

The Influence of Reading Activities on Grade VI Elementary School Students' Reading Skills Regarding Electrical Energy via RADEC Learning

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Abstract. Reading is one of post activity stage activities in the RADEC model. This study aims to investigate the impact of reading on reading skills. The methodology is descriptive quantitative and makes use survey techniques and learning evaluation tests. Intentionally employed in the sample were 26 students from a Bandung elementary, 12 of whom male and 14 years old. In order to conduct reading activities using Google Forms and assess the practicality of reading, this study's analytical technique comprises figuring out the average value of content comprehension on pre-learning examinations and evaluation tests. The analysis's results show that typical student's pre-learning understanding was demonstrated by their average evaluation test scores, which were 80 and 8 when they read 75% of the material, 76.7 and 67.8 when they read 50% of the material, and 62.5 and 42.5 for those who read 25% of the material. The study's conclusions indicate that the reading activities in the RADEC model have an effect on students' comprehension skills. How thoroughly and effectively you read the content will determine how well you will understand it. The results of this study will be utilized as research material to evaluate how effectively classroom training prepares students for reading-related activities.

Keywords: RADEC, reading, pre-learning, electrical energy, learning model.

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INTRODUCTION

Science literacy and the essence of science are integral parts of science education in schools. Reading is a scientific literacy activity that has a significant impact on pupils' reading abilities and comprehension of the information being studied. One of the four crucial language skills that everyone should learn and master is reading (Rahayu et al, 2016). Understanding fundamental concepts and literacy abilities are related (Seprianto, 2020). Students who engage in reading comprehension exercises will gain a knowledge of fundamental ideas. Ambarita et al. (2021) state that one of the skills that must be taught in order to expand student knowledge of science and information that is always evolving is reading comprehension. Student literacy activities aimed at enhancing scientific literacy abilities have an impact on how well students understand a subject, particularly in science learning.

Scientific literacy skills stress knowledge acquisition as well as understanding scientific concepts (Hardianty, 2015). Speaking about science education is equivalent to speaking of scientific literacy (DeBoer, 2000). The purpose of science education in primary schools is to foster an understanding of numerous natural occurrences as well as scientific concepts and principles that are helpful for fostering critical thinking abilities that can be used in daily life (Susilo et al, 2012). Consequently, acquiring scientific literacy among students requires them to learn science (Yonanda et al, 2017). Based on the growth of necessary information, abilities, and attitudes for learning science. Wahyu Sopandi's RADEC learning paradigm is a good one to use in scientific instruction at all educational levels (Sopandi, 2017).

The RADEC learning model seeks to enhance the standard of instruction and motivates students to acquire the necessary 21st-century competences and skills (Setiawan et al, 2019). The 21st century is sometimes referred to as the century of knowledge, the knowledge-based economy, the information age, the fourth industrial revolution, globalization, and so on (Redhana, 2019). Critical thinking, problem solving, cross-network collaboration, flexibility, initiative, and entrepreneurship are necessary 21st century talents that students must possess (Voogt & Roblin,

2010). The development of the RADEC model was based on taking into account four factors, including the objective of national education, the use of learning resources, the growth of students' reading comprehension abilities, and the development of cognitive abilities related to interaction with the environment (Pratama et al, 2019).

Numerous studies have demonstrated the positive effects of the RADEC learning model on learning, as evidenced by the improvement in learning outcomes for explanatory texts (Setiawan et al., 2019), conceptual understanding (Lukmanudin, 2018), HOTS-oriented learning (Jumanto & Widodo, 2018; Agustin et al., 2021), and critical thinking that is focused on problem-solving (Satria & Sopandi, 2019; Hayati Rahayu, Sopandi and Anggraeni, 2021). The improved learning outcomes found in the aforementioned research are attributable to the stages of the RADEC learning model being followed precisely and correctly. The Read, Answer, Discussion, Explain, and Create (RADEC) model is the one in dispute (Sopandi, 2017).

The RADEC learning approach has not, however, been implemented by all students in the reading stage. According to the study's findings, the majority of students did not read the subject matter sections of their textbooks prior to their lessons with the teacher (Sopandi, 2017). This demonstrates that reading activities have not been implemented in an efficient manner. despite the fact that the teacher had instructed them to complete reading assignments before class. After distributing the research questionnaire, Muttaqin & Sopandi (2015) report that it was discovered that the majority of students would not read if they were not given an assignment or a test. Even for students in the 2016–2017 PGSD level, journal reading activities are still considered to be of a low standard (Suryandari et al., 2018). The level of one's scientific literacy will be correlated with their interest in reading. Knowledge competency is one of the scientific literacy abilities connected to concept mastery (OECD, 2015). To complete scientific literacy abilities, one must comprehend the subject.

The capacity to make decisions about the universe using scientific knowledge and methods is known as scientific literacy (Jufrida et al, 2019). Meanwhile, according to PISA (2015), scientific literacy is the capacity to interact with scientific concerns and ideas as a thoughtful citizen (OECD, 2016). The PISA study findings from 2015 to 2018 identify Indonesia as one of the nations with low scientific literacy. These findings reveal that whereas Indonesia only received a score of 403, the average science score across OECD nations is 493. (Narut et al, 2019). This demonstrates how education, particularly reading enthusiasm, is still very behind in Indonesia (Safitra, 2018).

Therefore, it is necessary to enhance the reading activities in RADEC learning activities. To ensure that the readings pupils do are comprehended by them, it is important to emphasize both the amount and quality of reading. All educational levels and academic areas require reading comprehension from students (Ozdemir & Akyol, 2019). Because pupils still don't have a lot of enthusiasm in reading, reading activities are less successful. According to Kamardana et al. (2021), this is because pupils don't spend enough time reading and many don't understand the information because they aren't interested in reading. A strong desire or tendency (passion) to read is referred to as reading interest (Nyoman, 2020). Reading interest and learning motivation have a big impact on how well students study science. They engage in reading exercises as part of their academic pursuits. Students that incorporate reading into their learning activities will attain academic success (Retariandalas, 2017).

The RADEC methodology includes a stage that tries to enhance pupils' reading comprehension abilities. The RADEC learning model's reading stages are frequently linked to pre-learning inquiries. Students read information from a variety of sources during the reading stage, including books, other printed media, and electronic sources like the internet. Students are given pre-learning questions to aid them in understanding the knowledge. Pre-learning inquiries are exclusively material-related (Pratama et al, 2019). Pre-learning inquiries should range from those requiring low-level thinking (LOT) to those requiring higher-order thinking skills (HOT) (Sopandi, 2017). As a result, the RADEC learning model's reading stages promote the literacy movement and work to improve students' comprehension of the lessons they are being taught. Before beginning lessons, students become accustomed to reading information on the subject being studied from a variety of sources (Pohan et al, 2021). According to Sopandi (2017), the

practice of students reading material from books before putting it into practice in class can improve students' average learning outcomes. Consequently, pupils now have a better comprehension of the subject. If reading comprehension is influenced by students' literacy activities, this is consistent with studies by Fahrurrozi et al. (2020).

This study intends to examine the impact of the reading stage activities in the RADEC model on students' reading comprehension abilities for scientific content based on the findings of the previous analysis. The goal of this study's findings is to produce data that can be used to assess how reading activities are employed in classroom instruction.

METHOD

This study employs a quantitative descriptive approach that presents the research's findings as numerical data. According to Putra (2015), quantitative descriptive research seeks to observe, analyze, and numerically describe the object under investigation as it is, and then form conclusions about it in light of the phenomena that emerged during the research's execution.

The population is made up of all elements, research units, or analytical units that share specific traits, traits that are employed as research objects, or traits that are of concern during a study or observation (Abdurahman, 2011). Students in class VI at SDN 195 Isola in Bandung made up the study's population. While 26 pupils from class VI A SDN 195 Isola made up the study's sample. Purposive sampling was the method of sampling that was used. Students are chosen based on their involvement in online evaluations conducted using Google Form and Zoom meetings. This study was conducted on October 5, 2022, by talking about the lesson "The process of generating and distributing electrical energy from micro-hydro power plants" from the Theme 4 Sub-theme 1 "Globalization Around Me".

Reading activities using the Google form and learning achievement exams are employed as the method for gathering data from the variables used in this study. The analysis conducted in this study used two methods: (1) calculating the percentage of reading implementation using a survey questionnaire on the implementation of reading activities using a Google form; and (2) calculating the average value of the pre-learning tests and evaluation tests. The evaluation of learning outcomes is tested using two different types of tests. The first part of the pre-learning test uses a total of five PG questions on the science content that was read in the lesson plan "The process of generating and distributing electrical energy from a micro-hydro power plant" at the reading stage of the RADEC learning model. The second test is an evaluation of learning that includes of 12 questions: 10 PG questions and 2 description questions regarding learning in Theme 4 Sub-Theme 1 "Globalization Around Me."

RESULTS

The following results were obtained from an analysis of reading activities (Read) in the RADEC learning model for the science lesson "The process of generating and distributing electrical energy from a micro-hydro power plant" that was done for class VI A students and as many as 26 students from SDN 195 Isola. Data was gathered in two ways: directly through Zoom meetings during learning activities and through student assessments submitted via Google Form after learning activities were finished.

IMPLEMENTATION OF READING STAGES IN RADEC LEARNING

Students are instructed to complete reading assignments prior to engaging in learning activities. The reading materials made available to students include teaching aids and books with a specific theme like "The method of generating and distributing electrical energy from micro-hydro power plants." The day before the lecture, the teacher offers pupils online instructions via the Whatsapp group. In addition to the teacher's provided instructional aids and thematic literature. Students are allowed to research the subject matter they will learn on their own. According to Sopandi (2017), reading about a subject from a book before implementing learning in class gives kids enough of time to comprehend the material.

Students in Class VI A are given a questionnaire survey via Google Form that has two main elements and asks them questions regarding presenting reading assignments and carrying out reading activities. Including the way reading tasks are presented in Figure 1.

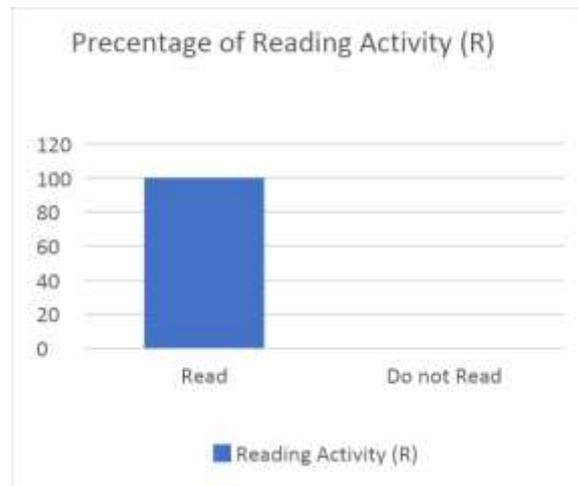


Figure 1. Picture of Percentage of Reading Activities (R)

All of the 26 pupils in class VI A SDN 195 Isola who participated in the study showed that reading came before learning. Theme 4's "The method of generating and distributing electrical energy from a micro-hydro power plant" was covered in the instructional materials that were previously distributed to the students. The lesson's "Globalization Around Me" sub-theme is covered.

Giving instructions to pupils via the Whatsapp group is one of the actions the teacher engages in to encourage them to complete reading activities. Students, students parents, and the general public are encouraged to participate in nurturing and becoming accustomed to reading, especially in the current period of globalization, according to Patiung (2016). This demonstrates that the teacher fulfills that function. In addition to teacher-related elements, the qualities of class VI A students, who are responsible and disciplined, are internal considerations for pupils when engaging in reading-related activities. The majority of learning activities are routine for students. In this situation, both teachers and students need to play a part in encouraging pupils to read more. In order to successfully complete the reading phases. Table 1 displays the findings of the presentation of reading material exercises conducted prior to learning through Zoom meetings.

Table 1. Presentation of Material Reading Activities in RADEC Learning

Activity Reading Criteria	Criteria	Number of Students
100%	High	0
75%	Medium	10
50%	Low	14
25%	Very Low	2

It is clear from the data in the table above that many pupils have not yet completed reading exercises effectively. Students frequently skim readings without understanding the purpose of what they are reading. This is connected to the students' ongoing lack of interest in reading. Even in a learning environment, Indonesian students' enthusiasm in reading is still low, as stated by Kamardana et al. (2021).

According to the results, 14 pupils, or 56% of the entire class VI A, or the highest presentation of all the information read by students, is 50%, or it may be characterized as a low level. According to the data, the majority of pupils barely read 50% of the homework assignments. While the lowest presentation of the full text read is 100%, or 0 students or 0% of all students, the highest presentation is 100%. These findings suggest that none of the pupils read all of the

teacher's materials. While 10 pupils, or 38% of the class VI A population, read 75% of the medium category's material. Only two students, or 8% of the class, read less than 25% of the material, falling into the very low group.

According to Sopandi (2017), a pre-teaching inquiry is one that relates to the teaching materials. Before introducing the core subject, include a number of PG questions pertaining to the instructional materials that the students have already been given. The five PG questions that were written on folded paper and displayed as a group when the teacher finished counting were taken from the teaching materials that were made available. Additionally, this approach is enjoyable, can be used by all students in zoom meeting, and makes it simpler for them to choose their responses.

The purpose of the initial questions is to gauge how well the pupils have read and understood the topic. Pre-learning inquiries are exclusively material-related (Pratama et al, 2019). because pupils occasionally engage in reading activities without fully comprehending what they are reading. Table 2 provides a more thorough explanation of the relationship between the students' pre-learning average scores and the percentage of the content they actually read.

Table 2. Average Scores of Students' Pre-learning Questions at the Beginning of RADEC Learning Activities

Presentation of Reading Activities Material	Average Evaluation Score	Number of Student
100%	0	0
75%	81	10
50%	67,8	14
25%	42,5	2

According to the information in the table above, the average percentage of the highest and lowest pre-learning question scores is visible. The results of the reading material's presentation are 75% and 25%, or 80 and 62.5 respectively. 10 students in class VI A who read 75% of the text or fell into the moderate reading category received an average pre-test score of 80, which was the largest number of students to do so.

Students in the low reading category who read 50% of the material had the second-highest average score, with an average pre-learning exam score of 76.7. There were 14 students that received a score of 76.7. This demonstrates that the majority of students in class VI A receive an average pre-learning question score of 76.7. Meanwhile, students who read 25% of the material in the extremely low category received the lowest average score for the pre-learning questions, which was 62.5. There were just 2 students that received the lowest grade. This acquisition reveals, however, that there are still pupils whose scores are 75 points or less below the KKM.

GIVING EVALUATION QUESTION AFTER RADEC LEARNING ACTIVITIES

At the conclusion of the lesson, evaluation questions about problem solving are given through the Google form application. There are 10 PG questions and 2 essay questions. The purpose of this assignment is to gauge how well the pupils have understood the previous instruction. The questions students are given at the conclusion of the session include components of competencies C1–C3, but some of the questions also need students to apply critical thinking skills in order to solve problems and find solutions based on their prior knowledge. Table 3 displays the findings of the average value of assessment data for class VI A following the use of RADEC learning. Depending on how the reading material activities are presented and how the assessment average is calculated, several types of data are presented.

Table 3. Average Student Evaluation Scores After RADEC Learning Activities

Presentation of Material Reading	Average Pre-Learning Test Score	Number of Student
100%	0	0
75%	80	10
50%	76,7	14
25%	62,5	2

The findings from the presentation of the data above show that students who studied 75% of the instructional materials prior to learning achieved the highest average assessment scores, or 81. The largest and smallest assessment ratings from the presentation of pupils who complete reading assignments by 70% and 25%, respectively, show the difference in value of 38.5.

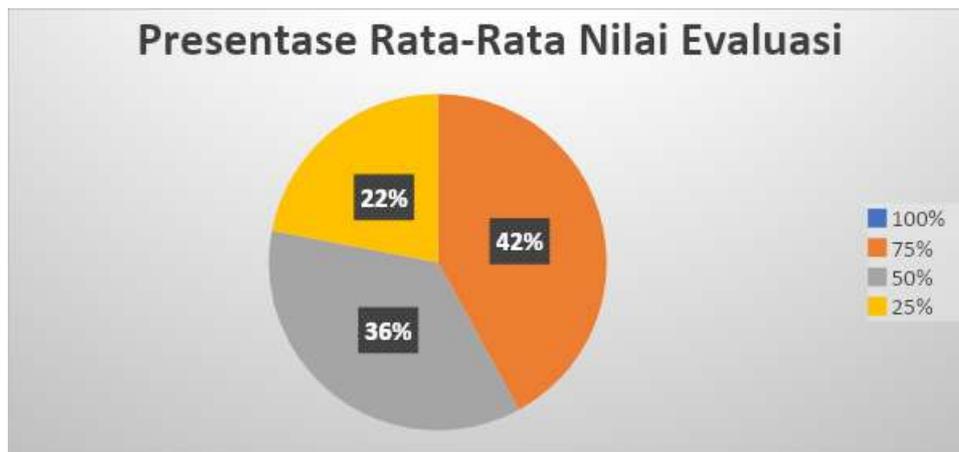


Figure 2. Picture of Percentage of Student Evaluation Scores

According to Figure 2's findings, there is a 14% difference between how the largest and smallest values are presented. The proportion of students who read 25% of the material with two children resulted in the lowest average score of 42.5. The highest group, 14 students, who read 50% of the material, received an average score of 67.8, however. The study's findings also revealed that the majority of class VI A students achieved an average assessment score of 67.8 by merely covering 50% of the subject or reading only a portion of the instructional materials.

If there is a connection between reading activities and student learning outcomes, it can be inferred from the findings of the numerous analyses that have been done on some of the features mentioned above. If reading activities are conducted out as part of their learning activities, as demonstrated by Retariandalas (2017). Students that read a lot as part of their coursework will perform well in learning activities. According to the findings of the researcher's analysis, the majority of the class VI A SDN 195 Isola students read the teaching materials that the teacher provided before learning 50% or only half of the material in the teaching materials. The sources that the teacher provides for their lessons are typically the only ones that students consult.

The way the reading content is presented depends on the answers to pre-learning quizzes and the findings of student evaluations. The five steps of the RADEC learning model are: Read, Answer, Discuss, Explain, and Create (Sopandi, 2017). Subsequent student learning results are impacted by each step. a part of the reading process. A crucial part of learning activities is the reading activity. According to Safitra (2018), reading is essential for everyone to have a better quality of life, particularly in the context of schooling.

Due to certain conditions that certain students explicitly communicated when the teacher asked direct questions during the zoom meeting session, none of the students who participated in this reading activity indicated that they had read the entire instructional material, i.e. 100% of

it. Examples include the lack of reading time, the use of technology by family members to communicate, or the physical state of youngsters who choose to rest because they are exhausted. This also has something to do with encouraging young readers.

Based on pre-learning value data and evaluation questions, it has been determined that students who read 75% of the material would score higher than those who read 50% or 25% of the information. Students who read 75% of the material or who fell into the (moderate) category received average pre-learning question and final evaluation of learning scores of 80 and 81. The lowest scores, however, were attained in the low material reading group (50%) where students' average test scores were 76.7 and 67.8. Last but not least, 25% of students received average scores of 62.5 and 42.5 correspondingly.

The study's findings demonstrated that pre-question test scores and evaluation test scores were higher for students who read more of the teaching materials. Similar to the study conducted by Retariandalas (2017), which found that students who include reading in their learning activities achieve well in their studies. In order to strengthen students' knowledge of the information being taught, the RADEC learning model's stages of reading are also supported by attempts to promote literacy (Pohan et al., 2021). As a result, student learning outcomes will be better the more consistently the youngster reads before learning. The subject that will be covered in class will be simple for the students to understand.

Based on the findings, it can be concluded that in RADEC learning activities. Activities involving reading must be carried out and implemented in the best possible way. Students would become accustomed to reading activities if the reading stages are conducted effectively, claims Sopandi (2017). Reading activities must also be in line with the goals since information seeking and obtaining is the primary goal of reading, and this includes the content and comprehension of what reading is all about (Rahayu et al., 2016). The desire to read must be cultivated in pupils in order for them to freely engage in reading activities prior to fully and effectively learning. Not only that, but reading only in school without comprehending the content of the teaching materials.

CONCLUSION

The RADEC learning model has stages for learning to read (Read), and students must complete these stages as effectively as possible. The majority of students only read 50% of the content in teaching materials, and no one read 100% of the content, according to an analysis of the percentage of the content that students really read. On the RADEC model, student learning results are influenced by the proportion of reading material in the reading activities. Students who read 75% of the content received an average score of 80 and 81; students who read 50% of the material received an average score of 76.7 and 67.8; and students who read 25% of the material received an average score of 62.5 and 42.5 on the pre-learning and evaluation questions.

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