# AN APPLICATION OF MIND MAPPING TEACHING MODEL TO ENHANCE NATURAL SCIENCE LEARNING ACHIEVEMENT IN THE FIFTH GRADERS IN THE FIRST SEMESTER AT SD N 4 KALIUNTU

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## Abstract

This study was aimed at enhancing natural science learning achievement in the fifth graders in the first semester at SD N4 Kaliuntu in the school year 2017/2018. The data for the students' natural science learning achievement were collected with a test and assessment rubric. The data were analyzed using descriptive statistical analysis, quantitative descriptive method, and gain score (Gn). The result of data analysis showed an increase proven by the pretest score for the students' science learning achievement of 65.7% , categorized as a low score. The science learning achievement score increased in the first cycle to 71.63%, categorized as average which increased again in the second cycle to 82.34%, showing science learning achievement in the high category. So, there was an increase in learning achievement of 5.93 from pre-cycle to the first cycle, an increase in learning achievement of 10.71 from the first cycle to the second cycle. Thus, it can be concluded that there was an increase in the students' natural science learning achievement in this study through the implementation of Mind Mapping teaching model.

## INTRODUCTION

A good quality of human resources will support the progress of a nation. In this context, education plays an important role (Evayanti, 2017). Education is one of the important components in the development and survival of a nation. Good education is the most crucial requirement for the realization of an advanced, modern, and well-off nation (Serijana, 2016). Education is a conscious effort aimed at developing human quality. As an activity based on the awareness of the aim, the implementation of education is in a sustainable process according to its level. Human quality produced is directed by the development of the pillars of human potentialities. Human potentialities, according to the vision and missions of the national development policy are divided into the potentialities of heart, feeling, brain, and physique,(kinesthetic), all of which are known as comprehensive potentialities. Comprehensive potentialities are to be developed in every Indonesian , thus, naturally, education will be able to produce humans who believe in God, intelligent, highly competitive in knowledge, technology, and art developments (BSNP, 2007). To reach the national educational goal, the effort should start from the training for enhancing teachers' quality, improvement of educational infrastructure and facilities and curriculum periodically (Widiana, 2016).

Elementary school is the first formal education attended by a child and contributes significantly as the first foundation of knowledge for the continuation of education. Education at the elementary school should be able to give meaningful education and knowledge so as to be able to provide learning experiences for the students. .At the elementary school level five important subjects are taught which the students have to master and one of them is natural science. According to the Regulation of the Minister of National Education No. 22 of 2006 on Content Standard of Natural Science , Natural Science belongs to the group of knowledge and technology group which is aimed at knowing, having a good attitude and appreciate knowledge and technology as well as developing the habit of scientific, creative, and autonomous thinking and behaving which are henceforth called Natural

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Science, which contributes to the students in developing scientific thinking, creativity and autonomy as to create future generation who can compete well in the face of the development of the era to meet the challenges of the future. The contents of Natural Science in the 2013 Curriculum at elementary schools ( SD/MI) take the form of integrated natural science with scientific approach and integrated themes. Natural Science in the 2013 Curriculum is integrated with other subjects contained in a lesson which is applied at grade 1 - grade 6.

Natural science is one of the subjects at elementary school that is related to the way to know nature in a systematic way, so that natural science is not only aimed at acquiring a set of knowledges in the form of facts, concepts or principles but is also a discovery process which engages student's activities (BSNP, 2006:142). The nature of natural science is to provide opportunities for the students to know natural environment directly and indirectly.Natural science gives more emphasis on student center or students as the center of learning activities. Student center is intended as the situation in which the students seek or dig by themselves the materials that they learn so that the teaching will be more impressive and will produce long retention. Natural science also puts more stress on scientific attitude. However, the reality in the field is different from what has been explained above. Based on an observation made by the author at SD N 4 Kaliuntu on the 21th of July 2017, there are some problems and gaps which do not meet the expectation as described above.The factors which cause the problems based on the observation originate from the internal and external factors The factors among others, include the followings.

The first factor coming from the students themselves during the teaching and learning activities. This factor is the lack of motivation of the students to learn. The low motivation of the students can be shown by the lack of enthusiasm of the students at the time of learning. This can be shown by the small number of students who asked questions , i.e., 10 out of 38 students ( 26.31%) and the rest of the students did not ask questions . While in expressing ideas, the number of the students who did not express ideas was 20 out of 38 students (52.6%).

The second factor coming from the teacher who was less motivated in renewing the teaching model to make it relevant to the material and the learner characteristics. The teacher focused on the classic teaching model by referring to the previous experiences.The teaching and learning process was still limited to the process of transfer of knowledge, which is verbalistic and tends to focus on the teacher's interest , not on the student need. This is commonly called teacher centered. This finding was supported by the result of the author's observation, in which there was a tendency of the teacher in selecting and using lecturing method, which caused an uninteresting teaching and learning activities, unchallenging, and difficult to reach the target of achievement that has been determined (KKM).

Based on the result of the observation, the author found gaps in the students' conceptual understanding. The gaps caused the learning achievement in natural science contents to be low as shown in the fact that only 22 out of 38 students ( 57.89%) got the target of achievement (KKM) (Minimal Completeness Criterion). The target of achievement for the contents of Natural Science for grade 5 at SDN 4 Kaliuntu is 65, with the class size of 38. From the scores obtained it can be concluded that the material mastery has been complete yet.

Based on the problems above, the author felt that she had to make an effort to solve the problems. The solution was by using an innovative teaching model, i.e., Mind Mapping teaching model. The author used Mind Mapping model because this model can involve the students to be active digging information by asking questions to friends and looking for information from other sources and then presenting the material in the form of interesting pictures. In addition, the students will learn to express opinions and present material in an interesting way.Mind Mapping teaching model stimulates the students to find by themselves material to be learned and to present it in an interesting way so that they will learn more effectively and retain what they have learned longer.

Based on the background, the author needed to make an action. The action done was in the form of a study entitled " An Application of Mind Mapping Teaching Model to Enhance Natural Science Learning Achievement in the Fifth Graders in the First Semester at SD N 4 Kaliuntu in the school year 2017/2018.

The problem in this study was formulated as follows. " Will the application of Mind Mapping Teaching Model enhance the fifth graders ' Natural Science learning achievement in the first semester at SD N 4 in the school year 2017/2018?". Based on the formulation of the problem, the author was interested to investigate whether Mind Mapping teaching model can enhance the students' learning achievement.According to Pasaribu (1983:91) learning achievement is someone's capacity or the result that has been achieved by someone after taking up a lesson in an educational or training program which can be measured by a test at the end of the program.

Natural Science is one of the subjects at elementary school that is related to the way to know nature in a systematic way, so that natural science is not only aimed at acquiring a set of knowledges in the form of facts, concepts or principles but is also a discovery process which engages student's activities (BSNP, 2006:142).

According to Iswara (2012:484) natural science is related to the way to discover nature systematically, not as the mastery of a set of knowledges in the form of facts, concepts, or principles only, but is a process of discovery. According to Buzan (2008:14) Mind Mapis the easiest way to place information in the mind and retrieve it, in addition, Mind Map is one of the way to take a note creatively, effectively and literally maps ideas in the mind the most effectively. In line with this, Edward (2009:64) states that Mind Mapping is the most effective and efficient way to input, save,and retrieve data from / to the mind.

## METHOD

This study was conducted in four months, from July to October in the first semester in the school year 2017/2018 at SD N 4 Kaliuntu. The subjects were the fifth graders in the first semester in 2017/2018. The total number of the fifth grade of SD N 4 Kaliuntu was 38 students, consisting of 12 males and 26 females .

This study followed the stages of classroom action research as stated by Kemmis and Taggart (in Agung, 2005:91) , each cycle consisting of four stages, i.e.,(1) planning of action, (2) implementation of action, (3) observation or evaluation, and (4) reflection. The cycle in this study was done till the attainment of the success indicator that has been determined.Each cycle consisted of four stages: planning, implementation/action, observation/ evaluation and reflection (Agung, 2005).

There was a dependent variable that became the focus of attention in this study, i.e., Natural Science learning achievement after the implementation of Mind Mapping teaching model. Natural Science learning achievement is the students' learning achievement in Natural Science in the cognitive domain in the contents of natural science, measured by an indicator that has been formulated from the basic competence that has been determined. Natural science learning achievement was measured by a an objective test and the data produced were interval data ( scores).

The data on the students' natural science learning achievement were collected by a test method after learning process. The test method is the way to obtain data in the form of a task that has to be done by an individual or a group of individuals tested. The test in this study was used to measure the students' learning achievement in the natural science content for the fifth grade in the first semester in the academic year 2017/2018 at SD N 4 Kaliuntu after the implementation of Mind Mapping teaching model in the teaching process. The test was in the form of problems in according with the content of the teaching material. In order the problems could measure the objective of the lesson expected then a matrice was developed. The instrument used to measure the students' learning achievement was a multiple choice test.

The method of data analysis used was descriptive statistical analysis. Descriptive statistical analysis is a method of data processing used by applying descriptive statistics that include frequency distribution, graphs, mean, median, and mode to describe the condition of a particular object so that a general conclusion can be made (Agung, 2005:60). The application of descriptive statistical analysis method in this study follows the following steps: a) presenting the dat obtained from the study in a table of frequency distribution, b)finding the mode was , c) finding the median, d) finding the mean, and e) presenting the data.

The increase in the students ' natural science achievement was determined by comparing the scores in the pre-cycle, the first cycle and the second cycle. This study was successful if the criterion of success in natural science learning achievement was met in the average category. This study ws successful if the success criterion for natural science learning achievement reached the average category (G= 0.3 - 0.7), hence, this study would end. If the category attained was low (G < 0,3), the the study would be continued until the success indicator that was determined was attained.

## ANALYSIS AND DISCUSSION

Mind Mapping helps students in understanding teaching materials with interesting symbols which make it easier to remember the materials. Its steps influence the development of the students' knowledge very significantly. At the presentation of pictures or photographs step can develop the students' ideas in the C2 cognitive ability since a centric picture will be more interesting, making the

students keep on the focus, helping them to concentrate, and activate their minds. Presenting various colors can help in developing C2 and C3 cognitive abilities since for a mind , color is as interesting as picture. Color makes the Mind Map more vivid, adding more energies to creative thinking, and pleasing. This can help in developing C3 and C4 cognitive abilities. Mind likes to relate two, three, or four things at the same time. If we relate branches, then it will be easy for us to understand and remember. Drawing a curve rather than a straight line, since straight lines will bore the mind. This can help in developing C1 cognitive ability. Curving and organic branches like the branches of a tree are far more interesting to the eyes. So, Mind Mapping can help in improving the students' knowledge with the following evidence. .

The pre-cycle data on the students' natural science learning achievement shows the score of 65.7%, falling into a low category. Natural science learning achievement in the first cycle underwent an increase, or the score was 71.63%, falling into average category and it improved again in the the second cycle to i 82.34% , showing a high category in the students' natural science learning achievement. The increase in achievement occurred because of cooperation, creativity, and understanding of the students in presenting the materials. Children could present materials in an interesting way so that they became enthusiastic in learning and the learning became meaningful.

Although there has been an improvement in teaching based on the weaknesses in the first cycle, the students' achievement has not been maximal. The students have not been accustomed to do learning activities by using Mind Mapping teaching model. Thus this , obviously, made the focus was on the aesthetics rather than in the material.

The students' natural science learning achievement represents the gain (scores) in learning at the evaluation stage. Since Mind Mapping is one of the teaching models that provides meaningful activities, it is the easiest way to place information into the mind and take it out of the mind it is one of the creative and effective way to take a note, and literally "map" our minds (Buzan 2008:14).

This shows that in accordance with the existing theories, the implementation of this model has been successful in improving the students' natural science learning achievement as shown by the scores obtained by all of the students, i.e. 90%, or they were successful in exceeding the required minimal score of 65.

The result of this study is in line with the results of some studies about the application of Mind Mapping model. The study done by Safitri (2016) states that the application of Mind Mapping can increase interest in learning and natural science learning achievement in the fifth graders at SD Balangan 1. Darmayoga et. al. (2013) with the title "*Pengaruh implementasi metode Mind Mapping terhadap hasil belajar IPS ditinjau dari minat siswa kelas IV SD Sathya Sai Denpasar*" state that Mind Mapping method can improve the students' interest in learning. The students' interest can grow if they feel interesting and a need for something that is related to things faced by them. The students' interest supports the attainment of increase in the students' learning achievement.

## CONCLUSION

Based on the result of analysis as presented above, it can be concluded that the implementation of Mind Mapping teaching model could enhance the fifth graders' Natural Science learning achievement in the first semester in the school year 2017/2018 at SD N 4 Kaliuntu. The pre test data showed that the pretest score fof the students' Natural Science learning achievement was 65.7%, falling into low category. The science learning achievement score increased in the first cycle to 71.63%, falling into average category, which increased again in the second cycle to 82.34%, showing science learning achievement in the high category.

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