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Research Article

Implementation of the Think Pair Share Model on the Material of Light and its Properties on Students' Critical Thinking Skills

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Abstract

The purpose of this study is (1) to describe the implementation of the think-pair-share model on the material of light and its nature on students' critical thinking skills. (2) to determine students' critical thinking skills in the think-pair-share model on the material of light and its nature. Qualitative research techniques were used in this study, while a descriptive approach was used to present the results of the study. The Think Pair Share model directly involves students in the learning process through group activities, practicums, and problem-solving discussions so that the Think Pair Share model can foster students' critical thinking skills. Students can think critically about the material of light and its nature. In learning the Think Pair Share model, students can formulate questions and identify relevant information. Students are able to determine a problem-solving plan in practice. Students are able to determine the right solution to the problem. Students are also able to draw conclusions and review all answers.

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INTRODUCTION

As a person grows intellectually, emotionally, and physically, they undergo a process of self-development known as education. Education, in another view, is a series of communication activities with the main objective of facilitating interactions between adults and students that promote the overall development of the child (Rahman et al., 2022). Informal, non-formal, and formal education are the three main channels through which knowledge can be imparted. Achieving success in formal education is not easy; there are many obstacles that make learning difficult or even impossible. However, the reluctance of students to think critically is at the heart of this problem. The ability to actively and skillfully engage in the processes of conceptualization, application, analysis, synthesis, and evaluation—all guided by reasoning or communication—is what makes critical thinking an intelligent and disciplined process (Syafitri et al., 2021). On the other hand, critical thinking can be defined as the use of one's wisdom, facts, and ideas to draw conclusions after examination, judgment, or interpretation. In addition, it also touches on standard-setting, engineering training, and factors that support previous decisions (Triwulandari & U.S., 2022). Teachers can use the Think Pair Share cooperative learning strategy when presenting curriculum to address students who have difficulty in critical thinking. As a teaching method, the Think Pair Share model has students work in groups of two to solve problems and generate new ideas. Simply

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put, the Think Pair Share model encourages students to work together in groups and take turns thinking, responding, and providing support to each other (Sholichah et al., 2022). One area where the Think Pair Share approach can be applied is natural and social sciences, which covers topics such as light and its properties. and is taught to fifth-grade elementary school students. Electromagnetic waves with wavelengths that can be seen by humans (380-750 nm) are known as light. The sun is the main source of light on Earth, but not the only one. Other objects such as lamps, flashlights, fire, and so on also contribute to the lighting of our planet. Due to its easily recognizable properties, light can travel through air, water, or solid objects without any assistance. Some of these properties include the following: light can be directed in all directions, reflected, refracted, broken down, and produces shadows when obstructed.

Previous research on the practical application of the Think Pair Share (TPS) model can be found in the following articles. Sukmiyati (2019) published an article entitled "The Effect of the Think Pair Share (TPS) Learning Model on Critical Thinking Activities and Learning Outcomes in Social Studies Subjects in Grade V of SDN 2 Sukarame," which discusses how the Think Pair Share (TPS) model can be used to improve students' critical thinking skills. Observation, interviews, documentation, questionnaires, and tests are elements of the experimental research approach. All fifth-grade students of SDN 2 Sukarame participated in this study. The results showed that third-grade students at SDN 2 Sukarame Bandar Lampung experienced an increase in their critical thinking skills and their engagement with the subject matter after implementing the Think Pair Share (TPS) learning method. "Think-Pair-Share (TPS) Learning in Improving Students' Critical and Academic Thinking Skills" is another research title (Siregar, 2021). By using a library research strategy that includes searching for literature relevant to the topic discussed, this study applies a descriptive qualitative approach with data collection procedures. The findings of this study support the idea that the Think Pair Share approach in education can help students reach their full academic potential. Daily life is greatly influenced by this learning approach, as students are taught to think critically, gather evidence and truth from reliable sources, and draw conclusions to solve problems.

The rationale behind this study was to study how fifth-grade students of Tanwirul Afkar Elementary School, Surabaya, use the Think Pair Share model to analyze and evaluate the properties and characteristics of light and how this model affects their critical thinking skills. The researchers hope that the findings of this study will explain why it is important to teach critical thinking skills to elementary school students and how to adapt teaching to each class's conditions. Teacher evaluations based on the findings of this study can help educators to pay more attention to the learning models they use in the classroom, which will ultimately maximize the delivery of material and make learning fun for students so that they do not get bored with the learning process.

METHOD

The research method used in this study is qualitative. The qualitative research approach includes gathering extensive knowledge about a problem using scientific methodology. In qualitative research, methods and concepts are used to answer a problem (Subakti et al., 2020). To ensure that survey findings are not influenced by personal opinions, research on data collection activities is carried out in an impartial manner using respondent information. There are several things that distinguish qualitative techniques from other research approaches (Fadli, 2021). The fact that the qualitative approach is more based on observation and experimentation is one of the main differences. Qualitative research differs in other ways; this research is basically a descriptive tool. Finally, the process, not the results or conclusions, is the most important aspect in qualitative research. Finally, the reliability of qualitative research is higher. This research was completed by collecting data using a descriptive approach. Purnia et al. (2020) stated that the descriptive method is used to produce raw data because this method seeks to explain a scenario or event. Teacher and student observations, surveys, and documentation are the strategies used to collect data for this study. The tools used to verify the accuracy of the data obtained are known as data collection instruments (Thalia Alhamid, 2018).

RESULTS AND DISCUSSION

Results

These findings are based on research data supplemented by classroom observations, interviews, and documentation. This study was conducted by closely monitoring the learning process of eleven fifth-grade students of SD Tanwirul Afkar Surabaya. The objectives of this study were (1) to describe the implementation of the think-pair-share model on the material of light and its properties on students' critical thinking skills. (2) to determine students' critical thinking skills in the think-pair-share model on the material of light and its properties. Following the signs of critical thinking described by Salahuddin and Ramdani (2021): 1) asking the right questions and collecting the right facts; 2) finding ways to solve problems; and 3) pouring answers onto paper. 4) evaluating all answers and formulating conclusions. Students' ability to think critically can be produced through the use of the Think Pair Share methodology when studying Light and Its Properties.

Discussion

Implementation of The Think Pair Share Model on The Material of Light and Its Properties Towards Students' Critical Thinking Skills

The Think-Pair-Share model is a learning model that directly involves students in the learning process by practicing. The Think Pair Share model aims to make all students actively interact, learn together, and discuss by forming groups. The Think Pair Share model also has problems that must be solved by students; namely, students must be able to identify the characteristics of light that have been practiced per group. This aims to make students instinctively think critically when learning in the Think Pair Share model takes place. The Think Pair Share model can be implemented in several learning materials in schools, one of which is the material on light and its properties taught by teachers to fifth-grade students of Tanwirul Afkar Elementary School, Surabaya.

The Think-Pair-Share model can make it easier for students to understand the material of light and its properties. By applying the Think Pair Share model, students who have difficulty in understanding can also understand the material of light and its properties well, because students are given time to do literacy independently about the material of light and its properties in student books. Literacy activities can make students have an initial understanding and get critical thinking to think further by raising questions to get more information about the material of light and its properties. However, there are 2 out of 12 students who, after doing literacy, are still unable to understand the material, so these students can ask the teacher when the teacher discusses the material with other friends. To increase students' understanding of the material, the Think Pair Share model forms students into 3 groups, and one is made between students who already have a good understanding and students who are less able to understand the material. Each member can exchange ideas, explaining their understanding so that it can also help other students better understand the material of light and its properties. Then students are given group assignments to carry out practical activities on the characteristics of light to then identify the problems that appear in the practical process. In addition to making it easier to understand the material, the Think Pair Share model can also make it easier for students to think critically to understand problems in the material of light and its properties because the Think Pair Share model creates a structured and collaborative learning atmosphere.

The Think Pair Share model designs learning that can train students to work together, and the Think Pair Share model can also make students directly involved in the problem-solving process. So that students can determine critical thinking strategies independently and in groups to solve problems in the material of light and its properties. The problem-solving strategies implemented by students in Think Pair Share-based teaching are as follows: students use their personal understanding to think independently, then students exchange ideas with friends to find out other views on the problem, and students observe and identify the practice of light characteristics to be discussed in order to find further understanding of the existing problem. Students also together determine several solution options to then be retested in order to determine the correct solution.

With the success of students in determining and implementing problem-solving strategies in the Think Pair Share model, students are able to think critically to determine solutions to solve problems in the material of light and its properties. In learning the Think Pair Share model, students can work together with their groups to identify the practices of the characteristics of light carried out by other groups. Then students think critically to check the suitability of their identification results with the material in the student's book to minimize errors when determining and writing answers on student worksheets. In implementing the Think Pair Share model, students do not find obstacles to critical thinking in the mission of solving problems, because the Think Pair Share model involves all students directly participating in the teaching process so that students can be active in thinking and expressing opinions, and students can also think together to show arguments to determine appropriate solutions to solve problems in the material of light and its properties.

After students complete the problem of light material and its properties, the next stage is for students to write conclusions and review all answers. By learning to apply the Think Pair Share model, students are able to think critically to find out if there are errors in the answers to the problems. Students check the answers by comparing the answers with information sources in the student's book so that they can be discussed together to reduce the risk of errors in answering. To find out the errors more clearly, students make presentations in front of the class and then are responded to by friends and corrected by the teacher. After knowing the results of the answers, students can think critically in the Think-Pair-Share model to conclude the material taught from the opening to the closing by understanding the material taught and analyzing and determining the main points in each Think, Pair, and Share phase so that students can conclude the material correctly.

Students' Critical Thinking Skills in The Think Pair Share Model

Having the ability to think critically is a must for students, as it allows them to make informed judgments based on available facts and information through analysis and evaluation. When a teacher determines a learning model that is in line with the subject matter and personality of the students, children are more likely to develop critical thinking skills. Fifth grade students at SD Tanwirul Afkar Surabaya can understand the concept of light and its properties through the use of the Think Pair Share approach, which helps them think critically and solve problems related to the topic in an accurate manner.

Based on the explanation above, it can be described with the indicators of students' critical thinking as follows:

a) Formulate questions and identify relevant information.

Students gain a better understanding of light and its properties when they master the Think Pair Share model. This model consists of three steps—"Think," "Pair," and "Share"—where students actively participate in the teaching process. 10 out of 12 students in the class were able to have a good initial understanding of the material on light and its properties during the literacy session so that students could think critically to gain broader knowledge by formulating questions. To strengthen students' understanding, the teacher and students discussed the material so that students who were less able to understand the material individually could ask the teacher to provide further explanation so that all students had a good initial understanding of the material. After all students understood the material on light and its properties, students were divided into 3 study groups. Students appeared cooperative when the groups were divided, indicating that each student could socialize well with friends.

b) Determine the plan used in solving the problem.

Each group of students is active in practicing the characteristics of light and making observations and identifications to understand the problem so that students can determine the correct characteristics of light and in accordance with the characteristics practiced. When the practice is carried out, students work together to hold the media and practice it together. Students are also able to work together to discuss and determine a comprehensive critical thinking strategy in solving problems found in the material of light and its properties, including the initial steps of students using their personal understanding to think independently, then students synergizing and exchanging opinions with friends to find out other views of the problem, and students observing and identifying the practice of the characteristics of light to be

discussed in order to find further understanding of the existing problem. With students being able to think critically to determine a problem-solving strategy in the material of light and its properties in the Think Pair Share teaching model, it is easy for students to find solutions to these problems.

c) Determining and writing down solutions to problems

To determine solutions to problems in the material of light and its properties, students think critically in the process of finding answers by observing the practices of other groups to find out the steps of the practice carried out. Then students can also think critically to find relevant information in student books regarding the characteristics of light, and students also discuss with groups to find the correct answers and write them on student worksheets. Students do not find it difficult to think critically in learning to apply the Think-Pair-Share model to determine solutions. This is because the Think Pair Share model can make learning that is able to make students work together in understanding the material, understanding problems, and determining the right solution.

d) Write conclusions and review all answers.

After students complete the problem, students are able to think critically to detect errors in answers. To minimize errors in answers, students are able to discuss well with their groups to test the reasons for choosing the answer. Students also match the answers with the student's book to find out whether the written answers are in accordance with the correct characteristics of light. To test the correctness of the answers further, students dare to present their answers in front of the class so that the answers can be confirmed to be correct and they can get grades. They can also effectively summarize content by using their critical thinking skills. By paying close attention in class, students not only retain more of what they have learned, but they also demonstrate mastery of the subject matter by drawing their own conclusions based on in-depth analysis of the data presented.

(The teacher forms students into 3 study groups.)

(Representatives of groups 1, 1,2 and 3 present the results of their group's answers.)

CONCLUSION

The Think-Pair-Share model is a learning method that invites students to be directly involved in the learning process through group activities, practicums, and problem-solving discussions so that students can think critically. Think Pair Share not only makes it easier to understand the material but can also train students to work together, think critically, solve problems, and conclude the lesson material accurately. Students become more active and selective in receiving information and are able to evaluate their own answers, reduce errors, and present discussion results with confidence.

Grade V students of Tanwirul Afkar Elementary School Surabaya can think critically about the material of light and its properties by learning using the Think Pair Share model. In accordance with the critical thinking indicators, students' critical thinking skills can be seen in students who are proficient in understanding the material so that students are able to formulate problems to expand their knowledge. Students are able to think critically to understand problems in the material of light and its properties well so that students are able to formulate strategies to solve problems. Students are also able to think critically and discuss with groups to determine solutions to problems of light and its properties by seeking information from various sources and determining answers. At the end of learning, students can draw conclusions using their own language as proof that students have a deep understanding and are able to think critically to determine important points from each phase of their learning.

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