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Effectiveness Of Using Scramble Learning Models On Motivation And The Students' Learning Outcomes In Teaching The Nervous System Of Human

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Abstract

Effectiveness of using Scramble Learning Model on Motivation and Student Learning Outcomes in Learning Science on Nervous System Material in Human Class IX D Kaliangkrik 2 Junior High School Magelang. The purpose of this study was to analyze whether the use of the Scramble Learning Model can improve motivation and learning outcomes of grade IX students of Kaliangkrik 2 Junior High School. The method used in this research is the experimental method. The form of research that researchers use in this research is Pretest-Posttest Control Group design. Based on the analysis of the data obtained the results of the average final test (post-test) control class 57.39 and the average final test (post-test) experimental class 75.77. From the calculation of the average similarity test between the pretest of the control group and the experimental group, the p-value = 0.428> 0.05 means that Accept H0 means that there is no average difference between the pretest of the control group and the experimental group. In calculating the average posttest obtained p-value = 0.003 < 0.05 means that Accept Ha means that there is a difference in average between the posttest of the control group and the experimental group. And in the calculation of the average motivation of the control group with the experimental group obtained p-value = 0.002 < 0.05 means Accept Ha which means there is a difference in motivation between the control group and the experimental group. This means that the use of the Scramble learning model has a significant effect on the motivation and learning outcomes of science on the subject matter of the nervous system in humans.

***Keywords**: Effectiveness, Scramble Learning Model, Learning Motivation, Learning Outcome.*

Background

Education is one aspect of life that plays an important role in facing the challenges of the times and the development of science and technology. So that education must be carried out as well as possible to obtain maximum results. Various efforts carried out by the government to educate children of the nation, one of which is the process of teaching and learning in schools. In addition, the government also improves the quality of education by renewing the curriculum to increase the potential of students in maximizing the teaching and learning process. Education cannot be

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carried out without teaching, and conversely teaching will not mean without the purpose of education. In addition education is a whole personal development effort and is more about image and value issues. While teaching is an effort to develop intellectual capacity and various physical skills (Suwarno, 2006:22).

The success of educational goals is mainly determined by the learning process experienced by students. The learning process that is able to develop students' potential is an activity-based learning process in which students play an active role in teaching and learning activities organized by the teacher. According to the National Education System Law No. 20 of 2003 article 1 paragraph 20 (Ministry of National Education, 2003: 2), learning is the process of interacting students with educators and learning resources in a learning environment. The tendency of current learning is still teacher-centered by telling stories and lecturing, students are less actively involved in the learning process. Whereas to attract students' interest in learning, teachers are expected to use learning models in addition to direct learning models so that learning using direct learning models can cause students to feel bored, even though direct learning models have shown patterns of interaction between teachers and students or a group of students (Sri Adi, 2011). In addition, media is rarely used in learning so that lessons become passive and less meaningful.

Every teacher wants the learning process to be carried out is fun and student-centered. Students enthusiastically raise their hands to answer questions or give opinions, cheer to celebrate their success, exchange information and encourage each other. And the ultimate goal of all these processes is mastery of satisfying learning concepts and results.

Attitudes are less passionate, less active, and class is less student-centered, is a problem faced by Kaliangkrik 2 Public Middle School, especially for science subjects in 9th grade students with material systems loaded with humans. The bad impact is the mastery of the concept and the completeness of their learning is only 65%, whereas the minimum completeness criteria for this material are 75. Conditions like this are certainly not expected in the teaching and learning process.

Actually the teacher has tried to create learning so that students are more active, including: direct object observation, group discussions working on LKS, using media in schools, and using question and answer methods. But the results have not been able to increase passion and activity to the fullest

If such conditions are not sought for alternative solutions, the teacher remains the only source of information in the class, there is no information exchange, mastery of concepts and biology learning outcomes of students remains low, and biology learning becomes boring.

According to Nasution (2000: 94) Lessons will be more interesting and successful, when linked to experiences where children can see, feel, say, do, try, think, and so on. Lessons are not only intellectual, but also emotional. Learning joy can enhance learning outcomes.

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Nur (1996: 25) said that cooperative learning models are not only superior in helping students understand difficult science concepts, but also very useful for fostering collaboration, critical thinking, willingness to help friends and so on. In principle the cooperative learning model aims to develop cooperative behavior among students while helping students in their academic lessons. There are many variations of approaches in cooperative learning models. Each approach places emphasis on specific goals designed to influence student interaction patterns.

Cooperative learning models have many types of variability in their implementation, so that many types of choices can be used by the teacher to motivate students in learning so as to improve student learning outcomes. One type of cooperative learning model used is scramble type. This type of scramble presents little games in groups that are formed and can make all students who are members of each group more a ktif completes and looks for answers to questions and questions presented. In addition, this type of scramble is used with the aim of eliminating the saturation of students in learning mathematics so that students are motivated to learn and can improve student learning outcomes. Scamble is an approach developed to involve more students in studying the material covered in a lesson and checking their understanding of fill in the lesson. The steps taken by the teacher in cooperative learning with this approach are four steps: grouping, asking questions, thinking together, and answering.

According to Taylor (in Huda, 2013) scramble is a learning model that can improve students' concentration and thinking speed. According to Huda (2013) scramble learning syntax can be applied following the following stages. (1) The teacher presents the material according to the topic. (2) After completing explaining the material, the teacher distributes worksheets with answers that are randomly sorted. (3) The teacher gives a certain duration for the questions. (4) Students work on questions based on the time set by the teacher. (5) The teacher checks the duration of the time while checking student work. (6) If the processing time for the question is up, students must collect the answer sheet for the teacher. In this case, both completed and unfinished students must collect the answers. (7) The teacher evaluates, both in class and at home. Assessment is done based on how quickly students work on the problem and how many questions he did correctly. (8) The teacher gives appreciation and recognition to students who are successful, and encourages students who have not been successful enough to answer quickly and correctly.

According to Astuti (2010) learning motivation is something that encourages, moves and directs students in learning. Meanwhile, according to Mc. Donald (in Sardiman, 2003) motivation is a change in energy in a person which is marked by the emergence of "feeling" and preceded by a response to the existence of a goal. From the understanding put forward by Mc. Donald contains three important elements, namely: 1. Motivation begins with the change of energy in each individual human 2. Motivation is characterized by the appearance of one's feelings and affection 3. Motivation will be stimulated because of goals.

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According to Suprijono (2013) the nature of learning motivation is internal and external encouragement to students who are learning to make behavioral changes. Learning motivation is a process that encourages learning, direction, and perseverance. That is, motivated behavior is a behavior that is full of energy, directed, and lasting. According to Suprijono (2013) learning motivation is closely related to learning goals. Related to this, motivation has a function: (1) Encourages students to act. Motivation is a driving force or motor for every learning activity. (2) Determine the direction of learning activities that is towards the learning objectives to be achieved. Learning motivation gives direction and activities that must be done in accordance with the formulation of learning objectives. (3) Selecting learning activities, namely determining what activities should be done accordingly in order to achieve the learning objectives by selecting activities that do not support the achievement of these goals.

In addition to motivation, learning outcomes are one of the objects in this study. According to Dimyati and Mudjiono (2006) learning outcomes are things that can be viewed from two sides: the student side and the teacher's side. From the student side, learning outcomes are a better level of mental development when compared to before learning. The level of mental development is manifested in the types of cognitive, affective, and psychomotor domains. Whereas from the teacher's perspective, the learning outcomes are the completion of the learning material.

Based on the background of the problem above, the purpose of this study was to determine the effectiveness of scramble learning model on the motivation and learning outcomes of natural science in the nervous system in humans through Class IX D Students of Kaliangkrik N 2 Middle School, Magelang Regency.

Research Methodology

In accordance with the problems to be examined, this study includes true experimental research, with the form of pretest-posttest control group design. Experimental research is a research that answers the question "if we do something in conditions that are tightly controlled, what will happen?" To find out whether there is a change or not in a tightly controlled condition, we need treatment (treatment) in these conditions and this is what was done in the experimental research. So that experimental research can be said as a research method that is used to find out the influence of certain treatments on others under controlled conditions (Sugiono: 2010).

According to Arikunto (2010), variables are objects of research or what is the focus of research. This study consists of three variables, namely one independent variable, the learning model that is applied to the learning process. The learning model used is a scramble learning model for experimental classes and conventional learning models for control classes. The control variable in this study is the students' initial ability in the form of pretest scores. and one dependent variable is the motivation and learning outcomes of science in the subject matter of the nervous system in humans. Science learning outcomes are benchmarks that determine the level of success of students in knowing and understanding a science subject matter.

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According to Sugiyono (2013) the population is not just the amount that exists in the object / subject, but all the characteristics of the object / subject. So that in the population in this study are all students of class IX SMP Negeri 2 Kaliangkrik Magelang in 2018/2019 academic year. Assuming that all classes have the same ability, the sampling in this study uses the Cluster Random Sampling technique. Using cluster random sampling technique obtained class IX C and class IX D, where the number of students in class IX C numbered 23 students and the number of students in class IX D was 26 students.

Data collection techniques use documentation and tests. This documentation is used to collect data in the form of student names, motivation questionnaires, students' pretest and posttest scores. According to Suharsimi Arikunto (2006) all tools that support a study are commonly called research instruments. The research instrument used in this study is a test. The test is used as an instrument to determine student learning outcomes. Learning outcomes test consists of 10 multiple choice questions with 4 answer choices. Data analysis techniques used were t-test or independent sample test with SPSS to test the hypothesis. Where before the test is used, the normality test and variance homogeneity test are used as a test for analysis requirements. The hypothesis that will be tested is that the scramble learning model is more effective than conventional learning models on the learning outcomes of science in the subject matter of the nervous system in humans.

Findings and Discussion

1. Calculation of Prerequisite Test Analysis

The prerequisite analysis test is conducted to find out the data that has been obtained has met the requirements or not to be analyzed. There are two types of tests namely normality test and homogeneity test.

a. Normality test

Normality test is done to find out whether the data obtained is normally distributed or not. This normality test uses the Kolmogorov-Smirnov formula with the help of SPSS version 25. Data can be said to be normally distributed if the significance value> 5% or 0.05. The normality test is carried out from the calculation of the motivation and posttest values of the experimental class and control class.

1) Posttest Data Normality Test

Table 1. Posttest Data Normality Test Table.

Data	Sig.	Ket
Group Posttest. Experiment	0,10	Normal
Control Group Posttest	0,59	Normal

Based on Table 1 it can be seen that the Shapiro Wilk Statistics value in the experimental and control groups> 0.05. From the value of the data it can be concluded that the posttest data is normally distributed.

ISBN 978-602-53231-2-6

2) Test the Motivation Data Normality

Table 2. Table of Motivation Data Normality Test

Data	Sig.	Ket
Group Motivation. Experiments	0,163	Normal
Motivation of the Control Group	0,18	Normal

Based on Table 2, it can be seen that the Shapiro Wilk Statistics value in the experimental and control groups> 0.05. From the value of the data it can be concluded that the motivation data is normally distributed.

b. Homogeneity Test

Homogeneity test is used to find out whether the two groups in the study have the same variance or not. Homogeneity test using the Levene test with the help of the SPSS version 25 application. Data can be said to be homogeneous if the significance value is> 0.05. If the significance value in the homogeneity test is higher then the population variance is increasingly homogeneous, but if it gets smaller then the population variance is increasingly heterogeneous. The homogeneity test conducted in this study was taken from the initial data (pretest) of the experimental and control classes. Homogeneity testing results as in Table 2.

Table 2. Summary of Homogeneity Test Results

Data	Signification	Description
Pretest	0,332	Homogen

Based on Table 2 it can be seen that the Asymp.Sig (2-tailed) data> 0.05. From the value of the data it can be concluded that the data is homogeneous.

2. Hypothesis Testing

Hypothesis is a temporary answer from the existing research problems so that the hypothesis must be tested for truth so as to obtain empirical data. The results of testing the hypothesis in this study are as follows:

a. There are differences in student learning outcomes using scramble learning models with lecture learning models. Hypothesis testing includes testing pretest control experimental class and testing posttest experimental-control class.

1) Testing the experimental-control pretest

H0 = there is no difference in the pretest of the experimental class and the control class.

Ha = there are differences in the pretest of the experimental class and the control class.

The test results using the independent sample t test t-test technique with the help of SPSS version 25 with a significance level of 0.05 in Table 3.

Table 3. Pretest Data t test

t	df	t-table	Sig. (2-tailed)
0,799	47	2,012	0,428

From the data above shows that the t value is 0.799. The value of t count is smaller than t table of 2.012 then H0 is accepted and Ha is rejected so that it can be

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concluded that there is no difference in pretest of students in the experimental class and the control class.

2) Testing the experimental-control post test

H0 = there is no difference in the posttest of the experimental class and the control class.

Ha = there are differences in the posttest of the experimental class and the control class.

The test results using the independent sample t test t-test technique with the help of SPSS version 25 with a significance level of 0.05 in Table 4.

Table 4. Post test data t test

t	df	t-table	Sig. (2-tailed)
3,187	47	2,012	0,003

From the data above shows that the value of t counts at 3.187. The value of t arithmetic is greater than t table of 2.012 then H0 is rejected and Ha is accepted so that it can be concluded that there are differences in the results of the post-test results of the experimental class and control class.

3) Testing of experimental-control motivation

H0 = there is no difference in students' motivation in the experimental class and the control class.

Ha = there are differences in motivation of students in the experimental class and the control class.

The test results using the independent sample t test t-test technique with the help of SPSS version 25 with a significance level of 0.05 in Table 5.

Table 5. Motivation Data t test

t	df	t-table	Sig. (2-tailed)
-3,275	47	2,012	0,002

From the data above shows that the t value is -3.275. The value of t count is smaller than t table of 2.012 then H0 is accepted and Ha is rejected so it can be concluded that there is no difference in motivation of students in the experimental class and the control class.

b. There are differences in the effectiveness of student learning outcomes using scramble learning models with lecture learning models.

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
posttest eksp	26	3	10	7,58	2,139
posttest kontrol	23	2	9	5,74	1,864
Valid N (listwise)	23				

Testing this hypothesis is based on the average value of the experimental class posttest with the control class. Obtained data that the average value of the experimental class is 7.58 and the control class average is 5.74. The difference in the average value shows that there is a difference in the effectiveness of the scramble

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learning model with conventional learning models in the subjects of natural science in the nervous system in humans.

3. Discussion

Based on the results of the calculation of the data analysis the posttest shows, that the science learning outcomes of the experimental class students and the control class are normally distributed and homogeneous so that the research hypothesis testing uses the independent sample t-test test. From the research that has been done, the mean value of the experimental class is 7.58 and the mean value of the control class is 5.74. With the number of students of class IX C 23 students and class IX D 26 students, while the results of the independent sample t-test produced a significance value of 0.003 <0.05 so it can be concluded that the scramble learning model is more effective than conventional learning models. The thing that causes the science learning outcomes of students who use the scramble learning model is better than the conventional learning model because the process that occurs in the scramble learning model, students are given more time to think, answer, and help each other in their groups. This scramble learning model has many advantages, including students more actively asking questions, expressing ideas or opinions, being creative, and having high curiosity and better learning outcomes. This is in line with the results of Intan's research (2013) which states that the scramble learning model makes students actively involved in discussions, dares to express opinions, and has responsibility in completing tasks.

Based on the research that has been done, the results of the study also show that students taught with scramble learning models with conventional learning models do not show differences in learning motivation

Conclusion

Based on the results of the research that has been carried out in the science learning process using the scramble learning model, it can be concluded that the scramble learning model is more effective than the conventional learning model. It can be seen from the table of calculation of the results of the independent sample t-test obtained the significance value of the mean difference test between the experimental class and the control class of 0.003 <0.05, which means that there are differences in the average values of the experimental class and the control class. The average value of the experimental class learning outcomes is 75.80 and the average value of the control class learning outcomes is 57.40. It appears that the average value of the experimental class is better than the average value of the control class, even though the motivation between the experimental class and the control class shows no difference. Suggestions for teachers to be able to use the scramble learning model as one of the models in implementing science learning. This study has provided empirical data about the influence of scramble learning models on learning outcomes of science, therefore it is possible to do further research related to scramble learning models by adding one variable, for example to learning outcomes and active learning of science. In addition,

ISBN 978-602-53231-2-6

research can also be carried out by applying scramble learning models on other material in science learning.

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