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THE INFLUENCE OF THE MIND MAPPING LEARNING MODEL TO INCREASE LEARNING OUTCOMES IN SOCIAL SCIENCE SUBJECTS

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Abstract

This research is motivated by the students' low interest and learning outcomes in Social Studies subjects. This research aims to determine and analyze student learning outcomes in the 5th grade Social Studies subjects at SD Negeri Kragilan 1 on the material of the Struggle to Prepare for Indonesia's Independence using the mind mapping learning model. This research uses a quasi-experimental method with the hypothesis that the improvement of students' Social Studies learning outcomes using the mind mapping learning model is better than students with conventional learning models. The results of the pretest test data are normally distributed and homogeneous; in the hypothesis test, the results are -3.0110 < 1.67155, which means that H_0 is accepted. After giving treatment to the experimental and control class, then post-test was carried out. The results of the post-test data are normally distributed and homogeneous, while the hypothesis test results are 2.1238 > 1.67155, which means that H_1 is accepted. The analysis of student learning outcomes improvement in Social Studies learning uses the N-Gain test, with the results of the N-Gain test calculation for the experimental class getting an average of 65, while the control class is 47. In the hypothesis test, the results obtained 98.59 > 1.645, which means H_1 is accepted. It shows that the use of the mind mapping learning model affects increasing student learning outcomes in the Social Sciences subjects.

Keywords: Mind Mapping; Learning Outcomes; Social Studies

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A. Introduction

Education is a substantial field for human life because education will have an impact on increasing the quality of human resources, and education can also change one's attitudes and behavior through the learning and training process. Education in elementary schools generally includes several subjects, one of which is Social Studies learning.

According to Maryani (Endayani, 2018), Social Studies is an integrated study material as a simplification, adaptation, selection, and modification organized based on the concepts and skills of history, geography, sociology, anthropology, and economics methodical scientifically and psychologically to learning objectives. Meanwhile, Sumaatmadja (Rahmad, 2016) argues that fundamentally Social Studies teaching is related to human life, which involves all of their behavior and needs. Furthermore, according to Sapriya (Pratiwi et al, 2016), the purpose of Social Studies learning at the elementary school level is to prepare students as citizens who master the knowledge, skills, attitudes, and values that can be used as the ability to solve personal and social problems as well as the ability to in making decisions and participating in various social activities to become good citizens.

As one of the influential components that determine the students' successes in teaching and learning activities, teachers need to be facilitators in paying attention, thinking, and planning the interesting learning process for students, so they have an interest in being involved in the learning process. According to Clayton Aldelfer (Achru, 2019), interest in learning is the tendency of students driven by a desire to carry out learning activities to achieve the best possible learning outcomes. Students who have an interest in being involved in the learning process can participate in learning activities well, so the material that the teacher has conveyed can be accepted and understood, which will later be able to contribute to student learning outcomes. Sudjana (Rustini, 2016) opines that learning outcomes are the abilities possessed by students after gaining learning experiences. Furthermore, Rusman (Windiyani et al, 2018) defines learning outcomes as several experiences that students get by covering the cognitive, affective, and psychomotor domains. According to Makmun (2012), learning outcomes are used to consider the

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success level of teachers in teaching students validly and reliably, which requires information supported by objective and adequate data on indicators of student changes, both behavioral and personal.

There are many ways that teachers can improve student learning outcomes, so in carrying out learning activities, especially for Social Studies subjects, students do not feel bored and surfeited with all the material that the teacher provides. One way is to use the Mind Mapping learning model. According to Sudrajat (Rosdiana et al., 2015) basically, a learning model is a form of learning presented specifically by the teacher and describes the learning process from beginning to end. According to Buzan (Hayati et al, 2017), mind mapping is a way of loading information in the brain effortlessly, creatively, effectively, and literally "mapping" our mind. In line with this opinion, Shoimin (Nisa and Rezkita, 2020) argues that mind mapping is a technique that utilizes the whole brain by operating visual imaging and other graphic infrastructure to create an impression. Meanwhile, according to Saleh (Purwatiningsih 2019), mind mapping is a teacher's creative way when carrying out learning activities. The mind mapping learning model can help students to use the full potential of their brains to the fullest and optimally while developing a visual learning style, a combination of colors, symbols, shapes, and others, which can facilitate the brain to absorb and students have the opportunity to use tools to draw and solve problems.

Based on the results of the interviews with 5th grade teachers held on Wednesday, December 3, 2014, at SD Negeri Kragilan 1, the facts show that: 1) Lack of student learning interest in Social Studies subjects because the teacher does not present attractive learning, causing students to get bored. 2) The low student learning outcomes in the formative tests on the results of the odd semester Final Examination in the Social Sciences subjects are below the minimum completeness criteria score set by the school for the Social Sciences subject. Only 16 of 33 students were able to achieve the MCC score (48%), while the rest (52%) had not been able to accomplish the MCC score, so improving student learning outcomes was necessary.

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The research that has been carried out related to mind-mapping learning models is the research by Natriani Syam and Ramlah (2015), with research results showing an increase in Social Studies learning outcomes through the application of mind-mapping learning models. Another research by Anggi Purwa Nugraha, Rustono WS, and H Nana Ganda (2016) expresses that there is an influence of the mind mapping model on the 4th grade learning outcomes at SDN Sukamukti in Social Studies learning on the material of emulating patriotism of heroes. Thus, the mind-mapping learning model can have a good influence on improving student learning outcomes.

The application of the mind-mapping learning model is expected to improve learning outcomes in understanding and solving problems in Social Studies subjects. Mind mapping plays an influential role in improving the quality of education in schools because mind mapping does not only develop intellectual abilities but also the full potential of students, including developing emotions and skills. With the application of mind mapping expected that students can play an active and creative role, as well as think systematically in the learning process to improve the quality of education in schools.

Based on the explanation, the objectives of this research namely: 1) To know whether there are differences in Social Studies learning outcomes between groups of students who are given the treatment of the mind mapping learning model and groups of students who use conventional learning models; 2) To know whether the improvement in Social Studies learning outcomes in the group of students who use the mind mapping learning model is better than the group of students who use the conventional learning models; 3) To know how students' learning interest in Social Studies in 5th grade before and after using the mind mapping learning model.

B. Methods

This research uses a quasi-experimental research method. According to Darmadi (2014), the experimental research method is a study that tries to find the effect of certain variables on other variables under controlled conditions. The research design used is a non-equivalent control group design. Cook & Campbell (Hastjarjo, 2019) stated that the form of this research design was not randomized

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experimental and control group (Sugiyono, 2012). This research would be better if formed in a group. So, in the experimental design pretest, different treatments, and post-test. The experiments were conducted by giving treatment using the mind-mapping learning model in the experimental class and conventional learning models in the control class. The population of this research was 5th grade regular students consisting of 2 class groups. The target population of this research was students of SDN Kragilan 1. The measured population was the 5th grade students of SDN Kragilan 1 in the 2014/2015 academic year. The samples in this research were taken using a cluster sampling technique with random sampling. The samples were class 5B students as the experimental class and 5A as the control class at SDN Kragilan 1.

The data collection techniques used in this research consisted of tests and non-tests. The test instrument is in the form of 20 items of multiple choices used as the pretest and post-test questions. Meanwhile, the non-test collection techniques are done through documentation and questionnaires. The non-test questionnaire instrument uses a Likert scale with 20 questions. After collecting the data, the data analysis was carried out using descriptive and inferential statistics. Descriptive statistical data analysis is to describe or explain without making conclusions. Meanwhile, inferential statistical analysis was carried out through normality, homogeneity, N-Gain, and hypothesis tests.

C. Results and Discussion

This research was conducted at SD Negeri Kragilan 1 in 5th grade. The results of the data taken during the research process were test and non-test data. This research was conducted on April 7, 2015, and ended on April 18, 2015. The dependent variable studied was the result of Social Studies learning with the topic of "The Struggle to Prepare for Indonesia's Independence" in fifth-grade students of SD Negeri Kragilan 1. The 5B class (33 students) uses the mind mapping learning model as the experimental class, and 5A class (33 students) as the control class uses conventional learning models.

In the learning process, the experimental and the control class both conducted learning activities by studying the topic related to "The Struggle to Prepare for

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Indonesia's Independence" in Social Studies subject, but the experimental class is treated by applying the Mind Mapping learning model while the control class only uses the conventional learning model.

The data on student learning outcomes in Social Studies subjects were obtained through pre-test and post-test. A pre-test is given before the learning to find out the students' initial learning outcomes. The questions given are in the form of 20 multiple choice questions. Meanwhile, to find out the final learning outcomes, the students were given a post-test after learning. The questions instrument in the post-test is the same as the pretest questions instrument.

Table 1
Descriptive Statistics of the Pretest, Posttest, and N-gain Scores of Students' Social Studies Learning Outcomes in the Experimental and Control Class

Statistical	Experimental Class			Control Class		
	Pre-test	Post-test	N-Gain	Pre-test	Post-test	N-Gain
N (Total Students)	30			30		
Minimum Score	35	60	0.33	30	50	0,11
Maximum Score	75	100	1	65	90	0,80
Total Score	1625	2485	19,65	1430	2165	14,15
$\bar{x}$ (Average)	54,16	82,83	65	47,66	72,16	47
Standard Deviation	54,1	11,97	0,20	47,7	72,13	0,28
Variance	135,67	143,28	0,040	101,18	148,46	0,081

Based on Table 1 above, can be seen that the number of samples in the experimental class and the control class was 30 students each, with an average pre-test score of 54.16 in the experimental class and 47.66 in the control class, while the standard deviation of the experimental class was 54.1 and the control class was 47.7.

In the post-test, the average score of the experimental class was 82.83, the control class was 72.16, while the standard deviation of the post-test in the experimental was 11.97, and the control class was 72.13. Based on Table 1 can be known that the average improvement in students' Social Studies learning outcomes in the experimental class is more significant than in the control class.

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In the analysis of the pre-test average difference results in Social Studies learning outcomes, can be known that both classes are normally distributed and homogeneous. Furthermore, to find out the first hypothesis testing, a two-mean difference test was conducted using a t-test with α=0.05, which shows that $t_{count} > t_{table}$ = -3.0110 < 1.67155. So, it concluded that there is no difference between the experimental and control class.

The results of the 2-tailed t-test analysis on the post-test of Social Studies learning outcomes, the data of the two classes seemed to be normally distributed and homogeneous, then the 1-tailed t-test was carried out with α= 0.05. After the 1-tailed t-test was carried out on the post-test, it was found that $t_{count} > t_{table}$ with the score of 2.1238 > 1.67155. It concluded that the final students' achievement in the experimental class was better than the control class students.

The calculation results related to the increase in Social Studies learning outcomes of the experimental and control classes show that the data obtained from the population is not homogeneous. Then the next stage is to do a non-parametric test or Mann-Whitney u-test with α=0,05. Based on the critical table z, obtained $z_{0,5-\alpha} = 1.645$, and based on the calculation of *Mann-Whitney u-test* obtaining z= 98.59, then $z > z_{0,5-\alpha}$ 98.59>1.645. So the increase in Social Studies learning outcomes of students in the experimental class is better than in the control class.

The average percentage score of the increase in Social Studies learning outcomes of both classes is more clearly shown in Figure 1 below.

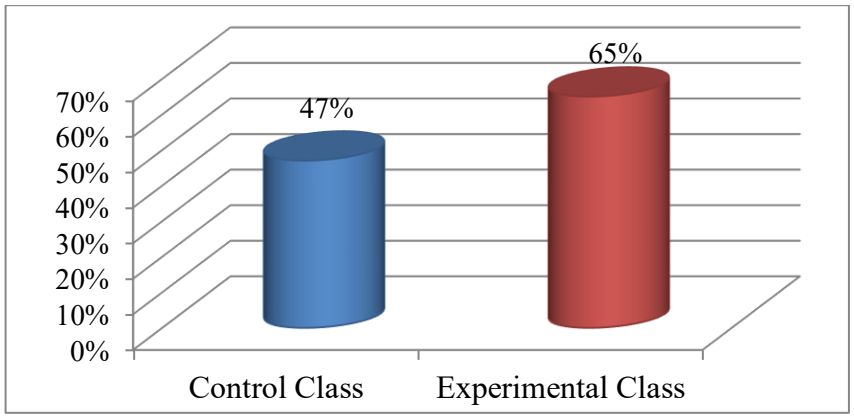

Figure 1. Percentage of the Average Score of Social Studies Learning Outcomes Improvement in Experimental and Control Class

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Based on Figure 1, the increase in Social Studies learning outcomes in the experimental class is more significant than in the control class. The average score of the experimental class increase was 65% and in the control class was 47%. The difference between both classes is 18%. Both are in the moderate category (Meltzer in Aziz et al, 2021).

The analysis of the questionnaire data on student learning interest in Social Studies subjects found that students' interest in Social Studies subjects after using the mind-mapping learning model was generally better than before using the mind-mapping learning model. It can be seen from the average percentage of student questionnaire scores of 56.64% (sufficient) before using the mind-mapping learning model and 92.05% (very strong) after using the mind-mapping learning model.

After using the mind-mapping learning model, students' interest in Social Studies is better because students feel happy with Social Studies learning with the mind-mapping learning model. When learning in groups, students' attention seems to be focused on making mind maps and paying attention to the explanations given by the teacher, and students are actively involved in finding learning materials, discussing them with their groups, and putting them into the mind maps. The success of learning by applying the mind mapping model is due to the note-taking techniques that help students maximize the potential of their brains and develop visual learning styles. A combination of colors, symbols, shapes, and others can facilitate the brain to absorb knowledge which is then outlined in the mind maps.

The success of the mind-mapping learning model is in line with the theory of the mind-mapping learning model according to Swadarma (Hendawati et al, 2018), which has the following advantages: the Mind Mapping learning model can improve brain performance; allow for correlation and present more ideas and information; stimulate creativity, simple, and easy to do; can easily recall existing data at any time; attractive and easy to capture data (eye-catching), as well as facilitate to see the large amounts of data. The shortcomings of the mind mapping learning model according to Faiq (Utami, 2013), are 1) requires various writing tools such as colorful markers to make mind maps. A good mind map requires lots of writing tools to make the lines, symbols, pictures, and words so the mind map

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can be more attractive; 2) requires a longer time than the ordinary note-taking techniques (if students are still in the beginner stage), but if students are familiar and proficient on making mind maps, it can be a quick note-taking technique.

During the learning process, the researcher observed each of the learning stages and noted that several events supported the success of the mind mapping learning model, namely students were active in learning, which means that students were actively looking for their subject materials and discussing them with their group friends, the note-taking techniques with mind maps help students to maximize their use of the full potential of their brains to create mind maps, develop visual learning styles through a combination of colors, symbols, shapes, and others in a mind map can facilitate the brain to absorb information so the material can be easily understood by students. The material presented by students from the group discussions followed the material wanted by the teacher. Students are brave to ask questions when other groups are present and receive explanations from the presenting groups.

D. Conclusion

It concluded that the use of the mind-mapping learning model in the experimental class had a better impact on student learning outcomes in Social Studies subjects. It can be seen based on the calculation results of the 1-tailed test H_1: $\mu_1 > \mu_2$ with the acquisition of z= 98.59 and obtained $z_{0,5-\alpha}$= 1,645. Then comparing z and z_0 with α= 0.05 shows that H_0 is rejected and H_1 is accepted. Thus it concluded that the student learning outcomes improvement in Social Studies learning using the mind mapping learning model is better than the conventional learning models. This is proved by researchers' observations during the learning process that students are active in finding alternative answers to the problems given by the teacher by making mind maps and discussing with their group friends. Meanwhile, students' learning interest in Social Studies by applying the mind mapping learning model is better as proven by the results of distributed questionnaires (with 20 statements) with an average percentage of student answers of 92.05 (very strong).

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