The Influence of Reading Activities in the RADEC Model on Reading Comprehension Skills of Grade VI Elementary School Students on Natural Science Soil Materials

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Abstract. In the implementation of the RADEC learning model, students still have not carried out the stages of reading to the fullest. This study aims to analyze the effect of reading activities on the RADEC model on reading comprehension skills. The research method used is descriptive quantitative with survey techniques and learning evaluation tests. The sample was determined intentionally for 26 sixth-grade students at SDN 093 Tunas Harapan Cijerah. The analysis technique carried out in this study is to determine the implementation of reading by using a survey questionnaire for the implementation of reading activities using the google form and to determine the average value of understanding the material on the pre-learning test and evaluation test. The results of the analysis show that the average students' understanding skills on the pre-learning and evaluation tests obtained by students include (1) students who read 75% of the material get an average score of 80 and 8; (2) students who read 50% of the material got an average score of 76.7 and 67.8; and (3) students who read 25% of the material got an average score of 62.5 and 42.5. The conclusion of this study is that reading activities in the RADEC model affect students' reading comprehension skills. The implementation of reading the material effectively and thoroughly will determine the understanding of the learning material. The results of this study are expected to be an evaluation material for implementing learning in schools to train children to carry out reading activities effectively.

Keywords: RADEC, Reading, Pre-Learning, Soil Teaching Materials, Learning Model

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INTRODUCTION ~ Science learning in schools cannot be separated from scientific literacy and the nature of science. One of the activities of scientific literacy is reading, which is an activity that has a major influence on students' reading skills and understanding of the material being studied. Reading is one of the four language skills that are important to be learned and mastered by each individual (Rahayu et al., 2016). There is a relationship between understanding basic concepts and literacy skills (Seprianto, 2020). Understanding of basic concepts can be obtained if students carry out reading comprehension activities. According to Ambarita et al. (2021), reading comprehension is one of the abilities that must be developed in an effort to increase students' knowledge of science and information that is constantly evolving. Understanding of a material, especially in science learning is also influenced by student literacy activities that aim to improve scientific literacy skills.

Scientific literacy skills not only emphasize understanding scientific concepts but also emphasize how to acquire knowledge (NOS) (Hardianty, 2015). Talking about scientific literacy is

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the same as talking about science education (DeBoer, 2000). Science learning taught in elementary schools has the aim of developing an understanding of various natural phenomena, science concepts and principles that are useful for developing critical thinking skills that can be applied in everyday life (Susilo et al., 2012). Therefore, learning science is an important process in improving students' scientific literacy (Yonanda et al., 2017). Based on the development of aspects of attitudes, knowledge and skills that must exist in science learning. The RADEC learning model developed by Wahyu Sopandi is a suitable model to be implemented in science learning at every level of education (Sopandi, 2017).

The RADEC learning model aims to improve the quality of learning and encourage students to master the 21st-century competencies and skills needed (Setiawan et al., 2019). The 21st century is also known as the century of knowledge, the age of knowledge-based economy, the age of information technology, the 4.0 industrial revolution, globalization, and so on (Redhana, 2019). Students in the 21st century are required to have skills including critical thinking, problem-solving, cross-network collaboration, adaptability, initiative, and entrepreneurship (Voogt & Roblin, 2010). The RADEC model is made based on considerations of four aspects, one of which is the purpose of national education, utilizing learning resources, developing cognitive abilities related to interaction with the environment, and growing students' reading comprehension skills (Pratama et al., 2019).

Many studies have proven that the RADEC learning model has a positive impact on learning, this can be seen from the increase in learning outcomes in explanatory texts (Setiawan et al., 2019), concept understanding (Lukmanudin, 2018), HOTS-oriented learning (Jumanto & Widodo, 2018; Agustin et al., 2021), problem-solving-oriented critical thinking (Satria & Sopandi, 2019; Hayati Rahayu, Sopandi and Anggraeni, 2021). The increase in learning outcomes obtained from the research above is due to the stages of the RADEC learning model being carried out properly and appropriately. The learning model in question is the Read, Answer, Discuss, Explain, and Create (RADEC) model (Sopandi, 2017).

However, in the implementation of the RADEC learning model, the reading stage has not been carried out by all students. The results showed that the majority of students did not read the subject matter topics from textbooks before they studied with the teacher (Sopandi, 2017). This shows that the implementation of reading activities has not been carried out effectively. Even though the teacher has asked students to carry out reading activities before learning in class. According to Muttaqiin & Sopandi (2015) after distributing their research questionnaire, it was found that most students would not read if they were not assigned or there was no test. Even for the 2016/2017 PGSD student level, journal reading activities are still in the low category (Suryandari et al., 2018). A person's interest in reading will be related to his scientific literacy skills. One of the scientific literacy skills related to understanding concept mastery is knowledge competence (OECD, 2015). Understanding the material is very

necessary for completing scientific literacy skills.

Scientific literacy is a person's ability to use scientific knowledge and processes to make decisions related to the universe (Jufrida et al., 2019). Meanwhile, according to PISA 215 scientific literacy is the ability to engage with issues related to science, and with scientific ideas, as a reflective citizen (OECD, 2016). The results of the PISA survey from 2015 to 2018 placed Indonesia as one of the countries with low scientific literacy. These results show the average value of science in OECD countries is 493, while Indonesia has only reached a score of 403 (Narut et al., 2019). This shows that Indonesia is still far behind in terms of education, specifically reading interest (Safitra, 2018).

Therefore, reading activities in RADEC learning activities must be improved. Not only increasing the quantity of reading but the quality of reading must also be emphasized so that the material read by students can be understood well. Students need to have reading comprehension skills at all levels of education and for all school subjects (Özdemir & Akyol, 2019). The lack of effectiveness of reading activities occurs because students' interest in reading is still low. According to Kamardana et al. (2021) due to the lack of time spent by students for reading and many students who do not understand the material due to their lack of interest in reading. Interest in reading is a high desire or inclination of the heart (passion) to read (Nyoman, 2020). There is a significant effect of reading interest and learning motivation on science learning achievement. Reading activities are carried out as part of their learning activities. Students who make reading activities part of their learning activities will get good learning achievements (Retariandalas, 2017).

One of the steps in the RADEC model aims to improve students' reading comprehension skills. The stages of reading in the RADEC learning model are often associated with pre-learning questions. At the reading stage, students read information from various sources including books, other printed sources of information, and electronic sources of information such as the internet. To guide students in understanding the information students are given pre-learning questions. Pre-learning questions are questions related to the material alone (Pratama et al., 2019). Pre-learning questions should include questions that vary, from low-level thinking (LOT) to high-level thinking skills (HOT) Sopandi, 2017). Therefore, the read stage in the RADEC learning model, supports the literacy movement and also has efforts to increase students' understanding of learning materials. Students are accustomed to reading information from various sources related to the material to be studied before starting the lesson (Pohan et al., 2021). Sopandi (2017) shows that students' activities of reading subject matter from books before the implementation of classroom learning have been able to increase the average student learning outcomes. So that students' understanding of the material has increased. This is in accordance with research conducted by Fahrurrozi et al. (2020) if reading comprehension is determined also by student literacy activities.

Based on the results of the analysis that has been done, this study aims to analyze

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the effect of reading activities in the RADEC model on students' reading comprehension skills in science material. The results of this study are intended to provide information that can be used as evaluation material for the implementation of reading activities in classroom learning.

METHOD

This study uses a quantitative descriptive method that describes the results of the research as it is using numbers. As explained by Putra (2015) that quantitative descriptive aims to see, review and describe numerically the object under study as it is and draw conclusions about it according to the phenomena that appeared at the time the research was conducted.

The population is all elements, or research units, or units of analysis that have certain characteristics or characteristics that are used as research objects or become a concern in a study or observation (Abdurahman, 2011). The population in this study was class VI SDN 093 Tunas Harapan Cijerah in the city of Bandung. While the sample in this study were 26 students of class VI A SDN 093 Tunas Harapan Cijerah. The sampling technique used is purposive sampling. Students are selected based on learning participation through zoom meetings and online evaluations via Google Forms. This research was conducted on Wednesday, June 2, 2021, by discussing the learning of Theme 1 Sub-theme 1 "Save Living Creatures" and additional soil teaching materials "Soil and Sustainability of Life".

The technique of collecting data from the variables used in this study used a questionnaire survey of the implementation of reading activities using google forms and learning outcomes tests. There are two methods of analyzing the analysis carried out in this study, namely (1) determining the percentage of reading implementation by using a survey questionnaire on the implementation of reading activities using google form; and (2) determining the average score on the pre-learning test and evaluation test. There are two forms of tests used in testing the evaluation of learning outcomes. First, the pre-learning test used a total of 5 PG questions about the natural science soil material that had been read in the "Soil and Sustainability of Life" teaching material in the reading stage at RADEC. Second, the learning evaluation test, which consists of 12 questions, namely 10 PG questions and 2 description questions regarding learning. Theme 1 Sub-theme 1 "Save Living Creatures".

RESULTS

The analysis of reading activities (read) in the RADEC learning model on the natural science soil material carried out on class VI A students as many as 26 people from SDN 093 Tunas Harapan Cijerah which was carried out through a zoom meeting got the following results. Data acquisition was obtained in two ways, namely, directly the three learning activities took place through a zoom meeting and the results of the evaluation carried out by students after the learning activities were completed via a google form.

Implementation of Reading Stages in RADEC Learning

Before learning activities, students are given directions to carry out reading activities before learning activities. The

reading materials given to students are in the form of thematic books and soil material teaching materials. The teacher gives online instructions to students via Whatsapp group the day before the lesson. In addition to thematic books and teaching materials that the teacher provides. Students are freed to find their own information regarding the material to be studied later. As explained by Sopandi (2017) if reading subject matter from books is carried out before the implementation of learning in class so that children have a lot of time to understand the material.

Class VI A students were given a questionnaire survey through a google form which contained two main points containing questions about the implementation of reading activities and presentation of material read by students. Such as the presentation on reading activities which can be seen in Figure 1.

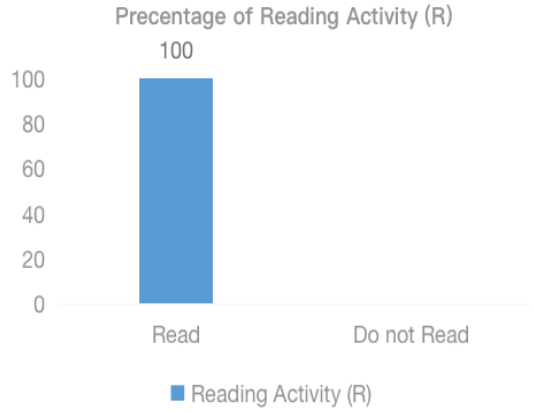

Figure 1. Picture of Percentage of Reading Activities (R)

The results obtained from 26 students of class VI A SDN 093 Tunas Harapan Cijerah are all students carry out reading activities before learning. The teaching materials given to the previous students were theme 1 teaching materials and soil teaching materials, namely "Soil and Sustainability of Life". The theme discussed in this lesson is "Save sentient beings".

One of the activities carried out by teachers to make children carry out reading activities is by giving instructions to students through Whatsapp groups. As stated by Patiung (2016) if students, students, parents, and the general public are highly expected to be involved in cultivating and getting used to reading, especially in the current era of globalization. This shows that the teacher is someone who has this role. In addition to factors that come from the teacher, the characteristics of class VI A students who are disciplined and responsible are internal factors for students in carrying out reading activities. Students have been accustomed to doing every learning activity. In this case, the role of teachers and students is needed in increasing students' reading interest. So that the stages of reading can be carried out properly. The results of the presentation of reading material activities carried out before learning through zoom meetings are presented in Table 1.

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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

Based on the data in the table above, it can be seen that there are still many students who have not carried out reading activities efficiently. Students tend to read the material at a glance without understanding the meaning of what they read. This is related to students' reading interest which is still low. As described by Kamardana et al. (2021) even in the educational environment, students in Indonesia have a low level of interest in reading.

The results obtained, the highest presentation of the overall material read by students is 50% or can be categorized in a low level, namely as many as 14 students or 56% of the total number of students in class VI A. The acquisition of these data shows that most students only read 50% of the material. given by the teacher. While the lowest presentation of the overall material read is 100%, which is 0 students or 0% of the total number of students. These results indicate that none of the students read all the material given by the teacher. Meanwhile, students who read 75% of the material categorized as moderate are 10 people or 38% of all class VI A students. Meanwhile, students who read 25% of the material are only 2 people or 8%, which is in the very low category.

Giving Pre-Learning Questions to Students at the Beginning of RADEC Learning Activities

The definition of pre-teaching according to Sopandi (2017) is a question related to teaching materials. Giving some PG questions related to teaching materials that have been given to students at the beginning of learning activities before giving the core material. The questions given are sourced from the teaching materials given in the form of PG as many as 5 items which are written in a folded paper which will be shown together when the teacher finishes counting. This method also has the advantage that it makes it easier for students to choose answers, is fun, and can be followed directly by all students in a zoom meeting.

Giving pre-questions is intended to determine students' understanding of the material that has been read by students. Pre-learning questions are questions related to the material alone (Pratama et al., 2019). Because sometimes, students do reading activities but do not understand the material they are reading. A more detailed explanation of the average value of students' pre-learning questions with the percentage of reading the material they do is contained in Table 2.

Table 2. Average Score 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

Based on the data in the table above, it can be seen that the average percentage of the largest and smallest pre-learning questions scores. The value obtained by the presentation of reading material activities is 75% and 25%, namely with a value of 80 and 62.5. The highest number of students in class VI A who got an average pre-question test score of 80 was 10 students who read 75% of the material or the medium reading category.

Meanwhile, the second-largest average score is for students who read 50% of the material in the low reading category with an average pre-learning test score of 76.7. The number of students who scored 76.7 in 14 people. It also shows that most of the students in class VI A get an average score of 76.7 for pre-learning questions. While the average value of the lowest pre-learning questions was 62.5, which was obtained by students who read 25% of the material in the very low category. The number of students who got the lowest score was only 2 people. However, this acquisition shows that there are still students whose scores are still below the KKM, which is 75.

Giving evaluation questions after RADEC learning activities

The provision of evaluation questions as many as 10 PG questions and 2 essay questions regarding problem-solving is carried out at the end of the lesson through the google form application. This activity aims to measure students' understanding of the learning that has been done previously. The questions given to students at the end of the lesson contain elements of competency C1-C3 but there are questions where students are asked to think critically in solving problems and looking for an answer

based on the learning experiences they have experienced. The results of the average value of the evaluation data for class VI A after carrying out RADEC learning are presented in Table 3. The presentation of the data is distinguished based on the presentation of reading material activities and the average value of the evaluation.

Table 3. Average Student Evaluation Scores After RADEC Learning Activities

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

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The results obtained from the presentation of the data above are the highest evaluation average value of 81 which was obtained by students who read 75% of teaching materials before learning took place. The difference in the value of 38.5 can be seen from the results of the largest and smallest evaluation scores obtained by the presentation of students who did reading material activities of 70% and 25%.

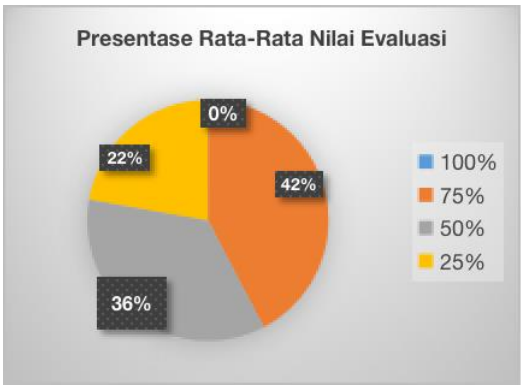

Figure 2. Picture of Percentage of Student Evaluation Scores

The results are obtained from Figure 2 where the data shows that the difference in the presentation of the largest and smallest values is 14%. The smallest average score of 42.5 was obtained from the percentage of students who read 25% of the material with two children. While the highest number, namely 14 students who read 50% of the material, got an average score of 67.8. The results also show that most children in class VI A get an average evaluation result of 67.8 with a reading presentation of 50% of the material or reading only part of the material in the teaching material.

The results that can be seen from several analyzes that have been carried out into several aspects above can be concluded if there is a relationship between reading activities and student learning outcomes. As revealed by Retariandalas (2017) if reading activities are carried out as part of their learning activities. Students who read a lot as part of their learning activities will get good learning achievements. Based on the results of the analysis that has been done by researchers, if most of the students of class VI A SDN 093 Tunas Harapan read the teaching materials given by the teacher before learning by 50% or only half of the material in the teaching materials. Students tend not to look for other information outside of the sources that the teacher provides.

The presentation of the material read is related to the results of pre-learning questions and the results of student evaluations. The RADEC learning model chooses five stages, namely Read (Read), Answer (Answer), Discuss (Discussion), Explain (Explain), and Create (Create) (Sopandi, 2017). Each stage affects student learning outcomes afterward. Included in the reading stage. Reading activities are a very important stage in learning activities. As revealed by Safitra (2018) that reading is a necessity for everyone to improve their quality of life, especially in the world of education.

In the implementation of this reading activity, there were no students who answered that they had read the entire teaching material, which was 100% of the material due to certain conditions that

were expressed directly by some students when the teacher gave direct questions in the zoom meeting session. Like there is no time to read, the communication tool is used by relatives or the physical condition of a child who is tired and chooses to rest. This is also related to asking children to read who are still low.

The results obtained are based on data on the value of pre-learning and evaluation questions, if students who read 75% of the material will get a greater value than students who read teaching materials with fewer presentations, namely 50% or 25%. The average value of pre-learning questions and final evaluation of learning obtained by students who read 75% of the material or in the (moderate) category are 80 and 81. While the lowest score is obtained by the category of reading low material (50%) where the average score is questions and evaluations obtained by students were 76.7 and 67.8. Finally, students who read very low material (25%) got an average score of 62.5 and 42.5.

The results show that students who read more material on the teaching materials get higher pre-question test scores and higher evaluation tests. As research conducted by Retariandalas (2017) where students who make reading activities as part of their learning activities will get good learning achievements. Therefore, going through the reading stages in the RADEC learning model also supports the literacy movement and also has efforts to increase students' understanding of learning materials (Pohan et al., 2021). As a result, the more children are diligent in carrying out reading activities before learning, the better student outcomes will be. Students will easily understand the material that will be studied in class.

Based on the results that have been obtained, it shows that in RADEC learning activities. Reading activities not only have to be done but the implementation must be really optimal. According to Sopandi (2017) if the reading stages are carried out well, students will get used to carrying out reading activities. Reading activities must also be in accordance with the purpose where the main purpose of reading is to seek and obtain information, including content and understanding the meaning of reading (Rahayu et al., 2016). Students must be developed an interest in reading so that students voluntarily carry out reading activities before learning optimally and completely. Not only, carrying out the duties of the teacher and only reading school without understanding the material in the teaching materials.

CONCLUSION

The stages of learning to read (read) in the RADEC learning model are stages that must be carried out optimally by students. Based on the analysis of the percentage of material in the teaching materials read by students, the majority of students only read 50% of the material and none of them read 100% of the material. The percentage of material read in reading activities on the RADEC model affects student learning outcomes. The average scores of pre-learning and evaluation questions obtained by students include (1) students who read 75% of the material get an average score of 80 and 81; (2) students who read 50% of the material got an average score of 76.7 and 67.8; and (3) students who read 25% of the material got an average score of 62.5 and 42.5.

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