The Influence of the Use of Cooperative Learning Model Jigsaw & Two Stay Two Stray and the Learning Interest Result on 5th Grade Social Science

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Abstract. The purpose of this study is to determine the effect of the use of cooperative learning model Jigsaw & Two Stay Two Stray and Learning Interest Results on 5th grade social science (IPS) Students. Method used in this research is a quantitative experimental research with 2x2 factorial design or treatment by level. This research was conducted in SD Negeri Leuwinutug 01 in two classes, the first class is the experimental class which is given treatment by using cooperative learning model Jigsaw while the second class which is the Control Class which is given treatment using cooperative learning model Two Stay Two Stray. The results of this study indicate that 1) there is a difference between social science (IPS) learning outcomes between students using Jigsaw cooperative learning model and Two Stay Two Stray. Based on the value of $F_{count} = 44.71$, $F_{table} = 4.11$ ($F_{count} > F_{table}$) and $F_{count} = 22.01$, $F_{table} = 4.11$ ($F_{count} > F_{table}$). 2) there is interaction between model of learning with study result of social science (IPS) with got value $F_{count} = 4.37 > F_{table} = 4.11$. 3) there is difference learning result of social science (IPS) to learners who have high learning interest given treatment with cooperative learning model Jigsaw and Two Stay Two Stray obtained Q_h bigger than Q_t that is $8.40 > 4.33$ at $\alpha = 0,05$. 4) there is difference learning result of social science (IPS) learners who have low learning interest given treatment with cooperative learning model Jigsaw and Two Stay Two Stray it was obtained Q_h bigger than Q_t that is $21.12 > 4.33$ at $\alpha = 0,05$.

Keywords: cooperative learning strategy, Jigsaw, Two Stay Two Stray, Study interest, result of social science.

INTRODUCTION

Based on the results of the interviews that researcher had done with teacher of 5th grade SDN Leuwinutug 01, IPS' learning outcomes learners are low, from recapitulation data daily test value, writer learned that from 35 students, only 12 learners (34%) who have received value above KKM Which is 75. While the rest of which are as many as 23 students (66%), still under the KKM. To overcome these problems, it is required a learning model that can improve the activity and interests of students so it is expected to affect the improvement of learning outcomes of students.

According to Sardjiyo (2008) Social Sciences is a field that studies, examines, analyzes the symptoms, and social problems in society based on various aspects of life or a combination.

According to Purwanto (2007) learning outcomes obtained by the learners is influenced by two factors, internal and external factors. Internal factors are derived from within the learners, while external factors are those that come from outside of the learners themselves. One of the internal factors that influence learning outcomes of the students is the interest. According to Slameto (2010) interest is

a sense of preference and a sense of attachment to a thing or activity, without anyone telling.

One of learning models that can increase the liveliness and interest of students on IPS subject is cooperative learning model. According to Isjoni (2010) Cooperative learning is a strategy with small groups of students with various degrees of abilities. A Cooperative learning model has various forms of learning strategies e.g Jigsaw and Two Stay Two Stray.

The use of cooperative learning model effectively on teaching and learning activities in the classroom and supported by learners' learning interests are accommodated well, it is hoped that students can understand the subject easily and the learning result is increasing. Thus, it is expected that cooperative learning models can influence learning outcomes.

Based on the background described above, then the researcher formulated the problem as follows: "Is there any difference between learning outcomes of IPS students who are treated with learning model Jigsaw cooperative learning with learners who are treated with learning model of cooperative learning Two Stay Two Stray? Is there any interaction of cooperative learning model with interest in learning to IPS learning outcomes? Is there any difference of

learning result of IPS students who are given learning treatment using Jigsaw cooperative learning model with learners who are given treatment of learning using cooperative learning model Two Stay Two Stray in learners who have high learning interest? Are there any differences in learning outcomes of IPS students who are treated using a Jigsaw cooperative learning model with students who are treated using a Two Stay Two Stray cooperative learning model on learners who have low learning interest? "

Research Purposes

With reference to the problem, the purpose of this study is "To know the difference of learning outcomes of IPS learners, between learners who are treated with learning models of cooperative Jigsaw learning and learners who are treated with learning model cooperative learning Two Stay Two Stray, the influence of interaction between cooperative learning model and interest in learning to IPS learning outcomes, differences between learning outcomes of IPS students, with students who have high learning interests who are given cooperative learning model Jigsaw and learners who are treated cooperative learning model Two Stay Two Stray, The difference between Learning outcomes of IPS learners, for students who have a low learning interest who are treated with cooperative learning model Jigsaw and students who are treated cooperative learning model Two Stay Two Stray ".

LITERATURE AND THEORY STUDIES

Learning outcomes are the most important part in a learning process, because there is the ability of students which is gain from the learning experience. Susanto (2013) stated that the learning outcomes are the changes that occur in the students themselves, whether involving cognitive, affective and psychomotor aspects as a result of learning activities.

Based on the above explanation can be synthesized that the learning outcome is a capability of someone after completing a teaching and learning activities through a test results, assessment / evaluation in the form of behavior and mindset that includes aspects of cognitive, affective aspects and psychomotor aspects.

Social Science is a subject which comes from social life in society that is selected by using social science concepts used for learning purposes. Trianto (2010) argues that Social Science is an integration of various branches of the social sciences, such as sociology, history, geography, economics, politics, law and culture.

Cooperative can be interpreted as something that is done together and help each other in a team. Cooperative learning according to Isjoni (2010) is a learning strategy with a number of students as members of small groups with different levels of ability.

Jigsaw is a cooperative learning type that is developed by Elliot Aronson's. Jigsaw cooperative learning model according to Rusman (2012) is taking a pattern of how to work a saw (zig zag), it is when the learners do a learning activity in cooperation mode with other learners to achieve common goals.

Two Stay Two Stray learning model by Ngalimun (2012) is a way for students to share their knowledge and experiences with other groups. According to Susanto (2013) Interest is an encouragement in a person or factors that generate interest or attention effectively, which leads to the choice of an object or activity that is profitable, pleasant and will eventually bring satisfaction in itself.

Based on the above explanation can be synthesized that interest is the interest of learners on an activity that cause a tendency and a great desire for something.

Based on the theory presented above the proposed hypothesis is: There is a difference between learning outcomes of IPS learners who learn to use Jigsaw type cooperative learning model and a cooperative learning model Two Stay Two Stray, the interaction between the cooperative learning model and the interest of learning on the learning outcomes IPS, the difference of IPS learning result using Jigsaw cooperative learning model and Two Stay Two Stray to learners who have high interest, difference of IPS learning result using cooperative learning model of Jigsaw type and Two Stay Two Stray in low interest students.

METHOD

This research uses quantitative research methods involving experiments using factorial design 2x2 or treatment by level that aims to find out the learning outcomes of IPS learners who have high learning interest and low learning interest after getting treatment model of learning by using cooperative learning model Jigsaw and model Two Stay Two Stray cooperative learning.

The experiments were conducted in two different classes on Social Science learning using the jigsaw cooperative learning model in the experimental class and the Two Stay Two Stray cooperative learning model in the control class. Each class is divided into two groups: those with high learning interest and low learning interest.

The population in this study is all schools located in District Citeureup, Bogor Regency, which total to 63 schools.

From this population, sample is taken by using random sampling technique; it is the way of sampling that focus on the aspect of opportunity in the selection of sampling members. The sampling

technique is by drawing the name of those schools that will be used as research samples on a paper. As the result, SDN Leuwinutug 01 is selected, and the sample is the students of VA and VB class academic year 2016/2017. VB class is treated with cooperative learning model Jigsaw, while the VA class is treated with cooperative learning model Two Stay Two Stray. Before giving the treatment, there is a questionnaire about interest in learning to classify learners into two categories; high learning interest and low learning interests.

The Determination of learners with high learning interest and learners with low learning interest is done by taking 27% of the group of learners who expressed high interest and 27% of learners who expressed low interest, in accordance with the suggestion Arikunto (2006: 212) that "High and low groups are determined by choosing 27% of all learners".

Based on the population, the calculation of the sample group is 27% of 35 students are 9.45 = 10 students. The group of selected students is further defined as the unit of analysis.

Instruments or tools used in data collection efforts in this study are divided into two models. The first model is in the form of a questionnaire of studentss' learning interest and the second model is a test to measure studentss' learning outcomes.

In this research, validity of the test (test of learning result), Reliability of the test (test of learning result), Validity Test (Kinet), Reliability Test (Question), Normality Test and Homogeneity are tested by using formula as follows:

1. Test Validity Item Problem (Test Results Learning)

    The test result of learning Social Science is dichotomy, hence technique of analysis used point biserial correlation (r_pbis) with formula:

    $$(r_{pbis}) = \frac{M_p - M_t}{S_t} \sqrt{p/q}$$

2. Reliability Test (Test Results Learning)

    To test the reliability of the test results of learning Social Sciences, researchers used analysis techniques Kuder-Richardson 20 (KR-20) with the formula:

    $$r_{11} = \left[\frac{n}{n-1}\right]\left(\frac{S^2 - \sum pq}{S^2}\right)$$

3. Validity Test (Questionnaire)

    Testing the validity using pearson's method by measuring the magnitude of the correlation score item questionnaire with the total score. The Pearson's Product Moment formula is as follows:

    $$r_{xy} = \frac{n \sum xy - (\sum x)(\sum y)}{\sqrt{\left[n \sum x^2 - (\sum x)^2\right]\left[n \sum y^2 - (\sum y)^2\right]}}$$

4. Test Reliability (Questionnaire)

    Reliability is tested by using Alfa Cronbach technique with the formula as follows:

    $$r_1 = \frac{k}{(k-1)}\left[1 - \frac{\sum si^2}{\sum st^2}\right]$$

5. Normality Test and Homogeneity

    In testing the data carried out the analysis test is the normality test and homogeneity test. Requirements for statistical analysis include normality test and homogeneity test of Y group variance over X_1 and X_2. The data is stated to be normal distribution if the price of $L_o < L_t$ at significant level of 0.05 and for normality test using Liliefors formula. The homogeneity test of Y group variance over X_1 and X_2 is to test the similarity of two population variance based on normal distribution and homogeneity test using Bartlett test. Data is homogeneous if price $X^2_{count} < X^2_{table}$ with significant level 0,05.

    Before testing the hypothesis, it needs to be tested data analysis requirements in the form of normality test and homogeneity of data groups to be compared. Hypothesis are tested by using two-way analysis of variance (ANAVA) and continued with Tukey test.

FINDINGS

The data obtained will be processed by using two-way Analysis of Variance (ANAVA) to test the hypothesis in this study. So the data is analyzed first, and after that tested the requirements of ANAVA namely normality test and homogeneity test data.

Normality Test of IPS Learning Results

The summary of the results with Liliefors test shows that the six groups of the data have a level of normality, as presented in the following table:

Table 1. Summary Test of Normality of Learning Result Data of IPS Learners

No.	Category	L count	L table	Conclusion
1	A1	0,1093	0,190	Normal
2	A2	0,1080	0,190	Normal
3	A1B1	0,1697	0,258	Normal
4	A1B2	0,1413	0,258	Normal
5	A2B1	0,1040	0,258	Normal

No.	Category	L count	L table	Conclusion
6	A2B2	0,2411	0,258	Normal

Homogeneity Test

Testing homogeneity of variance in this research is done by using Bartlett Test with significance level 0,05. The homogeneity test results of population variance can be seen in the following table:

Table 2. Homogeneity Test Results of Variant Population

Group	X^2_{coun}	X^2_{table}	Conclusion
A1B1			
A1B2	7,577	7,815	Homogen
A2B1			
A2B2			

Both of test results of the above analysis requirements provide the conclusion that the analytical requirements required for variance analysis have been met, so it is feasible for further testing to see the effect of Jigsaw cooperative learning model and Two Stay Two Stray cooperative learning model with high learning interest and interest in learning Low on learning outcomes of IPS learners who became the subject in this study.

Hypothesis testing

Hypothesis testing in this research is done by technical Analysis of 2 Path Variant (2 × 2), then tested further by using Tukey Test. The results of the calculation of variance analysis obtained are summarized in the following table:

Table 3. Summary of Hypothesis Testing Results Using Two-way ANAVA Learning Results IPS Students

Varians	Dk	SS	MS (MS = SS : Dk)	F Test (MS : MS within)	F table (F 0,05 ;1;39)
Learning Model (A)	1	409,60	409,60	44,71	4,11
Interest (B)	1	202,50	202,50	22,10	4,11
AXB (Interaction)	1	40,00	40,00	4,37	4,11
In the group (within)	36	329,80	9,16		
Total	39	981,90			

Based on the summary of 2-line ANAVA calculation in the above table, it can be concluded that the test result from hypothesis 1 and hypothesis 2 as follows:

1. Hypothesis zero (H_0) which states that there is no difference between learning result of IPS learners using cooperative learning model Jigsaw and cooperative learning model Two Stay Two Stray rejected, because Fcount> Ftest (0,05), that is 44,71> 4, 11. So it can be concluded that there is a difference between learning outcomes of IPS learners using cooperative learning model Jigsaw and Two Stay Two Stray cooperative learning model significantly.

2. The null hypothesis (H_0) which states that there is no interaction between the cooperative learning model and the interest of learning on the learning outcomes of students IPS is rejected, because Fcount> Ftable (0.05) is 4.37> 4.11. So it can be concluded that there is interaction between cooperative learning model and learning interest to learning outcomes of IPS learners significantly.

It is Tested significantly the interaction between cooperative learning model and interest in learning to IPS learning outcomes, then the next step is to conduct further tests. Since the number of subjects in the cell (group) is the same, the further tests performed by the Tukey Test. The analysis was used to test the difference of absolute mean values of the two groups paired by comparing with the critical value of the Tukey number.

1. Learning result data of IPS students of group A1B1 and A2B1

$$Q = \frac{\overline{X}_i - \overline{X}_j}{\sqrt{\frac{S^2_{gabungan}}{n}}} = \frac{28,40 - 25,90}{\sqrt{\frac{8,85}{10}}} = 8,40$$

Based on the calculation of Tukey Test above, with n = 10 and α = 0.05, then obtained Q_table = 4.33, while Q_count = 8.40. Thus, Q_count > Q_table means that H_1 is accepted. So it is concluded that there are differences in learning outcomes of IPS learners who learn by using cooperative learning model Jigsaw with cooperative learning model Two Stay Two Stray on learners who have a high interest significantly.

2. Data of learning result of IPS learners group A1B2 and A2B2

$$Q = \frac{\overline{X}_i - \overline{X}_j}{\sqrt{\frac{S^2_{gabungan}}{n}}} = \frac{24,00 - 17,50}{\sqrt{\frac{9,47}{10}}} = 21,12$$

Based on the calculation of Tukey Test above, with n = 10 and α = 0.05, then obtained Q_tabel = 4.33, while Q_count = 21.12. Thus, Q_count> Q_table means that H_1 is accepted. So it is concluded that there are differences in learning outcomes of IPS learners who learn by using cooperative learning model Jigsaw and cooperative learning model Two Stay Two Stray on learners who have low interest significantly.

CONCLUSION

Based on the discussion, it can be concluded that:
1. This study proves that learning outcomes of IPS students who learn by using cooperative learning model Jigsaw is higher than the learners who learn with cooperative learning model Two Stay Two Stray.
2. There is an interaction between the cooperative learning model and the learning interest in the learning outcomes of IPS students.

3. Learning outcomes of IPS students who have a high learning interest who learn by using cooperative learning model Jigsaw is higher than learners' learning outcomes who study with cooperative learning model Two Stay Two Stray.
4. Learning outcomes of IPS students who have low learning interests who learn by using cooperative learning model Jigsaw is higher than learners who learn with cooperative learning model Two Stay Two Stray.

SUGGESTION

Based on the findings in this study, there is a difference between learning outcomes of IPS students using cooperative learning model Jigsaw and cooperative learning model Two Stay Two Stray significantly, the results of IPS students who learn by using cooperative learning model Jigsaw is higher than with Learners who study with cooperative learning model Two Stay Two Stray. This means that Jigsaw cooperative learning model can be used as an alternative teacher in choosing effective learning model to improve learners' learning outcomes. Jigsaw cooperative learning model is more varied in the presentation of learning process and learners are given their respective responsibilities to seek broader material from the topics or images provided by teachers, thereby improving the understanding of learners in understanding the material.

In addition, in this study also obtained the findings that there is an interaction between cooperative learning model and the interest of learning together towards the learning outcomes of IPS learners. It can be used as a reference for teachers and learners that cooperative learning model and interest in learning can determine the acquisition of IPS learning outcomes, either for students who have high interest or low interest. Thus, teachers are expected to be keen in choosing the appropriate cooperative learning model and will be used in the learning process, so as to improve the learning outcomes of students on the condition of learning interests of learners vary. The results of this study indicate that the cooperative learning model Jigsaw appropriate to be used as an alternative for teacher in choosing a model of learning that will be used.

Other findings in this study indicate that the learning outcomes of students using Jigsaw cooperative learning model is higher than learners who learn to use Two Stay Two Stray cooperative learning model, both on high interest and low interest. However, for the learning outcomes of students increased more optimal then the teacher is

expected to be active in being a facilitator for learners during the learning process. In addition, students are expected to brave in expressing their opinions, responsible for their duties and willing to cooperate in a group so that interest in study grows. Students are also expected to participate actively in the learning process to understand the material delivered to improve learning outcomes. The role which is also important, as much teachers and students in the learning process, is the role of parents. Parents are expected to continuously monitor the interests of learners and give attention and encouragement in achieving learning outcomes.

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