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The Effect of Jigsaw Type of Cooperative Learning Model on Concepts Understanding and Critical Thinking Skills of Students in Class V SD Negeri 112146 Janji in the Science Lesson, Academic Year 2021/2022

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Abstract

This study aims: (1) To determine the level of students' conceptual understanding after jigsaw type cooperative learning. (2) To determine the level of students' thinking ability after jigsaw type cooperative learning. (3) To determine the effect of jigsaw type learning method on concept understanding ability. (4) To determine the effect of the jigsaw learning method on critical thinking skills. The type of experimental research used is Quasi-Experimental. The research subjects consisted of 80 students. Samples were taken from the subject population consisting of 40 students in class V a (control group) and 40 students in class V b (experimental group). The results showed that the jigsaw method significantly affected the understanding of concepts and thinking skills of the fifth grade students of SDN 112146 Janji in social studies subjects. The activity of understanding the concept and thinking skills of the experimental class students reached very high criteria, while in the control class it only reached the sufficient criteria. The average posttest score of the experimental group was better than the control group. The mean posttest of the experimental group was 74.13 and the mean posttest of the control group was 66.23. This shows that the gain index <g> of the experimental group is 73.45 (high) while the <g> of the control group is 65.62 (medium). The results of the t-test show that the value of tcount (2,272) > ttable (1,990) means that the Jigsaw method has an effect on social studies learning outcomes and the value of Sig. (2-tailed) < 0.05 that is 0.026. These results conclude that there is a significant difference between the learning outcomes of the experimental class and the control class.

Keywords
jigsaw method; concept understanding and thinking skills; cooperative learning model

I. Introduction

Conventional learning has not been able to lead to a good level of conceptual understanding and critical thinking, students are passive in learning because learning is teacher-centered which will result in the development of students' ability to understand concepts and think critically is low.

One of the reasons for the low level of these two abilities is that learning is monotonous without providing opportunities for students to develop their own knowledge. Indicators of the weak ability to understand concepts and critical thinking of students, namely students do not respond to the teacher's explanation by not submitting statements or questions about the material being given. This is evidenced by the results of the pretest as follows:

Table 1. Results of Initial Test of Concept Understanding Ability and Critical Thinking Skills

School name	Ability	KKM	Average	Difference	class
State Elementary School 112146 Janji	Concept Understanding	70	52.48	-17.52	V
	Critical thinking	70	51.75	-1825	

The table above the author explains that 50.29% of student learning outcomes complete the KKM while 49.71% of learning outcomes are below the KKM or incomplete. This means that conventional learning cannot guarantee good student learning outcomes. the factor of student involvement in learning that has not been maximized by using conventional learning methods so that students cannot develop their thinking horizons.

Therefore, updates are needed in the teaching and learning process such as choosing the right method that can invite students to be active in teaching and learning activities, namely by using the Jigsaw Cooperative learning model.

In the jigsaw type of cooperative learning, the involvement of the teacher in the teaching and learning process is decreasing in the sense that the teacher is not the center of class activities. The teacher acts as a facilitator who directs and motivates students to learn independently and fosters a sense of responsibility for students so that students are able to be active in understanding a problem and solving it in groups. In the Jigsaw Cooperative learning model, each member of the discussion group gets the opportunity to contribute in expressing their opinion and listening to the views and thoughts of other members, because each student is given the opportunity to speak and there is a time limit given when expressing opinions.

This model has a teaching structure that is very suitable to be used to teach social skills, and to avoid students dominating the conversation or students being silent altogether.

Based on the background that the author has stated above, the author is interested in conducting research with the title:

"The Effect of Jigsaw Type of Cooperative Learning Model on Concepts Understanding and Critical Thinking Skills of Students in Class V SD Negeri 112146 Janji in the Science Lesson, Academic Year 2021/2022"

III. Review of Literature

2.1 Concept Understanding Ability

Concept understanding consists of two words understanding and concept. In the Big Indonesian Dictionary, to understand means to understand correctly. This is in line with Sadiman's (2008:42) opinion which states that understanding or comprehension can be interpreted as mastering something with the mind. Therefore, learning must understand its meaning and philosophy, its intentions and implications as well as its applications, so as to cause students to understand a situation. Mulyasa (2005:78) states that understanding is the cognitive and affective depth possessed by individuals. Rusman (2010:139) states that understanding is the process of individuals receiving and understanding information obtained from learning gained through attention.

Winkel (2000:44) states that the concept can be interpreted as a system of meaning units that represent a number of objects that have the same characteristics. Understanding the concept of prerequisite material is very important because if students master the concept of prerequisite material, it will be easier for students to understand the concept of the next material. According to Soedjadi (2000:14) concept is an abstract idea that can be used to classify or classify a set of objects.

Concepts are closely related to definitions. A definition is an expression that defines a concept. With the definition, people can make illustrations or pictures or symbols of the defined concept, so that it becomes clear what a particular concept means. According to Nasution (2005:164) students who master the concept can identify and work on new questions that are more varied. In addition, if the child understands a concept, he will be able to generalize an object in various other situations that are not used in learning situations.

Based on some of the opinions above, it can be concluded that understanding mathematical concepts is mastering by receiving and understanding information obtained from learning which is seen through the ability to behave, think and act shown by students in understanding the definition, understanding, special characteristics, nature and core / content from the subject matter of Social Sciences (IPS) and the ability to choose and use procedures efficiently and precisely

2.2 Critical Thinking Skills

Thinking is often done to form concepts, reason and think critically, make decisions, think creatively, and solve problems. So thinking is part of the activities that the brain always does to organize information in order to achieve a goal, so critical thinking is part of the thinking activities that are also carried out by the brain. According to Santrock (2011: 359), critical thinking is reflective and productive thinking, and involves the evaluation of evidence. Jensen (2011: 195) argues that critical thinking means an effective and reliable mental process, used in the pursuit of relevant and correct knowledge about the world. Cece Wijaya (2010: 72) also expresses his ideas about critical thinking skills, namely the activity of analyzing ideas or ideas in a more specific direction, distinguishing them sharply, choosing,

Based on some of these expert opinions, it can be concluded about the notion of critical thinking skills, namely an ability that everyone has to analyze ideas or ideas in a more specific direction to pursue relevant knowledge about the world by involving the evaluation of evidence.

2.3 Cooperative Learning Model

Cooperative learning is a form of learning that is based on a constructivist understanding which holds that children are given the opportunity to consciously use their own strategies in learning, while the teacher guides students to a higher level of knowledge (Ridho, 2011:1). Education is an obligation of every human being that must be pursued to hold responsibilities and try to produce progress in knowledge and experience for the lives of every individual (Astuti et al 2019). The cooperative learning model is a learning model with small group settings by paying attention to the diversity of group members as a forum for students to work together and solve a problem through social interaction with their peers, providing opportunities for students to learn something well at the same time and being a resource person. for another friend. So cooperative learning is a learning model that prioritizes cooperation among students to achieve learning objectives.

2.4 Jigsaw Type Cooperative Learning Model

The Jigsaw cooperative learning model is a cooperative learning model designed to increase students' sense of responsibility towards their own learning and the learning of others (Kurniasih and Sani, 2015:24). In the jigsaw type of cooperative learning, the involvement of teachers in the teaching and learning process is decreasing in the sense that the teacher is not the center of class activities. The teacher acts as a facilitator who directs and motivates students to learn independently and fosters a sense of responsibility for students so that students are able to be active in understanding a problem and solving it in groups.

Based on its etymology the word "Jigsaw" is a word that comes from English with the translation "Carving Saw". The Jigsaw teaching technique was developed and tested by Elliot Arronson and his colleagues at the University of Texas, and later adapted by Slavin and colleagues at Johns Hopkin University (Ridho, 2011:5). The Jigsaw learning model is a variation of the Collaborative Learning model, which is a group learning process in which each member contributes information, experiences, ideas, attitudes, opinions, abilities, and skills, to jointly increase the understanding of all members.

This is in line with what was conveyed by (Rahman, 2014:142) "The Jigsaw Cooperative Learning Model has a cooperative learning system consisting of several members in one group who are responsible for mastering the learning material section and are able to teach the material to other members in the group. ."

III. Research Methods

This research is an experimental research. The approach used is a quantitative approach. The location of this research is in SD Negeri 112146 Janji, West Bilah Subdistrict, Labuhanbatu Regency. The population in this study were all fifth grade students of SD Negeri 112146 Janji District of West Bilah, Labuhanbatu Regency, totaling 80 students and consisting of 2 classes in class V, namely class Va and class Vb. The sample in this study was class V students consisting of Va and Vb with each number of students, namely 40 students Va and 40 students Vb with a total sample of 80 students. The technique used for sampling is Rondom Sampling. Data collection techniques used in this study are observation and test techniques. analysis of validity, reliability, level of difficulty, and discriminating power of questions, The researcher determined the questions to be used as research instruments as many as 30 questions. Test the statistical requirements first as a basis for hypothesis testing, namely: normality test and homogeneity test. Hypothesis testing in this study uses the normalized gain test and the two-party test (t test). Normalized data is an appropriate method to analyze the results of the pretest and posttest, and is a better indicator in showing the level of treatment effectiveness than the post-test results.

IV. Results and Discussion

The t-test is a parametric statistical test used to test the truth or falsity of the null hypothesis which states that between two average samples taken randomly from the population there is no significant difference. The steps in the t-test are to make a hypothesis, determine the significance value used, calculate the t value, determine the t table and df then make a decision. These differences can be seen in the calculation of the gain test on the pretest and posttest of Concept Understanding and Critical Thinking Skills of control and experimental group students. The gain test is used to test the increase in learning outcomes both in the control class and in the experimental class (Meltzer, 2002)

In the gain test analysis, the results show that the gain index value <g> in the control class is 65, 62 which are included in the medium criteria and for the experimental class, <g> is 73.45 which is included in the high criteria. Based on the test results of the control class and posttest experimental class, it is stated that the hypothesis is obtained if the value of sig a <0.05 then there is the effect of the Jigsaw Cooperative Learning Model on Concept Understanding and Critical Thinking Skills of students, if the value of sig a> 0.05 then there is no effect Jigsaw Type Cooperative Learning Model on Concept Understanding and Critical Thinking Skills of students. From the output of Tests of Between-Subjects Effects, it was obtained that the value of sig 0.000 < 0.05, so it can be stated that there is an Influence of Jigsaw Type Cooperative Learning Model on Concept Understanding and Critical Thinking Skills of posttest control class students with posttest experimental class.

Based on the explanation that has been mentioned, it is concluded that the use of the Jigsaw learning method has a positive and significant effect on the ability to understand concepts and critical thinking skills of fifth graders at the Janjid State Elementary School in the 2021/2022 academic year.

V. Conclusion

From the results of research that has been carried out, the following conclusions are obtained:

1. In the table of observations, the number produced in the control class at the first meeting was 5 descriptors, the second meeting was 8 descriptors, and the third meeting was 11 descriptors. In accordance with the established criteria, the first meeting has a percentage of 31.25 with less criteria, the second meeting has a percentage of 50 with sufficient criteria, and the third meeting has a percentage of 68.75 with good criteria. While in the experimental class, the descriptors achieved in the first meeting were 7 descriptors, the second meeting had 11 descriptors, and the third meeting reached 15 descriptors. In accordance with the criteria that have been set, the first meeting has a percentage of 43.75 with sufficient criteria, the second meeting has a percentage of 68.75 with good criteria, and the third meeting has a percentage of 93.75 with very good criteria.
2. The average posttest score of the experimental group was better than the control group. The mean posttest of the experimental group was 74.13 and the mean posttest of the control group was 66.23. This shows that the gain index <g> of the experimental group is 73.45 (high) while the <g> of the control group is 65.62 (medium). The results of the t-test show that the value of tcount (2,272) > ttable (1,990) means that the Jigsaw method has an effect on social studies learning outcomes and the value of Sig. (2-tailed) < 0.05 that is 0.026. These results conclude that there is a significant influence on the Jigsaw Type Cooperative Learning Model on the ability to understand concepts and critical thinking skills of the experimental class and control class students.
3. It can be concluded that the analysis of the hypothesis test carried out by the gain test and t test proves that there is a significant effect on the Jigsaw Cooperative Learning Model which is seen from the ability to understand concepts and critical thinking skills of students in the experimental class (using the jigsaw learning method) compared to the control class (using the lecture learning method).

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