

The Effectiveness of Concept Mapping on Social Skills of Students in Social Learning of Elementary School

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Abstract

The purpose of this study was; to analyze the achievement of social skills of students who experienced in learning using the concept mapping. This study is expected to improve teacher performance in learning by looking at the appropriate approach to learning social studies (IPS). This type of research used is a quantitative research method in the form of quasi-experimental design with pre-test – post-test control group design. The population of this study was all grade IV elementary school students in Pattimura Cluster, Genuk Sub-District, Semarang City. The sample was selected through a purposive sampling technique, so that selected SDN Karangroto 03 class IVA as the experimental group and class IV B as the control group. Data collection techniques use non-test techniques which include interview guidelines, observation guidelines, and documentation. The results of the study indicate that; the method of concept mapping effectively increases the social skills of students in social studies learning in the fourth grade of elementary school, with the achievement of 2 indicators namely; (1) the improvement of students' social skills is in the minimum medium category based on the N-Gain test in the experimental class. The results of the N-Gain test in the experimental class are 0.32 which are classified into the medium category; and (2) the average score for concept mapping is in the minimum, medium category. The results of the average making of the concept mapping by students are 78% in the high category.

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INTRODUCTION

The implementation of education must be considered by all stakeholders, both from the government, education cycles, and the community in order to achieve educational goals. The quality of education can be achieved if the teaching and learning process run well, efficiently, and effectively. One effort to achieve the goal of education is through increasing learning in the hope that it can help students to achieve competence in the 2013 curriculum.

Related to education, from various kinds of subjects taught in Elementary School (SD) social studies learning is one of the subjects that study the science of social studies of human relations and their interactions with spatial or geographical aspects. Sapriya (2009) states that social studies in elementary schools are the name of stand-alone subjects as an integration of some concepts in social sciences, humanities, science and even various social issues and problems in life whereas Trianto (2010) stated that Social Sciences (IPS) is formulated by reality and social phenomena which embody an interdisciplinary approach from the aspects and branches of social science. (sociology, history, geography, economics, politics, law and culture). In line with this, Supardan (2015) argues that social studies are a learning program that aims to help and train students, so they can have the ability to recognize and analyze a problem from a variety of perspectives in a comprehensive manner.

The illustrates that social studies are one of the feasible subjects mastered by students, especially students in SD level. In social studies learning, students learn to understand every reality and social issues that occur in society. Social Studies (IPS) learning invites students to be human beings who can interact with and socially interact in society. The age of class IV students is in the range of ages nine to eleven. In this age phase, almost all aspects of intellectual development are growing and developing. The level of development in the child is a unified whole and is only able to understand the relationship between concepts in a simple way. Likewise in the learning process, generally they

still depend on concrete objects and experiences they experience directly (Rachmawati, Setyowati, and Rusilowati, 2013).

The reality of the application of social studies is still far from the ideal word. Social Science (IPS) is only focused on memorizing some of the material. This is because the role of the teacher in providing learning is less interesting. Susanto (2014) states that teachers in social studies learning have not optimally facilitated students and acted as motivators in learning. For this reason, it is very important for teachers to create a conducive classroom atmosphere so that students can play an active role in learning activities. In line with this idea, Sulastri, Imran, and Firmansyah (2015) stated that students still lack direct involvement in the learning process, where students are only listeners and note takers of what the teacher has to say. Sumitro, Setyosari, and Sumarmi (2017) also argued there are still many students who pay less attention to teacher explanations and prefer to play alone in learning. This is reinforced by study from Sutrisno (2016) that teachers in delivering learning material are only in the same direction or teacher-centered.

The application of social studies is only focused on improving cognitive aspects such as memorizing of material and fixing on textbooks so that social studies become a lesson that saturates and is not considered important by students (Moore, Carpenter-McCullough, Chessin, Mott, and Mitchell, 2014). The data collection in the form of interviews conducted in several schools in Genuk Subdistrict, Semarang City, showed that the implementation of strategies and innovative learning models had not been maximized, that group learning had not been maximal, not yet maximal in making learning summaries, learning had not been reality-oriented and not related faced by students in everyday life. This causes less interesting learning activities, students' social skills in the learning process are low and difficulties in understanding the material delivered by the teacher. Student learning outcomes show values below of minimum criteria (KKM) which is < 70.

The results of interviews with students showed that students were less interested in following the learning process with learning activities that were always in the classroom, conducting question and answer, giving written assignments, and giving homework to students. Students feel less socialized with the surroundings. Based on these facts, the researchers concluded that the learning process carried out by the teacher only uses learning with conventional methods. This is evident from the narrative of the teacher and students that learning is done verbally (lecture) but still interspersed with a question and answer activities and simple discussions.

In line with the facts found in study conducted by Halim, Raharjo, and Murwatingsih (2015) that social studies learning that occurs today only prioritizes the cognitive side, without regard to changes in the behavior of the students themselves. The shift in view that occurs because the learning process that only prioritizes the cognitive side has become entrenched in our country, most of the schools in Indonesia are only focused on cognitive outcomes both at the elementary, middle and high school levels. With such conditions, it will not be possible to be embedded in the sense of sensitivity to the environment in students if classroom learning only emphasizes the cognitive side without seeing changes in behavior. Study from Putra, Setyowati, and Linuwih (2015) found that social studies learning which occurs in schools is a low level of student understanding, students rarely do assignments, and the learning process is monotonous.

Learning that enhances social skills can be one of the solutions so that social science learning goals are achieved. Social skills are a set of behaviors obtained through observation, modeling, practice and feedback that are learned and contain verbal and nonverbal behaviors including appropriate, effective, and more interactive responses (Nugraha, Handoyo, and Sulistyorini, 2018).

One way to teach social skills in elementary school is through learning with the concept mapping method. Kremer (2005)

explains that concept maps can be used as a tool to solve problems in education as a choice of solutions or as an alternative. Habituation in the use of concept maps in education can also add to the benefits of the learning process. Åhlberg (2013), states that concept maps are a visual picture of the relationship and organizational hierarchy of a concept. Sholahudin (2002), stated that utilizing concept maps as a tool is important to find out what has been known by students while producing meaningful learning processes. Thus, the benefits of concept maps are used as study tools to evaluate lessons or plans in a lesson, or the entire curriculum. The concept map is a schematic description to present a series of concepts and inter-conceptual links (Yogihati, 2010).

Azizah (2013) suggests that concept mapping is the most effective and efficient way to enter, store and issue data from or to the brain. Concept mapping is a concrete graphic illustration that identifies how a single concept is related to other concepts in the same category. Concept mapping can be used to express meaningful relationships between concepts in the form of propositions (Listiani, 2012). Anip (2015) argues that concept mapping is an instrument to help understand problems and make plans for all information gathered. Furthermore, Madyono (2016) stated that concept mapping is a way of developing thinking activities in all directions, capturing various thoughts in various angles

Vitulli, and Giles (2016) stated that concept mapping is a tool for language teaching that helps teachers to introduce or unite several words related to one topic or theme. Zipp, and Maher (2013) argued that concept mapping could support students' ability to explore relationships between information because it uses free learning techniques that foster creative thinking.

Isfaningrum, Masykuri, and Saputro (2013) found that concept maps are used to express meaningful relationships between concepts in the form of propositions. Propositions are two or more concepts that are connected by words in a unit. In a simple form, a concept map consists of only two concepts that are connected to form a proposition. Concept maps can serve to

help students learn how to learn, help students learn meaningfully to science concepts. By studying this concept map, one can estimate the depth and breadth of concepts that need to be taught to students.

Long, and Carlson (2011) states that student difficulties lie in the ability to take notes and determine the relationship between concepts. To overcome this by using techniques that can equip students with the skills to store information received in long-term memory. Difficulties in processing and organizing information or subject matter in schools can be overcome by using concept mapping techniques.

Several studies related to learning with concept mapping as has been done by Pardosi (2017), stated in his study that science learning using learning models concept mapping could improve student learning outcomes. Irawan, Ngadino, and Hasan (2016) in his study found that using the Concept Mapping method can improve the understanding of Civics concepts material in the central government structure in class IV Genengsari 1 Elementary School 1 Kemusu Boyolali 2012/2013 academic year.

Intany, Saptono, and Retnoningsih (2016) in her study described the achievement of indicators of success, namely the average value of post-test for each class was classified as sufficient and achievement of indicators of the ability to think analytically in each class $\geq 50\%$. This study concludes that the ability to think analytically can be developed through contextual learning with concept maps. Hayati (2013) in her study found that the Concept Map learning strategy with an average of 76.8 was superior to the Mind Map with an average of 74.2 in class VII Boyolali State Middle School 2. Study shows that concept mapping has a positive influence in increasing the dependent variable of each study.

The equation from the previous study was to use a concept mapping, and both increase the measured variables. The difference lies in the material or charge that is learned using the concept mapping

Based on several previous study, researchers found a gap or gap related to learning concept mapping. Learning concept mapping has

never been implemented to measure students' social skills in social studies learning here material. Therefore, researchers want to fill in the blanks of research by testing theories related to learning concept mapping to the social skills of students in social studies learning in elementary schools.

The way to make a concept mapping in this study is; (1) identifying main ideas or principles that cover a number of concepts; (2) identifying secondary ideas or concepts that can support the main idea; (3) determine the main idea in the middle or peak of the map, then sort the concepts from the inclusive to the less inclusive; and (4) group secondary ideas around the main idea that visually shows the relationship between the ideas and the main idea. An inclusive concept is placed at the top or top and then connected with lines or conjunctions.

METHODS

This study uses quantitative research methods in the form of quasi-experimental design. The design used in this study used a pre-test – post-test control group design.

The population in this study were all fourth-grade students in the Pattimura Cluster Genuk Semarang City consisting of 9 elementary schools. The sampling technique in the study used purposive sampling by selecting 2 sample classes, the reason the researchers determined 2 sample classes was because both classes were from the same school, accredited A, and applied the 2013 curriculum. The sample was selected SDN Karangroto 03, class IV A totaling 40 students as an experimental group and class IV B which amounted to 41 students as a control group.

The data collection technique of students' social skills is done through non-test techniques in the form of pre and post observation sheets, accompanied by interviews and documentation.

Data were analyzed using simple statistical formulas for prerequisite tests consisting of data normality tests and data homogeneity tests. Also, it also uses the average difference test and the N-Gain test.

RESULTS AND DISCUSSION

Strength in this study is found in the process of learning activities carried out by students. The activity of creating a concept mapping stimulates students to be more active, enthusiastic, creative in managing the strategy of making concept mapping. The following is the result of making the concept mapping by students in Figure 1.



Figure 1. The result of Student's Work

Concept mapping is effective for improving the social skills of students in social studies. The effectiveness can be seen from the results of the study as follows.

Test Prerequisites

a. Normality Test

The normality test is intended to measure whether the data obtained has a normal distribution. The hypothesis proposed is; H_0 = sample data comes from populations that are normally distributed; and H_1 = the sample data does not come from a population that is normally distributed, with the testing criteria H_0 accepted if $Sig > 0.05$. The results of the normality test of the control class and experimental class can be seen in Table 1.

Table 1. The result of Normality Test

	Kolmogorov Smirnov		
	Statistik	f	Sig.
Experiment	0.154	5	0.200*
Control	0.128	35	0.200*

The normality test in this study used the Kolmogorov Smirnov test because the study

sample was > 50 , based on the results in Table 1, the Sig value of the experimental class pre-test was 0.200. While the results of the pre-test in the control class showed a Sig value of 0.200, data are said to be normally distributed if $Sig > 0.05$ significance level. Therefore, it can be said that the control class and experimental class data are normally distributed.

b. Homogeneity Test

Homogeneity tests are carried out to investigate whether or not it is homogeneous at variance or group. The following are presented in the homogeneity test results in Table 2.

Table 2. The result of Homogeneity Test

Levene statistic	df ₁	df ₂	Sig.
1.032	6	14	0.882

Decision making and concluding hypothesis testing are carried out at a significance level of 5%. If the significance is more than 0.05, it can be concluded that the variance is the same (homogeneous), but if the significance is less than 0.05, the variance is different. Based on the results of the homogeneity test in Table 2, the obtained Sig value is $0.882 > 0.05$; it can be said that the two sample classes are homogeneous.

Test the Hypothesis

a. Average Difference Test

The average difference test was used to test the differences in students' social skills between the control group and the experimental group. This test uses an independent sample t-test. The following Table 3 presents the results of SPSS calculations related to the different test average social skills of the control class students and the experimental class.

Table 3. Differences in Student Social Skills Test Results

Sig. 2 tailed	Significance	Mean control	Mean experiment
0.00	0.05	59.31	70.61

Based on the results in Table 3, Sig is $0.00 < 0.05$, according to the basis of the test decision making independent sample t-test can be concluded that H_0 is rejected and H_a is accepted,

meaning that there is a difference between the average social skills of experimental and class students control.

In the mean, the box can be seen for the average social skills of students in the experimental class of 70.61, while the mean social skills of students in the control class are 58.31. This shows that the average social skills of students in the experimental class are higher than the average social skills of students in the control class.

The observation results of the social skills of the control class and the experimental class are presented in Figure 2.

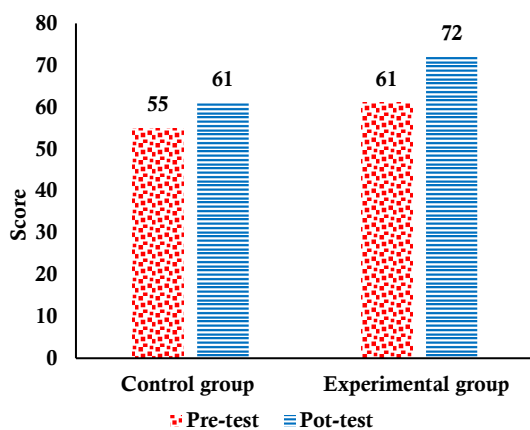


Figure 2. Average Social Skill

The results of the pre-test observation or before learning in the control class with Heroes' material gained an average score of 55, then increased to 61 in the results of post-test observation or after learning with Heroes' material. Meanwhile, the results of the pre-test observation or before learning using concept mapping in the experimental class with Heroes' material obtained an average score of 61, then increased to 72 in the results of post-test observations or after learning using the concept mapping.

b. N-Gain Test

N-Gain test to determine the difference in increase between the value of the pre-test and post-test in the experimental class and the control

class. The results of the N-Gain test can be seen in Figure 3.

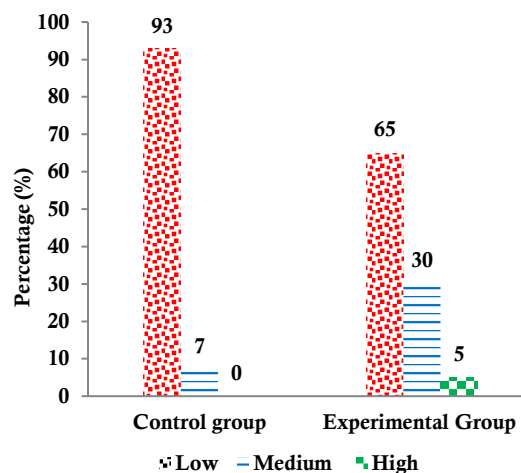


Figure 3. N-Gain Test

Based on Figure 3, it can be seen the percentage of N-Gain acquisition of students' social skills. In the control class, there are no students who are in the high N-Gain category or the percentage is 0%, while in the experimental class students reach a high category of 5%. Students who reached the moderate category in the control class were 7%, while in the experimental class it was 30%. Students who are in the N-Gain category are sufficient in the control class at 93%, while in the experimental class it is 65%. In the control class, the average N-Gain is 0.21 and is in a sufficient category, whereas in the experimental class the N-Gain is 0.32 and is in the medium category. This shows that the acquisition of social skills of students in the experimental class is better than the control class, as well as the creator of the effectiveness of the concept mapping of students' social skills as evidenced by the results of the experimental class N-Gain in the medium category.

The indicator of the effectiveness of the concept mapping of the second social skills of students is the acquisition of scores on the concept mapping that is in the minimum, medium category. The results of the calculation of concept mapping are presented in Table 4.

Yuniati (2013) concept maps have the following characteristics: (1) concept maps are a way to show concepts and propositions in a field

of study, whether those fields of study are physics, chemistry, biology, mathematics, history, economics, geography, and others. By making their concept maps, students "see" the field of study more clearly, and studying the field of study is more meaningful, (2) concept maps are a picture of two dimensions of a field of study or a part of a field of study. This feature shows propositional relationships between concepts. It is also what distinguishes meaningful learning from learning by recording lessons without showing the relationship between concepts, and thus shows only one-dimensional images.

Table 4. Results of Score Calculation for Making Concept Mapping

Group	Meeting				Average (%)
	1	2	3	4	
1	2	3	4	4	81
2	2	3	3	4	75
3	2	2	3	3	62
4	3	3	4	4	87
5	2	2	3	4	69
6	3	2	3	4	75
7	3	3	3	4	81
8	3	4	4	4	94
Average Category					78 High

Concept maps not only illustrate important concepts but the relationship between those concepts such as the relationship between cities on a road map that shows major roads, railways, and other roads, (3) ways of expressing the relationship between concepts. Not all concepts have the same weight; this means that several concepts are more inclusive than other concepts. So it can be seen on the concept map, that the most inclusive concept is at the top, then decreases to arrive at more specific concepts, (4) hierarchy. If two or more concepts are described under a more inclusive concept, a hierarchy is formed on the concept map.

Based on the results of calculations, the average score obtained by students in classical is 78% with a high category. This proves that the concept mapping is effective for students' social skills. Hayati (2013) in her study found that the Concept Map learning strategy with an average of 76.8 was superior to the Mind Map with an average of 74.2 in class VII Boyolali State Middle School 2. In line with the results of a study from

Fransiska (2012) showing the results of social studies learning History of class IX students of 1 Kandeman Public Middle School using the Learning Model Concept Map is better than the Social Studies learning outcomes History with conventional learning.

Learning delivered with a monotonous concept causes the ineffectiveness of conventional learning. By what was stated by Dunlosky, Rawson, Marsh, Nathan, and Willingham (2013), the limited opportunities for student participation and the lack of maximum teacher in explaining material with various variations can create boredom, and the situation of the forum is less orderly so that learning becomes less meaningful. The results obtained are that students' skills increase when taught by concept mapping rather than conventional learning. Hendracipta, Syachruroji, and Hermawilda (2017) suggested that the results of conventional learning were less effectively applied.

CONCLUSION

Based on the results of the study that has been described, it can conclude that the increasing of social skills of students in social studies learning in the fourth grade of elementary school, with the achievement of 2 indicators namely; the improvement of students' social skills is in the medium, minimum category based on the N-Gain test in the experimental class. The results of the N-Gain test in the experimental class are 0.32 which are classified into the medium category, and the average score for concept mapping is in the minimum medium category. The results of the average making of the concept mapping by students are 78% in the high category.

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