RADEC: Improving Reading Comprehension and Self-Regulated Learning in Elementary School

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Abstract. RADEC: Improving This research aims to investigate and analyze the effectiveness of using the RADEC learning model in improving reading comprehension and self-regulated learning (SRL) in elementary school students. The research method used in this research is literature study, which involves searchizg, selecting, and synthesizing information from various relevant literature sources. The results of literature research show that the RADEC learning model has the potential to improve reading comprehension and SRL abilities in elementary school students. The syntax of the RADEC model, such as Read, Answer, Discuss, Explain, and Create, has been proven to be effective in improving students' reading comprehension and SRL. In addition, this literature review also reviews previous studies that have implemented the RADEC model in the context of elementary school education and demonstrated significant improvements in students' reading comprehension. It is hoped that this research can contribute to the development of an effective and relevant RADEC learning model for elementary schools and open the door for further research exploring the potential of this learning model in improving reading comprehension and SRL at the basic education level.

Keywords: Reading comprehension, RADEC learning model, self-regulated Learning

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INTRODUCTION

Education is the main foundation in individual and societal development. One important aspect of education is the ability to read comprehension, which is a fundamental skill for processing information in various subjects, thus enabling students to draw lessons from the texts they read and having a significant impact on their academic achievement (Cromley & Azevedo, 2007). This ability helps individuals capture and understand messages and information contained in reading material, which is necessary for students' self-development and the completion of various academic tasks (Gilakjani & Sabouri, 2016). Apart from reading comprehension, self-regulated learning (SRL) abilities also play an important role in student success in the learning process. SRL covers various aspects, including planning, monitoring, and setting learning strategies. The study results show that self-regulated learning has a positive and significant effect on academic motivation (Lavasani, M.G. et al., 2011). The findings of this research are in line with those of other researchers, such as Schober & Ziegler (2001), Fuchs et al. (2003), and Schunk (1996). Based on what Pintrich (2000) and Zimmerman (2000) found, it is also proven that students with self-regulation skills are more motivated in terms of academic success and learn better than other students. Good SRL skills help students manage their time and resources effectively, thereby increasing academic achievement and learning motivation (Damaianti, 2021). Zimmerman & Martinez-Pons (2001) define SRL as the level at which students actively engage metacognition, motivation, and behavior in the learning process. SRL is also defined as a form of individual learning that autonomously develops measurements (cognition, metacognition, and behavior) and monitors learning progress to increase motivation (Baumert et al., 2002). SRL was chosen as a learning conceptual framework that is in line with independent learning. Learners with SRL are able to manage their own study time and seek information about knowledge and learning materials from various sources, namely teachers at school and existing media and technology facilities (Zimmerman, 2008). SRL helps students direct them towards independent learning, namely arranging study schedules, setting learning targets, and searching for the information they need independently. SRL emphasizes the importance of personal responsibility and control over acquired knowledge and skills. Self-regulation in learning also makes students

masters (experts) in their learning. It is very important to pay attention to the choice of learning model because it has a significant effect on student learning outcomes.

The model applied in learning is closely related to student achievement (Erlinda, 2017; Perdana, 2023). Improper application of learning models and strategies will affect students' success in understanding the concepts they are studying (Syaifuddin, 2017). The low reading comprehension and self-regulation skills of students are also caused by teachers not paying enough attention to these aspects, namely the lack of appropriate learning models applied by teachers to train reading comprehension skills and develop students' self-regulation abilities. Recent studies in the field of education have highlighted the importance of the Read, Answer, Discuss, Explain, and Create (RADEC) learning model in improving reading comprehension and developing student independence in learning (Setiawan et al., 2020; Sukmawati et al., 2021). The RADEC learning model is designed to provide students with an active, independent learning experience, focusing on key components such as reading text, answering questions, discussing and explaining concepts, and creating content. The RADEC learning model has five stages, namely (1) the read stage, where students examine information from various existing sources and are provided with pre-learning questions. Pre-learning questions are questions asked to students before learning is carried out. According to Sopandi (2021), pre-learning questions are questions whose answers are an essential cognitive aspect that students master after studying the material. (2) Answer stage, where students answer pre-learning questions based on the knowledge they have in the previous Read stage. (3) In the discussion stage, students form groups to discuss answers to questions they have worked on or answered independently while outside the classroom or home. (4) On the stage, students carry out classical presentations in front of other groups. In this activity, the teacher encourages other groups to ask questions and provide responses to the group that appears. (5) In the Create stage, students learn to use the knowledge they have mastered to create creative ideas. Although previous research has revealed the effectiveness of the RADEC learning model in improving students' reading comprehension and independence, there are still knowledge gaps that need to be filled. In particular, to date, there has been no research that discusses the influence of the RADEC model on elementary school students' SRL and its impact on students' reading comprehension abilities. This knowledge gap is an important motivation to explore this aspect in more depth. This deficiency indicates the need for more in-depth research to identify the specific and significant impact and contribution of the RADEC learning model on elementary school students' reading comprehension abilities and SRL development.

This research will use the literature study method to identify and analyze literature relevant to the RADEC learning model and its influence on elementary school students' reading comprehension and SRL. This method will allow us to explore the latest research and analyze key findings. The aim of this research is to explore the influence of the RADEC learning model on improving elementary school students' reading comprehension and SRL skills and to explain the relationship between SRL and reading comprehension. This research is also expected to enrich our understanding of the development of effective learning models and how SRL relationships can influence students' reading comprehension.

METHOD

The research method used in this research is a literature study. The literature study method is a series of activities relating to methods of collecting library data, reading and taking notes, and managing research materials (Zed, 2008:3). Research steps include: (1). Literature Search: A literature search will be carried out systematically through academic databases, digital libraries, and relevant online sources. Keywords such as “RADEC,” “reading comprehension,” “SRL,” “elementary school students,” and other related keywords will be used. Literature selection: Literature selection will be carried out by considering the relevance, quality, and reliability of the sources found. Only literature appropriate to this research topic will be selected. Literature analysis: The selected literature will be analyzed in depth to identify findings related to the influence of the RADEC learning model on improving elementary school students' reading

comprehension and SRL. Synthesis of findings: Findings from the literature will be synthesized to illustrate the impact of the RADEC model and factors influencing its implementation.

RESULTS

The "Read, Answer, Discuss, Explain, and Creative" (RADEC) learning model is an approach that focuses on developing students' understanding and critical and creative thinking abilities. Although RADEC does not explicitly refer to self-regulated learning (SRL), the elements in this model can support the development of SRL in elementary school students if implemented well.

Table 1. RADEC and reading comprehension

Syntax	Reading comprehension
Read	In this stage, students develop an initial understanding of the content of the text, explore information from various existing sources, and are equipped with pre-learning questions.
Ask	Answering questions related to the text requires a deep understanding of the reading material. Students must understand the text to provide appropriate answers. This can improve their reading comprehension.
Discuss	Discussing allows students to share their understanding of the text and listen to peers' points of view. This broadens their understanding
Explain	through interaction and the exchange of ideas.
	Explaining requires a deep understanding of the reading material to
Create	present information clearly and logically. Students must process information before they can explain it well.
	Creative activities such as writing, drawing, or making presentations require strong reading comprehension because students must summarize, organize, and present information from texts in creative ways. This deepens their understanding.

The table above reflects that each step in the RADEC model contributes to students' reading comprehension. These stages allow students to read texts carefully, respond to them with deeper understanding, discuss with peers, explain their understanding, and even create new content based on their understanding. All of these stages work together to improve students' reading comprehension.

In this RADEC stage, students develop an initial understanding of the content of the text, explore information from various existing sources, and are provided with pre-learning questions. Pre-learning questions are questions asked to students before learning is carried out. According to Sopandi (2021), pre-learning questions are questions whose answers are an essential cognitive aspect that students master after studying the material. Next, in the Answer Stage, students answer pre-learning questions based on the knowledge they have from the previous Read stage. At the Discuss stage, students form groups to discuss answers to questions they have worked on or answered independently while outside the classroom or home. To further sharpen reading comprehension, reading activities should be accompanied by discussions to enrich vocabulary and improve understanding (Therrien et al., 2006; Tarigan, 2008). This is in line with the discuss and explain syntax in RADEC learning; in the explain stage, students carry out classical presentations in front of other groups. In this activity, the teacher encourages other groups to ask questions and provide responses to the group that appears. This is in line with the discuss and explain syntax in RADEC learning, as stated by Nuttal in Abidin (2021): in post-reading activities, students can discuss and argue about the content of the reading and discuss the content of the discourse completely and comprehensively. Finally, in the Create stage, students learn to use the knowledge they have mastered to create creative ideas. This is in line with the discuss and explain syntax in RADEC learning, as stated by Nuttal in Abidin (2021) that in post-reading activities students can discuss and argue about the contents of the reading and discuss the contents of the discourse completely and comprehensively.

RADEC develops students' self-regulated learning (SRL)

The "Read, Answer, Discuss, Explain, and Creative" (RADEC) learning model is an approach that focuses on developing students' understanding and critical and creative thinking abilities. Although RADEC does not explicitly refer to self-regulated learning (SRL), the stages in this model can support the development of SRL in elementary school students if implemented well.

Table 2. RADEC and self-regulated learning (SRL)

Syntax	Self-regulated learning (SRL)
Read	This stage emphasizes the importance of reading the lesson material. Understanding the learning material is the first step in the SRL process. When students learn to read and understand texts well, this can help them monitor their understanding.
Ask	This stage involves testing students' understanding with questions. Responding to questions requires evaluating students' existing understanding, which is an important aspect of SRL. Students need to measure how far they have understood the material so far.
Discuss	Discussion is an effective way to activate understanding and promote reflection. In discussions, students can share their understanding, understand classmates' perspectives, and reflect more deeply on a particular topic. Discussions can encourage reflection and self-evaluation, which are components of SRL.
Explain	Explaining material to others, whether fellow students or teachers, involves a process of self-monitoring and evaluation. Students need to plan how best to explain the material and adapt their presentation according to their audience's understanding. This reflects self-regulatory strategies in SRL.
Create	The RADEC model also includes creative elements that can motivate students to develop new ways to understand and present material. Creativity can contribute to the use of innovative learning strategies, which is part of SRL.

Read

Reading allows students to develop metacognition. As students read, they need to understand the purpose of reading, monitor their comprehension, and evaluate the extent to which they understand the text. Students who have good metacognition tend to be better at planning their learning, monitoring progress, and evaluating their understanding. This is an important element of SRL. Reading can influence learning motivation. When students find texts interesting or relevant, they tend to be more motivated to read and learn. High learning motivation influences students' SRL, motivating them to take initiative in learning and maintain engagement in learning.

Reading is a regular learning behavior. Students who get into the habit of reading well develop habits that support SRL. Students who have regular study habits are more likely to maintain study discipline and independence in managing their time and resources for learning. Reading allows students to organize information. Reading requires processing, organizing, and evaluating information from various sources. The ability to manage information and understanding how to process data play an important role in students' SRL. They can use these skills to search for, manage, and evaluate learning resources.

The description above reflects how the reading stages can contribute positively to increasing students' self-regulated learning (SRL). Reading helps develop metacognition, influences learning motivation, creates regular learning behavior, and strengthens information management skills, all of which contribute to more effective SRL.

Answer

Answering questions requires understanding and reflection. As students try to answer questions, they need to think of solutions, analyze information, and reflect on the problem-solving process. Metacognitive abilities related to self-monitoring and self-evaluation can improve when students try to answer questions. They learn to plan, monitor, and evaluate their understanding. This is an important aspect of SRL.

Answering questions can be a source of intrinsic motivation. When students successfully answer questions, they may feel satisfied with their accomplishments and motivated to continue learning. Intrinsic motivation that arises from a sense of accomplishment in answering questions can support students' SRL. Motivated students tend to be more enthusiastic about learning and participate actively in it.

Answering questions is a regular learning behavior. Students who are accustomed to answering questions well develop habits that support SRL. Regular learning behaviors include taking initiative in answering questions and participating in learning activities that require problem solving and analysis. Answering questions involves processing and organizing information. Students need to collect data, analyze it, and design appropriate responses. The ability to manage information and understanding how to process data play an important role in students' SRL. They can use these skills to search for, manage, and evaluate learning resources. The description above explains how answering questions can contribute positively to improving students' self-regulated learning (SRL). Answering questions helps develop metacognition, influences learning motivation, creates organized learning behavior, and strengthens information management skills, all of which contribute to more effective SRL.

Discuss

Discussing requires understanding, information processing, and communication skills. When students engage in discussions, they need to understand the topic, process the information presented by others, and contribute in a useful way. Metacognitive abilities develop as students discuss because they need to monitor their understanding, reflect on their contributions to the discussion, and evaluate the effectiveness of communication.

Effective discussions can be a source of intrinsic motivation. When students feel involved in constructive discussions and feel they are gaining deeper understanding, they tend to be motivated to learn further. Intrinsic motivation that arises from a sense of personal satisfaction in discussing can support students' SRL. They are motivated to take initiative in learning and maintain engagement in learning.

Discussing involves active communication behavior and sharing understanding. Students involved in discussions must listen, talk, and interact with others. The behaviors of speaking, listening, sharing ideas, and contributing to discussions are examples of behaviors that support organized learning and communication skills. Discussions require problem-solving and analysis. Students must formulate arguments, consider multiple points of view, and reach agreement or shared understanding. Problem-solving and analytical skills develop as students engage in discussions involving critical analysis, judgment, and conflict resolution. This can support students' SRL in problem identification and effective action-taking.

The explanation above reflects how discussions can contribute positively to increasing students' self-regulated learning (SRL). Discussing helps develop metacognition, influences learning motivation, creates organized learning behavior, and strengthens communication and problem-solving skills, all of which contribute to more effective SRL.

Explain

Explaining requires a deep understanding of the material to be explained. Students need to process information well before they can explain it effectively. Metacognitive skills develop as students explain because they need to monitor their understanding of the material and plan effective delivery. They must also understand their audience and adapt their delivery accordingly. Explaining can be a source of intrinsic motivation. When students succeed in explaining the material well, they may feel satisfied with their achievements and motivated to continue learning.

Intrinsic motivation that arises from a sense of achievement in explaining material can support students' SRL. Motivated students tend to be more enthusiastic about learning and participate actively in it.

Explaining involves active communication. Students must organize ideas, talk, and interact with others to explain. Speaking, listening, and knowledge-sharing behaviors that support effective communication are examples of behaviors that support organized learning and communication skills. Explaining requires problem-solving and analysis. Students must formulate arguments, devise effective ways of explaining, and consider the needs of their audience. Problem-solving and analytical skills develop as students explain, as they must organize ideas, consider the audience's perspective, and solve problems that may arise during the delivery process. This can support students' SRL in problem identification and effective action-taking.

This explanation explains how explaining can contribute positively to increasing students' self-regulated learning (SRL). Explaining helps develop metacognition, influences learning motivation, creates organized learning behavior, and strengthens communication, problem-solving, and analytical skills, all of which contribute to more effective SRL.

Create

Creativity can improve students' metacognition. When students engage in creative activities, they often think about how to generate new ideas and organize the creative process. This can strengthen their metacognitive abilities in planning, monitoring, and evaluating their learning. Students who develop strong metacognition through creative activities tend to be better at managing their own learning, including self-monitoring and self-assessment of their progress in learning. Creativity can be a source of intrinsic motivation. When students feel engaged in creative activities that allow them to express themselves, they tend to be motivated to learn and grow. This intrinsic motivation can support their learning efforts. Students who have strong intrinsic motivation tend to be more focused and enthusiastic about learning. They can maintain their own motivation and feel satisfied with their achievements in learning. Creative activities encourage experimental and exploratory behavior. Students who engage in creative activities often take risks, try new ideas, and explore different approaches to solving problems. This experimental and exploratory behavior reflects effective self-regulated learning behavior, where students dare to try new approaches and think critically about possible solutions. Creativity promotes problem-solving and analysis. Students involved in creative activities must solve problems and analyze various elements to produce innovative results. Improved problem-solving and analytical skills can support students' SRL in identifying challenges in their learning, formulating strategies to overcome them, and developing deeper understanding.

In the RADEC learning model, the Read and Answer syntax is packaged in the form of independent assignments carried out by students outside of learning hours, with pre-learning questions as a guide to this syntax. Setting activities in this syntax makes students try to organize themselves, including in time management, choosing reading sources, determining their own learning style in reading activities, and answering pre-learning questions (Sutantri, 2023). This is in line with the opinion, which states that giving independent assignments encourages students to carry out self-regulation in completing assignments and preparing themselves for learning in class (Steiner, 2016, Hall, and Harding, 2003). The explanation above outlines how creativity can have a positive impact on increasing students' self-regulated learning (SRL). Creativity can improve students' metacognition, motivation, experimental behavior, and problem-solving abilities, all of which are important aspects of effective SRL. Thus, creative activities can be a powerful tool in advancing students' SRL.

CONCLUSION

Based on the research results described previously, it can be concluded that the RADEC (Read, Answer, Discuss, Explain, Create) model has the potential to improve reading comprehension and self-regulated learning (SRL) for elementary school students. The RADEC model can influence the improvement of students' reading comprehension. By combining the steps of reading, answering questions, discussing, explaining, and creating, this model provides a

holistic approach to understanding text. Students engage in deep processing of information, interact with peers, and develop the ability to present and formulate their understanding well. The RADEC model plays an important role in the development of students' self-regulated learning (SRL). Through this model, students learn to monitor their understanding, organize information, communicate with others, and take initiative in learning. They also develop metacognitive skills that enable them to plan, monitor, and evaluate their own learning. Implementation of the RADEC model can provide opportunities for students to participate in creative activities, such as creating. This can increase students' intrinsic motivation and help them maintain engagement in learning.

The RADEC model encourages speaking, listening, and discussion behaviors, which are very important communication skills. These communication skills can support students' SRL development in terms of problem solving, analysis, and information management. It can be concluded that RADEC is promising as a learning model that can improve reading comprehension and SRL for elementary school students. Its implementation can provide benefits in developing students' abilities to understand texts, organize their own learning, and participate in creative activities.

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