



## Digital Tool for Reading Skills Improvement

Jeralyn O. Orciso<sup>1</sup>, Genebelle E. Oniego<sup>2</sup>

<sup>1,2</sup>State University of Northern Negros, Philippines

Corresponding Email: [jeralyn.orciso@deped.gov.ph](mailto:jeralyn.orciso@deped.gov.ph)

Received: March 14, 2026

Revised: April 9, 2026

Accepted: April 16, 2026

### ABSTRACT

This study examined the effectiveness of a digital reading platform in improving the reading fluency and comprehension of Grade 4 pupils at Manara Integrated School in Sagay City, Philippines. The research employed a quasi-experimental one-group pretest–posttest design to measure changes in pupils’ reading performance after exposure to the intervention. The digital platform Raz-Kids served as the instructional intervention, while the Philippine Informal Reading Inventory was used as the primary measurement tool for assessing reading fluency and comprehension. Twenty Grade 4 pupils participated in the study. Pretest results indicated that most pupils were performing below expected reading proficiency levels, with 65% classified at the frustration level, 30% at the instructional level, and only 5% at the independent level. After an eight-week intervention using Raz-Kids, notable improvements were observed. Posttest results showed a decrease in frustration-level readers and an increase in instructional and independent readers. Mean fluency scores improved from 63.45 (SD = 7.12) to 81.30 (SD = 5.61). A paired-sample t-test revealed a statistically significant improvement in reading fluency ( $t = 12.05$ ,  $p < .05$ ) with a very large effect size (Cohen’s  $d = 2.41$ ). The findings suggest that structured digital reading platforms can enhance pupils’ fluency and comprehension by providing leveled texts, audio-supported reading, immediate feedback, and opportunities for repeated reading practice. The integration of digital reading tools in literacy instruction therefore presents a promising strategy for improving reading performance among elementary learners. However, the study is limited by its small sample size and the absence of a control group, which restricts the generalizability of the findings. Future studies using experimental designs and larger samples are recommended to further validate the effectiveness of digital reading interventions in the Philippine context.

**Keywords:** Digital Reading Tool, Fluency, Phil-Iri, RazKids, Reading Comprehension

### How to Cite:

Orciso, J. O., & Oniego, G. E. (2026). Digital Tool for Reading Skills Improvement. *Global Journal of STEM Education & Management Research*, 2(1), 228-235. <https://doi.org/10.5281/zenodo.19603010>



This work is Licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/).



## INTRODUCTION

The integration of digital technologies has transformed literacy instruction in many educational systems. Schools increasingly use digital resources such as interactive e-books, gamified reading platforms, and adaptive learning applications to support reading development. These tools create interactive environments that encourage learners to actively engage with texts. Studies show that digital reading platforms can enhance reading fluency, comprehension, and learner motivation when integrated effectively into classroom instruction (Nguyen, 2022; Uhlig et al., 2023).

Despite these technological developments, reading comprehension remains a major concern among Filipino learners. Results from the Programme for International Student Assessment conducted in 2018 and 2022 revealed that Filipino students ranked among the lowest in reading literacy worldwide (OECD, 2023). These findings highlight persistent challenges in reading comprehension and the need for effective literacy interventions. The COVID-19 pandemic further emphasized the role of digital learning tools, as teachers relied on online platforms and mobile reading applications to sustain literacy instruction during remote learning (Caldito et al., 2022; Labaria et al., 2021).

At the local level, similar challenges are observed in the Division of Sagay City. Results from the Philippine Informal Reading Inventory pretest conducted during the first month of School Year 2025–2026 showed that most Grade 4 pupils at Manara Integrated School were performing below the expected reading level. Among the twenty pupils assessed, thirteen were classified at the frustration level, six at the instructional level, and only one pupil reached the independent reading level. These results indicate that many pupils struggle to read and comprehend texts independently. Limited access to engaging reading materials and reliance on traditional instructional approaches may further hinder the development of reading fluency and comprehension.

To address these challenges, digital reading platforms such as Raz-Kids have been explored as instructional interventions. Raz-Kids provides leveled digital texts that support the development of decoding, fluency, vocabulary, and comprehension. The platform aligns with the principles of differentiated instruction, which emphasize matching instructional materials with learners' abilities (Tomlinson, 2024). It also incorporates audio-supported reading, comprehension quizzes, and progress monitoring features that allow teachers to provide immediate feedback and track learners' reading progress (Fullan, 2023). These features reflect constructivist and behaviorist learning principles by providing interactive reading experiences and repeated practice with reinforcement.

Although previous studies have reported the effectiveness of digital reading tools in improving literacy skills, limited research has examined their integration with national diagnostic assessments used in Philippine schools. In particular, few studies have explored how Raz-Kids can be aligned with the Philippine Informal Reading Inventory to support reading instruction and measure learners' reading progress. Addressing this gap, the present study investigates the effectiveness of Raz-Kids in improving the fluency and reading comprehension of Grade 4 pupils at Manara Integrated School. Using a quasi-experimental research design, the study evaluates changes in reading performance using Phil-IRI classifications of independent, instructional, and frustration levels. The findings aim to provide empirical evidence on how digital reading tools can be integrated with established assessment frameworks to improve literacy instruction in elementary classrooms.

## OBJECTIVES OF THE STUDY

This study aimed to determine the effectiveness of a digital reading tool in improving pupils' reading skills—particularly decoding, fluency, and vocabulary—and the resulting gains in comprehension as measured by the Philippine Informal Reading Inventory. Specifically, the study sought to:

1. Determine the pretest levels of decoding and fluency using Phil-IRI.
2. Determine the posttest levels of decoding and fluency after exposure to the digital reading tool.
3. Identify pupils' comprehension levels before and after the intervention based on the Phil-IRI classifications of independent, instructional, and frustration levels.
4. Compare the pretest and posttest reading performance in terms of decoding, fluency, and comprehension.
5. Determine whether a significant difference exists between the pretest and posttest scores following the use of the digital reading tool.



## LITERATURE REVIEW

The integration of digital technologies in literacy instruction has received increasing attention as educators seek innovative strategies to improve learners' reading performance. Digital tools provide interactive environments that allow learners to

engage actively with texts through multimedia features, guided reading tasks, and immediate feedback. Studies consistently report that digital reading platforms can enhance reading engagement and support the development of essential reading skills, particularly fluency and comprehension. These technologies enable learners to interact with texts in ways that traditional printed materials may not provide, thereby creating opportunities for repeated practice and individualized learning.

A common pattern across existing studies is the positive relationship between digital reading tools and learners' reading engagement. Interactive platforms encourage learners to participate more actively in reading tasks by incorporating audio narration, visual supports, and interactive comprehension activities. (Sun, et.al.,2021) found that digital storytelling applications increased learners' motivation and reading participation, while (Uhlig et al. 2023) reported that digital text interaction improved learners' comprehension performance in classroom settings. These findings suggest that digital reading environments can promote sustained reading engagement, which is an important factor in developing reading proficiency.

Another consistent finding in the literature is that digital reading tools support the development of reading fluency, which in turn contributes to improved comprehension. Fluency refers to the ability to read text accurately, quickly, and with appropriate expression. Fluent readers can allocate more cognitive resources to understanding the meaning of a text rather than focusing solely on decoding individual words (Hudson et al., 2021). Digital platforms often provide scaffolding features such as audio-supported reading, repeated reading opportunities, and guided comprehension questions. These features help learners develop reading accuracy and pacing, which are critical components of fluency (Nguyen, 2022; Saidon et al., 2021). As fluency improves, learners are better able to process information and construct meaning from texts.

However, some studies suggest that the effectiveness of digital tools depends largely on how they are integrated into classroom instruction. While many studies report positive outcomes, others argue that digital platforms alone do not guarantee improvements in comprehension without proper instructional guidance and monitoring by teachers. Snow (2020) emphasizes that reading comprehension involves complex interactions between the reader's background knowledge, reading strategies, and text features. This suggests that digital reading tools must be used alongside structured instructional support to maximize their impact on learners' reading development.

In the Philippine educational context, the Philippine Informal Reading Inventory is widely used as a diagnostic tool to determine learners' reading ability. The Phil-IRI assesses both oral reading fluency and comprehension through reading passages and comprehension questions. Based on their performance, learners are classified into independent, instructional, and frustration levels. These classifications guide teachers in identifying learners who require targeted reading interventions. The widespread use of Phil-IRI in Philippine public schools makes it an important framework for evaluating reading improvement.

Recent Philippine studies have also explored the potential of digital reading tools in improving literacy skills. (Caldito, 2022) reported that the use of digital reading platforms improved learners' comprehension and reading motivation among elementary pupils. Similarly, (Labaria et al.,2021) found that online reading applications helped sustain reading development during remote learning by providing accessible and engaging reading materials. These findings support the growing interest in integrating digital tools into literacy instruction within Philippine schools.

One digital reading platform that has gained attention in literacy instruction is Raz-Kids. Raz-Kids provides leveled digital books, audio-supported reading, and comprehension quizzes that allow learners to practice reading independently while receiving structured guidance. The platform supports the development of decoding, fluency, vocabulary, and comprehension through repeated reading activities and interactive assessments. Studies indicate that consistent use of Raz-Kids can improve learners' reading fluency and comprehension while increasing motivation to read (Labaria et al., 2021).

Despite the growing body of research on digital reading tools, limited studies have examined how these platforms can be systematically aligned with national reading assessment systems used in schools. In particular, few studies have explored how Raz-Kids can be integrated with Phil-IRI to both support reading instruction and measure improvements in learners' reading performance. Most existing studies focus either on digital reading tools or on diagnostic assessments independently. As a result, there remains a need to examine how these two approaches can be combined to enhance reading instruction and improve learners' fluency and comprehension in the Philippine elementary school context.

## METHODOLOGY

### *Research Design*



This study employed a quasi-experimental one-group pretest–posttest research design to determine the effectiveness of a digital reading intervention in improving the reading comprehension of Grade 4 pupils at Manara Integrated School. This design allowed the researcher to measure changes in pupils' reading skills and comprehension before and after exposure to the intervention.

## ***Quantitative Phase***

The quantitative phase of this study is to measure changes in pupils' reading skills and comprehension before and after exposure to the intervention. Data were obtained through pretest and posttest results using the Philippine Informal Reading Inventory (Phil-IRI). Reading comprehension was assessed through comprehension questions that measured literal, inferential, and critical understanding. Based on their performance, pupils were classified into independent, instructional, and frustration levels, which served as the basis for determining the effectiveness of the intervention.

## ***Respondents to the study***

The respondents of the study consisted of twenty (20) Grade 4 pupils from Manara Integrated School, Division of Sagay City, during the School Year 2025–2026. The participants were selected based on their Phil-IRI pretest results, particularly those who fell within the instructional and frustration levels of reading comprehension. Total enumeration sampling was employed, wherein all pupils who met the inclusion criteria were included in the study. The sample size of twenty pupils represents the total number of Grade 4 learners who qualified based on the established criteria within the selected class. Although the number of respondents is relatively small, it is considered appropriate for a classroom-based intervention study that aims to examine the effectiveness of a digital reading tool. However, the limited sample size may affect the generalizability of the findings and is therefore acknowledged as a limitation of the study. In terms of demographic profile, the respondents were composed of ten (10) male and ten (10) female pupils. Their ages typically ranged from 9 to 10 years old, which corresponds to the expected age level of Grade 4 learners. The reading level distribution of the participants was determined through the Phil-IRI pretest results, categorizing them according to instructional and frustration levels before the implementation of the digital reading intervention. Before participation, parental consent and pupil assent were secured to ensure adherence to ethical research standards.

## ***Research Instrument***

The study employed two key tools: Raz-Kids as the digital instructional intervention and the Philippine Informal Reading Inventory (Phil-IRI) as the assessment measure for reading performance. Raz-Kids provided leveled reading texts, audio support, and comprehension quizzes to enhance reading fluency and comprehension during the intervention. It allowed for continuous monitoring of students' reading progress through built-in quizzes and activity records.

Phil-IRI, developed by the Department of Education, served as the standardized tool for assessing reading abilities before and after the intervention. It evaluates comprehension and categorizes students into three proficiency levels: independent (80–100%), instructional (59–79%), and frustration (58% and below). Reading fluency was measured through oral reading passages where students read aloud, while comprehension was assessed using Phil-IRI questions. Although quiz results from Raz-Kids provided insights into student engagement, they were not used to determine overall reading proficiency.

All assessments were conducted as pre- and posttests with Phil-IRI to ensure consistent measurement of reading performance before and after the Raz-Kids intervention.

## ***Validity***

The Phil-IRI was a standardized assessment tool developed by the Department of Education (DepEd, 2018) to measure reading comprehension in public schools. It ensured consistency in administration and scoring, and its validity was confirmed by aligning with national reading standards and widespread use in evaluating learners' performance.

## ***Reliability***

Its reliability was supported by consistent scoring criteria and structured administration procedures. In this study, the Phil-IRI served as the main instrument for determining pupils' reading comprehension levels, ensuring accurate and dependable measurement.

## ***Data Gathering Procedure***

Data collection was conducted in five stages: preparation, pretesting, intervention, post testing, and data consolidation, with a focus on enhancing reading skills such as fluency, and reading comprehension to improve overall reading comprehension.



*Preparation Stage.* In this initial stage, all necessary approvals and ethical compliance measures were established. Permissions were obtained from the Schools Division Superintendent and the school principal, along with parental consent and pupil assent to ensure voluntary participation. This groundwork laid a solid ethical foundation for the study.

*Pretesting Stage.* The Philippine Informal Reading Inventory (Phil-IRI) pretest was conducted with 20 Grade 4 pupils to assess their initial reading skills and comprehension levels. Pupils read grade-appropriate passages while their decoding, fluency, and vocabulary were evaluated, alongside their comprehension of literal, inferential, and critical questions. This assessment categorized performance into independent, instructional, and frustration levels, establishing a baseline for future growth.

*Intervention Stage.* Over eight weeks, pupils participated in two 40-minute sessions per week using Raz-Kids, a digital reading platform with interactive leveled materials. Each week focused on specific skills:

Week 1: Introduction to Raz-Kids with foundational texts and comprehension questions on literal understanding.

Week 2: Progression to inferential questions, fostering vocabulary usage in context.

Week 3: Emphasis on fluency through longer passages with audio support.

Week 4: Critical thinking questions aimed at higher-level comprehension and reinforcement of previously learned skills.

Week 5: Introduction of challenging texts and active listening exercises that integrated all skills.

Week 6: Individualized texts based on Phil-IRI levels to target specific reading difficulties.

Week 7: Engagement through interactive activities like quizzes and story retelling to reinforce fluency and comprehension.

Week 8: Consolidation activities that allowed comprehensive practice using audio-supported readings and leveled texts.

*Post testing Stage.* After the intervention, the Phil-IRI posttest was administered to evaluate progress in decoding, fluency, vocabulary knowledge, and reading comprehension. Pupils read new passages and answered comprehension questions targeting literal, inferential, and critical skills. Performance was scored and classified into independent, instructional, or frustration levels. Comparison with pretest results allowed measurement of growth in reading skills and comprehension, providing empirical evidence of the effectiveness of the digital intervention.

## ***Data Analysis Procedure***

The data collected in this study were analyzed to address the two research objectives, focusing on the reading skills of fluency and reading comprehension of Grade 4 pupils. For the first objective, pretest scores were obtained using the Philippine Informal Reading Inventory (Phil-IRI, 2018) to determine the baseline levels of fluency and reading comprehension. Fluency was measured through words per minute and reading smoothness, while comprehension was assessed through responses to comprehension questions and word usage tasks. These scores were converted into percentages using established formulas, allowing for the classification of pupils' skill levels.

For the second objective, overall reading comprehension was assessed using Phil-IRI passages and comprehension questions, with scores likewise converted into percentage form and classified as Independent (80–100%), Instructional (59–79%), or Frustration ( $\leq 58\%$ ). The pretest–posttest comparison was used to determine whether pupils progressed to higher comprehension levels following the intervention, thereby indicating practical improvement in reading performance.

Finally, to determine whether the differences between pretest and posttest scores in fluency and comprehension were statistically significant, a paired-samples t-test was conducted at a 0.05 level of significance. Before the analysis, assumption checks for the t-test were performed, including verification of the scale of measurement as interval data, confirmation of independence of observations based on the research design, and inspection of outliers using boxplots and standardized scores to ensure that no extreme values would distort the results. This analytical approach ensured a systematic and statistically sound evaluation of the changes in pupils' reading fluency and comprehension following the intervention.

## ***Ethical Consideration***

Ethical considerations were strictly observed throughout the study. Parental consent and pupil assent were obtained prior to participation, ensuring voluntary involvement. Confidentiality was maintained by assigning codes to pupils instead of using their names, and all data were securely stored for academic purposes only. Pupils were informed of their right to withdraw from the study at any time without penalty, and the intervention was conducted during regular class hours to prevent disruption of instructional time. These measures ensured that the study adhered to ethical standards while safeguarding the rights, privacy, and well-being of all participants.



## RESULTS AND DISCUSSION

### *Quasi-Experimental Method*

This section presents, analyzes, and interprets the data gathered to determine the effectiveness of the digital reading tool, particularly Raz-Kids, in improving the fluency and reading comprehension of Grade 4 pupils at Manara Integrated School. The pupils' reading performance was assessed using the Philippine Informal Reading Inventory (Phil-IRI) through pretest and posttest administration. The results are organized according to the specific objectives of the study.

The pretest results revealed that the pupils' fluency skill was at the Developing level, with a mean score of 63.45 (SD = 7.12). This indicates that prior to the intervention, pupils had not yet fully mastered the foundational reading skills necessary for efficient reading. Many pupils read slowly, with frequent hesitations and limited smoothness, which hindered their ability to process and understand texts effectively. These findings suggest that the learners required additional support and structured practice to improve their reading fluency.

After the implementation of the digital reading intervention, the posttest results showed a notable improvement in pupils' fluency performance. The mean score increased to 81.30 (SD = 5.61), which corresponds to the Proficient level. This improvement indicates that pupils were able to read more smoothly, accurately, and confidently after exposure to the digital reading tool. The interactive features of Raz-Kids, such as audio-supported texts, leveled reading materials, and repeated reading opportunities, likely contributed to the improvement by allowing pupils to practice reading independently while receiving guided support.

The distribution of pupils according to reading comprehension levels based on the Philippine Informal Reading Inventory (Phil-IRI) also demonstrated improvement. During the pretest, the majority of pupils (13 out of 20) were classified at the Frustration level, indicating serious difficulty in understanding texts independently. Only one pupil was categorized as an Independent reader. After the intervention, the number of pupils at the Independent level increased to four, while those at the Frustration level decreased to eleven. Although the Instructional level slightly decreased, this suggests that some pupils progressed to higher reading levels. These changes indicate gradual improvement in reading comprehension as pupils strengthened their foundational reading skills.

To determine whether the improvement between the pretest and posttest scores was statistically significant, a paired-sample t-test was conducted. The results revealed a significant difference between the two assessments, with a mean difference of 17.85 ( $t = 12.05$ ,  $df = 19$ ,  $p < 0.05$ ). Since the computed p-value is less than the level of significance ( $\alpha = 0.05$ ), the null hypothesis is rejected. This means that the observed improvement in pupils' fluency was not due to chance but was significantly influenced by the digital reading intervention.

Furthermore, the effect size analysis showed a Cohen's d value of 2.41, which is interpreted as a very large effect. This indicates that the intervention had a substantial impact on pupils' reading development. The large effect size suggests that the improvement was not only statistically significant but also educationally meaningful in terms of enhancing pupils' reading skills.

The study's findings indicate that using Raz-Kids as a digital reading tool significantly improved the fluency and comprehension of Grade 4 pupils. Notable progress was seen as students moved from Developing to Proficient levels in fluency and showed positive shifts in reading levels. These outcomes align with previous research on digital reading interventions, suggesting that structured platforms enhance engagement and allow for differentiated instruction.

The observed improvements can be viewed through Behaviorism, where repeated practice and feedback reinforced reading behaviors, and Constructivism, where students actively engaged with texts and constructed meaning. However, some pupils remained at the Frustration level, highlighting the need for targeted teacher support alongside digital tools. This underscores the importance of a balanced approach that combines reinforcement and active learning for optimal reading performance.

## CONCLUSION

The findings of this study indicate that the digital reading tool Raz-Kids had a positive effect on the reading fluency and comprehension of Grade 4 pupils in the Division of Sagay. After eight weeks of intervention, pupils demonstrated smoother, more accurate, and more expressive reading, as reflected in the significant increase in fluency scores. Reading comprehension also improved, with a higher number of pupils achieving the independent level and a decrease in those at the Frustration level based on the Philippine Informal Reading Inventory. These results suggest that consistent and guided practice using a structured digital platform can strengthen learners' ability to read fluently and comprehend texts independently. However, some pupils remained at the Frustration and Instructional levels, indicating that while the tool is effective, additional targeted support and differentiated instruction are still necessary to meet the needs of all learners.



Despite these promising results, several limitations should be considered when interpreting the findings. First, the study involved a relatively small sample size, which may limit the generalizability of the results to a broader population of learners. Second, the absence of a control group makes it difficult to attribute improvements solely to the intervention, as other external factors may have influenced pupils' reading development. Future studies may address these limitations by including larger and more diverse samples and employing experimental designs with comparison groups. Nonetheless, this study contributes to the growing body of knowledge on digital literacy interventions by providing empirical evidence that structured digital tools can effectively support the development of reading fluency and comprehension in elementary learners. It highlights the practical value of integrating technology into reading instruction and underscores the importance of combining digital tools with teacher-guided support to achieve more inclusive and sustained literacy outcomes. Education & Management Research

## RECOMMENDATIONS

*For Teachers.* Reading teachers in the Division of Sagay should regularly integrate digital tools like Raz-Kids in their Grade 4 instruction. Daily or bi-weekly sessions with audio-supported texts and interactive activities will enhance fluency and comprehension. Teachers should monitor students' progress through platform reports to inform their instruction and provide targeted feedback.

*For pupils* who continue to struggle at the Frustration or Instructional levels based on the Philippine Informal Reading Inventory, additional support such as small-group guided reading, remedial sessions, or individualized coaching is strongly recommended. This ensures that learners receive differentiated instruction tailored to their specific reading needs and promotes gradual progression toward independent reading.

*For Schools.* Schools and the Division of Sagay should provide ongoing professional development for reading teachers to integrate digital tools into literacy instruction. Training should focus on utilizing digital platforms, interpreting learner data, and creating blended reading interventions that combine technology and traditional teaching methods.

In addition, fostering collaboration among reading teachers is recommended to promote the sharing of best practices, lesson plans, and intervention strategies. Establishing a school-based or division-wide literacy learning community can strengthen the implementation of digital reading programs and ensure consistency in improving learner outcomes across grade levels.

*For Future Researchers.* Future research should involve larger sample sizes for better generalizability and representation of diverse learners. Studies should also use true experimental or quasi-experimental designs with control groups to assess the causal effects of digital reading interventions on fluency and comprehension.

Furthermore, conducting long-term impact studies is essential to determine whether improvements in reading skills are sustained over time and whether digital interventions have lasting effects on academic performance. Future research may also explore comparative studies between different digital reading platforms and examine how teacher facilitation moderates the effectiveness of such tools in improving literacy outcomes.

## Conflict of Interest

The researcher declares that there is no conflict of interest in the conduct of this study. The researcher did not receive any financial support, sponsorship, or funding from any organization related to the digital tool used in the research. The use of Raz-Kids was strictly for educational and research purposes. Likewise, the Philippine Informal Reading Inventory (Phil-IRI) was utilized as a standard assessment tool commonly used in Philippine public schools. The researcher has no personal or professional affiliation with the developers of Raz-Kids or any related company. No incentives or benefits were received that could influence the conduct or outcomes of the study. All procedures in data collection, analysis, and interpretation were carried out objectively and ethically. The researcher ensured that the findings were reported honestly and accurately. Any interpretations presented in this study are based solely on the results obtained from the data gathered. Therefore, the researcher affirms that the study was conducted with full transparency and without any competing interests that could affect its credibility.

## REFERENCES

- Albers, S., & Sanders, J. (2018). Supporting struggling readers with digital tools: A literacy intervention approach. *Journal of Literacy Research, 50*(2), 123–145.
- Caldito, R. D., & Pacala, J. R. (2022). Effects of e-reading platforms on reading comprehension and motivation among elementary learners. *Philippine Journal of Educational Technology, 7*(1), 45–62.
- Creswell, J. W., & Creswell, J. D. (2023). *Research design: Qualitative, quantitative, and mixed methods approaches* (6th ed.). Sage Publications.
- Department of Education (DepEd). (2018). *Philippine Informal Reading Inventory (Phil-IRI) manual and guide*. Department of Education.



- Department of Education (DepEd). (2021). *Basic Education Information System (BEIS): Literacy and reading programs report*. Department of Education.
- Duke, N. K., & Pearson, P. D. (2010). Effective practices for developing reading comprehension. In L. B. Gambrell, L. M. Morrow, & M. Pressley (Eds.), *Best practices in literacy instruction* (pp. 231–243). Guilford Press.
- Nguyen, T. (2022). Digital reading platforms and comprehension outcomes: A meta-analysis. *Computers & Education*, 174, 104315.
- Organisation for Economic Co-operation and Development (OECD). (2023). *PISA 2022 results: What students know and can do (Vol. I)*. OECD Publishing.
- Plano Clark, V. L., & Ivankova, N. V. (2022). *Mixed methods research: A guide to the field* (2nd ed.). Sage Publications.
- Rasinski, T., & Padak, N. (2019). *From phonics to reading comprehension: A systematic approach to classroom practices*. Heinemann.
- Saidon, J., et al. (2021). Reading engagement and comprehension: The role of interactive digital texts. *Journal of Educational Technology & Society*, 24(3), 98–115.
- Schneider, E., & Cromley, J. G. (2021). Digital scaffolds for reading comprehension: Classroom evidence and outcomes. *Reading Research Quarterly*, 56(4), 645–669.
- Snow, C. E. (2020). *Reading comprehension: Strategies for independent learning*. Wiley.
- Sun, Y., Chen, K., & Lee, P. (2021). The impact of gamified digital reading on young learners' comprehension and motivation. *International Journal of Educational Research*, 107, 101698.
- Uhlig, H. H., et al. (2023). Digital text interaction and comprehension gains: A classroom study. *Literacy Research and Instruction*, 62(2), 147–168.