TEACHING & LEARNING ENGLISH IN MULTICULTURAL CONTEXTS
http://jurnal.unsil.ac.id/index.php/tlemc/index
E-ISSN : 2541-6383
December 2025, Vol. 9 No. 2

ENHANCING READING ENGAGEMENT AND LITERACY THROUGH READS ROADMAPS AND INTERACTIVE E-BOOKS

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ABSTRACT

Teacher reading engagement plays an important role in shaping the quality of reading instruction and supporting students' reading literacy development. However, limited studies have integrated structured reading strategies with interactive digital tools while also considering teacher engagement as part of the instructional process. This study aimed to examine the effectiveness of the READS Roadmaps Strategy assisted by interactive e-books in improving students' reading literacy and to describe how its implementation is reflected in teacher reading engagement. This study employed a mixed-methods approach using a concurrent embedded design with a quasi-experimental model. The participants consisted of two eighth-grade classes at a junior high school in Padang, Indonesia, including an experimental class (35) and a control class (34), as well as one English teacher involved as a contextual participant. Data were collected through students' reading literacy tests, a teacher reading engagement questionnaire, and classroom observations. Quantitative data were analyzed using descriptive statistics and an independent samples t-test, while qualitative data were used to support and explain the findings. The results showed that students in the experimental class demonstrated greater improvement in reading literacy compared to those in the control class. The mean score of the experimental class increased from 65 to 82, while the control class improved from 66 to 70. The statistical analysis indicated a significant difference between the two groups. In addition, the teacher's reading engagement showed an increase across motivational, strategic, and affective aspects, as reflected in questionnaire and observation data. In conclusion, the READS Roadmaps Strategy assisted by interactive e-books appears to be effective in improving students' reading literacy and is associated with positive changes in teacher reading engagement. However, findings related to teacher engagement should be interpreted with caution, as they are based on descriptive data from a single participant.

Keywords: English Teaching, Interactive E-Books, Reading Literacy, READS Roadmaps Strategy, Teacher Reading Engagement

INTRODUCTION

Reading literacy is widely recognized as an essential skill that helps students understand, interpret, and evaluate texts in both academic and everyday contexts. According to the Organisation for Economic Co-operation and Development (OECD, 2022), literacy is

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not only the ability to read written texts but also the ability to use information to solve problems and support lifelong learning. Therefore, reading literacy serves as the foundation for other types of literacy, including digital and scientific literacy.

However, the reading literacy level of Indonesian students remains a serious concern. Data from the Programme for International Student Assessment (PISA, 2022) show that Indonesian students perform below the international average in reading. This indicates that many students still experience difficulties in higher-order reading skills, such as identifying main ideas, making inferences, and critically evaluating texts. These challenges suggest that current instructional practices may not yet fully support deep comprehension and active engagement in reading.

Several studies have identified key factors influencing students' reading literacy, including vocabulary knowledge, reading motivation, and the use of effective reading strategies. Students with limited vocabulary often struggle to understand texts (Du, 2023), while low motivation reduces their participation in reading activities (Barrot & Palma, 2023). In addition, students tend to face difficulties when they are not explicitly taught how to use reading strategies such as predicting, monitoring, and summarizing (Nadeem & Moin, 2023). These findings indicate that effective reading instruction should integrate both cognitive and motivational aspects.

Beyond student-related factors, the role of teachers is crucial in shaping literacy-oriented learning environments. Teachers act not only as instructors but also as role models who influence students' reading habits and engagement. The concept of teacher reading engagement refers to the extent to which teachers are actively involved in reading activities related to their instructional practices. This concept is grounded in engagement theory, which emphasizes the interaction between motivation, cognitive involvement, and active participation. Guthrie and Wigfield (2000) explain that reading engagement includes motivation, the use of strategies, and interaction with texts. In addition, Demir (2021) highlights that teacher engagement plays an important role in creating meaningful literacy learning, particularly in technology-supported environments.

Recent studies conceptualize teacher reading engagement as a multidimensional construct. Han et al. (2023) identify five dimensions: personal, reflective, collaborative, professional, and digital engagement. However, in many educational settings, including junior high schools in Indonesia, teachers still face challenges in maintaining these forms of engagement. These challenges include limited access to reading resources, lack of structured instructional frameworks, and limited support for integrating digital tools into teaching practices. This situation suggests that improving students' reading literacy also requires strengthening teacher engagement as part of the instructional process.

The integration of digital technology offers new opportunities to enhance reading instruction. Interactive e-books provide features such as hyperlinks, annotations, and multimedia elements that can support comprehension and increase learner engagement. According to Mayer (2009), the Cognitive Theory of Multimedia Learning explains that learning is more effective when information is presented through multiple channels, such as text and visual elements. Empirical studies also show that interactive e-books can improve students' motivation and reading comprehension when used effectively (Day et al., 2024; Playda & Ambalong, 2024).

In addition to digital tools, structured reading strategies are essential to guide students through systematic reading processes. One relevant approach is the READS Roadmaps Strategy, which is based on metacognitive theory and scaffolding principles. Brown (1987) explains that metacognitive skills help learners plan, monitor, and evaluate their understanding, while Vygotsky (1978) emphasizes the importance of instructional support in facilitating learning. The READS Roadmaps Strategy consists of five stages Read, Engage, Analyze, Discuss, and Summarize which are designed to promote active reading and deeper comprehension while supporting teachers in organizing effective instruction.

Previous studies have proposed various approaches to improve students' reading literacy. Some studies focus on instructional strategies to enhance reading comprehension

and critical thinking, while others emphasize the use of digital tools, such as interactive e-books, to increase students' motivation and support vocabulary development (Day et al., 2024; Playda & Ambalong, 2024). Previous studies in the TLEMC context have also highlighted the importance of reading strategies and teacher support in improving students' reading comprehension. For instance, Sunggingwati and Ungau (2023) found that metacognitive reading strategies significantly contribute to students' reading achievement in EFL contexts. Similarly, Devi and Suroto (2021) reported that explicit teaching of reading strategies, supported by active teacher involvement, plays a crucial role in enhancing students' comprehension and engagement in reading activities. However, these studies are often conducted separately, examining reading strategies and digital media as independent approaches. Research that integrates a structured, stage-based reading strategy, such as the READS Roadmaps Strategy, with interactive e-books within a single instructional framework remains limited, particularly in the context of English language learning at the junior high school level. This limitation highlights the need for empirical research that integrates both elements while also considering teacher reading engagement as part of the instructional process.

Furthermore, most previous studies tend to focus primarily on students' learning outcomes or technological innovation, without adequately considering how instructional strategies supported by digital tools influence both students' literacy development and teachers' engagement in reading practices. This indicates a need for a more integrated approach that combines structured reading strategies and interactive digital media while also incorporating teacher reading engagement as part of the instructional process.

Combining structured reading strategies and interactive e-books is important because they address different yet complementary aspects of learning. While reading strategies support students' metacognitive processes, interactive e-books enhance motivation and engagement through multimodal features. Therefore, integrating both elements is expected to provide a more comprehensive learning experience that supports both cognitive and motivational dimensions of reading.

Through these stages, the READS Roadmaps Strategy encourages students to plan their reading activities, monitor their understanding during reading, and evaluate their comprehension after reading. In addition to improving students' reading literacy, this strategy also supports teacher reading engagement by providing practical and systematic guidance for literacy instruction in the classroom.

Therefore, this study aims to investigate the effect of implementing the READS Roadmaps Strategy assisted by interactive e-books on students' reading literacy. In addition, this study seeks to describe how the implementation of this strategy is reflected in teacher reading engagement through questionnaire and classroom observation data. By integrating student learning outcomes and teacher engagement within a single instructional intervention, this study adopts an embedded mixed-methods approach to provide a more comprehensive understanding of literacy instruction in the junior high school context.

METHODS

This study employed a mixed-methods approach using an embedded design, in which quantitative data served as the primary method and qualitative data were used to support and explain the instructional process. Quantitatively, the study applied a quasi-experimental design with a pre-test and post-test control group model to examine the effect of the READS Roadmaps Strategy assisted by interactive e-books on students' reading literacy. Meanwhile, teacher reading engagement was treated as embedded data to provide contextual understanding of the instructional implementation rather than as a primary variable for statistical testing.

The study was conducted at SMPN 25 Padang during the 2025/2026 academic year. The participants consisted of two intact eighth-grade classes, including an experimental class (35) and a control class (34). The students were approximately 13–14 years old. The classes

were selected using purposive sampling based on comparable baseline reading abilities, as indicated by similar mean scores on the pre-test and supported by teacher recommendations. In addition, one English teacher who taught both classes participated in the study as the instructional implementer and as a source of data for examining teacher reading engagement. The teacher had prior teaching experience at the junior high school level and held a degree in English education.

Data were collected using three main instruments. First, a students' reading literacy test was used to measure comprehension at literal, inferential, and evaluative levels. The test consisted of 40 multiple-choice items developed by the researcher based on established reading literacy frameworks and aligned with the current curriculum. The instrument underwent content validation through expert judgment by two English education experts, and its reliability was tested through a pilot study conducted with a class outside the research sample.

Second, a teacher reading engagement questionnaire was used to assess the teacher's level of engagement before and after the intervention. The questionnaire was self-administered and covered cognitive, behavioral, and emotional aspects of engagement based on established engagement frameworks. The instrument was reviewed for content validity by experts and adapted from relevant theoretical models of reading engagement.

Third, a classroom observation checklist was used to examine the implementation of the READS Roadmaps Strategy, the use of interactive e-books, and the teacher's engagement during the teaching and learning process. The observation indicators were developed based on the stages of the READS Roadmaps Strategy and key dimensions of teacher reading engagement. Observations were conducted directly by the researcher to ensure consistency and were carried out at the beginning, middle, and end of the instructional period.

The intervention consisted of six instructional sessions focused on the treatment, excluding the administration of the pre-test and post-test. At the beginning of the study, both groups were given a pre-test to assess students' initial reading literacy. The experimental class (n = 35) then received instruction using the READS Roadmaps Strategy assisted by interactive e-books, while the control class (n = 34) received conventional reading instruction without the structured strategy. In the experimental class, instruction followed five stages: Read, Engage, Analyze, Discuss, and Summarize. Each stage involved specific activities, including initial reading (Read), student interaction with texts (Engage), text analysis (Analyze), group discussion (Discuss), and summarization of key ideas (Summarize). The use of interactive e-books supported these stages through features such as annotations, hyperlinks, and multimedia elements. In contrast, the control class focused on traditional reading activities, such as reading printed texts and answering comprehension questions without structured stages.

Quantitative data from students' pre-test and post-test scores were analyzed using an independent samples t-test to determine differences between the experimental and control groups. Teacher reading engagement data were analyzed descriptively based on questionnaire scores before and after the intervention, supported by observation data. Inferential statistical analysis was not applied to teacher data due to the involvement of only one participant; therefore, the data were interpreted qualitatively to provide contextual insights. Qualitative observation data were analyzed descriptively to identify patterns in instructional practices and teacher engagement. This combination of quantitative and qualitative analysis provided a comprehensive understanding of the effectiveness of the READS Roadmaps Strategy assisted by interactive e-books on students' reading literacy and teacher reading engagement.

FINDINGS AND DISCUSSION

The findings of this study indicate that the implementation of the READS Roadmaps Strategy assisted by interactive e-books was associated with an observable increase in teacher reading engagement, which was accompanied by improvements in students' reading

literacy. Rather than suggesting a generalized effect, the teacher-related findings are interpreted descriptively, as they are based on a single participant. The increase in teacher engagement scores, supported by classroom observations, suggests that active involvement in reading instruction may contribute to more structured and interactive learning processes.

From a theoretical perspective, reading engagement is considered a multidimensional construct that includes motivational, cognitive, and affective components (Guthrie & Wigfield, 2004). In this study, the teacher demonstrated increased motivation toward reading activities, more consistent use of reading strategies, and a more positive instructional attitude. These changes were reflected not only in questionnaire scores but also in observable classroom practices, such as guiding students in text analysis, highlighting key ideas, and facilitating reflective discussions. This suggests that teacher engagement can be manifested through both self-reported perceptions and instructional behaviors, extending the concept of engagement into practical classroom contexts.

The READS Roadmaps Strategy provided a structured framework that supported the organization of reading instruction. Through the stages of Read, Engage, Analyze, Discuss, and Summarize, the teacher guided students beyond surface-level comprehension toward deeper understanding. This structured approach may have contributed to more consistent instructional practices, as it enabled the teacher to model reading strategies explicitly and maintain a clear sequence of learning activities. In this sense, the findings extend the application of metacognitive and scaffolding theories (Brown, 1987; Vygotsky, 1978) by illustrating how structured instructional stages can support both teacher engagement and student learning processes.

The use of interactive e-books also appeared to support instructional effectiveness. Features such as annotations, hyperlinks, and multimedia elements facilitated the delivery of reading activities and helped maintain student attention. Students were observed engaging with texts through highlighting, responding to prompts, and participating in discussions. This finding is consistent with the Cognitive Theory of Multimedia Learning (Mayer, 2009), which suggests that multimodal input can enhance understanding. However, the effectiveness of these tools seemed to depend on how they were integrated into structured instructional practices, rather than on technology alone.

This finding can also be interpreted in relation to Pedagogical Content Knowledge (PCK) as proposed by Shulman (1987). The teacher demonstrated the ability to integrate reading content with appropriate instructional strategies, such as guiding comprehension, facilitating discussion, and scaffolding students' understanding. This indicates that teacher reading engagement may contribute to the development of PCK, particularly in designing and implementing effective reading instruction.

Table 1. Teacher Reading Engagement Scores (Pre-Test vs Post-Test)

Engagement Aspect	Pre-Test Score	Post-Test Score	Description
Reading Motivation	3.2	4.5	Observable increase
Reading Strategy	3.0	4.3	More consistent strategy use
Attitude / Affective	3.1	4.4	More positive instructional attitude
Overall Average	3.1	4.4	Increased engagement

As shown in Table 1, the teacher's reading engagement scores increased across all measured aspects following the intervention. The motivation score increased from 3.2 to 4.5, the strategy score from 3.0 to 4.3, and the affective aspect from 3.1 to 4.4. These changes indicate an observable improvement in the teacher's engagement during the instructional process. However, these findings should be interpreted cautiously, as they are based on a single participant and do not allow for statistical generalization.

Table 2. Students' Reading Literacy Scores (Experimental vs Control)

Group	Pre-Test Score	Post-Test Score	Improvement	Description
Experimental	65	82	+17	Greater improvement with READS + e-book
Control	66	70	+4	Limited improvement with traditional method

The results in Table 2 show that students in the experimental group demonstrated greater improvement compared to those in the control group. The experimental group's mean score increased from 65 to 82, while the control group improved from 66 to 70. An independent samples t-test indicated a statistically significant difference between the two groups ($t = -13.596$, $df = 64$, $p < .001$), with a mean difference of 16.97. The effect size was very large (Cohen's $d = 3.40$), indicating a strong effect of the intervention on students' reading literacy. However, this result should be interpreted cautiously given the limited sample size.

At the same time, this improvement may also be influenced by other factors, such as students' initial motivation, classroom interaction patterns, or familiarity with digital tools. Therefore, while the findings indicate a positive trend, they should not be interpreted as the sole effect of the intervention.

Classroom observations provided additional insights into the learning process. The teacher facilitated small-group discussions, guided students in comparing interpretations, and encouraged reflective thinking. For example, students were asked to identify key ideas from segmented texts and discuss their interpretations with peers before presenting their conclusions. In another instance, the teacher guided students to annotate unfamiliar vocabulary directly within the interactive e-book and relate it to the context of the text. These activities indicate that the learning environment became more interactive and supported deeper engagement with reading materials.

Despite these positive outcomes, several challenges were identified. The use of interactive e-books initially required adaptation, particularly in managing digital features and maintaining classroom control. At the beginning of the intervention, some students were more focused on exploring the digital features than on the reading tasks, which required the teacher to provide additional guidance. This suggests that technology integration is not always immediately effective and may require ongoing support, such as teacher training and increased familiarity with digital tools. This finding highlights a tension between the potential benefits of technology and the practical challenges of its implementation.

Overall, the findings suggest that teacher reading engagement plays an important role in supporting the implementation of structured reading strategies. However, the relationship between teacher engagement and student outcomes should be interpreted cautiously due to the limited scope of the study. The results contribute to the understanding of how structured strategies and digital tools can be integrated in classroom practice, while also highlighting the need for further research with larger samples and more diverse contexts.

CONCLUSION

This study examined the implementation of the READS Roadmaps Strategy assisted by interactive e-books and its relationship with teacher reading engagement and students' reading literacy. The findings suggest that the integration of a structured reading strategy with digital tools was associated with improvements in both teacher engagement and student learning outcomes. The teacher demonstrated increased motivation, more consistent use of reading strategies, and a more positive instructional attitude, as reflected in questionnaire data and classroom observations. In addition, students in the experimental group showed greater improvement in reading literacy compared to those in the control group.

These findings indicate that teacher engagement may play an important role in supporting the implementation of structured reading instruction. When supported by clear instructional stages and appropriate digital tools, classroom activities appeared to become more interactive and structured, which may contribute to students' reading development.

However, several limitations should be acknowledged. First, the study involved a relatively small sample size and only one teacher, which limits the generalizability of the findings. Second, the duration of the intervention was relatively short, which may not fully capture long-term effects. Therefore, the results should be interpreted with caution, particularly those related to teacher reading engagement, which were based on a single participant and analyzed descriptively.

From a practical perspective, the findings suggest that combining structured reading strategies with digital learning tools has the potential to support reading instruction. Providing teachers with guidance in implementing structured strategies, along with support in using digital resources, may contribute to more effective classroom practices.

Future research is recommended to involve larger samples across multiple schools and teachers in order to provide more robust evidence. Longitudinal studies are also needed to examine the sustainability of the observed changes over time. In addition, further studies may explore how different levels of teacher experience, digital literacy, and classroom contexts influence the effectiveness of integrating structured reading strategies with technology.

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