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EFFICACY OF THE DEVELOPED DIGITALIZED READING MODULE FOR STRUGGLING READERS

***Senes Madel P. Pojas, Annabelle M. Dorado, PhD**

Teacher III- Durian Elementary School, Durian, Las Nieves, Agusan del Norte.

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***Corresponding Author: Senes Madel P. Pojas**
Teacher III- Durian Elementary School, Durian, Las Nieves, Agusan del Norte.

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ABSTRACT

This study aimed to develop, validate, and evaluate a Canva-based digitalized reading module to enhance the reading comprehension skills of Grade 6 learners in terms of literal, inferential, and critical comprehension. It employed a Research and Development (R&D) design anchored on the ASSURE Model, which guided the development, implementation, and evaluation of the instructional material. The learners' reading comprehension was assessed using the Philippine Informal Reading Inventory (Phil-IRI) Group Screening Test (GST) through pretest and posttest scores. The developed module featured interactive reading texts, multimedia presentations, comprehension activities, formative assessments, and synthesis exercises designed to promote learner engagement and understanding. Expert validators assessed the module's content, instructional design, functionality, and overall acceptability, and their feedback served as the basis for revisions and improvements. Findings revealed that Grade 6 learners initially obtained a mean score of 10.67 (53.35%), indicating a frustration level in reading comprehension. Following the implementation of the digitalized reading module, the mean score increased to 14.45 (72.28%), demonstrating improved reading performance. Improvements were observed across literal, inferential, and critical comprehension, although critical comprehension remained an area requiring further instructional support. Statistical analysis further revealed a significant difference between the learners' pretest and posttest scores, indicating improvement in their reading comprehension performance after the intervention. The study concluded that the Canva-based digitalized reading module is an effective supplementary instructional material for strengthening Grade 6 learners' reading comprehension skills. It recommends the integration of interactive digital reading resources into school literacy programs, alongside differentiated reading strategies, and encourages future researchers to explore similar

interventions involving larger populations, longer implementation periods, and other grade levels.

KEYWORDS: Digitalized Reading Module, Reading Comprehension, Canva, Grade 6 Learners, ASSURE Model, Reading Intervention.

I. INTRODUCTION

Reading comprehension forms the basis of all academic learning. Through reading comprehension, students can create meaning from various types of text, make connections between ideas, develop critical thinking skills, and use those skills in various contexts. In addition to merely being able to read words, comprehension also involves identifying the main idea of a text, concluding what has been written, evaluating the material that has been read, and creating a new understanding based on the material from multiple sources of information (Snow, 2002; Perfetti, Landi, & Oakhill, 2005). For upper-elementary students in grade 6 and up, strong reading comprehension will continue to be a necessary skill to have in order to prepare for the increasing complexity of text and academic demands they will experience during secondary school. Despite this, results from both national and international assessments indicate that many Filipino students are still struggling with comprehension skills; this disparity indicates that the gap between a basic level of reading ability and a more complex understanding of reading material is significant (Department of Education, 2018; OECD, 2019).

Among the reasons for these ongoing issues is the emphasis on traditional methods of teaching reading that focus on literal recall and decoding (versus high order thinking). While conventional resources (such as printed materials and worksheets) provide limited types of interaction, immediate feedback, and differentiating experiences for the learner (Tomlinson, 2013). Because conventional resources do not meet many of the learners' diverse needs, nor provide sufficient support for developing critical thinking and inferential reasoning skills needed in today's curriculum, learners are finding themselves in a digital/multimedia environment that requires new ways of being literate and remaining engaged. Therefore, it is critical that educators explore ways to use instructional practices that reflect the changing learning contexts of their students (Leu et al., 2015; New London Group, 1996). Even though digital reading tools may improve reading comprehension, they do not automatically do so. To increase the likelihood that digital reading tools will enhance reading comprehension, all instructional design must include quality, multimedia elements, and appropriate

support/scaffolding (Mayer, 2021; Smaldino et al., 2019; Tomlinson, 2013; Leu et al., 2015; New London Group, 1996).

The assurance of Information and Communications Technology (ICT) to address the reading difficulties many learners face is great. Digitalized reading modules that incorporate text along with multimedia formats (such as audio and visual images, video, animations) provide multiple pathways through which learners can engage with the material.

Mayer (2021) also indicates that the combination of written words along with visual images fosters meaningful cognitive processing and deeper understanding of the learning material. Additionally, Smaldino et al. (2019) note that well-designed multimedia instructional materials increase the likelihood of students becoming engaged in the learning process; immediate feedback from students; and provide opportunities for diverse types of learners. Digitalized reading modules provide learners with additional ways to practice comprehension strategies; monitor their level of understanding, develop reading skills through digital media versus only using printed media materials to engage in reading tasks. There are empirical studies that corroborate that the effectiveness of digital reading interventions including explicit instruction and structured comprehension activities enhance the learner's ability to understand text (Mayer, 2021; Smaldino et al., 2019; Curammeng & Adviento, 2025).

Systematic reviews and more recent research have informed us about the utilization of technology-enhanced reading strategies and applications through digital literacy intervention programs. The research indicates that when technology-based tools are explicitly designed to help with the processes of reading comprehension and engage the learner, they can make significant improvements in reading comprehension. The use of digital tools, such as digital storytelling, gamified activities, multimedia-rich lessons, and interactive reading assignments, have been shown to increase engagement and motivation to read while also offering different ways to engage with a text in order to develop meaning through reading (Oakley, 2024; Curammeng & Adviento, 2025).

Digitalized reading modules' success hinges on being appropriately aligned with education standards and teachers' capacity to support student learning. To achieve this end, there needs to be clear guidance on how best to develop digitized instructional materials so that they facilitate meaningful learning versus merely converting print resources into an electronic format (Mayer 2021). In addition, Smaldino et al. (2019) have highlighted that the presence or absence of effective instructional approaches will determine the effectiveness of technology-enabled instruction. Therefore, all digitized reading modules should adequately

support the implementation of effective instructional strategies using engaging, interactive and informative tools to promote better comprehension of reading materials.

The national policies in relation to ICT and literacy educational programs in the Philippines focus on the integration of ICT into literacy instruction The 2013 Enhanced Basic Education Act, also known as Republic Act No. 10533 by providing guidelines for competency-based learning and developing 21st century skills including digital literacy. Additional support of this ICT and literacy initiative is provided through the Basic Education Learning Continuity Plan were offered validated digital instructional material for improving learning outcomes (Ligpitan et al., 2025). Both frameworks provide an adequate setting for ICT based instructional resources to be integrated to support learners' comprehension needs.

However, the implementation of educational policies in the classroom is still a challenge for many schools. Barriers to effective use of ICT in education still exist including lack of learning resources, poor internet connectivity and limited access to technology. Furthermore, teachers often find it challenging to adopt technology-based learning because of limited resources and different degrees of technological readiness (San Miguel & Villanueva, 2023). As a result, many students still struggle with reading comprehension, despite changes to the curriculum and policy support.

The level of difficulty of Durian Elementary School was comparable to other schools in the country. According to the Phil-IRI last July 3, 2025, sixth graders have sufficient word recognition and reading fluency skills but they are frustrated with their reading comprehension. At this level, students often struggle to understand grade appropriate text independently, needing a structured instructional program to help them improve their comprehension. The Philippine Informal Reading Inventory (Phil-IRI) indicates that individuals classified at the frustration level will not be able to understand reading passages independently phenomenally and will often have trouble with both literal and inferential comprehension. Research also supports that kids that struggle to read will typically show other deficits such as poor vocabularies, poor comprehension monitoring strategies and poor higher order thinking skills, which can all adversely impact reading success, as well as overall development of comprehension skills (Department of Education, 2018; Afflerbach, 2016; Snow, 2002; Kintsch, 1998).

To address the identified gap in instruction, this study sought to determine the effectiveness of the digitalized reading module developed with the use of ICT as a way to improve the comprehension skills of Grade 6 struggling readers. The developed digitalized reading module is to be delivered via Canva as a platform that has multimedia, interactive quizzes,

self-paced navigation, and immediate feedback capabilities. Canva enables embedding multimedia such as audio narration, images, and animations for better understanding. The sequential slide-based structure of Canva will help guide students from slide to slide through the different passages and through literal, inferential, and critical comprehension questions. Interactive features like clickable quizzes, drag-and-drop exercises, and hyperlinked responses provide opportunities for students to be engaged with the material and reinforce learning. Struggling readers have a better chance of processing information with customized visual supports such as underlined headings, graphic organizers and visual representations. The learner can also use Canva to work through the material at their own speed and may revisit the material when needed. This makes Canva a great option for organized reading instruction that is also accessible (Dinda, Noni, & Munir, 2025; Curammeng & Adviento, 2025).

The module's scope was limited to learners who were classified as struggling readers and covers: Literal comprehension: identifying main ideas, supporting details and contextual vocabulary. Inferential comprehension: making inferences and interpreting implied meaning. Critical comprehension: evaluating ideas, comparing information and synthesizing across texts. Engagement activities: interactive activities including quizzes, drag-and-drop activities and short written responses. Feedback mechanisms: automated feedback within the platform and teacher-guided support during Aral Program sessions.

The module was developed based on principles of multimedia learning and designed in accordance with the K-12 English Curriculum. It used text, images, and audio to improve learners' cognitive processing, engagement, and understanding of reading materials (Mayer, 2021). The intervention included three sessions per week in the Aral Program for four academic quarters. Following this period, these sessions provided students with continued structured reading experiences. The first activity of each of these sessions was a Motivation Activity that activated the students' background knowledge and interest. Following the Motivation Activity, students engaged in Pre-reading Activities to predict the content, access to difficult vocabulary necessary for understanding the content, and establish the purpose for reading. Students engaged with the digital text and responded to embedded comprehension questions throughout the Reading Proper. The Post-Reading phase consists of multiple-choice and sentence-completion activities for literal, inferential, and critical reading comprehension.

The objective of the study was to evaluate whether engagement in a digitalized reading module, supported by a systematic digital learning environment, produced quantifiable

improvement in reading comprehension. The results of the study would provide contributions to knowledge of academic digital literacy intervention and to the development of practical strategies for assisting struggling elementary readers.

1.1 Statement of the Problem

The purpose of this study is to design and examine a digitalized reading module that uses technology and to determine if this module is effective in helping students in the grade 6 build their comprehension skills.

To address the main problem, the study specifically aimed to answer the following questions:

1. What is the level of reading comprehension of Grade 6 learners in pretest Group Screening Test in Phil. IRI based on their performance:

1.1Literal comprehension

1.2 Inferential comprehension

1.3 Critical comprehension

2. What digitalized reading materials can be developed to enhance reading comprehension based on the result of the pretest GST in Phil.IRI?

3. What is the level of validity of the developed digital reading module based on expert evaluators in terms of:

3.1 Language Mechanical and Readability?

3.2 Content and Instructional?

3.3 Layout and Visual Design?

3.4 Functionality and Multimedia Integration

3.5 Assessment and Closure?

4. What revisions can be made to improve the digital reading module based on expert validators' comments and suggestions?

5. What is the level of reading comprehension of grade 6 learners after the intervention?

6. Is there significant difference between the pretest GST and posttest GST comprehension scores of Grade 6 learners after using the digital reading module?

Hypothesis

H_0: There is no significant difference between the pretest and posttest GST comprehension scores of Grade 6 learners after using the digital reading module.

METHODOLOGY

2.1 Research Design

A Research and Development (R&D) design was used as part of the study which followed the ASSURE Model, an Instructional Design model for developing, implementing, and evaluating Technology-Supported Learning Resources. Based on the ASSURE model, the following steps were followed to systematically develop and validate the Digitalized Reading Module that is intended to improve the Reading Comprehension Skills of Grade 6 Students. It Analyze Learner, State Objectives, Select the Methods, Media and Materials, Utilize Media and Materials, Involve Learner Participation, and Evaluate and Revise.

This research & development design is appropriate because it aimed to develop, implement, and validate a digitalized reading module developed through ICT. Using the ASSURE model provided a structured process to ensure proper pedagogically design, learner centered, and meets the curriculum's competency requirements.

Moreover, this design was appropriate since the study's overall goal was to create instructional materials as well as to evaluate how effective those materials would be in improving learners' reading comprehension skill levels. Through the research and development process, the researcher identified learners' needs, prepared appropriate instructional content, developed interactive learning activities that can help them accomplish their reading comprehension goals, and modified the module based on learner feedback and evaluation data.

2.2 Research Respondents

The primary respondents of the study were the 72 Grade 6 learners of Durian Elementary School enrolled during the School Year 2025–2026, composed of two sections with 28 male and 44 female learners. The Grade 6 learners were selected due to the transitional stage of their elementary education, where reading comprehension becomes more complex and academically demanding. At this level, learners are expected to independently understand informational and literary texts, analyze and relate ideas, interpret meanings, and apply critical thinking skills across subject areas. However, despite these expectations, several learners still experienced difficulties in comprehending passages, identifying supporting details, drawing conclusions, and answering higher-order comprehension questions.

The learners were chosen to participate in this study for two reasons. First, their experience using technology and digital platforms when participating in lesson delivery within the

classroom. Second, their ability to effectively interact with the digitalized reading module (including all interactive activities, reading passages, multimedia content, and comprehension exercises) developed for use within the study (via the Canva application). Given their previous experience using technology, the implementation of the digitalized reading module used in this study was likely to be appropriate and successful throughout the entire duration of the study.

2.3 Research Locale

Durian Elementary School was geographically located in Barangay Durian, Municipality of Las Nieves, Province of Agusan del Norte, within the Caraga Region in Mindanao, Philippines. The school was situated in a rural community characterized by agricultural lands, rolling terrain, and scattered residential areas. The barangay was accessible through municipal roads connecting it to the town proper of Las Nieves and neighboring communities. Durian Elementary School was a public institution operating under the Department of Education (DepEd) and offered classes from Kindergarten to Grade 6 following the MATATAG Curriculum. During the School Year 2025–2026, the school recorded a total enrollment of 271 learners across all grade levels. The school was managed by 11 teaching and non-teaching personnel, including the head teacher, classroom teachers, and support staff.

Due to its rural location, most learners came from nearby sitios and barangays and traveled either by walking or through available local transportation. Despite geographical and accessibility challenges, Durian Elementary School continued to provide quality basic education services to the learners in the community and nearby areas.

2.4 Research Instruments

The data for this study was collected using two research tools. These tools gave a complete overview of the learner's reading comprehension level, the learners' learning needs, and the developed instructional materials' validity.

First, prior to the intervention's implementation, the learner's baseline reading levels were determined primarily using the Phil-IRI Pretest Group Screening Test results.

The test is designed to evaluate a student's oral reading fluency and reading comprehension ability using grade-level passages along with comprehension questions. Students are classified into 3 different comprehension levels based on their performance on the pretest, the

independent, instructional, or frustration. The results of the test provide an objective measure of the student's current level of reading performance with a focus on reading comprehension. By classifying students into independent, instructional, or frustration comprehension levels, the researcher identifies specific reading comprehension needs and difficulties of the students. The pretest group screening tests provides baseline data to inform the planning, designing, and delivery of appropriate instructional strategies and interventions that are aligned with the purpose of this study.

The Phil-IRI Group Screening Test passages used during the pretest were reused during the posttest assessment to measure the learners' improvement in reading comprehension after the implementation of the digitalized reading module. The reuse of the same passages ensured consistency and comparability of the learners' pretest and posttest performance results.

Second, the Division LRMDS Quality Assurance team performed validation of the ICT-based digitalized reading module through a Department of Education Non-Print Learning Resource Validation Form based upon criteria established by the DepEd Agusan del Norte Division. Validation was performed according to the following areas of assessment, Language Mechanical and Readability, Content and Instructional, Layout and Visual Design, Functionality and Multimedia Integration and Assessment and Closure. The outcome of the validation process is a determination of the appropriateness and readiness of the digitalized reading module for use in classrooms. Revisions were made as needed according to the comments and suggestions provided by validators.

2.5 Statistical Treatment

The type of data collected and the associated research problem determined which statistical tools were used to analyze the data collected in this study.

To find out what level of comprehension of Grade 6 learners have, the results from the Phil-IRI Group Screening Test were used as pretest scores. Analyzed by percentage and mean, both the distribution of the learners and their average performance were determined.

In determining the validness of the digitalized reading module created in this study, expert evaluators utilized a checklist to evaluate the digitalized reading module. The ratings from the expert evaluators were analyzed using frequency count from the data collected to provide an overall validness score to the digitalized reading module.

To establish a level of reading comprehension by Grade 6 learners after participating the intervention, the study used the posttest GST results that were collected after use of the digitalized reading module to analyze both the distribution and the average performance of learners with respect to reading comprehension measured by both percentage and mean.

In order to evaluate if significant differences exist between pretest and posttest GST scores of 6th grade students after utilizing the digitalized reading module, this study measured students' GST scores before and after the intervention. The analyses of the data were accomplished using a paired sample t-test, providing a means by which to evaluate whether the differences in pretest and posttest scores were statistically significant and therefore can serve as a measure of the extent to which a digitalized reading module can enhance reading comprehension skills of students.

I. RESULTS AND DISCUSSION

Problem 1. What is the level of reading comprehension of Grade 6 learners in Pretest Group Screening Test in Phil. IRI based on their performance in literal comprehension, inferential comprehension, and critical comprehension?

This part of the study examined comprehension skills of Grade 6 learners. The average scores and percentage of students who met the criteria were calculated for each comprehension skill. The mean and percentage are displayed in Table 2, which describes students' proficiency in reading comprehension in the literal comprehension skill area.

Table 2: ***Literal Comprehension Result.***

Standard	Literal Comprehension 7/7 Items
Average	3.61
percentage	51.69
Comprehension Level	Frustration

Legend: 80-100% independent; 59-79% instructional; 58- below frustration

The table represents how Grade 6 students performed in terms of their literal comprehension on the pretest Group Screening Test administered in Phil-IRI. The total number of students tested was 72. On average, the scores were 3.61 out 7 items an equivalent to 51.69%, which falls within the frustration level (below grade level).The results seem to indicate that the participants have problems in coping with explicitly stated elements such as information, facts, details or main concepts in a text. The most basic level of comprehension is literal

comprehension but many of the students are still struggling with the defined parameters of what is expected in their reading materials.

Additionally, the learners were likely to have varying amounts of vocabulary knowledge, limited reading experience, and poorly developed comprehension strategies, this has impacted their overall ability to read, comprehend, and process text effectively. Because literal comprehension is seen as the basis for higher-order comprehension abilities, as well, their ability to demonstrate inferential and critical comprehension skills may be impacted by difficulties they experience in their ability to demonstrate literal comprehension abilities (Perfetti et al., 2005; Snow, 2002; Kintsch, 1998).

Curammeng and Adviento (2025) state that elementary students will have difficulty understanding text because they do not have sufficient vocabulary and lack sufficient experience in reading. The study showed that the underdeveloped readers do not have sufficient proper reading practice and therefore they have difficulties in recognizing even direct facts in reading material. This suggests that unless teachers use effective instructional practices to help struggling readers build vocabulary and improve their reading fluency, they will continue to struggle.

Likewise, results from this study are consistent with Ligpitan's et al. (2025's) work. Based on the results from their study, it was also determined that learners who were functioning at the frustration level required guided reading and appropriate intervention strategies so that they could develop skills in the area of reading comprehension. The researchers explained that learners with little foundational reading ability typically exhibited difficulty in recognizing important details and understanding the overall meaning of a given text when assessed independently.

Furthermore, the Cognitive Theory of Multimedia Learning by Richard Mayer (2021) indicates that learner comprehension improves when visual elements, sound elements and interactive elements accompany cognitive processes. The findings from this theory support the use of a digitalized reading module as an intervention to improve literal comprehension of learners by providing them with opportunities to experience reading digitally through the various forms of supporting materials available in digitalized formats.

These studies and literature reinforce the current results and underscore the need of providing quality, engaging, and technology supported literacy intervention programs in order to help Grade 6 students develop strong literal comprehension skills.

Table 3 reveals the learners' results in terms of their inferential comprehension measured by the 7 item assessment test. Inferential comprehension is defined as a student's ability to

interpret implied meanings and draw conclusions and make logical inferences from the text. The table provides an overview of the average score, percentages, and level of comprehension according to the established guidelines.

Table 3: ***Inferential Comprehension.***

Standard	**Inferential Comprehension 7/7**
Average	4.56
percentage	65.07
Comprehension Level	Instructional

Legend: 80-100% independent; 59-79% instructional; 58- below frustration

The performance of Grade 6 students in inferential comprehension as measured by the Pretest Group Screening Test of Phil-IRI is shown in the table 2 above. The average score for this group of students was 4.56 out of 7, which is equivalent to 65.07% which is interpreted under instructional level. The results show that the students can make inferences and draw inferences from a given text with some teacher support. However, it is evident from the results that the students have not fully developed their inferential comprehension skills on their own.

According to the level of performance reached by learners at the Instructional level, they are showing an increase in their ability to use their inferential thinking capabilities, however, they still require assistance with understanding things that are not openly stated, such as interpreting what others mean and predicting events based on patterns of behavior, and connecting ideas that may not be directly related, or linking information found throughout the text. Understanding inferences made through reading requires the use of higher-level thinking skills, as learners must use previous experience and background information when reading (Anderson & Pearson, 1984; Kintsch, 1998).

As the findings indicate, Curammeng and Adviento found (2025) that elementary students were successful at the instructional level for inferential comprehension, as they could create partial meaning and link ideas but require additional support from their teachers for understanding more difficult tasks. Curammeng and Adviento stated that when students participate in guided reading and meaningful reading experiences, their inferential comprehension abilities improve.

Similarly, Dinda et al. (2025) found that the use of interactive, technology enhanced instructional materials improved the inferential comprehension skills of learners. The study

revealed that multimedia-based reading tasks assisted students in interpreting, relating and understanding implied meanings of texts.

Additionally, Richard Mayer's (2021) Cognitive Theory of Multimedia Learning supports these findings and demonstrates how text and visuals combined with interactivity can enhance learners' understanding of material better than only providing them with text or visuals. This theory supports using the developed digitalized reading module as a way to improve Grade 6 student's ability to make inferences when reading.

These research and literature are supportive of the present findings and the usefulness of interactive learning tools, meaningful reading exposure and guided instruction in the improvement of learners' inferential comprehension skills.

This table below provides an overview of the results of learners' critical comprehension of a 6 item assessment. Critical comprehension is defined as the ability of learners to analyze, evaluate, and make judgment about ideas and information presented in text. The table presents the average score, percentage, and corresponding comprehension level relative to the established comprehension standards.

Table 4: ***Critical Comprehension.***

Standard	**Inferential Comprehension 6/6**
Average	2.43
percentage	40.5
Comprehension Level	Frustration

Legend: 80-100% independent; 59-79% instructional; 58- below frustration

Results from the pretest Group Screening Test in Phil-IRI show that the average score achieved by Grade 6 learners for the critical comprehension skill area was 2.43 out of 6 with a corresponding percentage score of 40.5%, which is interpreted using the frustration level according to the Phil-IRI standards. This suggests that Grade 6 learners struggled with their ability to analyze, evaluate and make judgments about the message contained in the material presented.

The findings indicate a lack of cognitive development on the part of students as far as their ability to evaluate and think critically about texts is concerned. Critical comprehension requires students to analyze an author’s reasons for writing something, separate fact from opinion, evaluate the writer and form personal opinions based on textual evidence. Given the low percentage scores achieved by students, there appear to be large numbers of students

unable to independently process texts beyond the non-verbal or implicit levels (Snow, 2002; Perfetti et al., 2005).

The results reinforce evidence from Curammeng and Adviento (2025) who discovered that critical comprehension is one of the hardest types of comprehension skills for elementary student. Critical comprehension requires higher-levels of thinking and requires students to analyze, evaluate and synthesize information. Curammeng and Adviento (2025) concluded that many students have difficulty doing critical interpretations of texts because they lack comprehension strategies and have not read enough.

It was likewise shown by Ligpitan et al. (2025) that students who are at a level of frustration have trouble staying focused while they are trying to independently decide whether or not an idea is logical from a text. According to the authors, struggling readers require guided instruction how to evaluate and apply critical reading skills with the goal of helping them develop successful comprehension processes.

In a similar manner, Dinda Nonni Munir (2025) found that interactive multimedia tutorial materials helped students to develop higher-order comprehension skills through interaction, analysis and critical thinking.

Additionally, Richard Mayer's (2021) Cognitive Theory of Multimedia Learning explains that by combining instructional materials that use both text with images, as well as the use of interactive elements can help students to gain a greater understanding of what they are learning and process all their information more efficiently. Therefore, the developed digitalized reading module is an effective resource for supporting the development of critical thinking skills of grade 6 students.

These related research and literature complement the present findings and underline the need for effective, engaging and technology-supported reading treatments to improve the key comprehension abilities of learners.

Table 5: Pretest Group Screening Test Result.

Standard	Literal 7/7	Inferential 7/7	Critical 6/6	Total Score 20/20
Actual Average	3.61	4.56	2.43	10.67
Percentage	51.69	65.07	40.5	53.35
Comprehension Level	Frustration	Instruction	Frustration	Frustration

Legend: 80-100% independent; 59-79% instructional; 58- below frustration

According to the results of the Pretest Group Screening Test, the Grade 6 students' average score across 20 items was 10.67 (53.35%), therefore, the students scored below the target

level for reading comprehension and were all within the frustration range of performance. The results further indicated that the students had difficulty understanding and interpreting passages provided in the test.

The data indicated that the students were lacking in their literal, inferential, and critical understanding of the text, specifically with respect to their ability to examine what the text is saying at a deeper level and make conclusions based on their understanding of the text. The students' low total scores also indicated that these students will need a suitable reading program in order to improve their comprehension abilities and ultimately improve their reading performance overall.

Curammeng and Adviento (2025) also supported these findings in their research where they stated that out of all the reading skills, critical comprehension is the hardest for elementary students to acquire because it uses higher-order thinking skills. The authors stress that due to lack of reading exposure and ineffective comprehension strategy use, many students do not perform well in critical comprehension.

Likewise, Ligpitan et al.'s (2025) research found that learners at the frustration level have difficulty independently evaluating their ideas, making logical decisions and judging what is appropriate. Furthermore, struggling readers need to receive some type of structured guidance or intervention in order for them to develop and enhance their critical thinking and reasoning abilities.

In addition, Dinda et al. (2025) also pointed out that the use of interactive and multimedia-assisted instructional materials develops higher-order comprehension skills through increased engagement, analysis, and critical thinking.

According to Richard Mayer's Cognitive Theory of Multimedia Learning (2021), images combined with words are a more meaningful way for students to understand concepts. This is one of the principles that guide the development of the digital reading support material, which looks to enhance critical comprehension skills for Grade 6 students.

In general, it is clear from the data that there was a need for an appropriate intervention to help improve the learners' reading comprehension ability, particularly in regards to critical reading skills. As a result, a digitalized reading intervention was created, which aimed to support the learner in developing their knowledge of the analysis and interpretation of texts through guided and interactive reading practice activities.

Problem 2. What digitalized reading materials can be developed to enhance reading comprehension based on the result of the GST in Phil.IRI?

The conclusions of problem No. 1, the pretest GST results gathered in the Phil-IRI had identified the specific reading comprehension difficulties for learners and were therefore used in developing the digitalized reading module. These results have assisted in designing and structuring the intervention material according to the identified areas of need. Therefore, the researcher has developed a digitalized reading module that enhances learners' literal, inferential and critical comprehension skills.

The selection of comprehension levels is the primary reason for developing comprehensive reading skills. Literal comprehension has been included in order to assist in strengthening students' ability to recognize explicit information contained within the text, including facts, details, and events. Inferential comprehension supports students' capacity to interpret meaning that is implied but not explicitly stated, to draw conclusions from, and develop relationships between ideas not directly noted. Critical comprehension provides an opportunity for students to develop higher-order thinking skills to analyze, evaluate, and retrieve judgments according to the reading materials.

All passages contained in the module were designed to meet the Phil-IRI standards and were aligned to provide consistency with respect to national reading standards, readability level and suitability for students in the target grade level of Grade 6. This provided assurance that the materials used in the module adhere to existing Philippine Basic Education's Frameworks regarding Reading Assessment.

The contextualization aspect of this module is prominent. The reading passages are derived from the learners' real-life experiences, cultural, indigenous practices, and settings in their own community. With the use of contextualization to build the text, students find they can relate to their own reading much easier and therefore are more engaged with the text they read and have improved comprehension and motivation when reading (Tomlinson, 2013; Vygotsky, 1978). Contextualization also allowed learners to activate prior knowledge, making it easier for them to understand and interpret new information presented in the passages (Anderson & Pearson, 1984).

The researcher employed Canva, which is a digital design application, to develop engaging, interactive, and user-friendly reading materials for the module. The use of Canva was vital in improving the design of the module to provide an attractive, organized, and student-friendly design for the digitalized reading module. Additionally, through the use of Canva, the module incorporated multimedia elements such as images, animations, audio recordings, and

hyperlinks to increase learner engagement and support understanding. It also featured self-paced navigation, immediate feedback on activities, and assessment tasks that measured literal, inferential, and evaluative comprehension skills. These features were included to provide an interactive and learner-centered reading experience.

The design created in Canva has helped learners who are struggling with reading to stay focused and pay attention. The use of color-coded areas, images and clearly formatted text has helped to make the reading material less mentally taxing to read and easier to comprehend. Because students in elementary school respond well to visual stimuli, they also found the digitalized reading module to be more engaging and interactive through the use of Canva (Mayer, 2021; UNESCO, 2023).

Each reading section had comprehension exercises that matched three skills being targeted. Literal (factual) questions focused on recalling facts in the reading and through the use of instruction, the digital reading module also helped children build vocabulary and understand definition of terms used within the text, which allowed them to accurately find and remember information in a passage. Inferential (implied) questions required that readers demonstrate their ability to interpret meaning based on reading as well as analysis of implied meaning. Moreover, one goal of the digital reading module was to have students develop their inferential thinking abilities through exercises that required them to form conclusions, make predictions, and find relationships between different concepts in a text. In addition, critical questions were asked of students as a way of encouraging them to assess concepts and provide evidence from the passage(s) to support their opinions. The other goal of the digital reading module was to have students master critical thinking and evaluative thinking skills by assisting them in analyzing the information provided, justifying their answers and producing reasonable conclusions based upon the text.

Overall, the development process ensured that the digitalized reading module is standards-based, relevant to its context, visually attractive and responsive to the needs of learners as indicated by the GST results. The digitalized reading module that employs Phil-IRI alignment, comprehension level determination, relevant content, and Canva as a digital design tool is an effective and learner-centered intervention to build reading comprehension skills.

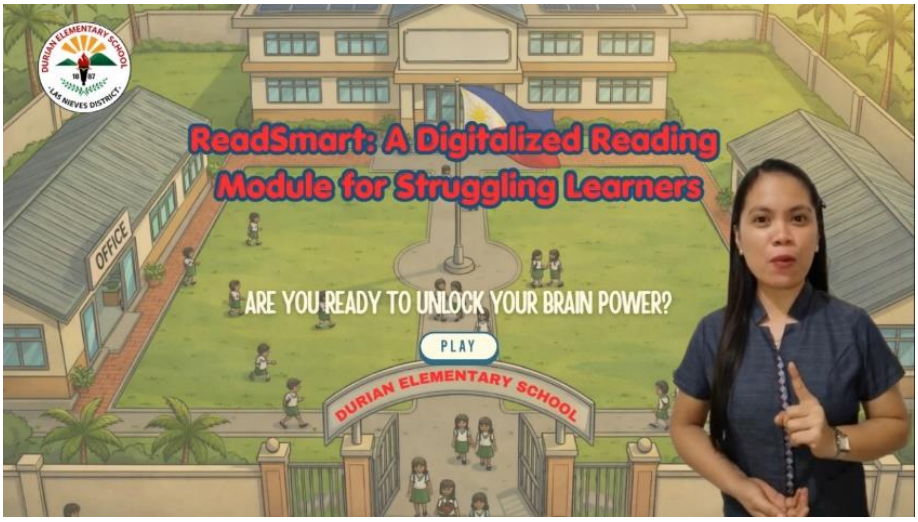


Figure 2. First Page of the Digitalized Reading Module.

The first slide displayed an introduction for the digitalized reading module. It was designed to have a game-like quality that would promote engagement and motivation in learners. There was a welcome message and a button for learners to press to begin their learning journey, which corresponds with the motivational phase of the reading process framework.



Figure 3. Home Page of the Digitalized Reading Module.

This slide was the primary graphic screen of the digitalized reading module. It was created as a virtual school setting for Grade 6 students to feel comfortable studying in an exciting way. Students could use the interactive elements to find various places such as the Grade 6 classroom, Library, Computer Room where they would complete structured reading activities each week. The Grade 6 classroom was the actual area for literal comprehension because it

concentrates on developing the basic elements of reading skills (recall, identifying facts, and understanding simply stated basic details), which is typically the first type of instruction given to students through guided and structured learning. The library reflects the idea of inferential comprehension through the process of investigating further and developing a deeper understanding, whereby students can make meaning of what they read and even how they connect those meanings to each other. This is representative of the ways in which libraries can help students develop independent inquiry skills and think more critically. Additionally, the Computer Room also contributed to students' ability to understand content on a higher level through their ability to analyze, evaluate, and make thoughtful decisions using technology and engaging with each task while demonstrating higher-level cognitive power by developing student independence and motivation and supporting the development of literal, inferential, and critical thought processes through their completed tasks.

All reading stories contained in the module are contextualized and reflect real-life situations, experiences, or environments that are familiar to the learners. Contextualization of the reading material facilitates connections between the reading material and the learners' previous knowledge. This connection enables learners to understand the content better, increases their level of engagement, and supports meaningful learning.

The Developmentally Appropriate Practice Principles guided the module. DAP is an educational approach directing learners have access to meaningful learning experiences that reflect their chronological age, cognitive level, emotional readiness, and social development. For this study, DAP is represented through the selection of reading materials, vocabulary, and comprehension tasks that are appropriate for the developmental level of Grade 6 students (Vygotsky, 1978).

The reading passages were created using clear and comprehensible language, yet challenging so that the learner's reading ability may grow. The task was also created through a gradual development of the learner's thinking skills, beginning with recall of information (literal comprehension), leading to interpretation and reasoning (inferential comprehension), and finally evaluating and judging (critical comprehension). This sequence of development provides the learner with confidence and at the same time enhances their ability to think critically.

The module incorporated DAP through the use of engaging visuals, interactive navigation, and familiar school-based settings. Learners at this developmental level tend to learn and respond best to visual, interactive, and experience-based learning. By recognizing how

learners at this age process information, the module lessens cognitive overload and increases comprehension efficiency (Mayer, 2021; Vygotsky, 1978).

Overall, DAP's integration of the digital reading module makes it both instructional and appropriate for grade 6 students. DAP promotes meaningful learning by respecting the developmental aspects of students as they move through the process of building their reading comprehension skills.

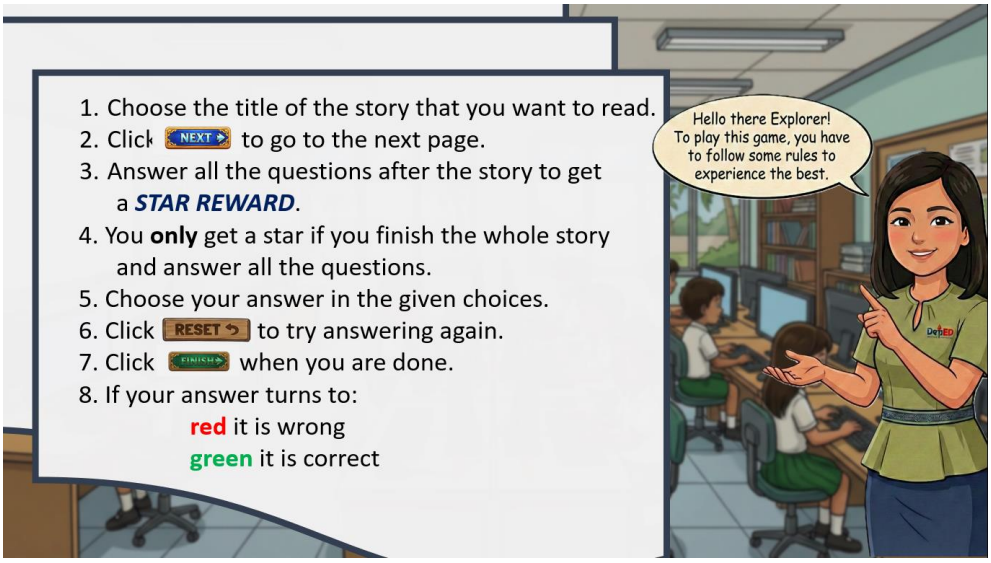


Figure 4. Procedural Guidelines.

The navigational guide to the Digitalized Reading Module is provided in the following slide. A detailed step-by-step instruction is presented to allow all learners to successfully select stories, continue to the next page, answer comprehension questions and earn stars for completing an activity. The Interactive Next, Reset and Finish buttons contribute to learner control, and provide a way for learners to learn at their own pace. The built-in mechanisms provide immediate reinforcement of learning through providing feedback of correct and incorrect answers (red for incorrect, green for correct) (Heinich et al., 2002; Smaldino et al., 2019).



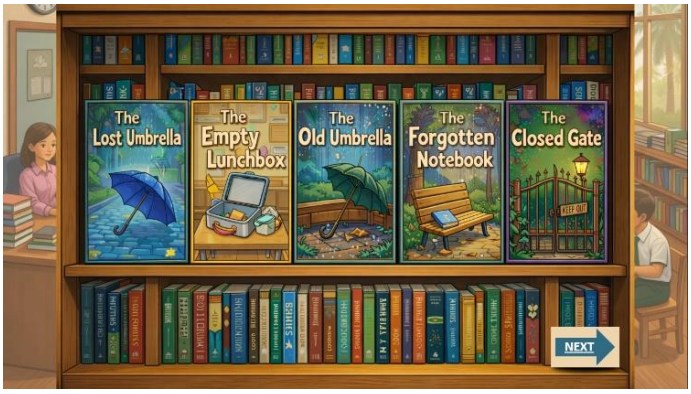


Figure 5. Title of the passages that focuses on the Literal, Inferential, and Critical Comprehension.

In each reading passage of grades 6 across the classroom setting as well as the library and computer settings, reading was implemented a minimum of 3 sessions per week for at least 30 minutes during the ARAL Program. Each of these sessions used the Department of Education (DepEd) reading framework designed to implement motivation, pre-reading, during reading, and post-reading. The first session focuses on motivation and pre-reading activities to activate learners' prior knowledge and introduce key vocabulary. The second session highlights using multiple-choice and completion-type activities to develop comprehension skills and proficient reading through guided reading. The third session is for post-reading exercises, which can enhance reading comprehension skills. All of these activities are systematically presented to every passage to support continuous improvement of reading performance as defined in the Phil-IRI model.

Problem 3. What is the level of validity of the developed digitalized reading module based on expert evaluators in terms of Language Mechanical and readability, Content and Instructional, Layout and Visual Design, Functionality and Multimedia Integration and Assessment and Closure?

The digitalized reading module that was created underwent validation by an expert team of evaluators from the Quality Assurance Team of the Learning Resource Management and Development System (LRMDS) of the DepEd Division of Agusan del Norte. It was validated by Junaline J. Mores, EPS I and LR manager, Michael L. Tadulan, the Aral Program Focal Person, and Neil J. Arado, PDO II. The validation process used the Agusan del Norte Division Validation Tool to check that the module has met the required standards for instructional materials. The evaluators evaluated the module on the following factors; the appropriateness of the language, the clarity and readability of the content, the quality of the

instruction provided by the module, the presentation of the module visually, the characteristics of the multimedia component, as well as how well the assessment section, or the closure of instructional units within the module functioned. The validation process was used to evaluate the acceptability, usability and educational quality of the module in preparation for implementation with Grade 6 students.

The table contains the results for Factor A, which relates to the language, mechanical, and readability features of the digitalized reading module. This factor evaluated the quality of written text, including such factors as spelling, grammar, punctuation, font style and size, text density, and vocabulary that would be appropriate for Grade 6 students. The evaluation determined that the module is clear and readable with no language or mechanical errors to allow for effective communication and comprehension of the instructional content.

Table 6: Factor A. Language, Mechanical & Readability.

Standards / Criterion Items	Yes	No	N/A
1. Spelling & Grammar: Text is free from spelling errors, typos, and grammatical mistakes.	/		
2. Font size: Text size is large enough to be read easily from the back of a standard classroom.	/		
3. Font Style: Font choices are professional, sans-serif and consistently apply throughout.	/		
4. Text Density: Slides avoid large blocks of text.	/		
5. Vocabulary: Language and terminology are appropriate for the target grade level.	/		
6. Punctuation: Commas, periods, and other punctuation marks are correctly placed and consistent.	/		

In terms of spelling and grammar**, t**he module received a “Yes” rating in spelling and grammar because the texts used in the lessons, instructions, and activities were carefully reviewed and edited to ensure that they were free from spelling errors, typographical mistakes, and grammatical inaccuracies. Proper sentence construction and correct grammar usage helped make the content understandable and credible for the learners.

The evaluators marked the font size in the module as “Yes” because all text throughout the presentation was sufficiently large enough so that it could be seen (readable) at least as far back as a standard classroom. Using appropriate font sizes provided additional readability and helped learners easily read, understand and access the information provided without experiencing visual difficulties.

A "Yes" was also scored for font style since the module constantly utilised professional and understandable sans-serif fonts. A neat and systematic look was also credited to the uniform

font types used in slides and activities which in turn facilitated improved learner focus and comprehension.

For text density, the module was graded "Yes" for text density since the slides did not have long paragraphs or too many texts. The information was provided in short sentences, bullet points and in little pieces that were easy to digest so that the learners could get a better understanding of the material and stay interested throughout the class.

In terms of the evaluation of vocabulary, the evaluators rated "Yes" for vocabulary since the words, expressions, and terminologies used in the module were appropriate to the level of comprehension of Grade 6 learners. The language was basic and clear and suitable for the learners' developmental level which helped them understand the reading activities and directions better.

Under punctuation, the module likewise received a "Yes" rating in punctuation as commas, periods, question marks, and other punctuation marks were correctly employed and consistently applied throughout the material. Proper punctuations helped to clarify the topics and improved the overall readability of the program.

The results indicated that all the criteria under Language, Mechanical and Readability were rated Yes, showing the item satisfied the required standards. The text is free from spelling and grammatical problems, employs suitable font size and style, and does not have excessive text density. Additionally, the vocabulary is appropriate for the school level, and the punctuation is correct and constant.

In general, the results showed that the information was well designed, reader friendly and ideal for learners making it clear and understandable.

Table 7 presents the evaluation results of Factor B, which focuses on the content and instructional design of the digitalized reading module. This factor assesses the alignment of learning competencies and objectives, accuracy of content, logical sequencing of lessons, inclusion of higher-order thinking skills, integration of values, and compliance with copyright requirements. The evaluation ensures that the instructional material is not only accurate and well-organized but also aligned with curriculum standards and effective in promoting meaningful and higher-level learning among Grade 6 learners.

Table 7 ***Factor B: Content & Instructional Design.***

Standards / Criterion Items	Yes	No	N/A
1. Learning Competency Alignment: The presentation clearly addresses the specific Learning Competencies for the Lesson.			/
2. Learning Objectives: Objectives are clearly stated at the beginning of the presentation.	/		
3. Accuracy of Content: Information presented is factually, correct, updated, and free from conceptual errors.	/		
4. Logical Sequencing: The flow of slides is logical.	/		/
5. Higher Order Thinking: The presentation includes prompts or slides that encourage analysis, evaluation, or creation.	/		
6. Integration of Values: The content integrates desirable Filipino Values where applicable.	/		
7. Copyright Compliance: All images, videos, and text taken from external sources are properly cited on the slide or in a final references slide.		/	

The developed digitalized reading module was evaluated under the standards for Content and Instructional Design by the DepEd Division of Agusan del Norte LRMDS Quality Assurance Team. The results showed that most indicators obtained a “Yes” rating, which indicated that the module met the required instructional and content standards necessary for effective learning delivery among Grade 6 learners.

Concerning Learning Competency Alignment, the learning competency alignment indicator was marked "N/A" because the presentation was more on the improvement of reading comprehension skills using the Phil-IRI framework rather than the direct presentation of specific subject-based Most Essential Learning Competencies (MELCs). However, the activities and reading challenges were still in line with the intended purpose of developing learners' literal, inferential and critical comprehension skills.

In relation to learning objectives, the module received a “Yes” rating in learning objectives because each lesson or activity clearly stated the objectives at the beginning of the presentation. These objectives guided the learners regarding the expected outcomes and helped provide direction for the reading activities and comprehension exercises.

In terms of accuracy of content, a “Yes” rating was obtained in the accuracy of content since the information presented in the module was carefully reviewed to ensure factual correctness and relevance. The reading passages, instructions, and activities were free from conceptual errors and were appropriate for the Grade 6 learners’ level of understanding.

Regarding logical sequencing, the evaluators evaluated the module "Yes" in terms of logical sequencing since the lessons and activities were presented in a clear and structured manner.

The module moved from the simple to the more difficult. The learners were able to build their comprehension abilities gradually in an organized and meaningful way.

The module also received a "Yes" for higher order thinking skills, since the exercises contained questions and tasks that required learners to analyze, evaluate and communicate their own thoughts. The integration of inferential and critical comprehension tasks spurred more reflective thinking and active engagement with the reading texts.

Regarding the integration of values, a "Yes" rating was also provided for the integration of values since the reading selections and activities included desirable Filipino qualities including respect, responsibility, teamwork, and perseverance. These principles were integrated in the stories and learning exercises so that learners might improve academically and build character as well.

The indicator of copyright compliance was rated as "No" because some of the images, texts, and multimedia assets in the module were not properly cited or referenced in accordance with the necessary citation requirements for copyright compliance. It was made clear that all external sources used in the development of the module

needed to be properly cited.

The evaluation results of Factor C, which focuses on the digitalized reading module's layout and visual appearance, are shown in Table 8. This element looked at the cover slide's completeness, the consistency of the slide design, the contrast between the text and backdrop, the quality and use of the images, the amount of white space, and the correct labeling of the graphics and diagrams. By presenting material in a clear, interesting, and visually suitable way for Grade 6 students, the evaluation made sure that the module was aesthetically pleasing, well-structured, and supportive of learners' comprehension.

Table 8 Factor C. Layout and Visual Design.

Standards / Criterion Items	Yes	No	N/A
1. Slide Consistency: Master slide/ template is used. Backgrounds, header placements, and color schemes are uniform.	/		
2. Contrast: There is strong contrast between text color and background color.	/		
3. Use of Visual: Images, charts, and diagrams are relevant to the topic and support comprehension.	/		
4. Visual Quality: Images are high-resolution, not pixelated or distorted/ stretched.	/		
5. White Space: Adequate empty space is present to prevent the slide from looking crowded or overwhelming.		/	
6. Labeling: Diagrams, maps, and graphs are properly labeled with titles, legends, and source information.	/		
7. Cover Slide: The title slide contains the complete and correct elements.		/	

The developed digitalized reading module was evaluated in terms of Layout and Visual Design by the DepEd Division of Agusan del Norte LRMDS Quality Assurance Team. The findings revealed that most indicators obtained a “Yes” rating, indicating that the module was visually organized, learner-friendly, and supportive of comprehension and engagement among Grade 6 learners.

Slide consistency was given a "Yes" because the presentation's template, background design, header placement and color scheme were all the same. A more polished, structured appearance and feel to the consistency that allowed students to focus on the content not get sidetracked.

In terms of contrast, received a "Yes" rating for contrast because the text and background colors used in the module are clear and readable. The high contrast between text and background allowed learners to read the content easily and decreased visual strain when doing the activities.

In terms of use of visuals, the evaluators marked “Yes” for the use of visuals since the images, illustrations, and diagrams included in the module were relevant to the lesson topics and supported learners’ comprehension. The visuals helped make the reading activities more engaging and meaningful by providing concrete representations of ideas and concepts.

The module also received a "Yes" for visual quality since the images used were clear, high resolution and presented properly without distortion or pixelation. The visuals were of high quality and added to the overall attractiveness and professionalism of the module.

In relation to white space, the indicator for white space was marked as "No" because some slides had limited empty spaces which made certain parts of the presentation appear crowded or overloaded with content. This meant that the page could be even more readable and esthetically balanced through further spacing and a better positioning of elements.

A "Yes" was given for labeling because diagrams, illustrations and other visual elements were labeled with appropriate titles and descriptions when needed. Learners had a better understanding of the information presented in the module with proper labeling.

based on the area of cover slide, the module received a “No” rating in the cover slide indicator because some required elements in the title slide were incomplete or not properly arranged according to the expected format. This indicated the need for improvement in presenting the complete and correct details on the cover slide of the module.

The evaluation findings of the Factor D that looked into the functionality and the integration of multimedia in the digitalized reading module is presented in Table 9. This factor examined the use of animations, hyperlinks, embedded media, interactive elements and the overall

integrity of the file across devices. The evaluation was done to check if the module is working well, presents the multimedia content effectively, and provides an interactive and smooth learning experience for the Grade 6 learners.

Table 9 Factor D: Functionality & Multimedia Integration.

Standards / Criterion Items	Yes	No	N/A
1. Animation: Transitions and animations are simple, consistent, and do not distract from the learning content.	/		
2. Hyperlinks: All embedded hyperlinks are functional and open correctly.			/
3. Embedded Media: Videos and audio clips play automatically and are trimmed to the appropriate length.			/
4. Integrity: The presentation includes at least one interactive elements.	/		
5. File Integrity: The file opens correctly on different devices and fonts are embedded or standard.	/		

The developed digitalized reading module was evaluated in terms of Functionality and Multimedia Integration by the DepEd Division of Agusan del Norte LRMDS Quality Assurance Team. The findings showed that the module generally met the standards for functionality and interactivity, indicating that it was accessible, usable, and supportive of learners' engagement.

The module was rated "Yes" for animation as the transitions and animations used throughout the presentation were simple, consistent and appropriate for the lesson content. The animations helped to hold learners' attention without distraction and made for a more engaging and organized presentation.

In term of hyperlinks, the indicator for hyperlinks was marked "N/A" because the module did not contain embedded hyperlinks or external links that required navigation to websites or online resources. As such, this criterion was not applicable to the developed module.

In terms of embedded media, the evaluators rated embedded media as "N/A" because the module did not have videos or audio clips as part of the instructional material. The lessons and activities were primarily designed as text, visuals and interactive reading tasks rather than multimedia playback.

Regarding interactivity, the module scored "Yes" for interactivity as it contained interactive elements that promoted learner participation and engagement. The learners were able to navigate through various sections of the module and perform activities that were intended to improve their literal, inferential and critical comprehension skills.

In the file integrity aspect, a "Yes" rating was also obtained in file integrity because the module opened properly in different devices without any formatting problems. The fonts and

design elements used were compatible and showed properly ensuring accessibility and usability to both teachers and learners.

The results of the Factor E evaluation (assessment and closure of digitalized reading module) are summarized in Table 10. This factor looked at the presence of formative assessment, post-assessment or exit tickets and synthesis or generalization activities in the instructional material.

Table 10 ***Factor E: Assessment & Closure.***

Standards / Criterion Items	Yes	No	N/A
1. Formative Assessment: The presentation contains at least one slide that checks for understanding during the lesson.	/		
2. Post-Assessment: The presentation includes an end-of-lesson assessment slide or exit ticket prompts.	/		
3. Synthesis/ Generalization: A concluding slide summarizes the key takeaways of the lesson.		/	

The developed digitalized reading module was also evaluated in terms of Assessment and Closure by the DepEd Division of Agusan del Norte LRMDS Quality Assurance Team. The findings indicated that the module effectively incorporated assessment activities to monitor learners' understanding, although some areas in lesson closure still needed improvement.

The formative assessment was graded as Yes, as the module included the activities and the questions for comprehension to assess the learners' understanding during the lesson. These activities enabled learners to practice and apply their reading comprehension skills and enabled teachers to monitor learners' progress throughout the learning process.

Under post-assessment, a "Yes" rating was also obtained in post-assessment because the module included end-of-lesson activities designed to evaluate learners' comprehension after completing the reading tasks. The assessments helped determine whether the learners achieved the intended learning outcomes and developed their literal, inferential, and critical comprehension skills.

In terms of synthesis and generalization, the indication was rated as "No" since the module lacked a final slide that succinctly outlined the major ideas and lessons learned. This suggested that in order to better reinforce the lesson information for the students, a larger closure activity or summary portion was required.

Overall, the digital reading material was usually well-developed and suitable for use in the classroom, according to the review. The content performed well in every category, including language, readability, visual design, usefulness, and assessment integration. The style and

visual design supported student comprehension, and the content was legible, straightforward, and in line with grade-appropriate language.

Nevertheless, there are s

everal areas that require development, especially when it comes to making sure that learning competencies are fully aligned, properly citing outside sources, and incorporating comprehensive synthesis or generalization exercises. Notwithstanding these little flaws, the content was considered to be appropriate for use in the classroom and had a great potential to effectively enhance reading instruction.

In fact, during the pre-defense developmental exhibit, the developed instructional material received the End-User's Choice Award from evaluators representing different DepEd divisions. This recognition was given in consideration of the extent to which the material met the established evaluation criteria and the overall impact and usefulness of the research product. The result affirms the acceptability and strong potential of the digitalized reading module as an effective instructional intervention for improving learners' reading comprehension skills.

Problem 4. What revisions can be made to improve the digital reading module based on expert validators' comments and suggestions?

Based on the comments and suggestions provided by the expert validators, several revisions were made to improve the developed digital reading module. The revisions primarily focused on the indicators that were marked "No" and "N/A" during the validation process to ensure that the module became more interactive, organized, and aligned with the learning objectives.

Enhancements were added under Factor B to improve learner interaction and instructional design. Interactive activities and navigation buttons were improved to make the module more engaging and user-friendly. More visual aids and motivational components were added in order to keep students' interest and involvement.

The Factor C revisions were meant to improve the technical and visual presentation of the module. Font sizes, color combinations, spacing and slide layouts were changed to make the presentation consistent and readable. Some multimedia elements were also improved to avoid distraction and to better support understanding.

Under Factor D, improvements were made to improve the module's functionality and accessibility. Broken links and inactive buttons were fixed and navigation and transitions improved to allow for seamless navigation throughout the module. These changes allowed for a better digital experience that was easier to use.

Finally, as several indicators were labeled "No" and "N/A," extra evaluation and closing activities were included under Factor E. To measure students' comprehension and provide an overview of the main ideas covered in the class, formative assessment slides, post-assessment exercises, and synthesis or generalization slides were added. These changes guaranteed alignment with the desired learning outcomes and improved the module's assessment component.

Overall, the revisions made based on the expert validators' feedback significantly improved the quality, content organization, instructional design, technical presentation, functionality, and assessment features of the developed digital reading module.

Problem 5. What is the level of reading comprehension of Grade 6 learners after the intervention?

The table shows the results of the Post Group Screening Test conducted after the implementation of the digitalized reading module. This table shows the learners' post-intervention performance in literal, inferential, and critical comprehension based on the 20-item assessment. It also includes the actual average scores, percentage results, and corresponding comprehension levels, which were used to determine the effectiveness of the intervention in improving the learners' reading comprehension skills.

Table 11 ***Posttest Group Screening Test Result.***

Standard	Literal 7/7	Inferential 7/7	Critical 6/6	Total Score 20/20
Actual Average	5.65	5.22	3.58	14.45
Percentage	80.74	74.60	59.72	72.28
Comprehension Level	Independent	Instructional	Instructional	Instructional

***Legend: 80-100% independent; 59-79% instructional; 58- below frustration**

The Grade 6 learners obtained an overall average score of 14.45 out of 20 items in the posttest Group Screening Test, which was equivalent to 72.28 %. Based on the given legend, the learners' performance was interpreted under the instructional level. This result indicated a noticeable improvement in the learners' reading comprehension performance after the implementation of the developed digital reading module.

With an average score of 5.65 out of 7 items, or 80.74%, the learners performed best in literal comprehension among the other comprehension domains, falling under the autonomous level. This suggested that the students needed little help to recognize specific features, facts, and information that was stated explicitly in the text. The result showed that the learners had developed stronger basic comprehension skills and were more capable of understanding

information presented clearly in the reading materials. The improvement in literal comprehension, which reached the independent level, may be attributed to the focus of the developed material on enhancing learners' vocabulary. By strengthening vocabulary knowledge, learners were better able to recognize, understand, and recall explicitly stated information in the texts, which contributed to their improved performance in literal comprehension tasks (Perfetti et al., 2005; Snow, 2002).

The inferential comprehension was classified into the instructional level wherein the students got an average of 5.22 out of 7 questions or 74.60%. This suggests that while most students were able to infer, predict and interpret the implicit meanings in the text, some students still needed help in digesting more complex ideas and relationships. The results indicated that the learners had developed their ability to think beyond the literal information compared to their first performance. The improvement in inferential comprehension can be attributed to the organized activities in the digitized reading module that helped the learners in decoding the meanings, making predictions and deriving conclusions from the text. The interactive and scaffolded exercises helped the learners to develop their inferential thinking skills gradually by encouraging them to make connections between ideas and to understand implied meanings (Vygotsky, 1978).

In critical comprehension, the learners obtained an average score of 3.58 out of 6 items or 59.72 %, which remained under the instructional level. Although this area recorded the lowest performance among the three comprehension levels, the result still reflected improvement from the pretest Group Screening Test. This implied that the learners had started to develop their evaluative and analytical reading skills, but they still experienced difficulties in making judgments, evaluating ideas, distinguishing facts from opinions, and analyzing the author's purpose. The results indicated that inference remained the most difficult part for the students and needed constant intervention and enrichment activities. This may be due to the limited time allocated for each session that limited the opportunity for learners to engage in deeper analysis, discussion and practice of higher order thinking tasks. Since critical comprehension requires more extensive processing of ideas, evaluation of information, and justification of responses, the short duration of instructional sessions may not have been sufficient to fully develop these skills (Snow, 2002; Perfetti et al., 2005).

Thus, the results of the Posttest Group of the screening test showed that the digital reading module that has been developed could improve the reading comprehension skills of the learners. The increase in the overall average and percentage indicated that the intervention helped to improve the learners' understanding of texts in literal, inferential and critical

comprehension levels. Still, the results also revealed the need for additional activities and strategies that will foster higher-order thinking and critical reading skills of Grade 6 learners.

Problem 6. Is there significant difference between the pretest and posttest group screening test scores of Grade 6 learners after using the digital reading module?

Table 12 ***Test of difference between the pre and post group screening test.***

Variable	N	Mean	Percentage	Interpretation		
Pre GST	72	10.67	53.35	Frustration		
Post GST	72	14.45	72.28	Instruction		
t= 7.71		P = 0.0000000000577		Result: Significant Decision: Reject Ho		

The table reveals that the learners' reading comprehension performance improved after the implementation of the digitalized reading module. The pretest GST results obtained a mean score of 10.67 with a percentage of 53.35%, interpreted under the frustration level. This indicates that before the intervention, the learners experienced difficulties in understanding and comprehending reading texts independently.

The posttest GST result after the implementation of the digitalized reading module showed that the mean score increased to 14.45 with a percentage of 72.28% interpreted under the instructional level. The increase in scores means the intervention has been successful in improving learners' reading comprehension skills in literal, inferential and critical comprehension. The learners' performance might have been improved by the module's interactive activities, vocabulary development tasks, inferential thinking exercises, and critical thinking activities.

Furthermore, the computed paired sample t-test result of $t(71)=7.71$ with a p-value less than 0.05 indicates a significant difference between the pretest and posttest GST scores. Therefore, the null hypothesis was rejected. This means that the digitalized reading module significantly improved the reading comprehension performance of the Grade 6 learners and proved to be an effective intervention material.

To sum up, the findings of the study revealed that the digitalized reading module was an effective educational intervention in enhancing students' reading comprehension skills. The results also indicated that the digitalized teaching resources could enhance elementary students to have more accessible, interesting, and relevant learning experiences, particularly in improving their reading comprehension skills (Leu et al., 2015; UNESCO, 2023; OECD, 2019).

IV. SUMMARY, FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

4.1 Summary

This study aimed to determine the effectiveness of a developed digitalized reading module in improving the reading comprehension of Grade 6 learners. Specifically, it assessed learners' reading comprehension levels before and after the intervention and examined the difference between their pretest and posttest Group Screening Test (GST) scores.

The study utilized a Research and Development (R&D) design and followed the ASSURE model in developing, validating, and implementing the digitalized reading module. The module was designed based on learners' needs, curriculum standards, and expert feedback to ensure its quality and suitability.

A pretest GST was administered to establish the learners' baseline reading comprehension level. Afterward, the validated digitalized reading module, which contained reading selections and comprehension activities, was implemented. Learners completed the activities during the intervention period while their progress was monitored.

Following the intervention, a posttest GST was conducted to measure changes in reading comprehension. The data were analyzed using mean, percentage, and paired-sample t-test to determine learners' performance levels and assess whether a significant difference existed between the pretest and posttest scores. The findings served as the basis for evaluating the effectiveness of the digitalized reading module.

The data collected from this analysis will otherwise be used to infer whether this digital reading module had an impact on improving the reading comprehension level of Grade 6 students.

4.2 Findings

Based on the data gathered and analyzed, the following findings were obtained:

1. The findings indicated that the Grade 6 learners had an overall total of 10.67 out of 20 items, or a 53.35% on the Pretest Group Screening Test, which was categorized as being in the frustration level, meaning they were having difficulty with reading comprehension prior to using the Digital Reading Module that was created and developed.

Specifically, the learners performed best in inferential comprehension with an average score of 4.56 out of 7 items or 65.07%, which fell under the instructional level. In literal comprehension, the learners obtained an average score of 3.61 out of 7 items or 51.69%,

while in critical comprehension, they obtained an average score of 2.43 out of 6 items or 40.5%. Both areas were interpreted under the frustration level, with critical comprehension identified as the weakest area among the three comprehension skills.

The findings indicate that the learners showed inadequate comprehension capabilities, they struggled with understanding information that is explicitly stated, interpreting implied or inferred meanings, evaluating ideationally expressed texts. The results show that there should be a reading intervention suitable for these learners, especially an intervention which will assist each of the learners regarding their ability to read critically.

2. The results of the pretest group screening test provided the basis for developing a digitalized reading module for Grade 6 learners with the goal of helping improve their reading comprehension skills. The overall performance of the learners in all types of reading comprehension (literal, inferential, and critical) were low, with critical comprehension being the lowest and having a score at the frustration level. In order to assist the learners in addressing their identified learning difficulties, digitalized reading material was created.

The developed digitalized reading module was implemented using the Canva app as a learning resource for Grade 6 students, providing them an interactive and engaging means of enhancing their reading abilities. The reading module included comprehension passages, comprehension activities, images, navigable buttons, animations and assessments to help students become involved and to develop their ability to understand what they read. By using interactive features of the app, students could independently explore the various reading activities and actively participate in their lessons.

Additionally, this module had activities that would help the learners develop literal, inferential and critical comprehension ability by having them identify the literal information, make inferences, interpret meaning and evaluate thought/facts presented in the text. The research indicates that the digitalized reading module developed was suitable in addressing the identified reading comprehension difficulties of the learners as reported in the Pretest GST and it provided a technology-based intervention that facilitates improvement in reading for Grade 6 learners.

3. The results of the evaluation of the digitalized reading program show that it is generally acceptable and suitable for increasing the reading comprehension ability of students in Grade

6 and was verified by expert validators through the Department of Education Division of Agusan del Norte.

In evaluating this module, the validators found that it contains well structured, age-appropriate content, integrated activities and visually appealing materials that enhance learner engagement and understanding. Also, the use of the Canva application supports the module being user friendly and interactive due to the availability of clickable buttons, animations, and multimedia elements.

With the module as a whole being an acceptable fit for learners, there were still several areas including assessment, synthesis, and technical or functional characteristics that were given either a “No” or “N/A.” Thus, although there were still some aspects of the module that could be improved upon, the overall quality of instruction and usability can be made better through these improvements.

The results of the validation indicated that the digitalized reading module was a suitable and appropriate resource for enhancing students' inference, literal, and critical comprehension skills; in addition to these results, suggestions and comments from validators were useful in improving the digitalized reading module.

The developed instructional materials received the End-User’s Choice Award from evaluators from different DepEd Divisions as the result of the pre-defense development exhibits. Evaluators had judged that the developed instructional materials met the requirements of quality, usefulness, and adherence to the prescribed evaluation standards, thus, establishing the digitalized reading module as an effective means of enhancing the reading comprehension skills of these learners.

4. According to the results of the expert validators, a number of modifications were made to the developed digitalized reading module. Many of the changes made were related to the “NO” and “N/A” marked indicators on validation sheets to enhance the overall quality, functionality, and instructionally effective use of the module.

Revisions included improving the organization and clarity of instructions, enhancing the visual presentation and layout of the slides, and refining the interactive features operated through the Canva application. Additional formative and post-assessment activities were also incorporated to strengthen learners’ comprehension monitoring and evaluation. Furthermore,

synthesis or generalization slides were added to summarize the lessons and reinforce learners' understanding of the reading texts and activities.

The results provided further evidence to enhance navigation and interaction elements such as buttons that could be clicked, as well as multimedia features. This enabled a better experience for Grade 6 learners in terms of achieving their goals for completing the module and being able to understand the content.

In general, improvements based on validator input were made to this module's content, instructional design, technical presentation, and assessment components; thus, increasing the effectiveness of the Module as digitalized Reading Intervention Material.

5. The study indicated that this digitalized reading module was effective for improving the reading comprehension skills of Grade 6 students based on findings from the pretest Group Screening Test and posttest Group Screening Test. This was reflected in an increase of the total mean score from 10.67 (53.35% - frustration level) on the pre-assessment to 14.45 (72.28% - instructional level) on the post-assessment. Thus, after utilizing the digitalized reading module, there was a significant increase in the performance levels of learners' reading comprehension.

All areas demonstrated improved comprehension levels. Literal comprehension rose from 51.69% to 80.74%, moving from frustration level to independent level. Students demonstrated incremental progress in inferential comprehension, however, their score increased from 65.07% to 74.60%, remaining at the instructional level. Students' ability to interpret and make inferences about text has also increased significantly, students' critical comprehension demonstrated improvement moving from a frustration level to an instructional level, with an increased score from 40.5% to 59.72%.

The findings suggest that the used of the digitalized reading module operated through the Canva contributed to enhancing learners' engagement and comprehension skills. However, while improvements were evident across all areas, critical comprehension remained the weakest domain, indicating the need for continued intervention and reinforcement activities to further develop higher-order thinking skills.

6. Results showed a significant difference between pretest and posttest GST scores for Grade 6 students before and on applying the developed digitalized reading module. The overall mean score changes from 10.67 (53.35%, frustration level) to 14.45 (72.28%, instructional level) indicates that the reading comprehension of students improved significantly as a result of having undergone the intervention.

All levels of comprehension have improved significantly. There was an increase in literal comprehension going from 51.69% to 80.74%, and an increase in inferential comprehension from 65.07% to 74.60%. Although critical comprehension is still the lowest, it has improved greatly going from 40.5% to 59.72%, demonstrating that students continue to develop gradually in their ability to analyze and evaluate text.

According to the findings, it was evident that the digitized reading module delivered via Canva helped to develop learners' reading comprehension abilities. Through structured, interactive and engaging activities, learners were able to participate more in and to better understand reading passages.

The results of the paired sample t-test ($t(71)=7.71$) indicate statistical significance as did the p-value (<0.05), which means that there were significant differences between the pre-test and post-test GST scores; therefore null hypothesis is rejected. Hence, the digitalized reading module was successful in improving Grade 6 learners' reading comprehension performance.

Overall, the results imply that the use of the digitalized reading module had a positive and significant effect on improving the reading comprehension performance of Grade 6 learners across literal, inferential, and critical levels.

4.3 CONCLUSIONS

The study led to the following conclusions:

1. The learners did best in the area of inferential comprehension, whereas they demonstrated frustration level performance for both literal and critical comprehension, with critical comprehension was the lowest performance level. Therefore, the students struggled with both their ability to analyze, evaluate the text and with their ability to comprehend both explicit and implicit information.

Therefore, the results implied that there was a need for an appropriate reading intervention to enhance the learners' comprehension skills across literal, inferential, and critical levels.

2. To address the reading comprehension difficulties of Grade 6 learners that were identified in their Pretest Group Screening Test results, a digitalized reading module was developed. The inability of Grade 6 learners to perform well in literal comprehension, inferential comprehension, and critical comprehension formed the basis for developing a new structured and interactive reading material.

This digital reading module, developed on the Canva platform, was created to offer motivating and enjoyable reading experiences with video support as well as interactive tasks to enhance students' comprehension. The exercises included in the module are developed to address the identified gaps in student learning and include multiple types of exercises from literal understanding, inference and critical thinking.

To summarize, this initial assessment showed that developing a digital reading module had a positive impact on grade 6 learners` ability to comprehend what they read.

3. The study shows that the Digitalized Reading Module created was an acceptable and appropriate instructional material. The Module received their evaluation as valid and as a useful tool for teaching to the expert evaluators. The Digitalized Reading Module was evaluated on five criteria, the content, instructional design, technical presentation, and functionality and through the components of Assessment.

According to the evaluation results, the module has been found to have adequate and organized content, engaging activities, and suitable interactions and visuals to assist learners in developing their reading comprehension. In addition to these elements, the Canva application also allowed for increased accessibility of the module and made the activity more interactive.

All items appearing "No" and "N/A" indicate there are some areas that need additional improvement, such as in assessment activities, synthesis components and some technical features. These findings indicate that this module is likely a good and appropriate digital instructional material for Grade 6 students however, it still has several minor changes that will improve its quality and effectiveness.

4. It is evident based on the above conclusions that modifying the Digitalized Reading Module was both necessary and advantageous to improve how effective this module was as a whole. The experts' comments and recommendations served as the foundation for improving each of the areas that were given a No or N/A rating initially.

Revisions to the module included clearer instructions, improvements in visual and instructional design, stronger assessment elements and improved use of the Canva application for interactivity. Also added were formative assessments, post-assessment activities, and slides for creation and generalization to provide additional support for Learner understanding and Learner evaluation of learning.

In summary, the digitalized reading module has benefitted from the proposed changes because of increases in the quality, functionality, and efficacy of the teaching process. Therefore, the digital reading module is now appropriate for a Grade 6 students due to the enhancements made as a result of these changes.

5. Each level of comprehension made improvements. Literal comprehension improved substantially to being able to do it independently, inferential comprehension improved instructionally, and critical comprehension also increased from being frustrated to the instructional level. This means that students benefited from the intervention by being able to comprehend their texts in terms of both explicitly and implicitly stated information.

Using a digitalized reading module created using the Canva platform helped to enhance engagement and increase comprehension performance in learners. Therefore, it can be determined that the reading module is an appropriate tool for improving comprehension abilities for students in grade 6.

6. The study found evidence of a positive improvement in Grade 6 students' reading comprehension after using the developed digitalized reading module. This improvement was reflected in the learners' progression from the frustration level in the pretest to the instructional level in the posttest, indicating a better understanding of the texts they read.

Furthermore, the results revealed a statistically significant difference between the pretest and posttest reading comprehension scores. As a result, the null hypothesis was rejected, leading to the conclusion that the digitalized reading modules were effective in enhancing the reading comprehension performance of Grade 6 students.

Based on the study's findings, the Canva-based digitalized reading module proved to be an effective tool for improving the reading comprehension skills of Grade 6 students, as shown by their improved performance on the Group Screening Test.

4.4 RECOMMENDATIONS

According to the study results, the students were encouraged to use the digitalized reading module developed by this study for help in developing their skills in reading comprehension, specifically in the areas of literal, inferential and critical comprehension. Students needed to take part in the activities available in the module, as well as develop a regular reading habit in order to increase their understanding of and ability to analyze and interpret material. Texts found in the module are designed to aid students with these skills.

Teachers have been encouraged to include digitalized reading module as well as interactive methods for teaching reading in order to improve student engagement and comprehension. The results of the study indicate that there was a positive effect on students' performance, suggesting that teachers could use the developed material as an avenue to supplement individualized instruction.

It is recommended that school heads support the integration of digitalized reading modules into existing school reading programs such as the ARAL Program and other literacy interventions. Policies may be developed to formalize the use of ICT-based and multimedia reading materials as supplementary instructional resources to strengthen learners' reading comprehension.

Researchers in the future should be motivated to carry out studies with a broader range of participants over a longer period of time and across various grades to support the continued effectiveness of digitized reading modules as demonstrated in this study and other similar studies. In addition, they will want to investigate other factors related to reading comprehension, as well as designing more digitized interventions to improve the literacy skills of students.

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