

Implementation of Stad and Jigsaw Type Cooperative Learning Models in Science Learning at Lower Class Islamic Elementary School



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ABSTRACT: In general, science subjects in the lower grades (grades 1 to 3) are not in curriculum 13, but in fact, science subject matter is always present in every learning theme. At the age of grades 1 to 3 children begin to interact with their peers and the environment around them. To develop the child's social spirit, a lower grade teacher is certainly very good if learning uses cooperative methods. One of the alternative cooperative learning models that can be used by teachers in the lower grades is the STAD and jigsaw cooperative learning methods. Writing this scientific paper aims to find out how the STAD and Jigsaw learning models are applied in the lower classes. The method used in this scientific writing is a type of qualitative research that takes a background at MI Ma'arif Caruy. The results showed that the STAD and Jigsaw learning methods in the lower grades could be applied well even though they were still accompanied by the teacher. Students could collaborate with their group mates or with other groups with the help of worksheets that had been prepared by the teacher, so that students could learn science material well. can work together, respect each other, appreciate and help each other if his friends are having difficulties.

KEYWORDS: STAD learning model, jigsaw learning model, science learning

A. INTRODUCTION

Facing the revolutionary era 4.0 Education about the natural world is needed by children from a young age, (Nasution 2019) Even though the lower grades in Curriculum 13 do not appear in science subjects, the content of science lessons in lower grades still appears in thematic. Science learning is very important to be introduced to children from an early age with the aim that students can get to know the nature around them better, so that they can be wiser with natural conditions in the hope that they can preserve nature properly. Even though there are no science subjects specifically in the lower grades, in practice material about science is still available in each theme, usually included in the subjects Indonesian Language, PPKn, Mathematics, SBDP and PJOK in the form of reading, physical activities such as healthy walks while on the trip. introduced to science materials during the trip, descriptions of pictures, as well as other activities that can bring up science subject matter.

When the teacher carries out the teaching and learning process, he should prepare everything carefully, so that when he is in class, he does not dream about what and how to learn. Moreover, if you are going to teach science lessons at the lower grades of MI, of course you have to prepare yourself carefully because there are several obstacles that you will face, namely: The problem of low student interest and motivation in learning Science in the lower grades of MI, Problems with students' difficulties in understanding science concepts abstract and complex, the problem of lack of activeness and student participation in the learning process. The problem of the inability of students to develop social and communication skills in groups. The problem is the lack of development of students' critical and creative thinking abilities (Widiani 2018) in science learning.

In social and emotional development, children aged 1 to 3 elementary school begin to learn to interact with peers and develop social skills such as sharing, working together and respecting differences. Children also begin to develop the ability to identify and express their emotions appropriately. Departing from this, educators can use it to choose learning models that stimulate a child's social and cooperative spirit, this can also minimize the growth of children who are selfish or become individualistic children so that they override social attitudes in their relationships.

In overcoming this problem, the STAD and Jigsaw Type Cooperative Learning Model can be used as an effective alternative learning method to be applied in the lower grades of MI in science subjects. STAD and Jigsaw cooperative learning models encourage students to work together in groups, increase student participation and involvement in the learning process (Yusmaherni 2018), as well as helping students understand difficult science concepts through group discussions and presentations.

Implementation of Stad and Jigsaw Type Cooperative Learning Models in Science Learning at Lower Class Islamic Elementary School

In the STAD Type Cooperative Learning Model, students are taught to help each other in completing assignments, obtain input from group members and use feedback to improve understanding of science concepts. Whereas in the Jigsaw Cooperative Learning Model, (Sari and Indarini 2021) students study different parts of the concept and then share knowledge with other group members to deepen understanding of science concepts.

Thus, the application of the STAD and Jigsaw Cooperative Learning Models is expected to increase students' interest and motivation in learning science subjects, help students understand abstract and complex science concepts, develop students' social and communication skills, and improve critical and creative thinking skills. (Khalistyawati and Muhyadi, 2018) students in science learning, especially in the lower grades.

From the background above, it is necessary to know that the formulation of the problem in this article is how to apply the STAD and Jigsaw type cooperative learning models in learning science, MI, in the lower grades? and the purpose of writing this article is to find out how to apply the STAD and jigsaw type cooperative learning models in learning science MI in the lower grades.

The STAD (Student Teams Achievement Divisions) learning model was developed in the early 1980s by Roger T. Johnson and David W. Johnson from the University of Minnesota, United States. This model is designed as a cooperative learning method that aims to improve students' academic achievement and build their social skills. Initially, Johnson and Johnson conducted research on the effectiveness of cooperative learning on student academic achievement. From the results of this study, they found that cooperative learning can significantly improve student academic achievement, as well as increase student motivation, self-confidence, and participation in learning. From the results of this study, Johnson and Johnson developed the STAD learning model as one of the most effective forms of cooperative learning. The STAD learning model combines individual and group learning, where students work in teams to achieve common goals, but are still measured individually.

The Jigsaw learning method was first developed in 1971 by educational psychologist Elliot Aronson from the University of Texas. Aronson created this method as a way to improve interracial relations among American students during times of high racial tension. Initially, the Jigsaw method was used only in the context of interracial relations, but over time, it began to be used in educational contexts more generally. The Jigsaw method became known as an effective cooperative learning method for increasing student participation, cooperation, and problem solving skills.

Science subject (Natural Science) is one of the subjects in school that studies the universe and everything in it. IPA covers various branches of science, such as physics, chemistry, biology, and astronomy. Science subjects aim to help students understand natural phenomena and develop critical, creative and analytical thinking skills. In addition, science also provides an understanding of various environmental issues and modern technology, and helps students prepare themselves to face future challenges.

In elementary schools, science subjects generally cover topics such as the universe, plants, animals, the environment, and science in everyday life. In high school, science subjects usually consist of several branches of knowledge, such as physics, chemistry, and biology, as well as additional material, such as geology, astronomy, and environmental science.

In learning science, students not only learn about theoretical concepts, but also conduct experiments and observations to gain a deeper understanding. In addition, students are also taught to use the scientific method and solve problems systematically.

Science subjects are one of the important subjects and are considered very relevant in this modern era, because science and technology are growing rapidly and playing an increasingly important role in human life..

B. METHOD

Writing this paper uses a qualitative research method, where the research will be carried out through direct observation in the field by taking samples of lower class residents at MI Ma'arif Caruy (grades 1, 2 and 3). Qualitative research method is a research method of a research approach that uses data in the form of words and actions that describe the views and experiences of the subjects studied (Sugiyono, 2012) Writing this paper uses a qualitative research method, where the research will be carried out through direct observation in the field by taking samples of lower class residents at MI Ma'arif Caruy (grades 1, 2 and 3). Qualitative research method is a research method of a research approach that uses data in the form of words and actions that describe the views and experiences of the subjects studied

C. RESULT AND DISCUSSION

Cooperative Learning Model Type STAD (Student Teams Achievement Divisions) is a cooperative learning model designed to improve students' learning abilities through collaboration and interaction between group members. This learning model was first developed by Robert Slavin and colleagues at Johns Hopkin University (Shoimin 2014)

Implementation of Stad and Jigsaw Type Cooperative Learning Models in Science Learning at Lower Class Islamic Elementary School

In this learning model, students are divided into small groups consisting of 4-6 people with various learning abilities. Each group member is given the same task and each group member is expected to study the material independently before meeting with the group.

When meeting with groups, each group member is responsible for sharing their understanding of the material. Then, group members work together to complete the task and help each other to correct each other's mistakes.

In the STAD cooperative learning model, evaluation is carried out in teams and individually. Team scores are based on the average individual scores of group members, while individual scores are based on individual progress in understanding the material and performance in groups.

The STAD cooperative learning model has several advantages, including:

- 1) Increase student motivation because students feel more involved and have responsibility in the learning process.
- 2) Improving students' social skills because students have to interact and communicate with their group members.
- 3) Increase students' understanding of the material because students must understand the material to be able to share it with their group.
- 4) Growing students' self-confidence because students have the opportunity to contribute and share their understanding with their group.
- 5) Encourage cooperation and respect among students because students learn to work together in groups and respect the role of each member of the group.

The Jigsaw Type Cooperative Learning Model is a learning model that encourages students to work together in groups with the aim of deepening their understanding of a topic. This learning model was introduced by Aronson in 1971 and has been widely used at various levels of education (Huda 2014):

The following are the stages or steps for implementing the Jigsaw Cooperative Learning Model:

1) Formation of heterogeneous groups

Students are divided into small groups consisting of 4-6 students. The group must be heterogeneous, which consists of students with different abilities and characteristics.

2) Selection of topics or learning materials

The teacher chooses the topic or learning material that will be studied by students.

3) Distribution of tasks

Each group member is given the task of studying one part of the topic or learning material that has been selected.

4) Individual understanding

Each member of the group studies the material that has been given, either independently or in small groups consisting of students with the same material.

5) Discussion in expert groups

After understanding the material that has been given, students then gather with other group members who study the same material. They discussed and deepened their understanding of the material.

6) Group presentation

Each group member returns to the initial group and presents the results of their understanding of the material they have learned to their group.

7) Individual and group evaluation

After all group presentations are finished, the teacher conducts individual and group evaluations. Individual evaluation is carried out by assessing students' understanding of the material they are studying, while group evaluation is carried out by assessing the group's ability to integrate information that has been learned by each group member.

Through the Jigsaw Type Cooperative Learning Model, students can improve social skills, communication, collaboration, and critical thinking skills in the learning process. In this process, students learn to help each other and respect each other's differences, as well as gain broader and deeper knowledge through group discussions and presentations.

The advantages and disadvantages of the STAD and jigsaw cooperative learning models are as follows:

a. The advantages of the STAD learning model:

- 1) Encouraging active student participation and involvement in the learning process.

Implementation of Stad and Jigsaw Type Cooperative Learning Models in Science Learning at Lower Class Islamic Elementary School

- 2) Improving social skills and student cooperation.
- 3) Facilitate better understanding through group discussions and student presentations.
- 4) Provide immediate feedback to students on their performance in groups.

b. Disadvantages of the STAD learning model

- 1) Requires sufficient preparation time to arrange initial quizzes and arrange group assignments according to students' ability levels.
- 2) Requires extra effort and patience from the teacher in managing class activities in order to create a conducive environment for cooperative learning.
- 3) It may not be effective if students are not used to working together in groups or if there are differences in abilities between students in a group.

c. The advantages of the jigsaw learning model

- 1) Encouraging active participation and involvement of students in the learning process.
- 2) Expand students' insights and increase understanding through presentations and discussions between experts from different groups.
- 3) Improving social skills and student cooperation.
- 4) Improve students' ability to solve problems and consider different points of view.

d. Disadvantages of the jigsaw learning model

- 1) Requires sufficient preparation time to organize groups and prepare task materials for each group member.
- 2) It takes a lot of time to do presentations and discussions within groups and between groups.
- 3) Requires special expertise in managing classroom activities in order to create a conducive environment for cooperative learning.
- 4) It may not be effective if students are not used to working together in groups or if there are differences in abilities between students in a group.

In conclusion, these two learning methods have their own advantages and disadvantages. Selection of appropriate learning methods must be adapted to the needs and learning objectives as well as students' ability to work together and obtain information.

Before carrying out learning activities in class the teacher makes preparations in advance by preparing a plan of learning activities to be carried out in class, by selecting material and integrating it into the thematic learning that will take place. Prepare LKPD (student worksheets), prepare assessment instruments, reflect and prepare instruments for student assessment results.

The application of the STAD type cooperative learning model in the first grade class atmosphere at the beginning of learning, the teacher provides an introduction explaining the learning objectives and linking the material to be studied with students' daily experiences. After that, the teacher gave a pre-test in the form of a simple quiz to evaluate students' understanding of sensory organs. Furthermore, students are divided into small groups and team building is carried out to help students form good and mutually supportive teams. Determine the group by means of students choosing candies of different colors, each color will be the name of the group. After that, the teacher gives a brief presentation about the sensory organs that will be studied and shows pictures and examples of sensory organs. Students are given the opportunity to discuss the sensory organs that have been studied in group discussions. Each team member contributed to the discussion using the LKPD guide prepared by the teacher. After the group discussion, students are given individual quizzes to evaluate their understanding of the sense organs. The teacher provides the opportunity to clarify concepts that are still confusing and students are given the opportunity to present the results of their discussions in the lesson review. Each team is given a team quiz to evaluate their understanding of the sensory organs and each team member must contribute to answering the quiz. At the end of the lesson, the teacher gives conclusions about the sensory organs that have been studied and students are given the opportunity to ask questions about material that has not been understood.

With this type of STAD cooperative learning model, students work together in small teams and help each other understand the material. Each team member is given the opportunity to contribute and each student's understanding is tested through individual quizzes. Team quizzes are also given to evaluate the team's ability to understand the material. This learning is expected to make students more active and involved in learning (Mahin 2019) and increase their understanding of the sense organs.

Implementation of Stad and Jigsaw Type Cooperative Learning Models in Science Learning at Lower Class Islamic Elementary School

Implementation of the jigsaw cooperative learning model in the second grade at the beginning of learning, the teacher provides an introduction explaining the learning objectives and linking the material to be studied with students' daily experiences. After that, students will be divided into small groups consisting of four members. Each group member was given their respective roles, namely a writing utensil expert, cutlery expert, toiletries expert, and electronic equipment expert. After that, the teacher gave a brief presentation about the shape of the object to be studied and gave examples of objects from each group of experts. Each expert group discusses the shape of objects that have been studied in the same expert group. Each group expert records the results of their discussion on the LKPD sheet prepared by the teacher. Next, students move to a new group consisting of one expert from each group of experts. Each with the help of the teacher presented the results of their discussion about the shape of objects in the new expert group. Other students in the group ask questions and provide feedback about the presentations made. After that, students returned to their initial groups and shared the results of the discussions they got from other expert groups. Each group member contributes to this discussion and records the results of their discussion. The teacher provides the opportunity to clarify concepts that are still confusing and students are given the opportunity to present the results of their discussions in the lesson review. Each group is given a quiz to evaluate their understanding of shapes and each group member must contribute to answering the quiz. At the end of the lesson, the teacher gives conclusions about the forms of objects that have been studied and students are given the opportunity to ask questions about material that they have not understood.

With this type of jigsaw cooperative learning model, students work together in small groups with their respective roles and help each other in understanding the material. Each group member was guided by the teacher to present the results of their discussion and each student's understanding was tested through individual quizzes. This learning is expected to make students more active and involved in learning and increase their understanding (Asmara, 2020) about the shape of things.

Implementation of the STAD type cooperative learning model in grade three at the beginning of learning, the teacher provides an introduction explaining the learning objectives and linking the material to be studied with students' daily experiences. After that, students are divided into small groups consisting of four members with adequate heterogeneity, by counting from one to four going around students who get the same number will gather into one group and that number will be the name of the group as well. Each group will be given a different part of the plant, namely roots, stems, leaves and flowers. Each group member is given the task of studying the part of the plant that has been determined using the LKPD provided by the teacher. After that, students discuss with their group members to share information about the parts of the plant they have studied. Each group member records the results of their discussion. Next, each group member was asked to make a poster about the part of the plant that had been studied using the material that had been prepared by the teacher. Each poster must include the name of the part of the plant, its function, and the appropriate picture. After the posters were made, students with the help of the teacher presented their posters in front of the class with the help of their group members as well. Each group member must present the poster that has been made of course with the guidance of the teacher as well. After the presentation, the teacher provides an opportunity to clarify concepts that are still confusing and students are given the opportunity to ask questions about parts of plants that are not understood. Each group member is assessed based on the posters that have been made and the presentations that have been made. Individual values are arranged into group values. Each group is given feedback about the results of the group's performance. At the end of the lesson, the teacher gives conclusions about the parts of plants that have been studied and students are given the opportunity to ask questions about material that they have not understood.

With this type of STAD cooperative learning model, students work together in small groups and are given different assignments according to the part of the plant that has been determined. Students share information with each other and make posters about the parts of plants they have studied and present their posters in front of the class. This learning can make students more active and involved in learning and increase their understanding (Ari Sudana and Wesnawa, 2017) about plant parts.

Of the three implementations of learning science in the lower grades (grades 1,2 and 3) Islamic Elementary School using the STAD and jigsaw cooperative learning models can make students more independent, foster social attitudes (Marheni, Jampel, and Suwatra, 2020) and good cooperation, respect each other and make students more active (Rahmah, Kafrawi, and Mahsul, 2019) and students look more friendly with other students, can also improve student learning outcomes (Marheni, Jampel, and Suwatra 2020) Increased student confidence even though when presenting the results of the discussion it is still not smooth and is still guided by the teacher.

D. CONCLUSION

The STAD method assists students in building social and cooperative skills through the formation of heterogeneous and mutually supportive learning teams. In this method, students learn through presentations from their team members and provide feedback to each other, resulting in mutual information sharing and active involvement of students in the learning process. Meanwhile, the

Implementation of Stad and Jigsaw Type Cooperative Learning Models in Science Learning at Lower Class Islamic Elementary School

Jigsaw method emphasizes collaboration and discussion between students with different abilities. Each student is responsible for learning a particular part of the subject matter and then sharing information with other group members. This allows students to gain a more complete understanding of the subject matter and helps them build social skills such as cooperation, problem solving and communication. Both of these cooperative learning methods have their advantages and disadvantages, but both have been proven to be effective in increasing students' active participation and their learning outcomes. Therefore, as an educator, it is important to consider the needs and characteristics of students to choose the most appropriate learning model to achieve the desired learning goals.

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