The Impact of *Mind Mapping* On Grade Five Students' Social Science Learning Outcome

Trifosa Veni Septia, Eko Purwanti, A. Busyairi

Corresponding E-mail: trifosavs@gmail.com

Abstract

The background of this research is the low of Social Science learning result of student because teachers have not applied the learning model in accordance with the regulation. This research aims to know the excellences of Mind Mapping learning model, know the difference learning result of control class and experiment class, test the effect of Mind Mapping learning model on Social Studies learning result. This research type is quasi experiment with Nonequivalent Control Group Design. Population in this research is SD Gugus Mahesa Jenar Ambarawa, Kabupaten Semarang. The sampling technique used is probability sampling with cluster sampling technique, it's selected SD N Lodoyong 03 as experiment class, and SD N Lodoyong 02 as control class. Mind Mapping learning model as the treatment that given in the experimental class, while the control class used Direct Instruction learning model. Learning result data was analyzed by independent sample t-test. Significance value > 0,05 so that H1 is accepted, and ttable is bigger than tcount (14,152 > 1,672) so there is a average difference learning result between experimental class and control class. In addition, the average pretest of the experimental class is 33, and the control class is 39. While the average posttest of the experimental class is 76, and the control class is 45. Thus, the increased of students' learning result in the experimental class is more than the control class. So, it can be concluded that Mind Mapping learning model is more excellent than Direct Instruction learning model, there are differences in Social Science learning result on experimental class and control class, and mind mapping learning model has an effect on increasing Social Science learning result at 5th grade SD Gugus Mahesa Jenar.

Keywords: Learning Result, Social Science, Mind Mapping Learning Model

1. INTRODUCTION

Law on the National Education System (No. 20/2003) article 1 states that education is conscious and planned system to create learning atmosphere and learning process in order that the students will active develop their self-potentials in order to have spiritual power, self-control capability, personality, intelligence, good character, and skills needed by him, the people, the nation-state. The education run in all education degrees as pointed out in **Law** on the National Education System (No. 20/2003) article 3 stating that "the education seeks to develop the skill and build the national character which is dignified to develop the students' potentials in order to have faithfulness to and fear of God, good character, be healthy, knowledgeable, skillful, creative, independent, and be democratic and responsible citizen".

Based on the recent fact, the quality of Indonesia education is declining shown by international rating placing *the* education in Indonesia at the low rank. Based on the data released by *United Nations Educational, Scientific and Cultural Organization* (UNESCO), the education in Indonesia ranked 10 of 14 developing countries. The lowering education in can be viewed from the poor learning outcome of the students. Learning outcome is the changes taking place on the students, either related to cognitive, affective, and psychomotor aspects as the end result of the learning activities (Susanto. 2013:5).

One of the subjects having low learning outcome is Social Science. Social Science is the learning program the *objected* to educate the students in order to be capable of recognizing and analyzing an issue or a problem from various points of view comprehensively (Supardan. 2015:16). In recent times there are some issues found on the Social Science learning in Primary Schools. The main issue frequently found concerning the Social Science learning is the one on the process standard. Based on Academic manuscript of the Policy Analysis of Curriculum of Social Science subject in 2007, there were still many issues found. Those issues are the ones on the content of curriculum documents, mainly on the Standard of Competencies (SK) and Basic Competencies (KD). In addition to the issue on curriculum documents, the issues concerning the curriculum implementation mainly suboptimum syllabus and lesson plans preparation, unbalanced structure of programs between time allocation and the number of Basic Competencies, one way learning, monotonous classroom-based assessment, as well as low quality teachers.

Consistent with Instruction of Minister of Education and Culture of Republic of Indonesia No. 65 in 2013 Chapter V on the assessment of learning process and outcome, the assessment of learning process applies the *authentic assessment* which assesses the students' readiness, learning process and outcome completely. The integratedness of the assessment of the three components will illustrate the students' capacities, the learning styles, and learning acquisitions or even will have instructional

effect and nurturant effect of the learning. In SD Gugus Mahesa Jenar, however, the competency of the Social Science subject is measured only based on the cognitive area.

The issues concerning the Social Science learning are supported by pre-research data taken by the researchers in SD Gugus Mahesa Jenar, Ambarawa District, Semarang Regency. Based on the observations and interviews in SD Negeri Lodoyong 03, Ambarawa District, Semarang Regency, the teacher has not applied the learning models complying with the regulations, i.e. problem-based, inquiry-based, project-based, and discovery-based learning. The communication taking place in the Social Science learning tends to be the one-way one so that the students tend to get bored and easily distracted. That fact is supported by the data of grade five students' Social Science learning outcome in SD Negeri Lodoyong 03 which shows that the average points for the Mid-Term test of the subject can be categorized as low, at the average point about 63.08. in addition, the fact is proven by the data which shows that most of the Grade V students in SD Negeri Lodoyong 03 Ambarawa District, do not meet the Minimum Mastery Criteria determined by the school. Of 26 students, there are 23 students (88.46%) getting the marks below the Minimum Mastery Criteria i.e. 70, while the remaining 3 (11.54%) got above Minimum Mastery Criteria points.

Based on the fact above, the purpose of the research is to create a learning innovation by applying an innovative learning in the Social Science learning to find out the impact of *Mind Mapping* on the Social Science learning in lesson of the combat to defend the national independence. *Mind Map* is the creative and effective way of note taking which literally will map the minds (Buzan. 2013:4). By applying the *Mind Mapping*, the students will actively be involved in drawing the *mind map* which later will be used to learn the materials they have acquired.

The relevant research with this research is the research made by Yunita Anggraeni and Drs. Soeprajitno, M.Pd. (Vol. 01 No. 01 in 2014) titled "*Pengaruh Penerapan Metode Mind Mapping terhadap Hasil Belajar Siswa pada Mata Pelajaran IPS Materi Pokok Perjuangan Melawan Penjajah dan Pergerakan Nasional Indonesia Kelas V SDN Janti 1 Waru-Sidoarjo*" (the Impact of the Application of Mind Mapping *Method* on the Students Learning Outcome on Social Science Subject in the Lesson of The Fight against the Colonialist and Indonesian National Movement by learnt by the Grade V Students in *SDN Janti 1 Waru-Sidoarjo*. The result of t-test acquired from *posttest* is that t_{count} 2,790 is bigger that t_{table} about 1,671. From the data mentioned before, a conclusion can be drawn that there is significant difference between the learning outcome of the experimental group applying *Mind Mapping* and controlled group applying the lecture method.

The study conducted by S O Adodo Ph.D. (Vol. 4 No. 6 in 2013) titled "*Effect of Mind-Mapping as a Self-Regulated Learning Strategy on Students' Achievement in Basic Science and Technology* "The study showed that mind-mapping strategy as a SRL, helped to improve students' performance in Basic Science and Technology (BST) and should be employed in the classroom as a better approach to teach BST as its potency is very clear in this study at improving learners' critical thinking and creative skills",.

Based on the background explanation above, I will analyze it through the experimental research titled "*Pengaruh Model Pembelajaran Mind Mapping terhadap Hasil Belajar IPS Siswa Kelas V SD Gugus Mahesa Jenar Kecamatan Ambarawa Kabupaten Semarang*" (the Impact of the Application of Mind Mapping Method on the Grade V Students Learning Outcome on Social Science Subject in *V SD Gugus Mahesa Jenar District of Ambarawa Semarang Regency*).

2. RESEARCH METHODS

This *research* is *quasi experiment* using *nonequivalent control group design.* Experimental study is a research method which tries to find the relations between certain variable with another variable in a strictly controlled setting (Sugiyono. 2010:115).

$$O_1 \qquad X \qquad O_2$$
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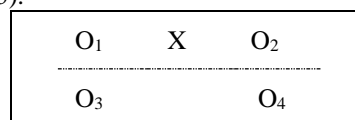
Picture 1. Research Design *Nonequivalent Control Group Design*

The target opulation of this research is all primary schools in Gugus Mahesa Jenar District of Ambarawa, *Semarang* Regency. The sampling method used is *probability sampling* particularly cluster random sampling, I choose SD N Lodoyong 03 with 26 students as sample of experimental classroomroom, and SD N Lodoyong 02 with 32 students as sample of control classroomroom.

Variables of this research comprise of independent and dependent variables. The independent variables in this *research* are *Mind Mapping,* while the dependent variable is the learning outcome the lesson of Indonesian War for Independence in Social Science subject. The research data are collected observation, test, and documentation.

3. RESULT AND DISCUSSION

The purpose of the research is to find out the impact of the application of *Mind Mapping* on grade V students' Social Science learning outcome. The learning outcome analyzed in this study consists of affective, cognitive, and psychomotor learning outcomes. The following is the table of the affective and psychomotor learning outcomes in control and experimental classrooms.

**Table 1.** Students' Affective Learning Outcome

No.	Point	Control classroom	Experimental classroom
1.	A (Excellent)	12	9
2.	B (Good)	10	9
3.	C (Fair)	6	6
4.	D (Poor)	4	2
	Total	32	26

Table 2. Students' Psychomotor Learning Outcome

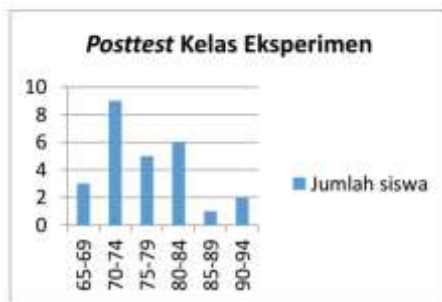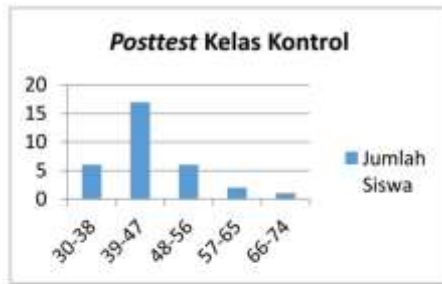| No.	Point	Control classroom	Experimental classroom
1.	A (Excellent)	12	12
2.	B (Good)	12	9
3.	C (Fair)	8	4
4.	D (Poor)	-	2
	Total	32	26

Based on the learning outcome data above, the students' manner and skill in control and experimental classrooms are good at average because most students' affective and psychomotor learning outcome are included in good and excellent categories..

The assessment of the students' cognitive learning outcome is acquired from the result of *pretest* and *posttest* conducted in both experimental and control classrooms. *Pretest* is the initial test taken to find out the students initial knowledge. The average result point of pretest in control classroom is 39.07, while the average pretest mark of the experimental classroom is 33.41. The following is the result of the pretest in control and experimental classrooms.
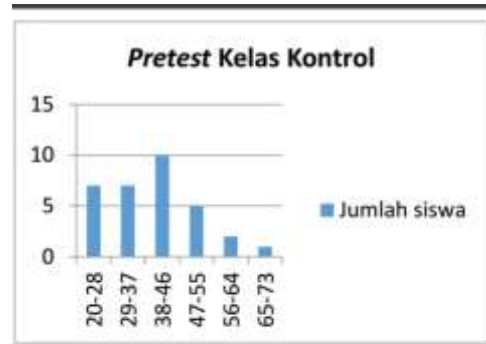
The similarity test was made using SPSS 24 and it is found the acquired t_{count} is -1857 with P-*value* around 0.069. P-*value* is bigger than $\alpha = 0.05$. That point then was compared to t_{table} point with df = n1+n2-2 = 58- 2 = 56. With df = 56, and if the margin of error is 5% and the accuracy rate is 95%, then t_{table} = 1.672. The point of t_{count} is less than t_{table}, (-1857 < 1.672) so that H_0 is accepted and H_1 is rejected. It means that at the accuracy rate 95% a conclusion can be drawn that there is not any difference on the average initial knowledge between both experimental and control classrooms on the lesson of Indonesian War for Independence before the treatment on learning process was conducted.

Posttest is the initial test conducted to assess the students' initial knowledge. The average posttest result of the control classroom is about 44.68, while the average posttest result of the experimental classroom is about 76.19. The following is the result of the pretest in experimental and control classrooms.

Posttest Kelas Kontrol

Posttest Kelas Eksperimen

Based on the above data, then the average posttest margin of the experimental and control classrooms are 31.51. The average posttest result of control classroom is lower than that of the experimental classroom. The datum is normally and homogenously distributed, and then the average posttest margin test between both experimental and control classrooms are conducted.

The *average* margin test then is processed using SPSS 24 and the result acquired is that t_{count} point acquired was 14.252 with P-*value* around 0.000. P-*value* is more than $\alpha = 0.05$. That value is then compared to t_{table} value with df = n1+n2 – 2 = 58 – 2 = 56. With df = 56, and if the determined margin of error is 5% and the accuracy rate is 95%, then $t_{table} = 1.672$.

Value of t_{count} is less than t_{table}, (14.252 > 1.672) so that H_1 is accepted and H_0 is rejected. It means that at the accuracy rate 95% a conclusion can be drawn that there is a difference on the average advance knowledge between both *control* and experimental classrooms on the lesson of Indonesian War for Independence after the treatment on learning process was conducted.

From the pretest result of cognitive learning in the experimental classroom mean value acquired is 33.41 while the *mean pretest* of the control classroom is 39.07. The initial condition was relatively similar on the both samples *before* getting treatment in the learning process, that the both class have low average pretest marks. From the posttest marks as the result of the cognitive learning in the experimental classroom, the mean acquired was 76.19 while *mean posttest* acquired from the control classroom is 44.68. The average learning outcome of both samples experiences improvement. The average raise in control classroom, however, is lower than that of the experimental classroom.

Based on the data of the average pretest and posttest results of both experimental and control classrooms, it is found out that Mind Mapping learning model has positive impact on the improvement of the students' *Social* science learning outcome, particularly the lesson of Indonesian War for Independence. It is supported by N-Gain calculation which shows the difference of the students' knowledge raise between experimental and control classrooms. In the control classroom, N N-Gain is 0.10 which is included in low group. Therefore, the improvement rate of the students' learning outcome in control classroom is low. While in the experimental classroom N-Gain is 0.64 which is included in the moderate rate (Lestari dan Yudhanegara. 2015:235). Therefore, in the experimental classroom there is the improvement on the students' ability which is higher than that in the control classroom in case of understanding the lesson of Indonesian War for Independence in social Science subject.

The result of the research is consistent with the prior study conducted by the previous researcher concerning the Mind Mapping as learning model. Among them is the experimental research conducted by Muhammad Chomsi Imaduddin and Unggul Haryanto Nur Utomo (Vol. IX No. 1 in 2012) titled *"Efektivitas Metode Mind Mapping untuk Meningkatkan Prestasi Belajar Fisika pada Siswa Kelas VIII"* (Effectiveness of Mind Mapping Method to Improve Learning Achievement of Physics Subject on Grade Eight Students). From the t-test analysis i.e. paired sample t-test on the experimented group, it was found out that mind mapping method has positive impact on the learning improvement on Physics subject. From the t-test analysis, it is acquired: t value = -11.006 with p= 0,000 (p<0.01), which means highly significant. From the t-test analysis i.e. paired sample t-test on the control classroom, it is found out that conventional method does not give positive impact on the improvement of the learning outcome of Physics subject. From the t-test analysis, it is acquired: t value -1.941 with p=0.070 (p>0.05), which means insignificant. It can be concluded that *Mind Mapping* method is effective in case of improving the students' learning outcome.

The *research* conducted by Ratih Shintia Devi, Margaretha Sri Yuliariatiningsih, and Tita Mulyati (Vol. 3 No. 2 in 2015) titled *"Efektivitas Metode Mind Mapping terhadap Peningkatan Pemahaman Konsep Siswa pada Mata Pelajaran IPA"* (The Effectiveness of Mind Mapping Method to the Improvement of the Students' Understanding of Concept on the natural Science Subject). The study shows that the improvement of the understanding of Natural Science concept of the students who are taught using the Mind Mapping method is better than that of the students who are taught using the conventional method.

The *study* conducted by Made Widiari, A.A Gd. Agung, dan I Nym. Jampel (Vol. 2 No. 1 in 2014) titled "*Pengaruh Metode Pembelajaran Mind Mapping dan Ekspositori terhadap Hasil Belajar Matematika di SD Gugus IX Kecamatan Buleleng*" (The Impact of the Mind Mapping and Expositories Methods on the Mathematics Learning Ouutcome in SD Gugus IX District of Buleleng). Based on that study, there is significant difference in case of Mathematics learning outcome inter-students group who apply Mind Mapping and Expository methods. The difference is obseevable from $t_{count} > t_{table}$ (3.89 > 1.68). the research shows that the *Mind Mapping* method has positive impact on the Mathematics learning outcome than the Expository method.

Another study undertaken by Ni Putu Stya Prahita, I Nyoman Jampel, and I Gede Sudatha (Vol. 2 No. 1 released in 2014) titled "*Pengaruh Penerapan Model Pembelajaran Mind Mapping terhadap Hasil Belajar IPA pada Siswa Kelas IV*" (Impact of the Application of Mind Mapping Method on Grade IV Students' Natural Science Learning Outcome). From the t-test calculation data, the result is acquired as follows t_{count} = 3.87 ; t_{table} = 2.076 which shows that $t_{count} > t_{table}$. Based on the data above the conclusion can be drawn that the significant difference of the Natural Sciencne learning outcome between the students experiencing the Mind Mapping method and the students experiencing the conventional method at grade IV in Yehembang Village Gugus IV Diponegoro District of Mendoyo in Academic Year of 2013/2014.

The study carried out by Ying Liu, Guoqing Zhao, Guozhen Ma, dan Yuwei Bo (Volume 2 No 1 released in 2014), titled *"The Effect of Mind Mapping on Teaching Learning; A Meta-Analysis".* In the research, it is mentioned *"The Meta-Analysis shows that mind mapping has positive effect on teaching and learning and country, usage, subject and achievement can influence the results."* It means that meta-analysis shows that *Mind Mapping* has positive impact on the learning process so that it will influence the learning outcome and achievement.

4. CONCLUSION

Mind Mapping method is better than Direct Learning method when applied in the Social Science learning, the *lesson* of Indonesian War for Independence.

There is difference in case of cognitive learning outcome of grade V students who experience *Mind Mapping* method from the control classroom that applies *Direct Instruction* on Social Science subject, particularly the lesson of the Indonesian War for Independence in SD Gugus Mahesa Jenar District of Ambarawa, Semarang Regency. It was also shown by the average pretest mark of the experimental classroom about 33.42 raising into 68.19. While in the control classroom, the average pretest mark

about 39.09 raises not too high into 44.69. It was also shown from the t-test which shows that $t_{count} > t_{tabel}$. It is that t_{count} (8.275) > t_{tabel} (0.000) at margin of error about 5 % or at accuracy rate about 95% which means that there is difference in case of cognitive learning outcome in control classroom from the experimented one.

The impact the Mind Mapping method on the learning outcome in Social Science subject of grade V students in SD Gugus Mahesa Jenar shows the positive result. It is shown by the N-Gain test which reveals that the learning outcome of the experimental classroom raises to the fair level with N-Gain rate about 0.64. from the statement above, we can say that the learning process applying Mind Mapping method has significant impact on the raise of learning outcome in Social Science subject, particularly the lesson of Indonesian War for Independence.

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