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Implementation of Read-Answer-Disscuss-Explain-and Create Learning Model In Learning Explanation Text In Elementary School

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Abstract. Increasing student mastery of learning material is one of the main goals in education. The purpose of this research is to describe the mastery of students' explanatory text concepts through the implementation of the Read, Answer, Disscuss, Explain, and Create (RADEC) learning models. The research method used in this study is a quasi-experimental method. The number of participants in this study were 38 students. Data were collected using a mastery test of explanatory text concepts. Data were analyzed through normality test, homogeneity test and t test using SPSS version 20.0 for windows. Based on the results of the study, it was found that the score of the students 'mastery of the concept of explanatory text concepts was 36.9 and the post-test scores of mastery of the concept of students' explanatory texts was 78.5. Based on the t test results it is known that p = 0.00 =0.05 means that there are significant differences in the mastery of students' explanatory text concepts between before and after treatment is given. Thus it can be concluded that the RADEC learning model is effective in developing the ability to master the explanatory text concept of elementary school students.

Keywords: concepts mastery, RADEC Learning Model,

INTRODUCTION ~ The ability to concept mastery is an essential ability that must be developed. To develop students' concept mastery skills, it needs to be done through appropriate learning stages that are able to encourage students to master these skills. The concept mastery is essentially an effort to overcome the knowledge gap between students who have high academic achievement and low students (Thorndike, 1976; Carrol, 1963; Bloom, 1974). One learning model that has the potential to encourage students to master concepts and develop scientific explanation skills both verbally and in writing is the RADEC learning model. Learning model Read, Answer, Disscuss, Explain, and Create (RADEC) is a learning model that can encourage students to develop 21st century skills and master the learning concepts learned.

The basic principle of this RADEC model is that all students have the capacity to learn independently and learn higher about knowledge and skills (Sopandi, 2017). The steps of the RADEC model emphasize students to carry out various activities in learning such as reading, discussing, explaining, exploring, solving problems, and making work. Learning that encourages students to carry out various activities in learning, will give students a sense of ownership, responsibility, and involvement in education (Zandv represented, Washington, Gordon, & Wells, 2018). Learning that uses the stages of learning the RADEC Model has been shown to be able to improve students' mastery of concept concepts (Handayani, et al., 2019; Sopandi & Handayani, 2019; Lukmanudin, 2018). However, testing is still needed to improve the ability to write explanatory

texts and mastery of students' concepts in subject matter other than natural science.

METHOD

The purpose of this study is to determine the mastery of elementary school student concepts through the implementation of the RADEC learning model. The method used in this study is a quasi-experimental method with the matching pretest posttest control group design. The number of participants in this study were 38 students. Characteristics of students who are participants in this study are cognitively heterogeneous, meaning that there are students who are cognitively at a high, medium level and there are also students who are cognitively at a low level.

The instruments used in this study were tests and assessment rubrics. This test instrument is to measure the ability of students to master the concept of explanatory text. The assessment indicators that measure students' mastery of concepts consist of several categories: knowing (C1); understand (C2); application (C3); analyze (C4); and evaluating (C5). This research instrument has been through a process of validation testing by several experts to see the suitability of the test instrument and the assessment rubric used. The result of this validation test is that this instrument is declared feasible to be used to measure the mastery of elementary school student concepts.

The procedure of this research is firstly to be done pre-test to find out the students' initial abilities. The treatment was then carried out by applying the RADEC learning model six times. The implementation of the RADEC learning model begins with students reading essential material through the pre-learning assignments given by the teacher. This pre-learning task is done by students at home before students study at school. The pre-learning task contains essential material that needs to be mastered. The second stage is students answering pre-learning questions. These questions are questions that require students to think at a high level. Then the third stage is discussion. At this stage, students discuss actively related material that has been learned and discuss the answers to pre-learning questions that have been done. Then the fourth stage is the explaining stage. At this stage students explain the material being studied and discussed classically. At this stage also, the teacher can explain the essential material that is not felt mastered by students. The last stage of the RADEC learning model is the stage of making work. The work that students make can be in the form of writings, posters, simple technology, or other works. Because this research is oriented towards developing writing skills, the work that students make is explanatory text writing.

After treatment, then post-test is conducted to determine the ability of students after being given treatment. After the data is obtained, the data are analyzed through the normality test, homogeneity test, and t test to determine differences in abilities before and after

learning is given using the RADEC model. Data processing in this study was assisted with the SPSS program version 20.0 for windows.

RESULT AND DISSCUSION

This section explains the findings of the ability to master the explanatory text concept of elementary school students through the implementation of the RADEC learning model.

1. Concept Mastery Ability through the RADEC Model

Data mastery of the explanatory text concept of elementary school students before and after treatment is given using the RADEC learning model explained in the section below, as follows.

a. Pretest Result

The pre-test activities were carried out before the experimental class was given treatment. Based on the results of the study, the data mastery of students' explanatory text concept mastery can be seen in the following figure.

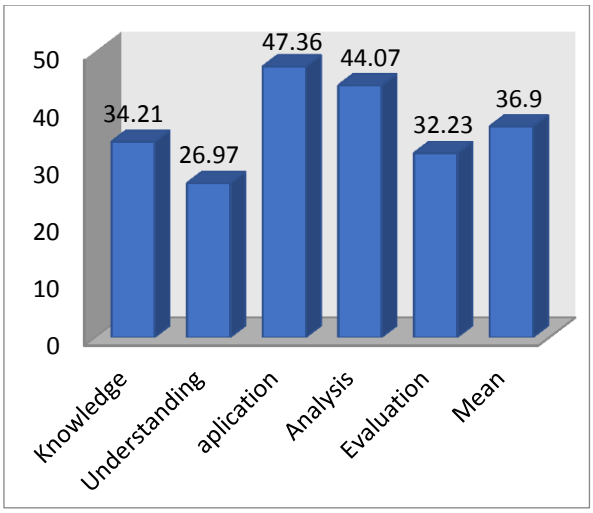

Figure 1. Pretest Result

Figure 1 shows that the highest initial ability to master student concepts is the application indicator (C3). This means that students have the ability to summarize explanatory texts in accordance with the structure of explanatory texts. Furthermore, the analyzing indicator (C4), namely the ability to analyze the contents of the text is also included in the indicators that obtain high scores compared to the indicators know (C1), understand (C2), and evaluate (C5). The understanding indicator (C2), which is identifying the characteristics of students' explanatory texts, is still low. This means that students' understanding of the characteristics of explanatory texts is still lacking. Based on the results of the overall analysis, the initial ability to master the concept of explanatory text students included in the category of less. This can be seen from the average score obtained by students in the amount of 36.9.

b. Posttest Result

Mastery of student concepts after being given learning using the RADEC model can be seen in the following figure.

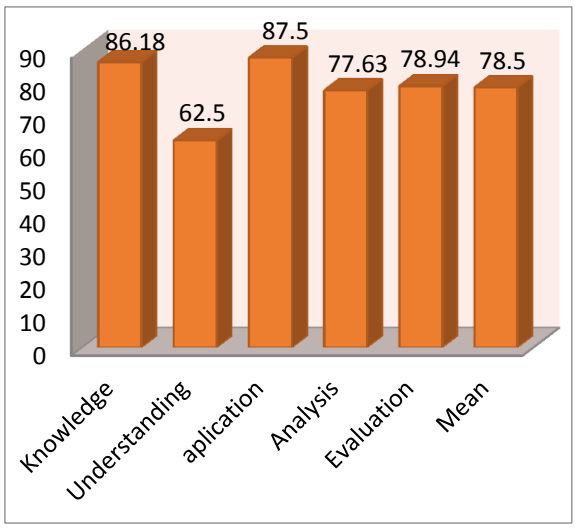

Figure 2. Posttest Result

Based on Figure 2, the results show that in the post-test activities indicators of the ability to master the concepts most mastered by students compared to other indicators are application indicators that summarize explanatory texts in accordance with the structure of the text (C3). This has similarities with pre-practice activities where the application indicator (C3) is the indicator most mastered by students. The second indicator most mastered by students is the indicator of knowing, which explains the definition of explanatory text (C1). The indicators analyze (C4) and evaluate (C5) the ability to master the concepts of students is almost the same. Both indicators are included in both categories. The understanding indicator (C2) is an indicator whose increase is not too large. This means that the ability of students to identify the characteristics of explanatory texts is still not optimal.

From these explanations, it becomes an interesting finding that the ability to master the concept of explanatory text has increased after learning using the RADEC learning model and the ability to master the concepts of these students is included in both categories. This can be seen from the average post-test scores obtained by students in the amount of 78.5.

c. Increased Concept Mastery

Mastery of students' explanatory text concepts in general has increased significantly from each indicator. An illustration of increasing students' mastery of concepts between before and after learning is given using the RADEC model the researchers present in the following picture.

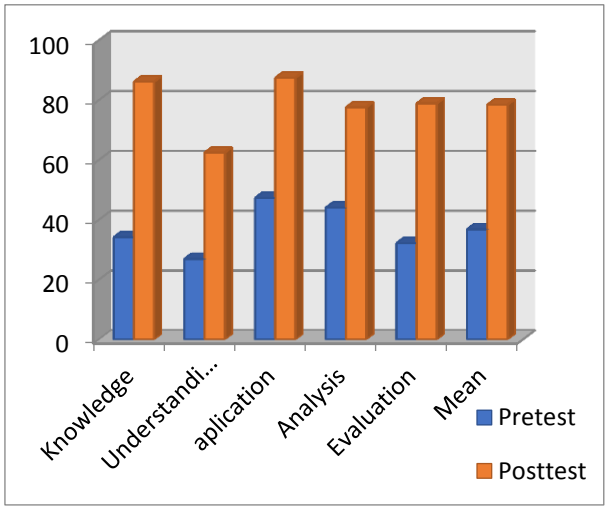

Figure 3. Increased Concept Mastery

Figure 3, shows that overall the ability to master the concept of students has increased from each indicator. The indicator that experienced the most improvement was the indicator of knowing, namely explaining the definition of explanatory text (C1). The ability of students to explain the definition of explanation, which was originally included in the category of lack, after being given learning using the RADEC model has increased dramatically compared to other indicators of mastery of concepts. In the prates data the application indicator (C3) is the indicator most mastered by students but after being given treatment, the increase that occurs in the application indicator (C3) is not as great as the increase that occurs in the knowing indicator (C1). In the pre-test data, students' concept mastery ability in identifying explanatory text characteristics (C2) is the lowest indicator compared to other indicators, but after learning the improvement in the comprehension indicator (C2) is not as great as the increase in other concept mastery indicators.

From these explanations, it becomes an interesting finding that overall the ability to master the concept of students has increased from each indicator and is included in both categories. In line with these explanations, to see an increase in mastery of concepts more clearly, the researcher presents the different test tables of pre-test and post-test meanings, as follows.

Table 1. Differences between pretest and posttest

	Pretest	**Posttest**
Mean	36,9	78,5
Std. Deviation	10.432	15.807
Normality test	0.09	0.15

Homogenity test	0.004
T test	0.00

Based on table 2, the results show that the average value of pre-test students was 36.9. After the normality test was done using the Kolmogorov-Smirnov test, it was found that the data of the students' understanding of the concept of explanatory text mastery came from populations that were normally distributed ($p < 0.05$). Likewise, the post-test data with an average score of 78.5 came from the normal distribution population ($p > 0.05$). Because both of these data are normally distributed, the next statistical analysis the researcher uses the parametric test with the t test. From the t test results obtained that the significance value of 0.00 means 0.000.05. Thus it can be concluded that there are significant differences in the mastery of students' explanatory text concepts between before and after being given treatment using the RADEC learning model.

From the explanation above, it shows that the mastery of the concept of explanatory text students has increased and is included in both categories. Increased mastery of students' explanatory text concepts because the steps of the RADEC learning model encourage students to think scientifically and master the material learned so that students gain a high understanding (Allison & Goldston, 2018; Sopandi, 2017; Handayani & Sopandi, 2019; Lukmanudin, 2018 ; Pratiwi, Sopandi, & Rosdiono, 2018). The steps of the RADEC model encourage students to learn independently in understanding essential material then consolidate the understanding they get through interaction with the social environment. These activities can develop students' cognitive abilities (Vygotsky, 1962). Furthermore, pre-learning assignments and reading activities of essential material also have a positive impact on students' mastery of concepts. Evidence that pre-learning and reading activities have a positive impact on improving students' mastery of concept can be seen in the table of increasing student grades based on reading groups, namely as follows.

Table 2. Reading Activity

		Full Read	**Not Full Read**
Pretest		38,46	33,75
Posttest		87,14	60
N-Gain Score	**Mean**	0,79	0,39
	Min	0,54	-0,11
	Max	1	0,67

Based on table 2 above, the results show that the average score of students who read full from the first meeting to the last meeting was 38.46 and the average score of students who did not read full was 33.75. While the results of the post-test, the average score of students who read full was 87.14 and the average score of students who read not full was 60. From these data it can be concluded that the pre-learning and reading assignments had a positive impact on the mastery of students' explanatory text concepts so be increased.

CONCLUSION

The results showed that the ability to master the concept of students increased significantly after learning was given using the RADEC model. This means that the stages of the RADEC learning model are effective in increasing the mastery of elementary school students' explanatory text concepts. The RADEC learning model has implications for the learning process which is able to encourage students to be more active in the learning process, develop the ability to explain students, train students to work together, and improve students' reading habits.

REFERENCES

Allison, E., & Goldston, M, J. (2018). Modern Scientific Literacy : A Case Study of Multiliteracies and Scientific Practices in a Fifth Grade Classroom, 27, 270–283. https://doi.org/10.1007/s10956-017-9723-z.

Bloom, S. E. (1974). Current knowledge about the avian W chromosome. BioScience, 24(6), 340-344. https://doi.org/10.2307/1296739.

Carroll, J. B. (1963). A model of school learning. Teachers college record. Retrieved from http://garfield.library.upenn.edu/classics1982/A1982NF37300001.pdf.

Lukmanudin. (2018). Penguasaan Konsep IPA dan Kemampuan Menjelaskan Fenomena Perpindahan Zat Pencemar Melalui Pembelajaran RADEC (Tesis, Universitas Pendidikan Indonesia, 2012).

Pratiwi, N., Sopandi, W., & Rosdiono, M. (2018). The Students' Conceptual Understandings on Global Warming through Read-Answer- Disscuss-Explain-and Create (RADEC) Learning. Proceedings of International Conference on Elementary Education, 635–639.

Sopandi, W., & Handayani, H. (2019). The Impact of Workshop on Implementation of (RADEC) Learning Model on Pedagogic Competency of Elementary School Teachers. International Conference of Innovation in Education (ICoIE) 178, pp. 7-11.

Sopandi, W. (2017). The quality improvement of learning processes and

achievements through the read-answer-discuss-explain-and create learning model implementation. *Proceeding 8th Pedagogy International Seminar 2017: Enhancement of Pedagogy in Cultural Diversity Toward Excellence in Education*, *8*(229), 132–139.

Thorndike, R. L. (1976). Reading comprehension education in fifteen countries: International Studies in Evaluation. New York: Wiley.https://doi.org/10.1086/445874

Vygotsky, L.S. (1962). Thought and Language: Kap. 6 The Development of Scientific Concepts in Childhood, Übersetzt von Eugenia Hanfmann und Gertrude Vakar, New York and London: MIT Press - John Wiley & Sons, Inc, S.

Zandvakili, E., Washington, E., Gordon, E., & Wells, C. (2018). Mastery Learning in the Classroom : Concept Maps, Critical Thinking, Collaborative Assessment (M3CA) Using Multiple Choice Items (MCIs), *7*(6), 45–56. https://doi.org/10.5539/jel.v7n6p45.

Handayani, H., Suhendra, I., Sopandi, W., Syaodih, E., & Setiawan, D. (2019). DAMPAK PERLAKUAN MODEL PEMBELAJARAN RADEC BAGI CALON GURU TERHADAP KEMAMPUAN MERENCANAKAN PEMBELAJARAN DI SEKOLAH DASAR. Jurnal Ilmiah Pendidikan Dasar 4 (1), hlm. 79-93.