

**Implementation of Vygotsky-inspired contextualized digital OER materials
to improve reading comprehension**

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ABSTRACT

Philippine Informal Reading Inventory (PHIL-IRI) assessments in Cabangahan National High School reveal that many Grade 8 students continue to perform at the frustration level, particularly in tasks requiring inferential comprehension, where students must think beyond explicitly stated information. This persistent gap underscores the need for a structured, research-based intervention that can effectively scaffold inferential thinking. In response, this study implemented a Vygotsky-inspired contextualized digital OER materials to enhance the inferential reading skills of frustrated readers. It evaluated the effectiveness of these materials among Grade 8 Responsible students identified at the frustration level at Cabangahan National High School, Consolacion District, Cebu, during School Year 2025–2026. Using an experimental, mixed-methods design, both quantitative and qualitative data were collected to assess students' reading performance and experiences. Before implementation, students struggled with interpreting implied meanings, making logical connections, and drawing conclusions from context clues, highlighting the need for targeted instructional strategies. Following the intervention, students demonstrated improvement in interpreting implied meanings and drawing conclusions, while progress in making logical connections was moderate, indicating the need for additional guided support. The paired samples test revealed statistically significant difference in inferential reading comprehension. Students reported positive experiences with scaffolded prompts, interactive quizzes, and engaging digital features, which enhanced both comprehension and confidence. Based on these results, a Vygotsky-Inspired Contextualized Digital OER Reading Intervention Program is recommended to provide targeted support and further strengthen inferential reading skills among frustrated readers.

Keywords: Vygotsky, contextualized digital OER, inferential reading comprehension, frustrated readers, grade 8 students, cabangahan national high school, consolacion district, Cebu, vygotsky-inspired contextualized digital OER reading intervention program, experimental mixed-methods, scaffolded learning.

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INTRODUCTION

Reading comprehension is a fundamental academic skill that enables learners to understand, interpret, and apply meaning from written texts, extending far beyond the mere recognition of words and phrases (Sun et al., 2021). It encompasses the ability to identify implied meanings, establish logical relationships among ideas, and draw conclusions based on contextual information. Through these processes, learners cultivate critical thinking, reasoning, and problem-solving skills that are essential not only for academic achievement but also for effective participation in everyday life (Aisah & Nurjain, 2021). The development of reading comprehension is closely linked to learners' capacity to become independent and reflective readers who can analyze, evaluate, and integrate information from diverse sources. According to Izzah and Sukarno (2023), effective comprehension requires the coordinated use of cognitive and metacognitive processes, including identifying central ideas, interpreting context, generating meaningful questions, and reflecting on textual meaning. Skilled readers actively monitor their understanding and employ appropriate strategies to resolve comprehension difficulties. Consistent with this perspective, Eastern Washington University (2022) emphasized that the strategic application of comprehension techniques promotes greater learner independence and deeper engagement with texts. Consequently, reading comprehension serves as a critical foundation for lifelong learning, informed decision making, and intellectual growth.

Despite its recognized importance, reading comprehension continues to present substantial challenges for learners across various educational contexts. International evidence suggests that while many students can understand explicitly stated information, they often encounter difficulties when required to engage in higher order comprehension processes. In Colombia, for instance, students demonstrated moderate proficiency in understanding literal information but struggled with interpreting implied meanings, establishing logical connections among ideas, and drawing conclusions from contextual clues (Ramírez Sierra & Fernández-Reina, 2022). Similarly, Aşıkcan and Bakkaloğlu (2024) found that students' comprehension performance varied according to text type, with many reading at rates below 100 words per minute, indicating significant challenges in both reading fluency and comprehension. These findings reveal a recurring pattern in which learners can access surface level information but experience difficulty engaging in inferential and analytical thinking. Such evidence underscores a global concern regarding the underdevelopment of inferential comprehension skills and highlights the continuing need for instructional approaches that strengthen learners' ability to analyze, synthesize, and interpret textual information.

The challenges associated with reading comprehension are particularly evident in the Philippine educational context. Comparative international data reveal that the Philippines continues to lag behind several neighboring Asian countries in reading performance, recording a score of approximately 347 compared to Singapore's 543, Vietnam's 462, Malaysia's 388, Thailand's 379, and Indonesia's 359 (The Global Economy, 2023). These disparities are further reflected in the results of the Programme for International Student Assessment (PISA) 2022, which showed that only 24% of Filipino students attained at least Level 2 proficiency in reading, the minimum level at which learners can identify main ideas, locate information, and reflect on textual structure with guidance. This figure remains substantially lower than the OECD average of 74% (OECD, 2023; Philstar, 2023). While countries such as Singapore reported that 89% of students achieved this level, only 8% of students in Cambodia did so. More concerning is the finding that virtually no Filipino students reached Level 5 proficiency or higher, levels that require sophisticated analytical, evaluative, and interpretive reading skills, compared with 7% of students across OECD countries (OECD, 2022). These results suggest

that a significant proportion of Filipino learners continue to struggle with the inferential and critical dimensions of reading comprehension.

Regional literacy data further reinforce these concerns. In Central Visayas, Cebu City ranked eighth among highly urbanized cities, with a basic literacy rate of 94.7%, indicating that the majority of individuals aged five years and above possess basic reading, writing, and numeracy skills (SunStar Cebu, 2024). However, functional literacy, which encompasses the ability to comprehend, interpret, and apply information meaningfully, remains a persistent concern. Approximately 28% of the region's population continues to experience difficulties in reading comprehension. Among the provinces in Central Visayas, Bohol recorded the highest rates of both basic literacy at 94.2% and functional literacy at 79.2%, whereas Cebu Province reported the lowest rates, with 90.6% for basic literacy and 63.1% for functional literacy (Philstar, 2025). These figures illustrate that literacy challenges extend beyond basic decoding abilities and increasingly involve the more complex skills necessary for effective comprehension and application of information.

The persistence of these difficulties is also evident at the local level. Results from the Philippine Informal Reading Inventory (Phil IRI) conducted at Cabangahan National High School revealed that several students remained classified as frustrated readers. Although many of these learners demonstrated adequate performance on literal comprehension tasks, they experienced considerable difficulty with inferential and critical comprehension skills, particularly in interpreting implied meanings, identifying relationships among ideas, and drawing conclusions from contextual evidence. These local findings mirror national and international trends, suggesting that inferential comprehension remains a significant area of weakness among struggling readers. Consequently, the central problem addressed by this study is the continuing challenge of poor reading comprehension among Filipino junior high school learners, particularly in the domain of inferential reading, as reflected in both large scale assessments and school based diagnostic evaluations.

Recognizing the significance of literacy development, Philippine educational policies and legislative frameworks strongly support initiatives designed to improve reading comprehension. Article XIV, Section 1 of the 1987 Philippine Constitution guarantees every citizen's right to quality education and advocates educational approaches that are inclusive, adaptive, and responsive to learners' needs. This constitutional mandate underscores the importance of instructional practices that progressively develop reading competencies through equitable and scaffolded support (1987 Philippine Constitution). Complementing this mandate, Republic Act No. 9155, otherwise known as the Governance of Basic Education Act of 2001, grants schools the authority to implement context sensitive interventions that address specific literacy challenges within their communities. By promoting school-based management and local autonomy, the law encourages the development of targeted solutions that respond to learners' diverse reading needs (Republic Act No. 9155, 2001). Likewise, Republic Act No. 10533, or the Enhanced Basic Education Act of 2013, emphasizes learner centered and contextualized instruction, encouraging educators to align teaching strategies with students' backgrounds, experiences, and learning preferences. Such provisions support the integration of scaffolded and differentiated reading approaches aimed at strengthening comprehension skills (Republic Act No. 10533, 2013).

These legislative mandates have been operationalized through several national literacy initiatives. Among the most notable is the HAMON: Bawat Bata Bumabasa, or 3Bs Initiative, launched through DepEd Memorandum No. 173, Series of 2019. This nationwide campaign recognizes reading comprehension as a cornerstone of educational success and promotes sustained efforts to improve literacy across all grade levels. Central to this initiative is Every

Child a Reader Program (ECARP), which requires regular assessment of learners' reading abilities and the implementation of targeted interventions for struggling readers (DepEd, 2019). In response to the growing need for accessible and inclusive educational resources, the Department of Education also introduced the Digital RISE, or Resources for Inclusive and Sustainable Education, program in 2020. This initiative highlighted the potential of Open Educational Resources (OERs) to expand educational access and improve instructional quality, particularly in underserved and resource constrained contexts. As noted by Patel et al. (2021), OERs provide teachers with the flexibility to adapt learning materials, personalize instruction, and address diverse learner needs, thereby enhancing both teaching effectiveness and student engagement.

The increasing emphasis on contextualized and technology supported instruction is supported by several theoretical perspectives that explain how learners acquire and develop reading comprehension skills. This study is grounded in the assumption that reading comprehension among frustrated readers can be improved through Vygotsky inspired contextualized digital OER materials that combine targeted scaffolding, interactive learning experiences, and learner centered instructional design. Specifically, the study assumes that students who receive structured support through contextualized digital materials will develop stronger inferential reading skills, including the ability to interpret implied meanings, establish logical connections, and draw conclusions from context. Furthermore, it assumes that digital resources adapted from OERs can enhance learner motivation and provide flexible opportunities for meaningful reading practice.

The primary theoretical foundation of the study is Vygotsky's Sociocultural Theory, particularly the concept of the Zone of Proximal Development (ZPD), which describes the distance between what learners can accomplish independently and what they can achieve with appropriate guidance and support. Within this framework, scaffolding functions as a mechanism through which learners gradually acquire competence and independence. The intervention designed for this study incorporated activities such as drag and drop exercises, matching tasks, guiding prompts, vocabulary supports, and comprehension questions that provided incremental assistance to learners. These activities were intended to reduce cognitive demands while promoting active engagement and gradual mastery of inferential reading skills. Consistent with Vygotsky's view that learning is socially and culturally mediated, contextualized digital stories and passages situated reading activities within familiar experiences, thereby making comprehension more meaningful and accessible (McLeod, 2025). Research by Taber and Li (2021) further supports this perspective by demonstrating that scaffolded prompts and tiered instructional supports facilitate the internalization of reading strategies, enabling learners to progress from dependence toward autonomy.

Complementing the sociocultural perspective is Sweller's Cognitive Load Theory, which posits that learning is enhanced when instructional materials minimize unnecessary cognitive demands and allow learners to focus on essential processing activities. According to Sweller (1988), as discussed by Lopez (2024), poorly designed instructional materials can overwhelm working memory and impede learning, whereas carefully structured resources facilitate comprehension and retention. Guided by this theory, the intervention employed segmented texts, embedded comprehension checks, synchronized visuals and prompts, and simplified instructions to reduce extraneous cognitive load. Such design features enabled learners to focus more effectively on meaning construction and inferential reasoning. Supporting this approach, Surbakti et al. (2024) demonstrated that intentionally designed digital learning environments can reduce cognitive barriers and improve learning outcomes, particularly among struggling learners.

The study is also informed by Bruner's Constructivist Learning Theory, which emphasizes that learners actively construct understanding by connecting new information with prior knowledge through meaningful engagement. Within this perspective, comprehension develops through active participation, reflection, and the gradual assumption of responsibility for learning. The contextualized stories and interactive tasks incorporated into the intervention were designed to foster personal relevance, sustain learner motivation, and strengthen comprehension by linking textual content to familiar experiences. Bruner's conception of scaffolding, as discussed by Tsulaia (2023), highlights the importance of structured support in promoting independence and deeper learning. Similarly, Uçak and Kartal (2023) found that digital scaffolding tools integrating reciprocal teaching strategies and multimedia elements significantly enhanced both comprehension and metacognitive awareness. These findings align with the present study's objective of helping frustrated readers transition toward independent and confident reading through structured yet flexible instructional support.

A growing body of empirical literature further reinforces the potential of scaffolded digital instruction in improving reading comprehension. Yawiloeng (2022) reported that English as a Foreign Language students in Thailand benefited from instructional scaffolding integrated with multimodal texts, including visuals, teacher guidance, and collaborative activities. Participants perceived these supports as effective in enhancing comprehension and engagement, suggesting that multimodal learning environments can strengthen reading performance. Similarly, Abbas, Shaheen, and Mahjabeen (2024) found that while traditional reading formats often support deeper comprehension, digital texts can provide greater accessibility and engagement when intentionally designed with scaffolding features such as guided questions, summaries, and multimedia supports. Their findings suggest that the effectiveness of digital reading environments depends not merely on technological integration but on the quality and structure of instructional support embedded within them.

Additional evidence highlights both the opportunities and limitations associated with digital reading. Fontaine et al. (2021), in a meta-analysis involving health professional education, found minimal overall differences between digital and paper-based reading, although printed texts demonstrated a modest advantage when learners engaged with discipline specific content. These findings indicate that reading outcomes may be influenced by contextual factors such as content type and instructional design. In contrast, Bala, Kasyap, Kumar, and Purushotham (2023) demonstrated that the use of adaptive digital platforms such as Newsela significantly improved students' reading comprehension by providing customized text complexity, vocabulary support, and interactive assessments. Their findings underscore the value of personalized digital resources in addressing individual learning needs and promoting deeper engagement with texts.

Research on Open Educational Resources further illustrates their potential to support reading instruction while simultaneously revealing existing limitations. In South Africa, Burger, Zwane, Sanders, and Miller Weber (2025) found that OERs helped teachers activate learners' prior knowledge and strengthen vocabulary development. However, the resources were less effective in fostering higher order skills such as inferencing, grammatical analysis, and literary interpretation. The study emphasized the importance of carefully designed OERs and ongoing professional development to maximize their instructional effectiveness. Collectively, these studies reveal a convergence in the literature regarding the benefits of scaffolding, contextualization, multimodal learning, and digital engagement. At the same time, they highlight a continuing need for instructional resources that explicitly target inferential comprehension and are tailored to specific educational contexts.

Although substantial international evidence supports the effectiveness of scaffolded digital tools and OER based materials, there remains a notable scarcity of studies examining their application within Philippine classrooms. Existing research from Thailand, South Africa, India, and other contexts consistently demonstrates that scaffolded digital resources can improve learner engagement, comprehension, and independent learning. However, limited evidence exists regarding the effectiveness of Vygotsky inspired contextualized digital OER materials in addressing the reading comprehension challenges faced by Filipino learners, particularly those classified as frustrated readers. This gap in the literature points to the need for context specific investigations that examine how localized and scaffolded digital resources can be utilized to strengthen inferential reading skills and support more inclusive and responsive literacy instruction.

Responding to this need, the present study proposed the implementation of Vygotsky inspired contextualized digital OER materials during daily English enrichment sessions for Grade 8 Responsible frustrated readers at Cabangahan National High School. The researcher designed intervention incorporated leveled reading passages, guiding prompts, vocabulary supports, comprehension questions, and interactive activities such as drag and drop exercises and matching tasks. These components were intentionally structured to reduce cognitive load, provide systematic scaffolding, and encourage active learner engagement. Through these strategies, the intervention sought to strengthen learners' abilities to interpret implied meanings, establish logical connections, and draw conclusions from contextual information. By addressing persistent gaps between national literacy goals and classroom realities, the study aimed to generate evidence that could inform instructional practice, support targeted reading interventions, and contribute to the development of proficient, confident, and independent readers. As an English teacher at Cabangahan National High School, the researcher observed firsthand the difficulties many students experienced in higher order comprehension tasks and recognized the urgent need for interventions that could support both academic achievement and learner confidence. Consequently, the study holds significance not only in addressing local literacy challenges but also in contributing to the broader discourse on effective, context responsive approaches to reading comprehension instruction in the Philippine educational setting.

Statement of the problem

This research determined the effectiveness of Vygotsky inspired Contextualized Digital OER Materials in improving the inferential reading comprehension skills of Grade 8 Responsible frustrated readers at Cabangahan National High School, Consolacion District, Cebu, during the School Year 2025 to 2026, which served as the basis for a Vygotsky inspired contextualized digital OER reading intervention program. Specifically, this research answered the following questions:

1. What is the reading comprehension level of students based on the PHIL IRI result in the inferential competencies of interpreting implied meanings and ideas, making logical connections, and drawing conclusions from context clues?
2. After the implementation of the Vygotsky inspired Contextualized Digital OER Materials, what is the reading comprehension level of the students in the identified inferential competencies based on the PHIL IRI concept?
3. Is there a significant difference in the students' inferential reading comprehension levels before and after the implementation of the Vygotsky inspired Contextualized Digital OER Materials?
4. What are the experiences of students during the implementation of Vygotsky inspired Contextualized Digital OER Materials?

5. Based on the findings of the study, what Vygotsky inspired contextualized digital OER reading intervention program can be proposed?

METHODOLOGY

This study assessed the effectiveness of Vygotsky-inspired contextualized digital Open Educational Resources (OER) materials on the inferential reading comprehension skills of Grade 8 Responsible frustrated readers at Cabangahan National High School, Consolacion District, Cebu, during School Year 2025 to 2026. It specifically examined how these guided digital tools, designed with built-in scaffolds and contextualized content, supported students in enhancing their ability to make inferences, draw conclusions, and interpret texts more effectively. The study also explored the extent to which the intervention improved overall inferential reading performance, providing insights into how digital, scaffolded resources can be integrated into classroom instruction to address the learning needs of struggling readers.

The study employed an experimental, mixed-methods design to evaluate the effectiveness of the intervention. The participants were 18 students from Grade 8 Responsible who were identified at the frustration level based on their Philippine Informal Reading Inventory (PHIL-IRI) results. Their initial inferential reading comprehension levels were measured quantitatively through the PHIL-IRI, which served as the baseline data within the one-group experimental design. Following this, the students underwent a structured intervention utilizing the Vygotsky-inspired contextualized digital OER materials. After the intervention, a posttest based on the PHIL-IRI concept was administered to determine the extent of improvement in inferential reading skills, while qualitative data from observations and student reflections captured their experiences, engagement, and responses to the scaffolded digital resources. This approach provided a comprehensive understanding of both measurable gains in inferential reading and the ways students interacted with and benefited from guided, contextualized digital learning tools.

The use of a one-group experimental design was deemed appropriate, as it allowed for measuring the direct effect of the intervention on a specific group of struggling readers. Since the respondents were purposively selected through total enumeration of all frustrated readers in Grade 8 Responsible, the design ensured that the intervention targeted those who most needed remediation. Moreover, given the limited number of participants, the design provided a practical and manageable approach for evaluating the effectiveness of the intervention within the actual classroom context. The posttest was constructed using the concepts and skill indicators of the PHIL-IRI inferential reading component, but it was not taken from the PHIL-IRI instrument itself.

The research followed an Input-Process-Output (IPO) model to systematically guide the conduct of the study. During the input phase, data on students' inferential reading comprehension levels were collected using PHIL-IRI results, and appropriate Vygotsky-inspired contextualized digital OER materials tailored to the students' learning needs were identified. A structured intervention was then conducted using these digital materials, after which a posttest based on the PHIL-IRI concept was administered to measure changes in inferential reading comprehension. Significant differences between pretest and posttest scores were analyzed to determine the effectiveness of the intervention. Qualitative data were also gathered through students' feedback, experiences, engagement, and responses during the implementation to provide insights into how the scaffolded digital materials influenced their learning process and comprehension development. During the process phase, approval for the conduct of the research was sought, after which the Vygotsky-inspired contextualized digital

OER materials were implemented to provide students with structured, scaffolded, and interactive reading activities specifically designed to enhance inferential reading comprehension. Data analysis and interpretation were carried out using statistical tools such as the weighted mean, standard deviation, and paired t-test, along with descriptive analysis, to evaluate changes in inferential reading comprehension, interpret students' feedback on the materials, and determine the significant differences between pretest and posttest scores. Students were also interviewed to gather qualitative insights into their experiences, engagement, and perceptions of the scaffolded, contextualized digital OER materials. The output of the study was the development of a proposed school-based reading intervention program that institutionalized and utilized Vygotsky-inspired contextualized digital OER materials. Anchored on Vygotsky's Socio-Cultural Theory of Learning, the intervention integrated scaffolding and contextualized digital OER to support learners within their Zone of Proximal Development (ZPD). The program was designed to provide educators with a structured framework for integrating scaffolded digital resources into reading instruction, aiming to enhance students' inferential reading skills, promote digital literacy, and strengthen teacher capacity in technology-integrated reading instruction.

The study was conducted at Cabangahan National High School, which was established in 1968 and is recognized as the first national high school in the municipality of Consolacion, Cebu. Since its inception, the school has played a vital role in providing quality secondary education to learners from Barangay Cabangahan and nearby communities. It is located approximately 7.5 kilometers from Poblacion Occidental, situated on a hillside and surrounded by a natural landscape of hills and mountains. Strategically positioned, it lies along a main road, just a few meters from Cabangahan Elementary School and about 50 meters from the boundary of Barangay Pit-os, Cebu City. Despite geographical and socio-economic challenges in the area, the school remains steadfast in its mission to deliver inclusive and equitable education. The researcher, who is currently teaching English 8 at Cabangahan National High School, had observed that many students struggled with inferential reading comprehension, particularly in interpreting meaning and ideas, making logical connections, and drawing conclusions from texts. To address this issue, the researcher implemented Vygotsky-inspired contextualized digital OER materials designed to make reading more interactive, engaging, and supportive by transforming traditional reading materials into scaffolded digital formats.

The respondents of this study were Grade 8 Responsible students of Cabangahan National High School, Consolacion, Cebu, for School Year 2025 to 2026, of whom 18 were identified as frustrated readers based on the results of the PHIL-IRI. These students obtained very low scores, particularly in inferential reading comprehension, which involved difficulties in interpreting implied meanings and ideas, making logical connections, and drawing conclusions from context clues. Of the 18 respondents, 11 were male, representing 61.11%, and 7 were female, representing 38.89%, for a total of 18 students constituting 100% of the identified frustrated readers in the section. All of these students were identified as frustrated readers based on the results of the PHIL-IRI assessment. Given these challenges, they were selected to participate in the implementation of Vygotsky-inspired contextualized digital OER materials, which were specifically designed to provide scaffolded and interactive reading activities aimed at developing inferential reading skills and enhancing overall reading comprehension performance.

The primary instruments used in this study were the Philippine Informal Reading Inventory (PHIL-IRI) and a semi-structured interview schedule adapted from Puspitasari's (2022) work, *Scaffolded Extensive Reading: Supporting Indonesian Students' Reading Comprehension through Digital Materials*. The PHIL-IRI was utilized specifically to determine the students' baseline level in inferential reading comprehension prior to the implementation of the Vygotsky-inspired contextualized digital OER materials. The PHIL-IRI results provided

the initial assessment data that identified the 18 Grade 8 Responsible students as frustrated readers, particularly showing difficulties in interpreting implied meanings, making logical connections, and drawing conclusions using context clues. These baseline findings guided the researcher in designing and selecting appropriate scaffolded and contextualized digital materials tailored to the learners' specific needs.

After the intervention, the researcher administered a posttest specifically constructed to assess the students' inferential reading comprehension gains. The posttest consisted of nine (9) multiple-choice items, with three (3) items allocated for each of the key inferential subskills identified in the PHIL-IRI framework: interpreting implied meanings and ideas, making logical connections, and drawing conclusions from context clues. It is important to emphasize that this posttest was not an actual PHIL-IRI test. Rather, every item was carefully developed based on the concepts, skill indicators, and inferential comprehension standards assessed in the PHIL-IRI, ensuring that the posttest remained conceptually aligned with the baseline measure. To guarantee its appropriateness and validity, the items were blueprint-mapped to these three inferential subskills derived from the PHIL-IRI. The draft items were then reviewed by reading specialists and experienced English teachers, who examined them for clarity, relevance, alignment to the target inferential skills, and suitability for Grade 8 frustrated readers. Revisions were made based on their feedback to strengthen content validity and ensure that each item accurately reflected the specific inferential skill it was intended to measure. The final version of the instrument was administered under standardized classroom conditions to maintain fairness and consistency across respondents. Students answered all nine items independently, and each correct response was given a score of one point, resulting in a maximum possible score of nine (9). The resulting posttest scores were compared with the students' PHIL-IRI baseline inferential reading scores to determine the extent and significance of their improvement after exposure to the Vygotsky-inspired contextualized digital OER materials.

The semi-structured interview schedule, adapted from Puspitasari's (2022) study, was used to gather qualitative data on students' experiences, perceptions, challenges, and engagement during the implementation of the Vygotsky-inspired contextualized digital OER materials. Puspitasari's framework emphasized the role of scaffolding and digital supports in enhancing comprehension and learner motivation. Adapting this instrument enabled the researcher to explore how the digital materials influenced the students' inferential reading processes and supported their learning within their Zone of Proximal Development (ZPD). Together, these instruments provided both quantitative and qualitative data, offering a comprehensive understanding of how Vygotsky-inspired contextualized digital OER materials improved the students' inferential reading comprehension and engagement in reading activities.

Data collection was conducted across three main stages: pre-implementation, implementation, and post-implementation. During the pre-implementation stage, baseline data on the students' inferential reading comprehension levels were gathered using the results of the PHIL-IRI, which was administered to all Grade 8 Responsible students to determine their initial reading performance across literal, inferential, and critical comprehension areas. These results provided a detailed profile of each learner's reading strengths and weaknesses, with the inferential component specifically helping to identify students' ability to interpret implied meanings, make logical connections, and draw conclusions. Students classified at the frustration level were identified as the primary participants for the reading intervention, as they showed significant difficulty comprehending texts independently. A transmittal letter was sent to the School Head to formally request permission to conduct the study. Once approval was granted, the parents or guardians of the identified students were informed about the nature and

objectives of the intervention through written communication about the study's purpose, procedures, and duration, and parent consent forms were distributed to secure permission for their children's participation. No orientation for parents was conducted. Student assent was secured, and an orientation was then conducted only for the identified frustrated readers, during which the researcher explained the goals of the study, the type of digital materials to be used, and the expectations during the intervention, ensuring that the participants clearly understood their roles and the support they would receive throughout the process.

During the implementation stage, the reading intervention was conducted during the students scheduled English class. The teacher-researcher initially planned to administer 20 intervention sessions to ensure adequate scaffolding and mastery of inferential reading skills. However, this plan had to be adjusted due to multiple class suspensions brought about by unforeseen natural events, including a significant earthquake and the landfall of typhoons, which resulted in several days of cancelled classes. Consequently, the intervention was reduced to 13 sessions, which were carried out from October 6, 2025, until November 17, 2025, and all 13 sessions were completed within the adjusted timeline. During the intervention, the frustrated readers worked on a separate set of scaffolded tasks while their classmates continued with the regular English lessons, allowing the teacher-researcher to provide focused instructional support without interrupting the normal flow of classroom activities. The intervention made use of Vygotsky-inspired contextualized digital OER materials, which included leveled passages, guiding prompts, vocabulary supports, and comprehension questions that specifically targeted inferential understanding. Interactive activities such as drag-and-drop tasks and matching exercises were also incorporated to help students practice interpreting implied meanings, making logical connections, and drawing conclusions from the text. Each session was facilitated by modeling appropriate reading strategies, guiding students through the scaffolded activities, and providing support to enhance their comprehension and engagement. Observations were recorded throughout the 13 sessions to monitor students' participation, identify any challenges encountered, and note improvements in inferential comprehension. After the implementation, interviews were conducted with the participating students to gather their insights regarding their experiences, difficulties, and perceptions while using the digital materials.

During the post-implementation stage, the posttest was administered using the PHIL-IRI concept to the same group of students to determine any improvement specifically in their inferential reading comprehension levels. The students' baseline data and posttest results were compared and analyzed to determine whether there was a significant difference in their inferential comprehension after the implementation of the Vygotsky-inspired contextualized digital OER materials. The integration of quantitative test results and qualitative interview responses provided a comprehensive understanding of how the materials influenced the students' inferential comprehension and overall learning experiences.

The study applied both descriptive and inferential statistical techniques to analyze the gathered data, with each statistical approach corresponding to a particular research objective to ensure accurate analysis and meaningful conclusions. Descriptive statistics were used to assess the students' reading comprehension levels based on their PHIL-IRI baseline data and posttest results. This involved calculating the mean, standard deviation, and the distribution of frequencies and percentages to summarize student performance levels categorized as independent, instructional, or frustrated before and after the intervention. The mean was determined using the formula where $\bar{X}$ is the average score, ΣX is the total of all scores, and N is the number of students. The standard deviation was calculated using a formula where X represents each student's score, $\bar{X}$ is the mean, and N is the total number of students. To show how reading comprehension levels were distributed among students, frequency (f) and percentage (%) were also computed, where f equals the frequency or number of students in a

category and N equals the total number of students. These formulas were used to describe how many and what proportion of students fall into specific reading comprehension levels. For inferential analysis, a paired sample t-test was used to evaluate whether a statistically significant difference exists between the students' baseline level and posttest scores after the use of Vygotsky-inspired digital OER materials. This test was suitable for comparing the means of the same group measured at two different points in time, using a formula where t is the computed t-value, $\bar{D}$ is the average of the differences between paired scores, SD is the standard deviation of those differences, and n is the number of students. A statistically significant computed t-value would indicate that the implementation of the OER-based scaffolded digital materials was an effective strategy for improving students' reading comprehension.

The English reading comprehension component was assessed through the administration of the PHIL-IRI to gather the students' baseline reading levels, and a posttest was administered using the same PHIL-IRI concept. The number of correct answers was converted into a percentage score. Based on the PHIL-IRI Reading Level Framework, students' percentage scores were interpreted using the following classifications: the Independent Level corresponded to scores of 80 to 100%, the Instructional Level corresponded to scores of 60 to 79%, and the Frustration Level corresponded to scores below 60%. These levels were used to classify students and identify those who might have benefited from the targeted implementation of Vygotsky-inspired digital OER materials to improve their inferential reading comprehension.

Several key terms are defined for this study to maintain clarity and uniform understanding throughout the research. Drawing Conclusions from Context Clues refers to the learner's ability to use surrounding words, phrases, and textual elements to infer the meaning of unfamiliar terms or concepts, measured through students' responses to tasks in the digital OER materials where they interpret vocabulary or ideas based on contextual hints provided in the passage. Frustration Level refers to the reading classification assigned to students who find it challenging to understand a text even with guidance, applying in this study to those who score below 60% in the reading comprehension component of the PHIL-IRI. Independent Level is a reading proficiency level under the PHIL-IRI indicating that a student can comprehend reading materials without assistance, with learners in this category scoring between 80% and 100% in the reading comprehension test. Inferential Reading Comprehension refers to the students' ability to interpret implied meanings, make logical connections, and draw conclusions beyond the information explicitly stated in the text, measured through the inferential comprehension items of the PHIL-IRI English component, with improvements determined by comparing baseline and posttest performance after the implementation of the Vygotsky-inspired Contextualized Digital OER Materials. Interpreting Implied Meanings and Ideas refers to the learner's ability to understand information that is not directly stated in the text, measured by the student's performance in answering inference-based questions within the contextualized digital OER materials. Instructional Level represents students who can understand reading materials with some degree of support, with these students scoring between 60% and 79% in the PHIL-IRI reading comprehension test. Making Logical Connections refers to the learner's skill in relating ideas within and across sentences or paragraphs, assessed through activities embedded in the Vygotsky-inspired digital OERs that require students to link causes and effects, compare and contrast ideas, recognize sequences, and integrate concepts to derive coherent understanding. Open Educational Resources (OER) are freely accessible teaching and learning materials that may be adapted and shared, and in this study, they are localized and integrated into scaffolded digital formats to suit the reading needs of students. The PHIL-IRI, or Philippine Informal Reading Inventory, is a standardized assessment tool developed by the

Department of Education used to determine students' reading comprehension levels, with its English component utilized in this research to measure students' baseline level before implementation and to serve as the guide in crafting posttest questions. Reading Comprehension is the ability of students to understand, interpret, and respond to written texts, evaluated based on their performance in the PHIL-IRI pretest and posttest. Vygotsky-inspired Contextualized Digital OER Materials refer to structured and technology-supported reading materials designed to gradually build comprehension skills, used in this study to support struggling readers through leveled content and guided practice.

RESULTS AND DISCUSSION

This Results and Discussion section presents the findings of a one-group experimental, mixed-methods study involving 18 Grade 8 Responsible students identified as frustrated readers at Cabangahan National High School, Consolacion District, Cebu, during the academic year 2025 to 2026. Participants were selected through total enumeration of all students at the frustration level based on the results of the Philippine Informal Reading Inventory (PHIL-IRI). Data were gathered using the PHIL-IRI as the baseline measure of inferential reading comprehension and a researcher-constructed posttest of nine (9) multiple-choice items aligned to the PHIL-IRI inferential framework, along with a semi-structured interview schedule adapted from Puspitasari (2022) for the qualitative component. Quantitative data were analyzed using descriptive statistics, including mean, standard deviation, frequency, and percentage, and inferential analysis was conducted through a paired sample t-test evaluated at the 0.05 level of significance. Qualitative data were drawn from student interviews and observations conducted throughout the 13 intervention sessions. All results are interpreted in direct relation to the objectives of the study, which aimed to determine the students' reading comprehension levels before and after the implementation of Vygotsky-inspired Contextualized Digital OER Materials, examine the significant difference between pretest and posttest performance, and explore students' experiences during the intervention. The discussion is grounded entirely in the data gathered and builds a comprehensive account of how the intervention supported inferential reading development among frustrated learners.

Reading comprehension level of students based on PHIL-IRI results

Inferential comprehension is a higher-order reading skill that requires students to read between the lines, connect ideas, interpret implied meanings, and draw logical conclusions from a text. Before the intervention was implemented, the PHIL-IRI results revealed persistent challenges among the Grade 8 Responsible frustrated readers in performing these inferential tasks. The data provided an essential baseline for understanding the learners' difficulties in interpreting implied meaning, making logical connections, and drawing conclusions using context clues, which are critical components of inferential comprehension.

In the area of interpreting implied meanings and ideas, the results revealed that a majority of the students fell under the frustration level prior to the intervention. Specifically, 55.6% of the respondents, corresponding to a frequency of 10 out of 18, scored 1 out of 3 points, placing them within the frustration level and indicating noticeable difficulty in grasping implied information from the text. Additionally, 33.3%, corresponding to a frequency of 6, scored 0.00, which also corresponds to the frustration level and highlights an even more pronounced need for support in developing inferential comprehension skills. Only 11.1%, corresponding to a frequency of 2, obtained a score of 2, which falls under the instructional level, showing that a small portion of the cohort demonstrated partial ability to interpret implied meanings though still requiring instructional guidance. The cumulative percent distribution

confirms that 88.9% of students were at the frustration level and 100.0% were accounted for by the instructional level at the top of the scale. Overall, the distribution of scores clearly indicated that the group as a whole was performing at the frustration level for this specific reading comprehension competency. These variances underscore not just the necessity for effective instructional strategies but also align with existing literature that highlights the complexities of teaching inferential comprehension skills. Students' inability to interpret nuanced meanings can be linked to the need for tailored instructional supports that align with their current levels of understanding, a concern that is particularly relevant within Vygotsky's framework, wherein learning flourishes when instructional materials challenge students beyond their existing competencies, fostering deeper cognitive engagement and understanding. Studies have shown that combining scaffolding with multimodal resources can improve students' comprehension while also boosting their motivation, confidence, and overall engagement with the material (Yawiloeng, 2022).

In the area of making logical connections, the data similarly confirmed that the majority of students fell under the frustration level prior to the intervention. Specifically, 38.9% of the respondents, corresponding to a frequency of 7, scored 1 out of 3 possible points, placing them within the frustration level and reflecting significant difficulty in connecting ideas within the text. Additionally, 33.3%, corresponding to a frequency of 6, scored 0.00, which also corresponds to the frustration level, further emphasizing the widespread challenge in engaging with the material meaningfully. The cumulative percent for these two frustration-level groups reached 72.2%. Meanwhile, 27.8%, corresponding to a frequency of 5, attained a score of 2, categorized under the instructional level, indicating that although some students showed emerging skills in making logical connections, they still required guided support to fully comprehend the text. The valid percent distribution confirmed 100.0% of students were accounted for, and the overall group performance fell collectively under the frustration level. These findings align with research suggesting that effective reading interventions significantly influence comprehension abilities, particularly in middle-grade students facing challenges. Interventions that incorporate explicit teaching of reading strategies and meaningful contexts have been shown to enhance comprehension outcomes (Barth & Elleman, 2017; Gajria et al., 2007; Guthrie et al., 2009), and studies emphasize the importance of comprehension strategies in improving the inferential reading capabilities of students who struggle (Kelso et al., 2022; Klauda & Guthrie, 2014). The data therefore serve as a foundational touchstone for analyzing the impact of Vygotsky-inspired approaches, which posit that contextualized learning experiences can enhance cognitive processes like inference-making, ultimately improving reading comprehension skills among students classified as frustrated readers (Barth & Elleman, 2017; Gajria et al., 2007; Guthrie et al., 2009).

In the area of drawing conclusions from context clues, the baseline results revealed the most pronounced difficulties among the three inferential subskills. A substantial 55.6% of the respondents, corresponding to a frequency of 10, scored 0.00 out of 3 points, placing them at the frustration level and highlighting a significant weakness in their ability to draw conclusions from context clues. Additionally, 27.8%, corresponding to a frequency of 5, scored 1, which also falls under the frustration level, further indicating persistent challenges in using contextual information to infer meaning. The cumulative percent for these two groups reached 83.3%. Only 16.7%, corresponding to a frequency of 3, achieved a score of 2, categorized under the instructional level, suggesting that while a small portion of the cohort demonstrated emerging inferencing skills, they still required guided support. The valid percent for all categories summed to 100.0%, and the overall group performance confirmed placement at the frustration level. These findings underscore a widespread difficulty in drawing conclusions from context

clues and highlight the necessity for targeted instructional strategies that engage students in meaningful reading practices. Research emphasizes the importance of comprehension strategies such as identifying text structures and main ideas, which are particularly effective for frustrated readers. Framing reading experiences within an interactive and context-rich digital environment may foster increased engagement, which is critical for reading success in struggling adolescent learners, consistent with the theoretical foundations of Vygotsky's Sociocultural Theory, which suggests that social interaction and contextualized learning can support cognitive development and reading proficiency.

Level of inferential reading comprehension of students after implementing Vygotsky-inspired contextualized digital OER materials

Following the 13 sessions of intervention using Vygotsky-inspired Contextualized Digital OER Materials, students' inferential reading comprehension was reassessed across the same three subskill areas. The posttest results reveal meaningful shifts in students' performance distributions across all three inferential reading competencies, indicating the positive impact of the scaffolded, interactive digital materials on their ability to interpret implied meanings, make logical connections, and draw conclusions from context clues.

In the area of interpreting implied meanings and ideas, prior to the posttest, students engaged in a series of scaffolded activities including digital reading sessions, interactive digital exercises, and targeted prompts that encouraged them to infer ideas beyond the literal content. Students also completed practice quizzes and reflection tasks using the Vygotsky-inspired Contextualized Digital OER Materials, which provided immediate feedback and reinforced critical thinking skills. The posttest results presented encouraging outcomes reflecting noticeable growth. A significant 38.9%, corresponding to a frequency of 7, scored 2 points, which falls under the instructional level, indicating that many learners were developing the capacity to understand ideas that are suggested rather than explicitly stated. Even more noteworthy, 33.3%, corresponding to a frequency of 6, achieved the highest score of 3, placing them at the independent level, demonstrating strong inferential comprehension and the ability to derive deeper insights from the text without assistance. The cumulative percent for these two groups accounted for 100.0% of respondents. Meanwhile, 16.7%, corresponding to a frequency of 3, scored 1 point, and 11.1%, corresponding to a frequency of 2, scored 0.00, both of which fall under the frustration level. The valid percent for all categories summed to 100.0%, and the overall group performance placed at the instructional level. These results show that although a smaller group of students continued to struggle with interpreting implied meanings, they represent important starting points for further instructional support, while the distribution as a whole paint an optimistic picture of students' developing inferential comprehension, with the presence of high achievers alongside a strong proportion of learners reaching the instructional level affirming the effectiveness of the instructional efforts implemented.

In the area of making logical connections, the posttest results showed that 38.9%, corresponding to a frequency of 7, scored 2 out of 3, placing them at the instructional level, indicating that a significant portion of learners were beginning to draw inferences and make logical connections based on the text. Meanwhile, 33.3%, corresponding to a frequency of 6, scored 1, corresponding to the frustration level, suggesting that these learners were starting to recognize basic connections in the material, representing an important early stage in developing inferential comprehension. Additionally, 22.2%, corresponding to a frequency of 4, scored 0.00 at the frustration level, highlighting a group that requires targeted support to strengthen foundational reading skills. The cumulative percent for frustration-level groups reached 55.5%. Notably, 5.6%, corresponding to a frequency of 1, achieved the full score of 3 at the independent level, demonstrating the ability of a small group of learners to apply higher-order

reasoning effectively using the contextualized materials. The valid percent for all categories summed to 100.0%, and the overall group performance placed at the frustration level. While 55.5% of students remained at the frustration level, this should be viewed as a foundation for targeted development, given that a substantial number of learners had already reached instructional and independent levels, reflecting emerging strengths and readiness for continued scaffolded instruction.

In the area of drawing conclusions from context clues, students participated in a series of targeted activities involving leveled passages, guiding prompts, vocabulary supports, comprehension questions, and interactive exercises such as drag-and-drop tasks and matching activities. The posttest results indicated that 38.9%, corresponding to a frequency of 7, scored 2 out of 3, corresponding to the instructional level and reflecting a moderate grasp of inferential reasoning skills. Additionally, 33.3%, corresponding to a frequency of 6, achieved the full score of 3 at the independent level, demonstrating stronger comprehension capabilities. Meanwhile, 22.2%, corresponding to a frequency of 4, scored 1 at the frustration level, and 5.6%, corresponding to a frequency of 1, scored 0.00 at the frustration level. The cumulative percent showed that 27.8% of respondents remained at the frustration level, while 72.2% performed at instructional and independent levels combined. The valid percent for all categories summed to 100.0%, and the overall group performance placed at the instructional level. This positive trend indicates that the Vygotsky-inspired Contextualized Digital OER effectively fostered learners' ability to move beyond literal understanding. Evidence from the literature supports this outcome: Barth and Thomas (2021) found that students with reading difficulties significantly benefit from explicit, scaffolded instruction in inference-making, using graphic organizers and feedback to strengthen their ability to draw knowledge-based inferences. Similarly, Yawiloeng (2022) demonstrated that multimodal scaffolds, including visuals, vocabulary supports, and peer interaction, positively impact reading comprehension and inferencing among EFL learners, indicating that digital scaffolds and interactive reading strategies, when deliberately designed and structured, can help all learners develop deeper, more accurate, and more confident inferential reading comprehension skills.

Significant difference of students' inferential reading comprehension level before and after implementing Vygotsky-inspired contextualized digital OER materials

To provide a complete basis for understanding the significance of improvement, it is necessary to examine the descriptive profiles of students' performance before and after the intervention across all three inferential subskills. Before the implementation of the Vygotsky-inspired Contextualized Digital OER Materials, the assessment of students' capabilities in interpreting implied meanings yielded a mean score of 0.7778 with a standard deviation of 0.64676, suggesting a moderate level of proficiency in this area albeit with noticeable variability among the students. The ability to make logical connections demonstrated a slightly higher mean score of 0.9444 with a standard deviation of 0.80237, indicating that while some students performed well in establishing logical relationships between elements of the text, a significant degree of inconsistency in performance remained. The skill of drawing conclusions from context clues revealed a lower mean score of 0.6111 with a standard deviation of 0.77754, highlighting challenges faced by students in this critical comprehension facet. Collectively, these initial findings underscored a pressing need for targeted interventions, aligning with the study's theoretical framework drawing on Vygotsky's Sociocultural Theory, Cognitive Load Theory, and Bruner's Constructivist Learning Theory, which emphasize that scaffolded, contextualized, and interactive supports can help learners progress from assisted to independent

reading (McLeod, 2025; Sweller, 1988; Tsulaia, 2023). Previous research also supports this approach, as structured guidance, multimodal scaffolding, and interactive OER-based resources have been shown to improve comprehension and reasoning skills among struggling readers (Yawiloeng, 2022; Abbas, Shaheen, & Mahjabeen, 2024; Uçak & Kartal, 2023).

After the implementation of the Vygotsky-inspired Contextualized Digital OER Materials, the specific measures of inferential comprehension revealed substantial improvements across all three subskills. The mean score for interpreting implied meanings rose to 1.9444 with a standard deviation of 0.99836, indicating a degree of proficiency among students in grasping nuanced meanings within texts. The ability to make logical connections scored a mean of 1.2778 with a standard deviation of 0.89479, suggesting a developing capability for students to synthesize information from various sources, a cornerstone of inferential reasoning essential for academic success. The capacity to draw conclusions from context clues exhibited a mean score of 2.0000 with a standard deviation of 0.90749, indicating that students were beginning to effectively use contextual information to infer deeper meanings from texts, consistent with Vygotsky's notion of learning as a socially mediated process in which contextual supports enhance cognitive development (as cited in Tsulaia, 2023). Comparing these posttest results with the pretest data, the mean for interpreting implied meanings increased from 0.7778 (SD = 0.64676, standard error mean = 0.15244) to 1.9444 (SD = 0.99836, standard error mean = 0.23532). The mean for making logical connections increased from 0.9444 (SD = 0.80237, standard error mean = 0.18912) to 1.2778 (SD = 0.89479, standard error mean = 0.21090). The mean for drawing conclusions from context clues increased from 0.6111 (SD = 0.77754, standard error mean = 0.18327) to 2.0000 (SD = 0.90749, standard error mean = 0.21390). This comparative improvement across all three competencies highlights the effectiveness of these pedagogical strategies in meeting the needs of frustrated readers. Supporting this, Cuba Carbajal, Chenet Zuta, and Bayat (2023) found that intermediate EFL learners who participated in scaffolded, cooperative learning activities demonstrated notable improvements in comprehension, motivation, and reduced reading anxiety, illustrating how structured peer engagement and interactive materials can promote deeper understanding in reading.

To determine whether the observed improvements were statistically significant, a paired sample t-test was conducted comparing students' pretest and posttest scores across the three inferential reading competencies, with significance evaluated at the 0.05 alpha level. For Pair 1, comparing interpreting implied meanings before and after implementation, the analysis yielded a mean difference of -1.00000, a standard deviation of 1.23669, a standard error mean of 0.29149, a 95% confidence interval of the difference with a lower bound of -1.61499 and an upper bound of -0.38501, a t-value of -3.431 with 17 degrees of freedom, a one-sided p-value of .002, and a two-sided p-value of .003. For Pair 2, comparing making logical connections before and after implementation, the analysis yielded a mean difference of -0.66667, a standard deviation of 1.08465, a standard error mean of 0.25565, a 95% confidence interval of the difference with a lower bound of -1.20605 and an upper bound of -0.12728, a t-value of -2.608 with 17 degrees of freedom, a one-sided p-value of .009, and a two-sided p-value of .018. For Pair 3, comparing drawing conclusions from context clues before and after implementation, the analysis yielded a mean difference of -1.44444, a standard deviation of 1.42343, a standard error mean of 0.33550, a 95% confidence interval of the difference with a lower bound of -2.15230 and an upper bound of -0.73659, a t-value of -4.305 with 17 degrees of freedom, a one-sided p-value of less than .001, and a two-sided p-value of less than .001. Since the p-values for both one-sided and two-sided tests across all three pairs are below the critical threshold of 0.05, the null hypothesis is rejected for all three paired comparisons, indicating that there are statistically significant differences in students' inferential reading comprehension levels across all assessed competencies before and after the implementation. This demonstrates

that the Vygotsky-inspired Contextualized Digital OER Materials meaningfully improved learners' inferential reading comprehension. The notable improvement aligns with Vygotsky's (1978) concept of the Zone of Proximal Development (ZPD), which emphasizes that students achieve higher levels of understanding when instructional support is tailored to what they can accomplish with guidance, with the interactive and scaffolded features of the OER materials allowing students to engage more deeply with texts and facilitating their ability to interpret implied meanings and draw logical conclusions. Hilton (2016) reported that open educational resources can enhance students' engagement and comprehension outcomes, and a meta-analysis of online learning found that scaffolding, whether conceptual, procedural, or metacognitive, significantly improves reading and learning outcomes (Zuo et al., 2023). Research on web-based problem-solving further indicates that integrating concept mapping with guided prompts can strengthen students' reading-related reasoning skills while reducing cognitive load, thereby promoting more effective comprehension (Hwang et al., 2014).

Students' experiences during implementation of Vygotsky-inspired contextualized digital OER materials

To gain a deeper understanding of how the Vygotsky-inspired Contextualized Digital OER Materials influenced students' reading experiences, qualitative data were gathered to explore learners' perceptions, challenges, and engagement during the 13 sessions of implementation. Analysis of these narratives reveals six interrelated themes encompassing students' first impressions of the digital materials, the effect of the digital format and scaffolds on reading interest, the usefulness of scaffolded questions and guided prompts, difficulties encountered, suggested improvements for engagement and usability, and the impact of the intervention on reading confidence and comprehension ability.

Regarding first impressions of using digital materials, several learners expressed mixed emotions during their initial use of the electronic materials. Most students shared that they felt apprehensive because they were not yet familiar with the computer, as one student expressed, "Nakulbaan sir kay dili pako familiar sa computer," while others found the experience enjoyable and stimulating, noting, "Nindot kay lain-lain ang mga basahunon unya exciting pa gyud siya." These varied reactions show that learners respond differently to digital instructional materials. For students who struggled with reading, their level of engagement and comprehension was shaped not only by the content but also by how the material was presented and delivered. Those with limited experience navigating an unfamiliar platform often needed additional support, as such unfamiliarity can reduce confidence and distract from the tasks. In contrast, students who viewed digital tools positively tended to be more eager to explore the activities and participate more actively. Recognizing and addressing these emotional responses is essential for designing educational tools that foster both learning and learner confidence. Supporting this, Getenet, Cantle, Redmond, and Albion (2024) found that students with positive attitudes toward technology and strong digital skills exhibit higher self-efficacy, which in turn enhances their participation and engagement in online learning. Consequently, providing scaffolding, guidance, and structured support is crucial to help learners navigate digital materials successfully while promoting both skill development and positive emotional experiences.

Regarding the effect of the digital format and scaffolds on reading interest, participants' responses revealed a range of engagement and comprehension levels. Many students noted that the tools provided guidance that enhanced their understanding of the reading materials and that the inclusion of quizzes helped them assess their knowledge and track their learning progress.

Several students stated, "Naganahan ko sa pagbasa sir ug sa pag-answer," and "Nakadasig nako sa pagbasa, samot na nga ighuman nakog answer sa matag question mofeedback dayon if check akong answer." These comments illustrate how interactive features and immediate feedback sustained students' interest and engagement with the texts. Analysis of these responses suggests that the digital scaffolds, including leveled passages, embedded prompts, and auto-checked quizzes, played an important role in enhancing comprehension and motivation. However, a small subset of students reported minimal impact from the digital adaptations, demonstrating that these tools do not affect all learners uniformly. Supporting this, Choi and Johnson (2022) found that students with higher digital literacy gained more from scaffolded digital reading tools, while those with limited technological experience struggled to navigate the features and experienced smaller improvements in comprehension, emphasizing the importance of designing flexible, adaptable digital interventions that address individual differences in learning preferences, technological familiarity, and intrinsic motivation.

Regarding the usefulness of scaffolded questions and guided prompts, most respondents shared that the variety of activities and the structured guidance not only facilitated comprehension but also sparked interest and enjoyment. One student noted, "Nakatabang siya sir kay lain-lain man ang mga activities unya exciting ug interesting pa gyud." These reflections illustrate how scaffolded prompts and guided questions made the reading process more manageable, engaging, and motivating, demonstrating the potential of interactive, scaffolded digital materials to enhance learning experiences. These responses highlight the importance of scaffolded guidance in digital reading interventions, as scaffolded prompts help students process information systematically, reduce cognitive overload, and internalize reading strategies by directing attention to relevant textual cues. This approach aligns with Vygotsky's sociocultural theory, which emphasizes that cognitive development is mediated through guided interaction and social support (Momtaz & Naji, 2023), and reinforces the value of well-designed, contextually relevant digital resources in the teaching of English, particularly for supporting the gradual development of independent inferential reading skills among struggling readers.

Regarding difficulties encountered with the Vygotsky-inspired Contextualized Digital OER Materials, students' responses revealed challenges related to interface navigation and physical discomfort. Several students indicated the need for assistance, with one stating, "Maong usahay tawgon tika sir para patabang kog click sa sunod sir." Two students reported, "Wala ra man sir, naglisod ko sa paggamit kay daghan iclick click sa laptop," while one added, "Usahay pod musakit akong mata sige ug tutok sa laptop hangtod maglisod nalng ko ug sabot." These comments show that navigating the digital materials was challenging, especially when the interface contained multiple buttons and interactive elements. Research indicates that digital platforms with excessive features, buttons, or navigation options can impose a high cognitive load, making it difficult for learners to focus on essential comprehension processes and retain information effectively (Chang & Yang, 2023; Faber, Dankbaar, van den Broek, et al., 2024; Zuo et al., 2023). In addition, vocabulary limitations posed further challenges, as students struggled to understand key terms necessary for higher-order reading tasks such as drawing inferences, making logical connections, and interpreting implied meanings (van der Leij, van Steensel, & van Gelderen, 2022; Martínez-Boza & Ruiz, 2023). These observations emphasize that while digital scaffolds and interactive features can enhance learning, their effectiveness depends on how well they address learners' individual needs, prior knowledge, and language proficiency, making it essential to integrate carefully designed scaffolds such as guiding prompts, comprehension checks, and supportive feedback into digital reading materials to reduce cognitive overload, improve engagement, and strengthen students' inferential reading skills.

Regarding suggested improvements for engagement and usability, while many learners expressed satisfaction with the current resources, others offered recommendations for enhancing the digital materials. Some students were satisfied, stating, "Wala, kuntinto rako sir," while others specifically recommended the inclusion of multimedia features, with one learner expressing, "Sir, pun an ug mga audio ug videos para mas ganahan ko mubasa sir." These responses underscore the critical role that multimedia elements can play in enriching digital reading materials. Integrating videos, audio, and other multimodal supports alongside text offers learners multiple channels for processing information, which can strengthen understanding and facilitate memory retention (Birch, Sankey, & Gardiner, 2010). Multimedia features can also capture students' attention more effectively than text alone, providing visual and auditory cues that clarify complex ideas and reinforce key concepts, and interactive elements such as embedded videos, narrated passages, and animated illustrations can help learners connect prior knowledge to new content, supporting deeper comprehension and the development of inferential reading skills.

Regarding the impact on reading confidence and comprehension ability, most students reported noticeable improvements in their reading confidence after receiving feedback from the digital materials. Several learners expressed increased willingness to explore new passages, demonstrating that early successes with scaffolded support fostered intrinsic motivation. Students shared, "Mas maningkamot na makat on pa gyud ug basa," and "Nakatabang sa pag answer ug pagbasa sa English." These responses highlight how structured digital materials can positively affect both reading confidence and comprehension. Scaffolded feedback allows students to identify areas of strength and weakness, promoting self-awareness and encouraging persistence. Research supports the idea that combining scaffolding with timely feedback in digital learning environments enhances reading comprehension and engagement (El-Henawy, 2024), and by gradually increasing learners' autonomy and providing opportunities for guided practice, Vygotsky-inspired contextualized digital OER materials help struggling readers develop both the skills and the confidence needed to approach texts with greater competence and motivation.

The findings of this study collectively address all three primary research objectives and provide compelling evidence of the effectiveness of Vygotsky-inspired Contextualized Digital OER Materials in improving the inferential reading comprehension of Grade 8 frustrated readers at Cabangahan National High School. Prior to the intervention, the PHIL-IRI baseline results confirmed that the group performed at the frustration level across all three inferential subskills, with mean scores of 0.7778 (SD = 0.64676) for interpreting implied meanings, 0.9444 (SD = 0.80237) for making logical connections, and 0.6111 (SD = 0.77754) for drawing conclusions from context clues. Following the 13 sessions of structured digital intervention, posttest mean scores rose to 1.9444 (SD = 0.99836), 1.2778 (SD = 0.89479), and 2.0000 (SD = 0.90749) respectively, with accompanying shifts in students' reading comprehension level distributions indicating movement from the frustration level toward the instructional and independent levels. Paired sample t-test analysis confirmed statistically significant differences for all three competencies: interpreting implied meanings ($t = -3.431$, $df = 17$, one-sided $p = .002$, two-sided $p = .003$), making logical connections ($t = -2.608$, $df = 17$, one-sided $p = .009$, two-sided $p = .018$), and drawing conclusions from context clues ($t = -4.305$, $df = 17$, one-sided $p < .001$, two-sided $p < .001$), with all p-values falling below the 0.05 alpha level and the null hypothesis rejected in all three instances. Qualitative data further revealed that students responded positively to the scaffolded, interactive features of the digital materials, with notable gains in reading confidence and motivation, though challenges related to interface navigation, vocabulary limitations, and the absence of multimedia features were also identified. Taken

together, these findings contribute to the growing body of evidence on the effectiveness of technology-enhanced, sociocultural-theoretically grounded reading interventions for struggling learners in Philippine educational contexts, and provide an empirical foundation for the proposed Vygotsky-inspired contextualized digital OER reading intervention program presented in the succeeding chapter.

CONCLUSION

This study determined the effectiveness of Vygotsky-inspired Contextualized Digital OER Materials in improving the inferential reading comprehension skills of Grade 8 Responsible frustrated readers at Cabangahan National High School, Consolacion District, Cebu, during the School Year 2025-2026. The investigation focused on students' performance in three key inferential reading competencies, namely interpreting implied meanings and ideas, making logical connections, and drawing conclusions from context clues. It also examined the extent to which the implementation of Vygotsky-inspired contextualized digital OER materials addressed learners' comprehension difficulties and explored students' experiences throughout the intervention process. Through the integration of quantitative and qualitative findings, the study provided a comprehensive understanding of the effectiveness of scaffolded digital resources in supporting struggling readers and served as the basis for the development of a Vygotsky-inspired Contextualized Digital OER Reading Intervention Program.

The findings revealed that prior to the intervention, students experienced considerable difficulty across all inferential reading competencies. Their performance in interpreting implied meanings and ideas, making logical connections, and drawing conclusions from context clues was generally classified at the frustration level, indicating substantial challenges in understanding information beyond what was explicitly stated in the text. These results confirmed the need for targeted instructional support designed to strengthen inferential comprehension skills among struggling readers. Following the implementation of the Vygotsky-inspired contextualized digital OER materials, students demonstrated notable improvements in their inferential reading performance. Most learners progressed to the instructional level in interpreting implied meanings and ideas, while many also achieved instructional-level performance in drawing conclusions from context clues. Although the overall results for making logical connections remained within the frustration level, several students advanced to the instructional level, suggesting emerging competence and highlighting the potential for further development through sustained and focused intervention.

The quantitative results further established that the intervention significantly improved students' inferential reading comprehension. Statistical analysis using the paired samples test revealed significant differences between students' pre-intervention and post-intervention performance across all assessments, resulting in the rejection of the null hypothesis. These findings indicate that the Vygotsky-inspired contextualized digital OER materials effectively supported the development of inferential reading skills by providing structured guidance, contextualized content, and opportunities for active engagement. The qualitative findings reinforced these results by revealing generally positive student experiences throughout the intervention. Participants reported that scaffolded prompts, quizzes, and interactive features enhanced their comprehension and increased their confidence in reading. Although some students initially encountered difficulties related to technology use and unfamiliar vocabulary, the engaging nature of the digital materials encouraged active participation and sustained interest in reading activities. Students also suggested the inclusion of additional multimedia features to further strengthen engagement and learning experiences.

Taken together, the findings demonstrate that the implementation of Vygotsky-inspired Contextualized Digital OER Materials was an effective instructional approach for enhancing inferential reading comprehension among frustrated readers. The intervention successfully improved students' abilities to interpret implied meanings and ideas and draw conclusions from context clues while also contributing to gains in making logical connections. Nevertheless, the comparatively limited improvement in making logical connections suggests that this competency requires additional instructional attention and more intensive scaffolding. These results support the implementation of a school-based reading intervention program grounded in Vygotskian principles, which integrates contextualized digital OER materials to provide systematic and targeted support for learners experiencing difficulties in inferential reading comprehension.

In light of these conclusions, the study underscores the importance of integrating Vygotsky-inspired contextualized digital OER materials into reading instruction and intervention programs. English teachers are encouraged to utilize these resources to scaffold learners' development of inferential reading skills, particularly in interpreting implied meanings, making logical connections, and drawing conclusions from context clues. Effective implementation should involve the use of assessment tools such as the PHIL-IRI to identify learners' needs, the provision of instructional support aligned with students' Zone of Proximal Development, and the continuous monitoring of learner progress. Teachers are likewise encouraged to facilitate interactive learning activities, guide classroom discussions, employ prompts that support comprehension, and document effective practices and challenges to refine intervention strategies and promote independent inferential reading skills.

The study also highlights the important role of students, parents, curriculum developers, and educational practitioners in sustaining reading development. Students should actively engage with scaffolded activities and utilize available supports to strengthen their comprehension skills. Parents and guardians can contribute by encouraging reading practices at home, supporting the use of digital OER materials, and engaging learners in meaningful discussions about texts to deepen understanding. Furthermore, curriculum developers and MAED practitioners are encouraged to design reading modules that incorporate scaffolded questioning techniques, multimedia resources, and interactive tasks that gradually transition learners from guided practice toward independent reading. Finally, future research and professional development initiatives should investigate the long-term impact of scaffolded digital OER interventions, determine the most effective multimedia and interactive features for reading instruction, and provide educators with sustained training in Vygotsky-inspired scaffolding, digital literacy, and the effective utilization of Open Educational Resources. Through these collective efforts, schools can foster more inclusive, engaging, and learner-centered reading environments that support the development of proficient, confident, and independent readers.

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