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The Effect of Reading, Questioning, and Answering (RQA) Learning Model on Students' Critical Thinking Ability in Science Material at SD Negeri 15 Sorong City

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Abstract: This research was motivated by problems in the world of education including curriculum changes, learning quality, and how educators carry out the process and application of learning models to improve critical thinking skills in students. Observations show that teaching carried out by educators is still teacher centred and the lecture method is more often used in delivering material. The Reading, Questioning, and Answering (RQA) learning model can assist students in developing their critical thinking skills through the assigned reading. RQA allows students to study the material, look for important points in the form of questions and look for answers to important issues from different sources. Critical thinking is very important for students to have since elementary school. Critical thinking skills provide logical and creative reasoning in thinking and solving problems. This research was conducted in science subjects at SD Negeri 15 Sorong City. The sample size of this study was 40 students divided into two classes: IV, A and IV B. This research is a quantitative approach with the type of research Quasi Experiment Control Group Pretest Post-test design. The results of the analysis show that the data is normally distributed and homogeneous and the results of the calculation of t-Sig (2 tailed) of 0.001 <0.05, it can be concluded that H0 is rejected and H1 is accepted, which means that there is a difference between the critical thinking skills of students in the control class and the critical thinking skills of students in the experimental class who are given treatment using the RQA model.

Keyword: Reading, Questioning, Answering, Critical Thinking, Elementary

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Introduction

There are three problems in education, namely curriculum reform, learning quality, and the effectiveness of learning models, including education personnel (Isma et al., 2023). Changes in the educational curriculum must be comprehensive and responsive to social dynamics, relevant, not excessive, able to integrate diverse needs and technological developments. Second, the quality of learning must be improved to improve the quality of educational outcomes. Effective learning strategies or models must be found in the classroom that further increase students' potential. Third, with the effectiveness of the learning model as predicted by education experts so far, it has a great influence on the

outcome and quality of student learning. This is also inseparable from the significant role of educators.

Determining the learning model used in the learning process that is in accordance with the curriculum goals and student potential is a skill and ability that must be possessed by a teacher. The accuracy of teachers in determining the learning model will affect the quality of the learning process they implement. Teachers should use an engaging learning model (Adiputra & Heryadi, 2021). But it also offers students the space to be creative and think critically while learning. So that the cognitive, affective, and psychomotor aspects of students can develop optimally at the same time. The use of the right learning model aims to improve students' critical thinking skills in science subjects.

Based on initial observations at SD Negeri 15 Sorong City, it shows that the learning process is carried out with lecture and learning methods that are dominated by teachers. Seeing this situation, learning uses a learning model Reading, Questioning and Answering (RQA) felt suitable for use in the classroom (Hidayahtika et al., 2020). Students will find it easier to find and understand difficult concepts by reading the material given by the teacher. Improving students' critical thinking skills through a learning model Reading, Questioning and Answering (RQA) in Natural Sciences (IPA) learning can be one of the learning models that can develop students' ability to understand and know the material provided by the teacher (Putri et al., 2022).

Learning model RQA allows students to study the material, search for key points in the form of questions and seek answers to important issues from different sources (Lisa et al., 2021). The learning model in question is a learning model Reading, Questioning and Answering (RQA). This model has six learning steps that guide the interaction process between teachers and students (Hidayahtika et al., 2020). Steps of learning activities using the RQA are as follows: 1) The task of reading the subject matter to be discussed, 2) Based on the subject matter that has been read, the next task is to make a summary of the material that has been read., 3) The next step is to compile several questions about the topic in writing, 4) The questions are then answered by themselves (Self-answering) in writing, 5) The next task is to present the results of the work that has been done (make a summary, ask questions and answers), then discuss it in class, 6) At the end of the lesson, the teacher explains, corrects and completes all the results of the work that has been presented and discussed (for authentic evaluation, the results are summarized and collected in the form of questions and answers) (Samudera & Hadi, 2022; Tarigan & Tarigan, 2022; Tendrita & Sari, 2020).

Critical thinking is the ability to think and compare two or more things, for example information that comes from outside with its own information (Mascarenhas et al., 2024; Unwakoly, 2022). If there are differences or similarities, then students will ask questions or comments to get clarification. The learning activities that teachers have carried out so far in the classroom are to convey information by making teachers more active, while students passively listen and copy, sometimes students ask questions and sometimes

students answer, teachers give examples of questions and give questions that are routine and do not train students' logical thinking, and teachers give evaluations.

The purpose of this study is to find out how the use of the reading, questioning, and answering (RQA) learning model affects students' critical thinking skills in science subjects at SD Negeri 15 Sorong City. Thus, the main focus of this research problem is limited to the use of the Reading, Questioning, and Answering (RQA) learning model on Students' Critical Thinking Skills in Science Subjects at SD Negeri 15 Sorong City.

Methodology

This study uses a quantitative approach. The type of Quasi Experimental research design taken is Control-Group Pretest-Post-test Design. In this design, Paul D. Leedy. Jeanne Ellis Ormrod argued "that there were two randomly selected groups, then previously given a pretest to determine the initial state between the experimental group and the control group". Furthermore, after the results of the pretest of the two groups were known, the experimental class was given treatment, while the control class was not given treatment. The location of this research was carried out at SD Negeri 15 Sorong City which is located at Jl. Melati Raya Km. 9.5. SD Negeri 15 Sorong City is located at the coordinates of Latitude: -1.2776 and Longitude: 130.9218. This research will be conducted in grade IV of SD Negeri 15 Sorong City. This research will be carried out in the odd semester of the 2023/2024 school year.

Table 1. Research Design

Group	Time →		
Group 1	E1	Tx	E2
Group 2	K1	-	K2

Source: (Leedy & Ormrod, 2016)

Information:

Group 1 = Class IV A
Group 2 = Class IV B
E1 = Pretest Experimental class (class IV A)
E2 = Posttest Experimental class (class IV A)
Tx = Treatment using the Learning Model RQA
K1 = Pretest control class (class IV B)
K1 = Posttest control class (class IV B)

The population in this study is 665 students. The sample in this study consisted of 2 classes, namely classes IV A and IV B at SD Negeri 15 Sorong City which amounted to 40 students. In this study, class IV A is an experimental class with 20 students and class IV B is a control class with 20 students. The sampling technique in this study is using the Purposive Sampling technique. In this technique, the selection of samples is based on the characteristics set against the elements or targets that are adjusted to the research objectives or problems. The data collection methods in this study are observation, interviews, question based on test and documentation.

In this study, data was obtained directly by experimental method to determine the improvement of students' critical thinking skills. The purpose of the data analysis in this study is to determine the influence of the Reading, Questioning and Answering (RQA) learning model on the critical thinking ability of grade IV of SD Negeri 15 Sorong City. Broadly speaking, in this study, the data obtained is then processed and analyzed so that it can be used to answer the formulation of the problem in this study.

Result and Discussion

1. Finding

The normality test was carried out to find out whether the sample data in the study came from a normally distributed population or not. Based on the results of the normality test using Shapiro-Wilk, the pretest results of the control class were 0.334 > 0.05; pretest of the experimental class 0.782 > 0.05; the results of the control class postest were 0.13 < 0.05; Experimental class postest 0.852 > 0.05. Based on this data, the distribution results are generally distributed normally, except for the control class post-test.

Based on the results of the Homogeneity test, data of 0.158 > 0.05 was obtained so that it can be concluded that the data is distributed homogeneously. The results of the reliability calculation showed a calculation of 0.661 which showed that the results were quite realistic or quite consistent.

Based on the results of the hypothesis test, a t-Sig value (2 *tailed*) of 0.001 < 0.05 was obtained, so it can be concluded that H_0 is rejected and H_1 is accepted, which means that there is a difference between the critical thinking ability of students in the control class and the critical thinking ability of students in the experimental class. This means that the critical thinking skills of students in the experimental class using the Reading, Questioning and Answering (RQA) learning model are better than using the teacher centred learning model.

The results of *the post-test* score in the control class which amounted to 20 students, obtained a score in the range of 0-49 in the predicate was very low as 3 students. Students who obtained scores in the range of 50-59 in the predicate were less than 2 students. Students who obtained scores in the range of 60-74 in the predicate were enough as many as 14 students. As well as students who obtained scores in the range of 75-84 in the good predicate as many as 1 student. And the results of the post-test score in the experimental class of 20 students, obtained a score in the range of 60-74 with sufficient predicate.

The results of *the pretest* score in the control class of 20 students, obtained a score in the range of 0-49 in the predicate was very low as many as 16 students. Students who obtained scores in the range of 50-59 in the predicate were less than 3 students. And students who obtained a score in the range of 60-74 in the predicate were enough as many as 1 student. And the results *of the pretest* in the experimental class which amounted to 20 students. obtained a score in the range of 0-49 in the predicate was very lacking as many as 6 students. Students who obtained scores in

the range of 50-59 in the predicate were less than 13 students. And students who obtained a score in the range of 60-74 in the predicate were enough as many as 1 student.

2. Discussion

This study was conducted to determine the influence of the RQA (Reading, Questioning, and Answering) learning model on plant materials and their functions on students' critical thinking skills. The research data was obtained from the results of the pretest score and the results of the post-test score after being given learning treatment using the RQA (Reading, Questioning, and Answering) learning model in the experimental class and teacher centred learning in the control class.

The initial ability of critical thinking skills of students in the experimental class and control class on plant parts and their functions is still relatively low. The low initial ability can be seen from the average pretest score in both classes. The average pretest score in the experimental class was 52.35 while in the control class was 43.35. The value is still below the maximum value of 100.00. The low score can be influenced by several factors, including; 1) lack of mastery of concepts and the level of complexity of learning materials 2) learning is still teacher centred, so students are less actively involved in constructing their own knowledge 3) the learning process at school generally does not apply critical thinking methods, so students are not used to doing critical thinking activities 4) there has been no assessment of critical thinking skills so that students are not used to solving problems that contain contextual problems, namely relating physics concepts in daily life that require critical thinking (Rugayah, 2020).

The final ability of students' critical thinking skills in both the experimental class and the control class improved after being given treatment. The increase in scores can be seen from the results of the pretest and post-test scores, the post-test questions are given using the same questions as the pretest. The increase in scores occurred in the experimental class, with the average post-test score in the experimental class of 68.8, an increase of 16.45 from the *pretest* Meanwhile, in the control class of 64.15, it increased by 20.8 from the previous value. From these results, it can be seen that by using the same questions but given different treatments, in the experimental class with the learning model *RQA (Reading, Questioning, and Answering)* has a higher improvement compared to the control class because with the learning model *RQA (Reading, Questioning, and Answering)* Students are required to read so that students already have prior knowledge before learning in class. Students will be used to doing activities such as, making summaries, making questions, making answers and concluding material that is done continuously. Because it is habituated, students will be trained to do these activities and even by doing these four things, students can improve their critical thinking skills (Kusuma & Baskara, 2022).

Learning model *RQA (Reading, Questioning, and Answering)* affect students' critical thinking skills on plant materials and their functions (Rompegading et al., 2022). This is due to the learning model *RQA (Reading, Questioning, and Answering)* Able to encourage and demand students to read, make summaries and answer questions that have been made by themselves. Stages in the learning model *RQA (Reading, Questioning, and Answering)* will be able to encourage students to diligently read the assigned material, understand the content of the reading and find important parts of the reading so that they can improve students' initial thinking skills towards the material and students are better prepared to learn (Thohir et al., 2021). Questioning is the most convenient way to challenge creative patterns and think critically (Wasahua, 2021). In addition, the learning model *RQA (Reading, Questioning, and Answering)* It can also increase students' activeness in constructing their knowledge according to the learning experience they get (Leasa et al., 2023; Yuliyani & Hidayah, 2022). Meanwhile, in the control class, students' critical thinking skills improved lower because their learning was centered on the teacher and students only heard and received the material delivered, so that learning became monotonous and ineffective. With these results, it can be concluded that many students like learning with the *RQA (Reading, Questioning, and Answering)* and gives an idea that the model *RQA (Reading, Questioning, and Answering)* can be used as one of the alternative options to be used in classroom learning (Samudera & Hadi, 2022; Trisianawati & Manisa, 2023).

Conclution

The RQA (Reading, Questioning, and Answering) *learning model* affects students' critical thinking skills on plant materials and their functions. This is because the *RQA (Reading, Questioning, and Answering) learning model* is able to encourage and demand students to read, make summaries and answer questions that have been made by themselves. The critical thinking skills of students in both the experimental class and the control class improved after being given treatment. The increase in scores occurred in the experimental class, with the average *posttest* score in the experimental class of 68.8 increasing by 16.45 from *the pretest* score while in the control class of 64.15 increasing by 20.8 from the previous score. From these results, it can be seen that by using the same questions but given different treatments, the experimental class with *the RQA (Reading, Questioning, and Answering)* learning model experienced a higher increase compared to the control class.

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