Grades 1–6. The design enabled the researcher to examine naturally occurring relationships among variables without manipulating them. According to Creswell and Creswell (2018), quantitative descriptive and correlational designs are appropriate for describing existing conditions and examining relationships among variables. Ary et al. (2019) also emphasized that correlational studies are suitable in determining associations between instructional practices and learner outcomes. This design allowed an objective and systematic examination of multimedia utilization and reading skills among elementary learners.

2.2 Locale of the Study

The study was conducted at Leonardo Barrun Elementary School located in San Jacinto, Masbate. The school caters to learners from Grades 1 to 6 and serves both primary and intermediate levels. It is a public elementary school situated within the municipality and provides reading instruction supported by interactive multimedia tools such as videos, animations, e-books, and educational applications. Leonardo Barrun Elementary School was considered an appropriate setting for the study because it has an established teaching workforce directly engaged in reading instruction and multimedia integration. The school environment, learner population, and instructional practices provided relevant conditions for examining the utilization of multimedia tools and their relationship to learners' reading skills.

2.3 Respondents of the Study

The respondents of the study were 32 elementary teachers of Leonardo Barrun Elementary School during the conduct of the research. These teachers were officially assigned to handle Grades 1 to 6 and were directly involved in teaching reading and integrating interactive multimedia tools into classroom instruction. The respondents provided information regarding the utilization of videos, animations, e-books, and educational applications in reading instruction and assessed the reading skills of learners in terms of vocabulary development, reading comprehension, reading fluency, and critical thinking. Their participation was essential in generating relevant and reliable data concerning instructional practices and learners' reading performance.

2.4 Sample and Sampling Procedure

The study employed purposive sampling in selecting the respondents. Teachers were deliberately chosen based on criteria aligned with the objectives of the study. The selected respondents were those currently teaching Grades 1 to 6 at Leonardo Barrun Elementary School and those with actual experience in integrating interactive multimedia tools in reading instruction. Purposive sampling was deemed appropriate because it enabled the researcher to gather information from participants who possessed relevant instructional experience and classroom exposure. According to Creswell and Creswell (2018), purposive sampling allows researchers to intentionally select participants knowledgeable about the phenomenon being studied. Saunders, Lewis, and Thornhill (2019) also noted that purposive sampling is appropriate when obtaining relevant and reliable data from a specific subgroup. A total of 32 survey questionnaires were distributed and successfully retrieved, resulting in a 100% retrieval rate. The responses provided sufficient data for statistical analysis and interpretation.

2.5 Research Instrument

The primary data-gathering instrument used in the study was a researcher-made survey questionnaire developed based on the objectives of the study, related literature, and existing instruments related to multimedia utilization and reading instruction. The questionnaire was organized into three major parts. The first part focused on the demographic profile of the teacher-respondents, including age, sex, grade level handled, and years of teaching experience. The second part measured the level of utilization of interactive multimedia tools in reading instruction in terms of videos, animations, e-books, and educational applications. The third part assessed the reading skills of learners in Grades 1–6 in terms of vocabulary development, reading comprehension, reading fluency, and critical thinking skills. The instrument utilized a four-point Likert scale with the following interpretations: 4 – Always/Very High, 3 – Often/High, 2 – Sometimes/Moderate, and 1 – Never/Low. This scale enabled the researcher to determine the level of multimedia utilization and learners' reading skills through weighted mean computations. Prior to administration, the questionnaire underwent expert validation to ensure clarity, relevance, appropriateness, and alignment with the objectives of the study. Revisions were incorporated based on the recommendations of the validators to improve the wording, organization, and sequencing of the items. The structured format of the instrument ensured consistency, objectivity, and reliability in data collection and analysis.

2.6 Data Gathering Procedure

The conduct of the study followed a systematic procedure consisting of several phases. The research process began with the preparation and approval of the research proposal, which included the title, statement of the problem, theoretical background, research design, respondents, and possible data sources. Suggestions from the research adviser were incorporated to improve the quality of the study. After the approval of the proposal, the researcher developed a structured questionnaire aligned with the objectives of the study. The instrument was validated by subject-matter experts in elementary education to ensure clarity, relevance, and appropriateness of the items. Necessary revisions were made based on the

validators' recommendations. A formal permission letter was then prepared and submitted to the Schools Division Superintendent (SDS) of Masbate Province. Upon approval, permission was also secured from the school head of Leonardo Barrun Elementary School to administer the questionnaires to the selected respondents. The researcher personally distributed and retrieved the validated questionnaires from the respondents. Clear instructions were provided to ensure proper understanding of the instrument. All questionnaires were successfully retrieved, resulting in a 100% retrieval rate. After data collection, the responses were encoded, organized, tabulated, and analyzed using appropriate statistical tools. An expert statistician assisted in the interpretation of the data. The findings served as the basis for conclusions and recommendations related to the utilization of interactive multimedia tools and learners' reading skills.

2.7 Data Analysis Techniques

The data gathered were analyzed using descriptive and inferential statistical techniques. Frequency count and percentage distribution were used to describe the demographic profile of the respondents in terms of age, sex, grade level handled, and years of teaching experience. Weighted mean and ranking were utilized to determine the level of teachers' utilization of interactive multimedia tools in reading instruction and the level of learners' reading skills in terms of vocabulary development, reading comprehension, reading fluency, and critical thinking skills. Pearson Product-Moment Correlation Coefficient (Pearson r) was used to determine whether a significant relationship existed between teachers' utilization of interactive multimedia tools and learners' reading skills in Grades 1–6. All statistical analyses were conducted at the 0.05 level of significance to ensure the reliability and validity of the findings.

3. Results and Discussion

3.1 Demographic Profile of the Teacher-Respondents

3.1.1 Age of the Teachers

The findings revealed that most teacher-respondents were 41 years old and above, comprising 59.38% of the respondents. Teachers aged 31–35 years represented 25.00%, while those aged 36–40 years accounted for 15.63%. No respondents belonged to the 20–25 and 26–30 age brackets. The results indicate that the teaching workforce is composed mainly of mature and experienced educators. This suggests that teachers possess extensive classroom exposure and instructional experience, which may positively influence instructional delivery, classroom management, and the effective integration of multimedia tools in reading instruction.

3.1.2 Sex of the Teachers

The findings showed that 84.38% of the respondents were female, while only 15.63% were male. The results reflect the common trend in the education sector where female teachers dominate the teaching profession. This gender distribution may influence instructional approaches, collaboration, and school culture within the elementary education setting.

3.1.3 Grade Level Handled

The findings indicated that the largest proportion of teachers handled Grades 5 and 6, with 21.88% each, followed by Grade 4 teachers with 18.75%. Teachers handling Grades 1, 2, and 3 each represented 12.50% of the respondents. The results suggest balanced teacher deployment across grade levels, with slightly greater staffing in upper elementary grades where instructional demands and subject complexity are higher. This distribution may contribute to effective reading instruction among intermediate learners.

3.1.4 Years of Teaching Experience

The findings revealed that 56.25% of the teachers had 16 years and above of teaching experience. Teachers with 6–10 years and 11–15 years of experience both represented 21.88%, while no teachers had 1–5 years of experience. The results indicate that the school workforce is dominated by experienced teachers. Extensive teaching experience may contribute to stronger instructional competence, classroom management skills, and the effective utilization of interactive multimedia tools in reading instruction.

3.2 Utilization of Interactive Multimedia Tools in Reading Instruction

3.2.1 Utilization of Videos in Reading Instruction

The findings showed that teachers often utilized videos in reading instruction, with an overall weighted mean of 2.86. Story-based videos used to enhance comprehension obtained the highest rating, followed by educational videos used to introduce reading lessons and animated clips used to increase learner engagement. The least utilized indicator involved using videos to explain vocabulary words, although it was still interpreted as often utilized. The results indicate that videos are regularly integrated into reading instruction to support comprehension, lesson introduction, and learner engagement. This supports Mayer's (2020) Cognitive Theory of Multimedia Learning, which explains that learners understand texts more effectively when verbal information is paired with visuals. Zhang et al. (2019) also found that story-based instructional videos significantly improve vocabulary acquisition and comprehension skills. These studies validate the frequent use of videos in reading instruction.

3.2.2 Utilization of Animations in Reading Instruction

The findings revealed that animations were often utilized in reading instruction, with an overall weighted mean of 2.52. Teachers most frequently integrated animated characters to explain reading concepts, while animated stories and vocabulary-support materials were also commonly used. However, animations used for sustaining attention and demonstrating sequencing were only sometimes utilized. The results suggest that animations are generally used to motivate learners and explain reading concepts. Moreno and Mayer (2018) emphasized that animated materials sustain attention and facilitate conceptual understanding among young learners. Likewise, Liu and Elms (2019) reported that animated stories improve sequencing skills and vocabulary development by presenting ideas in engaging forms. These studies support the instructional value of animations in reading activities.

3.2.3 Utilization of E-books in Reading Instruction

The findings indicated that e-books were sometimes utilized in reading instruction, with an overall weighted mean of 2.20. Reading e-books on tablets or computers ranked highest, while the use of interactive features such as audio playback and word lookup ranked lowest. The results imply that e-books are recognized as useful instructional tools but are only moderately integrated into classroom reading activities. Ciampa (2016) found that interactive e-books improve reading motivation and comprehension when consistently used. However, Schugar et al. (2019) noted that limited teacher training and technological resources contribute to the underutilization of e-book features. These findings explain the occasional use of e-books observed in the study.

3.2.4 Utilization of Educational Applications in Reading Instruction

The findings showed that educational applications were often utilized in reading instruction, with an overall weighted mean of 2.63. Teachers frequently used educational apps to assess learners' reading performance and build vocabulary skills. Applications for comprehension exercises and fluency practice were also commonly utilized. The results indicate that educational applications serve as effective instructional tools for promoting interactive learning and reading development. Sung et al. (2016) found that educational applications with immediate feedback enhance reading performance and learner autonomy. Kim and Smith (2017) similarly reported that reading apps improve comprehension and fluency by supporting individualized learning and sustained engagement. These studies support the effectiveness of educational applications in reading instruction.

3.3 Level of Reading Skills of Learners in Grades 1–6

3.3.1 Vocabulary Development

The findings revealed that learners demonstrated a high level of vocabulary development, with an overall weighted mean of 2.56. Learners performed best in using context clues and improving word recognition, while applying newly learned words in sentences received the lowest rating. The results suggest that learners possess strong vocabulary skills that support reading comprehension and language development. Nation (2017) emphasized that repeated exposure to vocabulary through multiple modalities strengthens word recognition and retention. Neuman and Wright (2014) also found that multimedia-supported vocabulary instruction improves learners' ability to recognize synonyms, antonyms, and contextual meanings. These studies support the high vocabulary performance observed among learners.

3.3.2 Reading Comprehension

The findings showed that learners demonstrated a moderate level of reading comprehension, with an overall weighted mean of 2.38. Understanding the main idea ranked highest, while accurately answering comprehension questions ranked lowest. The results indicate that learners are capable of understanding basic textual information but still need improvement in higher-order comprehension skills such as inference and analytical thinking. Duke and Cartwright (2021) emphasized that higher-order comprehension requires targeted instructional strategies. Snow (2018) also found that multimedia-enhanced instruction improves comprehension only when paired with sustained guided practice. These studies explain the moderate comprehension level found in the study.

3.3.3 Reading Fluency

The findings revealed that learners demonstrated a moderate level of reading fluency, with an overall weighted mean of 2.29. Correct pronunciation and reading speed ranked highest, while smooth and continuous reading ranked lowest. The results suggest that learners possess basic fluency skills but still require improvement in phrasing, smoothness, and expressive reading. Rasinski et al. (2017) found that fluency develops through repeated reading and multimedia-supported oral practice. Hudson et al. (2020) also reported that digital tools improve pronunciation and pacing but require consistent practice for expressive fluency development. These findings validate the moderate fluency results.

3.3.4 Critical Thinking Skills

The findings indicated that learners demonstrated a moderate level of critical thinking skills, with an overall weighted mean of 2.26. Making predictions based on texts ranked highest, while giving logical explanations ranked lowest. The results

imply that learners are capable of basic analytical thinking but still need guidance in higher-order reasoning and evaluative skills. Fisher and Frey (2018) emphasized that prediction, reasoning, and analysis require explicit instruction and scaffolding. Afflerbach et al. (2020) further explained that digital texts enhance critical thinking when combined with teacher-guided questioning. These studies support the need for targeted strategies to improve learners' critical thinking skills.

3.4 Relationship Between Interactive Multimedia Utilization and Learners' Reading Skills

The findings revealed a strong positive linear relationship between teachers' utilization of interactive multimedia tools and the reading skills of learners in Grades 1–6. The computed r -value of 0.78 exceeded the critical r -value of ± 0.3494 at the 0.05 level of significance, leading to the rejection of the null hypothesis. The results indicate that increased utilization of videos, animations, e-books, and educational applications is associated with improved vocabulary development, comprehension, fluency, and critical thinking skills among learners. The findings strongly support previous empirical studies regarding multimedia integration in literacy instruction. Schindler (2017) concluded that interactive multimedia enhances learner engagement and academic performance. Sung et al. (2016) also demonstrated that multimedia-rich instruction significantly improves vocabulary, comprehension, and fluency. These studies confirm that effective integration of multimedia tools contributes positively to learners' reading development and supports the significant relationship identified in the present study.

4. Conclusion & Recommendations

The study concluded that the teachers of Leonardo Barrun Elementary School are predominantly experienced, mature, and female, with most having long years of teaching experience and assignments in upper elementary grades. Teachers often utilized videos, animations, and educational applications in reading instruction, while e-books were only sometimes used. Learners demonstrated a high level of vocabulary development and moderate levels of reading comprehension, fluency, and critical thinking skills. The findings further revealed a strong and statistically significant relationship between teachers' utilization of interactive multimedia tools and learners' reading skills, indicating that increased integration of multimedia tools contributes positively to reading performance and supports effective reading instruction among primary and intermediate learners.

The study recommends that school administrators and teachers strengthen the integration of interactive multimedia tools in reading instruction through continuous professional development, provision of technological resources, and consistent utilization of videos, animations, e-books, and educational applications. Teachers should implement targeted reading interventions focusing on vocabulary application, comprehension, fluency, and critical thinking skills through guided multimedia-supported reading activities. The school is also encouraged to institutionalize multimedia-enhanced reading programs that combine engaging digital resources with structured instructional strategies to improve learners' reading performance and support meaningful learning experiences.

The study was limited to 32 elementary teachers of Leonardo Barrun Elementary School and focused only on the utilization of interactive multimedia tools in terms of videos, animations, e-books, and educational applications, as well as learners' reading skills in vocabulary development, reading comprehension, fluency, and critical thinking. Other factors that may influence reading performance, such as socio-economic background, parental involvement, access to technology at home, and school infrastructure, were not included. The findings were also confined to the specific context and conditions of the school during the conduct of the study; therefore, the results may not be fully generalizable to other schools or educational settings.

Compliance with ethical standards

The study employed a quantitative descriptive–correlational research design involving 32 elementary teachers from Leonardo Barrun Elementary School. Data were gathered through a validated researcher-made questionnaire focused on the utilization of interactive multimedia tools and learners' reading skills. Formal permission to conduct the study was secured from the Schools Division Superintendent of Masbate Province and the school head of Leonardo Barrun Elementary School prior to data collection.

REFERENCES

Afflerbach, P., Cho, B. Y., & Kim, J. Y. (2020). Conceptualizing reading engagement: Foundations, frameworks, and implications. *Educational Psychologist*, 55(4), 253–270.

- Alegre, F. R. (2025). Challenges in the integration of multimedia in elementary classrooms: Teacher perspectives. *Philippine Journal of Educational Technology*, 8(1), 45–60.
- Ary, D., Jacobs, L. C., Irvine, C. K. S., & Walker, D. A. (2019). *Introduction to research in education* (10th ed.). Cengage Learning.
- Azores, A. E., & Velasco, C. Q. (2025). Use of interactive video story in enhancing the reading comprehension of Grade Six pupils. *International Journal of Social Science, Humanities, and Modern Research*, 4(6), 1–12.
- Bruner, J. S. (1961). The act of discovery. *Harvard Educational Review*, 31(1), 21–32.
- Bus, A. G., Takacs, Z. K., & Kegel, C. A. T. (2015). Affordances and limitations of electronic storybooks for young children's emergent literacy. *Developmental Review*, 35, 79–97.
- Cabansag, M. G. S. (2020). Effectiveness of animated reading materials in improving pupils' reading fluency. *International Journal of Educational Research and Innovation*, 14, 89–102.
- Carvalho, L., Pereira, A., & Almeida, F. (2025). Teachers' self-efficacy and digital literacy: Implications for interactive multimedia in primary education. *Computers & Education*, 190, 104613.
- Ciampa, K. (2016). Motivating students to read using e-books. *Computers & Education*, 92–93, 107–118.
- Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications.
- Curammeng, J., & Adviento, R. (2025). Digital storytelling and reading comprehension among Filipino learners: A literature review. *Philippine Educational Research Journal*, 12(2), 87–101.
- Delgado, P., Vargas, C., Ackerman, R., & Salmerón, L. (2018). Don't throw away your printed books: A meta-analysis on the effects of reading media on comprehension. *Educational Research Review*, 25, 23–38.
- Department of Education. (2020). *Basic education learning continuity plan*. DepEd Philippines.
- Dizon, G. R. (2019). Video-based instruction and reading comprehension of elementary pupils. *Journal of Teaching and Learning in Asia Pacific*, 6(1), 23–32.
- Duke, N. K., & Cartwright, K. B. (2021). The science of reading comprehension. *Reading Research Quarterly*, 56(S1), S1–S13.
- Fisher, D., & Frey, N. (2018). *Developing critical readers*. Scholastic.
- Hudson, R. F., Pullen, P. C., Lane, H. B., & Torgesen, J. K. (2020). The complex nature of reading fluency. *Reading & Writing Quarterly*, 36(2), 123–139.
- Kervin, L., Verenikina, I., Jones, P., & Beath, O. (2018). Investigating the representation of interactive whiteboards in primary literacy classrooms. *Australian Journal of Language and Literacy*, 41(1), 45–58.
- Kim, Y., & Smith, D. (2017). Pedagogical and technological augmentation of mobile learning for young children. *Educational Technology Research and Development*, 65(4), 1113–1131.
- Liu, T. Y., & Elms, P. (2019). Animations and learning effectiveness: A meta-analysis. *Computers & Education*, 128, 195–207.
- Mayer, R. E. (2020). *Multimedia learning* (3rd ed.). Cambridge University Press.
- Mohd Darus, N., & Abdul Aziz, A. (2025). Leveraging technology for reading development in ESL primary education: A systematic review. *International Journal of Academic Research in Progressive Education and Development*, 14(2), 1–20.
- Moreno, R., & Mayer, R. E. (2018). Interactive multimodal learning environments. *Educational Psychology Review*, 30(2), 317–337.
- Nation, I. S. P. (2017). *Learning vocabulary in another language* (2nd ed.). Cambridge University Press.
- Neuman, S. B., & Wright, T. S. (2014). The magic of words. *The Reading Teacher*, 67(6), 404–413.
- Neumann, M. M. (2018). Using tablets and apps to enhance emergent literacy skills in young children. *Early Childhood Research Quarterly*, 42, 239–246.
- Nurhasanah, I., & Firdaus, M. (2025). Unlocking better reading skills: How multimedia and interactive tools make a difference. *ALACRITY: Journal of Education*, 5(2), 892–907.
- Piaget, J. (1952). *The origins of intelligence in children* (M. Cook, Trans.). International Universities Press. (Original work published 1936)
- Planos, M. A. (2025). Teacher strategies in integrating technology for reading comprehension in intermediate learners. *Journal of Philippine Literacy Research*, 7(1), 33–48.
- Pujiariani, A., & Cathrin, S. (2025). The effect of interactive multimedia on students' early reading skills: A lesson from remote schools. *JOLL T Journal of Languages and Language Teaching*, 13(2), 568–583.
- Ramos, J. P., & Mercado, L. S. (2017). Effectiveness of literacy applications in improving pupils' reading fluency and vocabulary (Unpublished undergraduate thesis). College of Education, Philippines.
- Rasinski, T., Rikli, A., & Johnston, S. (2017). Reading fluency: More than automaticity? *The Reading Teacher*, 70(4), 421–429.
- Reich, S. M., Yau, J. C., Xu, Y., Muskat, T., Uvalle, J., & Cannata, D. (2019). Digital or print? A comparison of preschoolers' comprehension. *Journal of Educational Psychology*, 111(1), 157–168.
- Saunders, M., Lewis, P., & Thornhill, A. (2019). *Research methods for business students* (8th ed.). Pearson Education.

- Scherer, R., Tondeur, J., Siddiq, F., & Baran, E. (2019). The importance of attitudes toward technology for pre-service teachers' technological competence. *Computers & Education*, 135, 1–15.
- Schindler, L. A. (2017). Computers in education: A meta-analysis. *International Journal of Educational Technology in Higher Education*, 14(25), 1–15.
- Schugar, H. R., Smith, C. A., & Schugar, J. T. (2017). Teaching with interactive picture books. *The Reading Teacher*, 70(4), 505–514.
- Snow, C. E. (2018). Reading for understanding: Toward an R&D program in reading comprehension. RAND Corporation.
- Sung, Y. T., Chang, K. E., & Liu, T. C. (2016). The effects of integrating mobile devices with teaching and learning on students' learning performance. *Computers & Education*, 94, 252–275.
- Takacs, Z. K., Swart, E. K., & Bus, A. G. (2015). Benefits and pitfalls of multimedia and interactive features in technology-enhanced storybooks. *Review of Educational Research*, 85(4), 698–739.
- Tondeur, J., van Braak, J., Ertmer, P. A., & Ottenbreit-Leftwich, A. (2017). Teacher educators as gatekeepers: Preparing the next generation of teachers for technology integration in education. *British Journal of Educational Technology*, 48(2), 555–568.
- UNESCO. (2023). Global education monitoring report: Technology in education. UNESCO Publishing.
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.
- Zhang, D., Zhou, L., Briggs, R. O., & Nunamaker, J. F. (2019). Instructional video in e-learning. *Decision Sciences Journal of Innovative Education*, 17(1), 112–134.