



Enhancing Interpretative Reading Comprehension and Reading Interest through RADEC Integrated with Canva and Forms: A Quasi-Experimental Study in Indonesian Primary Schools

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Abstract: This study examines the effectiveness of the RADEC (Read–Answer–Discuss–Explain–Create) model integrated with Canva and Google Forms in improving elementary students' interpretative reading comprehension and reading interest. A quasi-experimental design with a non-equivalent control group was employed, involving 99 fifth-grade students. Data were collected using essay-based tests and a Likert-scale questionnaire and analyzed using MANOVA. The results revealed no significant difference between groups at the pretest stage ($p > 0.05$), indicating comparable baseline conditions. However, posttest results showed a significant multivariate effect ($p < 0.001$), confirming the effectiveness of the intervention. The experimental group demonstrated higher improvement in interpretative reading comprehension (gain = 6.06) and reading interest (gain = 8.57) compared to the control group. Effect size analysis indicated large effects for both variables ($\eta^2 = 0.153$; $\eta^2 = 0.185$), suggesting substantial practical impact. These findings indicate that the integration of structured inquiry-based learning with multimodal digital tools enhances both cognitive and affective dimensions of literacy. This study contributes to the development of technology-integrated pedagogy by demonstrating the effectiveness of combining RADEC with digital platforms to support higher-order reading skills and student engagement in primary education.

Keywords: RADEC; Interpretative Reading Comprehension; Reading Interest; Canva; Google Forms

Abstrak: Penelitian ini bertujuan untuk menguji efektivitas model pembelajaran RADEC (Read–Answer–Discuss–Explain–Create) yang diintegrasikan dengan Canva dan Google Forms dalam meningkatkan kemampuan membaca pemahaman interpretatif dan minat baca siswa sekolah dasar. Penelitian menggunakan desain kuasi-eksperimen dengan kelompok kontrol non-ekuivalen yang melibatkan 99 siswa kelas V. Data dikumpulkan melalui tes esai dan angket skala Likert, kemudian dianalisis menggunakan MANOVA. Hasil penelitian menunjukkan bahwa tidak terdapat perbedaan yang signifikan pada tahap pretest ($p > 0,05$), yang mengindikasikan kondisi awal kedua kelompok setara. Namun, pada tahap posttest ditemukan perbedaan yang signifikan ($p < 0,001$), yang menunjukkan efektivitas intervensi. Kelompok eksperimen menunjukkan peningkatan yang lebih tinggi pada

kemampuan membaca pemahaman interpretatif (gain = 6,06) dan minat baca (gain = 8.57) dibandingkan kelompok kontrol. Analisis effect size menunjukkan kategori besar ($\eta^2 = 0,153$; $\eta^2 = 0,185$), yang menandakan dampak praktis yang kuat. Temuan ini menunjukkan bahwa integrasi pembelajaran berbasis inkuiri terstruktur dengan teknologi digital multimodal mampu meningkatkan aspek kognitif dan afektif literasi secara simultan. Penelitian ini berkontribusi dalam pengembangan pedagogi berbasis teknologi dengan menegaskan efektivitas integrasi RADEC dan platform digital dalam mendukung keterampilan membaca tingkat tinggi dan keterlibatan belajar siswa sekolah dasar.

Kata kunci: RADEC; membaca pemahaman interpretatif; minat baca; Canva; Google Forms

Introduction

One of the most fundamental obligations of schools is to teach reading, as it can significantly impact all other academic achievements. Reading skills have been taught in primary schools, from the beginning of reading in grades I to III, and then advanced reading in grades IV to VI. Reading learning, especially at the advanced reading stage, aims to train reading comprehension and critical reading skills. Reading comprehension ability involves not only linguistic skills (vocabulary, grammar) but also cognitive skills (e.g., metacognition, inference, working memory) to construct meaning and interpret the author's intentions, both explicitly and implicitly (Dolba et al., 2022; Wheeler & Hill, 2023). This activity involves defining texts from specific perspectives, drawing conclusions, understanding cause-and-effect relationships, making comparisons, interpreting the author's purposes, and identifying facts and opinions within the text (Ozensoy, 2021). Reading comprehension encompasses a deep understanding of the meanings of words, the relationships between concepts, and the ability to apply them in various contexts. It is an advanced level at which students understand the content of the reading material, choose reading material relevant to their lives, and develop curiosity and critical thinking (Cataraja, 2022; Kalabai et al., 2021).

In addition to reading comprehension skills, students must be interested in reading to benefit from reading and become effective readers. Their interest can influence students' reading ability, and interest in reading is crucial in developing reading ability and comprehension (Dewi et al., 2020). Reading interest is characterized by interest and pleasure while reading (Pitoyo, 2020). It is a psycho-cognitive phenomenon that occurs at the reading stage, especially during pre-reading. The pre-reading stage is a prerequisite for reading. This stage aims to engage students' interest in the text's subject matter by building on their prior knowledge and piquing their curiosity (Lustyantie & Aprilia, 2020). Strong reading interest can contribute to the development of better reading skills. Good reading skills can also encourage a person to explore various readings in greater depth.

Despite their importance to students' academic lives, many students have yet to master these two skills. Data obtained from interviews with the fifth-grade teacher imply that students struggle to understand complex texts. For example, in narrative texts, students often struggle to identify the main idea. They assume that the first sentence is always the paragraph's main idea. When confronted with a long passage, most students tend to focus more on the explicit information in the text. The students had difficulty answering when the teacher asked about the implicit information in the descriptive text they had just read. However, when asked for explicit details, students can reply directly because the answers are already in the text. Additionally, during the lesson observation, some students did not fully engage in the learning

process. They often daydreamed and scribbled in their books while the teacher explained the lesson.

In Grade V Indonesian language learning, particularly in reading and viewing elements, students must identify important information in paragraphs, distinguish between facts and opinions, explain characters' problems in narrative texts, identify main ideas and supporting details, clarify their understanding, and express their thoughts about the information presented in the text. They are required to comprehend and evaluate the entire content of the text in order to interpret the author's intentions. Students' inability to read more deeply and lack of interest in reading can harm their education and personal development. Interest in reading is the foundation of knowledge acquisition, as most knowledge is acquired through reading, rather than listening or speaking (Lumontad et al., 2021). Students who lack reading comprehension will have difficulty distinguishing between facts and opinions, leading to misunderstandings of meaning (Härtig et al., 2022; Sulistiyarini et al., 2020). If this condition continues, students may become easily misled by false information, as they tend to accept what they receive without critically evaluating it.

Reading comprehension is fundamental to developing students' critical and creative thinking skills. As teachers, we need to create an environment that supports students' reading, including applying a learning model that stimulates their reading comprehension and interest. The Read, Answer, Discuss, Explain, Create (RADEC) learning model equips students with a range of skills, including reading comprehension. Educators choose this model because its learning syntax enhances students' mastery of concepts, enriches their learning experiences, and improves their overall reading comprehension. The application of this model trains students' abilities to collaborate and discuss with others, read, explain, explore, and solve problems (Handayani et al., 2019; Suryana et al., 2021). The application of the learning model also strengthens students' interest in reading (Adriana et al., 2022; Sopandi et al., 2021).

The syntax of the RADEC model significantly influences students' reading comprehension and reading interest. The Reading (R) stage trains students to develop a reading habit. In this pre-learning phase, the teacher assigns students to read the material for the upcoming lesson. Through this phase, students learn not to read passively but to actively search for information independently (Sopandi et al., 2021). After completing the reading activity, students connect new knowledge with their prior knowledge to answer pre-reading questions (Pratama et al., 2019). This process requires students to read more deeply to locate information needed to answer the pre-learning questions.

The teacher presents pre-learning questions in the Answer (A) phase. In this stage, the teacher formulates questions that assess students' reading comprehension. The questions should not be directly obvious or easily identified while reading. Instead, they should be open-ended to stimulate students' critical thinking while remaining within their zone of proximal development (Fatimah et al., 2024). Such questions challenge students to think more deeply. This process activates cognitive schemas and encourages inferential thinking, as students must not only search for literal answers but also evaluate the information they obtain (Anggraeni et al., 2025; Handayani et al., 2019).

The Read and Answer phase serves as pre-learning scaffolding. When students read independently before class, they activate their cognitive schemas, which helps them to engage with the material more effectively (Hidayatullah et al., 2019; Setiawan et al., 2020). The questions in the Answer phase are not just a test of literal

comprehension (Sopandi et al., 2021). They force students to recognize the relationship between what they know and what they do not yet understand. This approach encourages students to engage in early inferential thinking, in which they must connect implicit information in the text to find the answer (Firmansyah et al., 2019; Putri & Amini, 2023).

During the Discuss phase, the group collaborates on the answers to the questions. This phase helps foster the internalization of thought through conversation, an important step in the thought process (Sopandi et al., 2021). When students disagree with their peers, they must defend their positions to reach a consensus. Engaging in active discourse facilitates the construction of meaning more effectively than independent learning (Koçak, 2018; Pratama et al., 2019). This approach aligns with Vygotsky's sociocultural theory of development, which highlights the importance of social interaction in children's complete development and emphasizes collaborative learning over independent study (Mishra, 2023).

In the Explain phase, students are encouraged to share the results of their discussions with their friends. This activity not only cultivates communication skills but also fosters a deeper understanding of concepts through didactic group exercises. By elucidating concepts before an audience, students engage in a deeper processing of information, thereby ensuring the permanence of their comprehension (Kondo et al., 2024). Additionally, the Create phase requires students to synthesize concepts they have thoroughly understood. In this stage, students produce creative works that reflect their comprehension (Sopandi et al., 2021). This creative process demands a deep understanding of the source material because students must transform textual messages into practical visual creations (Lasari et al., 2023). Through the five stages of RADEC, students engage in interpretive rather than literal reading, helping them understand the text's deeper meaning.

In line with the demands of 21st-century learning, which require students to be digitally literate, this study also seeks to integrate technology into learning activities. The aim is not only to train students to be technologically literate, but also to increase their interest in reading and motivation to learn. The use of digital technology makes students more active and directly involved in learning and also creates a joyful learning experience (Ariani, 2020; Shana & Abulibdeh, 2023). The integration of technology not only enriches the variety of learning methods but also contributes to developing students' problem-solving skills, facilitating the acceptance of material, and creating a collaborative, active, participatory learning environment that is in line with the characteristics of 21st-century students (Carstens et al., 2021).

RADEC has been shown in many prior studies to be effective in developing students' higher-order thinking skills (Anggraeni et al., 2021; Handayani et al., 2019; Rindiana et al., 2022; Satria & Sopandi, 2019). Several studies also confirm that the RADEC learning model helps stimulate students' reading comprehension through activities that allow them to view the text from different perspectives and work together to balance those perspectives (Firmansyah et al., 2019). Prior research also found that the RADEC learning model positively affected students' reading interests (Adriana et al., 2022). However, reading assessments tend to focus on literal comprehension rather than interpretive comprehension. In addition, reading comprehension skills and reading interest are rarely measured simultaneously, nor is integration with multimodal digital platforms to support comprehension further.

This study addresses these gaps by investigating the implementation of the RADEC model, combined with digital multimodal tools on Canva and Google Forms, on elementary students' reading comprehension and reading interest. Specifically, this

study examines reading comprehension at the interpretative level. At this level, they not only recall information from the text but also thoroughly analyze and infer it. This study also provides an overview of how cognitive and affective aspects support each other in designing an unexplored digital-based learning framework.

Method

1. Research design

This study employed a quantitative, quasi-experimental design. The researchers used a non-equivalent control group design. The study involved two groups: the experimental group received the treatment, while the other served as the control group. The researchers administered the treatment to the experimental class using the RADEC learning model. In contrast, the control class used the expository learning model that the teacher commonly applied in regular instruction. Both groups completed a pretest and a posttest.

The researchers conducted the study over two months, from April 21 to June 6, 2025. They organized six learning meetings, excluding the pretest and posttest sessions. Each school held meetings once a week, and each session lasted 3 × 35 minutes, following the Indonesian language schedule at the research schools. Table 1 presents the research design.

Table 1. Research design

Group	Pretest	Treatment	Posttest	Frequency (per week)	Total Meeting
Experiment	O ₁	X (RADEC)	O ₂	1 (105 minutes)	8
Control	O ₃	-	O ₄	1 (105 minutes)	8

2. Participants

The research population comprised all fifth-grade students from primary schools in Kertek District, Wonosobo Regency, Central Java, in the second semester of the 2024/2025 academic year. Four elementary schools served as the research sample, selected purposively by the researchers.

The researchers selected the samples based on the following criteria: (1) schools implementing the Merdeka Curriculum; (2) classroom teachers holding bachelor’s degrees with at least five years of teaching experience; (3) a relatively equivalent number of students; (4) comparable baseline student abilities based on daily test results from the previous semester; and (5) all students possessing cell phones and Google accounts.

The researchers grouped the four schools into experimental and control groups. Each group consisted of two schools. SDN 1 Bojasari and SDN 1 Kertek formed the experimental group, while SDN 1 Karangluhur and SDN 1 Purwojati formed the control group. The total research sample consisted of 99 students. Table 2 presents the research sample data.

Table 2. Research sample

Group	School	Number of Students
Experimental	SDN 1 Bojasari	24
	SDN 1 Kertek	26
Control	SDN 1 Karangluhur	25
	SDN 1 Purwojati	24
Total		99

3. Instruments and data collection

The researchers collected data using two techniques: test and non-test. They used the test technique to gather information on students' reading comprehension. The researchers employed essay questions to measure students' comprehension of nonfiction texts. They administered the essay test before and after implementing the RADEC learning model using Google Forms.

Meanwhile, the researchers used non-test techniques to collect data on students' reading interest and the implementation of the RADEC model. They distributed a questionnaire via Google Forms to measure students' reading interest, which was administered before and after implementation. In addition, the researchers conducted observations to determine whether the implementation of the RADEC learning model, integrated with Canva and Google Forms, followed its stages. This observation ensured that the improvement in students' reading comprehension and interest in reading resulted from the implementation of the learning model. Table 3 presents the grid for implementing the RADEC model integrated with Canva and Google Forms.

Table 3. Grid for the observation of the RADEC model integrated with Canva and Google Forms

Syntax	Teachers' Activities	Students' Activities
Read	Prepare nonfiction reading materials for students to study at home.	Read independently at home using the link that the teacher provides in the class group. They are permitted to seek further information related to the material.
Answer	Use Google Forms to create questions that help students develop their evaluative skills.	Use Google Forms to analyze the text and answer questions by including arguments and evidence.
	Use the answers in Google Forms as a basis for classroom discussion.	
Discuss	Grouping students in diverse ways and facilitating discussions.	Discussing the individual answers to align perspectives based on evidence.
Explain	Help to clarify and reinforce the material.	Representatives of each group present the results of the synthesis. Conduct a critical Q&A session based on the obtained evidence.
Create	Encourage students to design digital products using Canva.	Generate digital materials using Canva based on the material that has been studied.

Meanwhile, indicators to measure reading comprehension ability were adapted from Dalman (2017) and Sultan (2018). At the same time, the indicators for reading interest were adapted from Dewi et al. (2020). The grids for reading comprehension are shown in Table 4, and those for reading interest are shown in Table 5.

Table 4. Grid for the reading comprehension ability test

Aspect	Indicator	Question Number	
		Pretest	Posttest
Reading interpretation	Determining the meaning contained in a nonfiction text.	4	1
Content analysis	Examine facts and opinions in nonfiction text.	1	5
Making inference	Summarize the content of reading in nonfiction texts.	3	2
Evaluating the argument	Making arguments to agree or disagree with the author's ideas in the nonfiction text.	2	4
Formulate solution	Formulate problem-solving solutions based on the nonfiction text.	5	3
Total questions		5	5

Table 5. Grid for the reading interest questionnaire

Aspect	Indicator	Item Number		Number of items
		Positive	Negative	
Enjoyment of reading	Getting excited about reading.	1, 2	7, 10	8
	Prefer reading activities to other activities.	6, 9	5, 8	
Desire to read	Making time to read.	3, 4	-	8
	Students' active participation in reading.	12	11, 14	
	Use of free time for reading.	13	15, 16	
The need to read	Awareness as a student to read.	18	17, 20	6
	Awareness of the importance of reading books and other sources of information.	19, 21	22	
Desire to find reading materials	Independent encouragement to find reading sources.	23, 24	25	6
	Choosing what to read.	26	27, 28	
Total items		15	14	28

4. Validity and Reliability

The researchers validated the research instruments to ensure their suitability for use. The validation process included both content validity and construct validity. Experts established the content validity through expert judgment. Dr. Setiawan Edi Wibowo, M.Pd., validated the essay test and questionnaire instruments, while Dr. Herwin, M.Pd., validated the RADEC model implementation observation instrument integrated with Canva and Google Forms.

The researchers assessed construct validity by testing the instruments on respondents outside the research sample. They administered the test questions at SDN 2 Karangluhur, which had characteristics similar to those of the research sample. Of the ten reading comprehension items assessed, the researchers found that three items in the pretest and two items in the posttest were invalid. Therefore, they selected five valid items with similar indicators for both the pretest and posttest. Concurrently, in the reading interest questionnaire, 6 of the 34 items were deemed invalid. Therefore, the final questionnaire used to assess students' reading interests consisted of 28 items.

The reliability of the instruments was measured using Cronbach's alpha. The reliability coefficient of the instruments must be greater than 0.60 to be considered reliable and usable for research. The coefficient of each instrument was as follows: 1) Pretest: 0.696, 2) Posttest: 0.711, 3) Questionnaire: 0.897. This indicates that the instruments for reading comprehension and interest were appropriate for use.

5. Data analysis

Data were analyzed using Multivariate Analysis of Variance (MANOVA) to simultaneously examine the effect of the instructional model on two dependent variables: interpretative reading comprehension and reading interest. MANOVA was selected to control for Type I error inflation and to account for potential intercorrelation between cognitive and affective outcomes.

Prior to hypothesis testing, assumption testing was conducted. Multivariate normality was assessed using Mahalanobis distance, while homogeneity of covariance matrices was evaluated using Box's M test. The data were considered to meet the assumptions when significance values exceeded 0.05. Hypothesis testing was based on Hotelling's Trace statistic. A significance value of $p \leq 0.05$ indicated a statistically significant multivariate effect of the instructional model.

To determine the magnitude of the treatment effect, effect size was calculated using Partial Eta Squared (η^2), with interpretation criteria of small (0.01), medium (0.06), and large (≥ 0.14). In addition, gain scores were computed (posttest minus pretest) to evaluate the extent of learning improvement in each group and to provide practical insight into instructional effectiveness.

6. Ethical Considerations

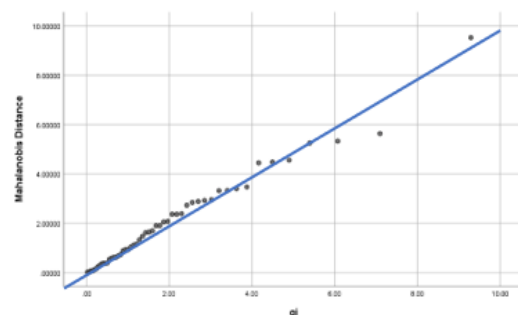
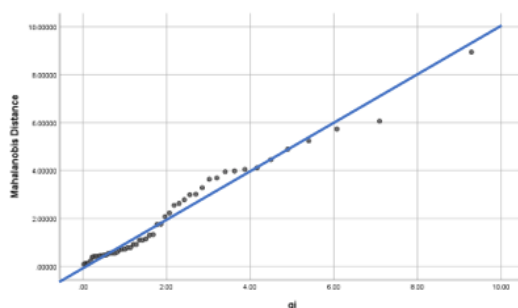
This study adhered to ethical standards in educational research involving human participants. Prior to data collection, formal permission was obtained from the participating schools. Informed consent was secured from students' parents or guardians, and students participated voluntarily with the right to withdraw at any time. All data were collected anonymously and used solely for research purposes. Participants' confidentiality and privacy were strictly maintained throughout the study. The research procedures were designed to ensure that no physical or psychological harm was caused to the participants.

Result and Discussion

1. Result

a. Assumption Testing

Before conducting hypothesis testing, the researchers first performed preliminary tests of normality and homogeneity. The multivariate outlier results for both the experimental and control classes indicated that the plotted points followed a diagonal pattern, suggesting that the data were normally distributed. This pattern was consistently observed in both pretest and posttest data.



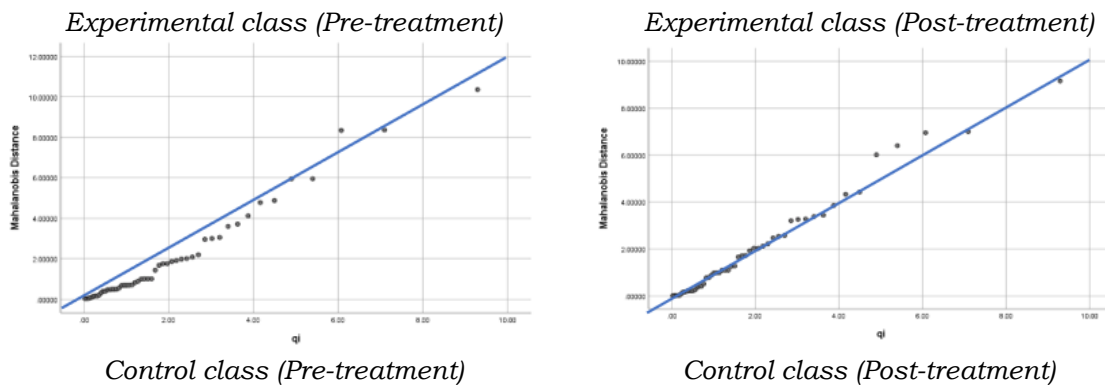


Figure 1. Mahalanobis Distance Scatter Plots

Figure 1 illustrates the Mahalanobis distance scatter plots for both groups, confirming the assumption of multivariate normality. Furthermore, the homogeneity test using Box's M showed significance values greater than 0.05, indicating that the covariance matrices were homogeneous.

Table 6. Box's M Test for Homogeneity

Data	Box's M	Sig. value	α	Description
Pre	2,129	0,556	0,05	Homogeneous
Post	3,909	0,281	0,05	Homogeneous

Table 6 presents the results of the Box's M test, confirming that the data met the homogeneity assumption.

b. Multivariate Analysis (MANOVA)

The prerequisite test results indicate that the data from the interpretative reading comprehension test and the reading interest questionnaire are normal and homogeneous. Therefore, the researchers proceeded with hypothesis testing. They conducted hypothesis testing using the MANOVA, specifically Hotelling's Trace. They selected this test because the study involved two dependent variables, and the homogeneity assumption had been satisfied. Table 7 shows the results of the MANOVA test.

Table 7. Hotelling's trace test result

Data	Value	F	Hypothesis df	Sig.
Pretest	0,50	2,377	2,000	0,098
Posttest	0,383	18,371	2,000	0,000

The significance value for the pretest data is 0.098, which is greater than 0.05. Thus, prior to treatment, there was no discrepancy in interpretative reading comprehension and interest between the experimental and control students. After the experimental class received instruction using the RADEC learning model integrated with Canva and Google Forms, the significance value reached $0.000 < 0.05$. In other words, the interpretative reading comprehension ability and reading interest of students taught through the RADEC model differ from those of students taught through the expository model. To determine which learning model more effectively influences students' reading comprehension and reading interest, the average scores in each class shown in Table 8 indicate that the learning model does.

Table 8. Average reading comprehension ability and reading interest in experimental and control class

Variable	Model	N	Pretest	Posttest
Reading comprehension ability	RADEC	50	64,42	70,48
	Expository	49	64,05	66,57
Reading interest	RADEC	50	79,08	87,65
	Expository	49	78,85	81,38

Figure 2 below illustrates the differences in average interpretative reading comprehension scores between the experimental and control groups. The changes in average scores from the pretest to the posttest for each group are illustrated in this graph, while Figure 3 displays the reading interest data.

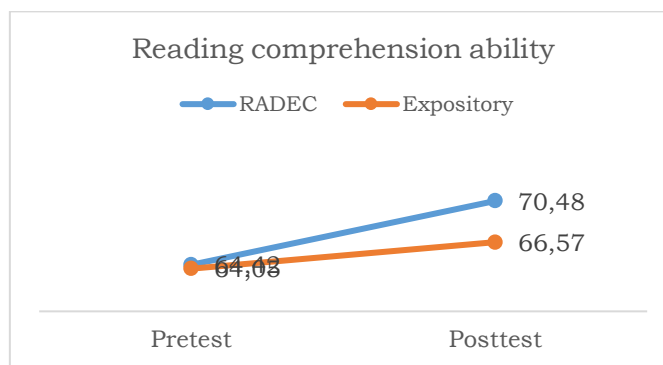


Figure 2. The difference of reading comprehension ability in experimental and control class

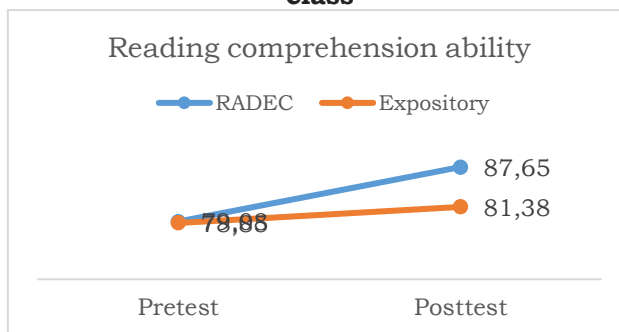


Figure 3. The difference of reading interest in experimental and control class

Based on the mean scores, students taught using the RADEC model showed a notable increase over those taught using the expository learning model. The results suggested that the RADEC model, integrated with Canva and Google Forms, is more impactful than the expository model in developing students' interpretative reading comprehension and reading interests.

c. Effect Size and Gain Analysis

To complement the statistical significance findings, an effect size analysis using Partial Eta Squared (η^2) was conducted. The results indicate that the RADEC model had a moderate to large effect on both interpretative reading comprehension and reading interest. This suggests that the observed differences are not only statistically significant but also practically meaningful.

Table 9. Comparison of Mean Scores, Outcomes, and Effect Sizes

Variable	Group	Pretest	Posttest	Gain	Effect Size (η^2)	Interpretation
Reading Comprehension	RADEC	64.42	70.48	6.06	0.153	Large
	Expository	64.05	66.57	2.52	-	-
Reading Interest	RADEC	79.08	87.65	8.57	0.185	Large
	Expository	78.85	81.38	2.53	-	-

Note: Effect size values are interpreted as small (0.01), medium (0.06), and large (≥ 0.14). Gain scores represent the difference between posttest and pretest means.

Furthermore, the gain score analysis shows that the experimental group experienced higher improvement compared to the control group. The gain in reading comprehension was 6.06 in the experimental group and 2.52 in the control group. Meanwhile, reading interest increased by 8.57 in the experimental group and 2.53 in the control group. These findings reinforce that the RADEC model integrated with Canva and Google Forms is more effective in improving both cognitive and affective learning outcomes.

2. Discussion

The findings of this study indicate that the RADEC learning model integrated with Canva and Google Forms significantly improves students' interpretative reading comprehension and reading interest compared to the expository learning model. This result suggests that structured learning processes combined with digital multimodal tools can effectively enhance both cognitive and affective aspects of literacy. Moreover, the large effect size observed in this study ($\eta^2 = 0.153$ for reading comprehension and $\eta^2 = 0.185$ for reading interest) indicates that the impact of the RADEC model is not only statistically significant but also practically meaningful in the context of elementary education.

From a cognitive perspective, the improvement in interpretative reading comprehension can be explained by the structured inquiry process embedded in the RADEC model. The Read and Answer phases encourage students to activate prior knowledge and engage in deeper processing of textual information (Sopandi et al., 2021; Hidayatullah et al., 2019). Rather than focusing solely on explicit information, students are guided to identify implicit meanings, make inferences, and evaluate ideas within the text, which aligns with the development of inferential thinking (Firmansyah et al., 2019; Putri & Amini, 2023). This cognitive engagement contributes to higher-order literacy skills and is reflected in the substantial effect size found in this study.

In addition, the Discuss and Explain phases play a crucial role in enhancing students' understanding through social interaction. Through collaborative discussion, students are exposed to multiple perspectives, allowing them to refine their interpretations and construct meaning more effectively (Koçak, 2018; Pratama et al., 2019). This finding is consistent with the principles of social constructivism, which emphasize that knowledge is developed through interaction and dialogue (Mishra, 2023). The opportunity to articulate and defend ideas also reinforces comprehension and promotes deeper cognitive engagement (Handayani et al., 2019; Satria & Sopandi, 2019).

The Create phase further strengthens students' understanding by requiring them to transform textual information into meaningful products. This stage not only reinforces comprehension but also stimulates creativity and active learning (Lasari et al., 2023). The integration of Canva in this phase provides a multimodal platform that

enables students to represent their understanding visually, thereby enhancing both engagement and retention.

From a technological perspective, the use of Google Forms and Canva functions as more than just instructional media; it serves as a multimodal learning scaffold. Google Forms supports formative assessment by providing immediate feedback and encouraging students to engage more actively with the content. Meanwhile, Canva facilitates creative expression, making learning more interactive and enjoyable. This combination contributes to increased reading interest, as students are more motivated to engage with learning materials presented in diverse formats (Ariani, 2020; Qureshi et al., 2021). The large effect size observed in reading interest ($\eta^2 = 0.213$) further confirms that the integration of digital tools plays a significant role in enhancing students' affective engagement.

The large effect sizes observed in both interpretative reading comprehension and reading interest indicate that the RADEC model has a substantial impact on students' learning outcomes. These findings suggest that the integration of structured inquiry and digital tools creates a learning environment that supports deeper cognitive processing and sustained engagement. The higher gain scores in the experimental group further reinforce the effectiveness of this approach compared to traditional expository methods.

These findings are consistent with previous studies that highlight the effectiveness of the RADEC model in improving higher-order thinking skills and reading comprehension (Adriana et al., 2022). However, this study extends prior research by demonstrating that the integration of RADEC with multimodal digital tools can simultaneously enhance cognitive and affective dimensions of literacy. This contribution is particularly important in the context of 21st-century learning, where digital literacy and student engagement are critical components of effective education (Carstens et al., 2021).

Overall, the findings imply that the RADEC model integrated with digital platforms offers a promising approach to improving literacy outcomes in primary education. Teachers are encouraged to adopt this model to create more interactive, student-centered, and meaningful learning experiences. By combining structured inquiry with digital multimodal tools, educators can foster deeper comprehension and stronger reading motivation among students.

Limitations

However, this study has several limitations that should be acknowledged. First, the use of a quasi-experimental design without full randomization may limit the generalizability of the findings. Second, the sample was limited to a specific geographical area, which may not fully represent diverse educational contexts. Third, the duration of the intervention was relatively short, which may not capture the long-term impact of the RADEC model on students' literacy development. Future research is recommended to employ more rigorous experimental designs, involve broader and more diverse samples, and examine the long-term effects of integrating RADEC with digital tools in different educational settings.

Conclusion

According to the research results, the RADEC model, integrated with Canva and Google Forms, significantly enhances students' interpretative reading comprehension and reading interest compared to the expository learning model. Statistical findings indicate that integrating independent inquiry in the Read and Answer phases,

followed by collaborative deep-reading in the Discuss and Explain stages, effectively shifts students from literal to interpretative understanding. Additionally, the Create phase is a pivotal point at which literacy skills are translated into multimodal creative works, thereby enhancing both cognitive and affective engagement.

Based on these results, teachers should incorporate the RADEC model into daily instruction to address low reading ability and interest among primary school students, particularly fifth-graders. Additionally, future researchers should focus on integrating digital pedagogy, especially tools such as Canva and Google Forms, to further enhance literacy outcomes. Future studies can also explore the long-term impact of the RADEC model on students' critical thinking and independent learning across different grade levels.

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