

The Effect of *Sheet Powerpoint* on *Mind Map* Towards the *Natural Sciences* Affective Learning Competency of The VIII Grade Students of Junior High School (SMP 5) Bukittinggi

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ABSTRACT

The results of observations obtained in VIII classes of SMP Negeri 5 Bukittinggi City showed that the students' affective competence was still low. The efforts that can be made to overcome these problems are to use Sheet PowerPoint on Mind Map in learning. This research aims at determining the effect of Sheet PowerPoint on Mind Map on the students' affective competence. This research was a quasi-experimental study. The population of the research was the VIII grade students of SMP 5 Bukittinggi City registered in the odd semester in 2016/2017 academic year. The sampling was done by using a purposive sampling technique and obtained VIII 3 class as the experimental class and VIII 2 class as the control class. The instrument used was in the form of affective aspect assessment sheet based on the affective aspect grid. Non-test assessment technique conducted by the observer used the Man Whitney U test for the data analysis. Based on the results of data analysis and discussion obtained the affective domain of learning competence of the students who take lessons using Sheet PowerPoint on Mind Map is better than the students who take lessons without using Sheet PowerPoint on Mind Map.

Keywords: *Effect, PowerPoint Sheet, Mind Map, Affective Learning Competency.*

1. INTRODUCTION

State Junior High School (SMPN) 5 Bukittinggi is one of the educational institutions that strives to realize the goals of national education and seeks to produce quality output. The vision of SMPN 5 Bukittinggi is to excel in academics, extra-curricular, faithful, cultured, and care for the environment. SMPN 5 Bukittinggi has Natural Science (IPA) subject that trains a variety of learning experiences to understand the concepts and processes of science. The process skills include observing skills, proposing hypotheses, using tools and materials properly and correctly, asking questions, classifying and interpreting data, and communicating findings verbally or in writing, exploring and sorting out relevant factual information to test ideas or solve problems daily. Science subjects are developed through the ability to think analytically, inductively, and deductively to solve problems related to natural events around. Furthermore, Hosnan (2014: 1-2) explained that through the development of a 2013 curriculum that is character-based and competency-based, it will produce productive, creative, innovative, and affective students through the strengthening of integrated attitudes, skills and knowledge.

In science learning now students generally receive information from the teacher. Students learn in an environment of minimal motivation. The creation of a conducive learning environment is less of a concern. Students are often trained to utilize the left hemisphere of the brain only. The teacher roles are more emphasized to transfer knowledge to students to complete the subject matter, so that the potential and creativity of students cannot be fully actualized. Achievement of learning outcomes that have not been optimal can be seen from the results of the students' semester exams, which still have scores below 75 as the Minimum Criteria for Completeness (KKM). As revealed by Slameto (2003: 2), learning is an effort made by an individual to obtain a new change in behavior as a whole, as a result of the experience of a change in its own interactions with its environment.

Nowadays, science learning cannot be separated from the media and teaching materials used. However, the media and teaching materials circulating in the field are not in line with the government's expectations related to integrated science material. In addition, media and teaching materials that are common and are often used in the form of textbooks or modules with many characteristics contain writing or explanation with sentences and few accompanied by pictures that tend to

make students bored and less motivated, as expressed by Daryanto (2013: 128) that students tend not to like textbooks especially those that are not accompanied by interesting pictures and illustrations, and empirically students tend to like picture books, full of colors, and visualized in realistic or cartoon form.

In addition, there is an assumption that science is a difficult and theoretical lesson. Boring learning with the use of media and methods that are less innovative will make students lazy learning science so that students' interest in science decreases. Lufri (2007: 31-32) points out several weaknesses of the lecture method, namely it cannot cover various types of students' learning, makes students bored if it is too long, causes students to be passive, and makes students dependent on their teachers. Interest is the initial capital for the formation of motivation. Without the actual learning process education never existed. Similarly, Hamalik (2008: 36) states that learning is a modification or reinforce behavior through experience. Learning focuses on the process of activities that are driven by the needs to be achieved and not an objective.

An educator should have a major contribution to form a good attitude for students, so that it has a growing potential. One way to know its development is by assessing learning. Learning assessment is important so that students know and always increase the potential that exists in him. Learning assessment is not only emphasized on cognitive assessment, but affective domain assessment is also very important. Especially for educators who have the responsibility to form good student affective. Affective aspects according to Sudjana (2009: 45) are aspects related to attitudes and values, a person's attitude can be predicted changes if he already has a high cognitive mastery.

One effort to improve student learning outcomes is the use of interesting learning media, for example PowerPoint and Mind Map. This learning media is based on observation as well as several phenomena that exist in the science learning process that the author found at SMPN 5 Bukittinggi. The phenomena include the lack of variation in the instructional media used by teachers in teaching, the content of PowerPoint slides that exceeds the standard number of words that should be and the teacher's lack of interactivity in teaching, which changes the slides too quickly before students finish recording important points on the slides presentation. This further strengthens the belief of researchers that the low use of learning media. Similarly, Slavin (1995) builds a pleasant atmosphere that has a very positive impact on improving learning outcomes, because students have the characteristics, interests, abilities, experience and ways of learning from one another. Therefore, learning activities are adjusted to the characteristics of students. In learning activities teachers must have creativity and innovation both in planning and implementing learning.

In using Mind Map, the researcher also received information from the teachers in the field of Natural Science at SMPN 5 Bukittinggi on Monday, July 18th, 2016. The teachers explained that so far he had never used Mind Map and did not understand the Imind Map

application. The teachers are only familiar with the concept map media and have used it on subject matter that is considered to have many sub sections. One of the advantages of choosing Mind Map is that the time needed for science learning activities in schools is limited, so that the concepts of science and its application cannot be fully discussed. Thus, in the end the learning materials cannot be completed within the allotted time. The author hopes that by using this Mind Map can overcome this problem. Mind Map is the easiest way to put information into the brain and take information out of the brain. Mind Map is also a creative, effective way to record and literally "map" our thoughts (Buzan 2009: 4).

Mind Map used in this research uses the Imind Map application. In this application there is a program that can connect an explanation that is presented in the form of PowerPoint. Thus, the researcher presents the material in the PowerPoint slide into a sheet of paper (sheet) which will be printed out and distributed to each student. This sheet can be a material for noting important parts while learning takes place. As Asih stated (2011: 1) PowerPoint is an application for compiling presentations. This application is very popular and widely used by various groups, including professionals, academics, practitioners and beginners for presentation activities.

Furthermore, Chess (2011: 1) revealed that PowerPoint presentations are a method used to introduce or explain something that is summarized and packaged into some interesting slides. The goal, people who listen (audience) can more easily understand our explanation through visualization summarized in text slides, pictures / graphics, sound, video, and so forth. Meanwhile, according to Verawati (2008: 7), Microsoft PowerPoint is software created specifically to handle graphic presentation design easily and quickly.

Several things that make this media interesting to use as a presentation tool are various capabilities of processing text, color and images, as well as animations that can be processed according to the user's creativity. Principally, this program consists of several visual elements and operational control. The visual elements in question, consisting of slides, text, images and areas of color can be combined with the background that has been available. Microsoft PowerPoint can be used to convey material with interesting delivery.

Thus, it can be concluded that the Mind Map is a way to facilitate someone in putting information out of the brain by taking notes that are creative, effective in mapping the mind. While Microsoft PowerPoint is useful for facilitating learning in the classroom and has the potential to help students and teachers understand topics that they have not yet mastered. Thus, it is hoped that using these two methods that are connected through an Imind Map application can improve student learning outcomes, specifically affective learning competency in this study.

2. METHODS

In this research, the experimental unit was in the form of class, so the research used was a quasi-experimental research (Quasi Experiment). The research design used was a non-equivalent post-test only control group design. This design can be seen in Table 1.

Tabel 1. Non Equivalent Post-test Only Control Group Design

| Kelas | Treatment | Post-test |
|-------|-----------|----------------|
| E | X | O ₁ |
| K | - | O ₂ |

(dimodifikasi dari Gribbons, 1997)

Note:

- X = treatment of the experimental group,
- =not receiving treatment,
- O1 = post-test of the experimental group,
- O2 = post-test of the control group

The population in this research was all eighth grade students of SMPN 5 Bukittinggi in the odd semester, with sampling using a purposive sampling technique. VIII.3 class was chosen as the experimental class and VIII.2 class was chosen as the control class. The experimental class was given a learning treatment by using PowerPoint sheet on Mind Map and the control class was given learning treatment using Mind Map without PowerPoint Sheet. This research involved two variables: the independent variable and the dependent variable. The independent variable was the treatment given to students: learning to use PowerPoint sheet on Mind Map while the dependent variable was the learning outcomes of the affective domain of science subjects. The data collection techniques used were non-test administration. The type of instrument was in the form of an affective assessment sheet. The assessment sheet used was based on the affective aspect sheets. The affective aspects assessment sheet was filled in by scoring each of the observed criteria. Before being used, the assessment sheet of this affective aspect was validated by experts. The data analysis technique used was the Man Whitney U test. The non-test measuring tool in the form of an observation and assessment sheet was filled out by the observer during the learning process, which was calculated by the formula:

$$\text{Assessment N} = \frac{SP}{SM} \times 100$$

Description

- N = value
- SP = acquisition score
- SM = maximum score

Classification:

- Score: 95-100 very good
- Score: 85-94 good
- Score: 75-84 enough
- Score: ≤ 74 Not Completed

(Based on KKM of SMPN 5 Bukittinggi)

3. RESULT AND DISCUSSION

After planning the research carried out, then an analysis of the data produced published on PowerPoint sheet on the Mind Map of the affective domain of science eighth grade students of SMP Negeri 5 Bukittinggi. This was seen after learning in the experimental class using PowerPoint sheet on Mind Map and in the control class using Mind Map learning without PowerPoint sheets.

The affective domain research data was obtained through research during the process, namely meeting times for two basic competencies. The observations were done by the observers by using the student affective domain assessment format. The affective domain competency data are presented in Table 2.

Table 2. Mean, Maximum Score, Minimum Score, from the Experimental Class and Affective Competency Control Class.

| Class | N | \bar{X} | Xmin | Xmax |
|------------|----|--------------|--------------|--------------|
| Experiment | 36 | 84,10 | 78,13 | 91,67 |
| Control | 36 | 73,26 | 62,50 | 84,38 |

Based on the calculation results in Table 2 above, it is obvious that the affective domain of learning competency in the experimental class that is treated in the form of PowerPoint sheet on Mind Map obtains the maximum and minimum scores better than the class of students who participate in learning using Mind Map without a sheet Power point.

The affective domain competency data had the characteristic that was the result of the calculation found no fraction (nominal data), then directly analyzed using non-parametric statistics. The test used was the Mann Whitney U test. The results of the calculation of this hypothesis test can be seen in Table 3.

Table 3. Results of Affective Competency Hypothesis Calculations

| Class | Sig. | A | Conclusion |
|------------|-------|------|-------------|
| Experiment | 0,000 | 0,05 | H1 accepted |
| Control | | | H0 refused |

The calculation results of Table 3 show that Sig. <0.05 which is 0,000 obtained from the analysis using SPSS. Thus, it can be concluded that the student learning competency in the affective domain that the student follow learning by using PowerPoint sheet on Mind Map is higher than the student competency in the affective domains who the students follow learning using Mind Map without PowerPoint sheet.

The competency assessment was a supporter of the learning process used. Based on observations of the the affective domain competency of students conducted by the observer, obtained data on the competency domain of the affective of students in the experimental class significantly better than the students' affective competency in the control class. The realm of competence in the affective of students in the experimental class as a whole gets good criteria. Students' curiosity about the appearance of Mind

Map makes students so focused and active in the learning process, responses, and writing PowerPoint sheet in the learning process.

The students in the experimental class mostly wanted to follow well every indicator contained in the affective assessment. Clearly, (1) on the indicator of curiosity, the students devoted much attention to learning activities to obtain deeper information so that they could remember information well and were more likely to work on learning tasks to completion, (2) Indicator of discipline, students sit swiftly facing forward listening to the Mind Map display and the students were working on the tasks given in the PowerPoint sheet and collecting assignments appropriate with the specified time, (3) Indicator of confidence, the students made eye-contact with the teachers when learning takes place, then the students asked questions to the teachers if there was material that was not understood and answered when the teachers asked questions.

Teacher's vision involved the ability to pay attention, reason about, and respond to important events in real time while teaching (Anna, 2018). In the assessment of the three indicators in the experimental class can be seen when carrying out Mind Map display in front of the class accompanied by their respective PowerPoint sheet, where the students in the experimental class are more active, more enthusiastic and more motivated than the control class that does not use PowerPoint sheet. This is in line with Berglund's (2015) statement that mind mapping aims to regulate thinking and brainstorming, and can be considered a visual form of taking notes, concept mapping aims to assimilate new and meaningful knowledge and emphasize the relational structure of knowledge.

4. CONCLUSION

Based on this research it can be concluded that the affective domain of the students learning competency who take learning using PowerPoint sheet on Mind Map is significantly better than the affective domain of learning competency of students who take learning using Mind Map without PowerPoint sheet.

Mind Map integrates and develops the work potential of the brain contained in a person. By the involvement of the two brains, it will be easier for someone to organize and remember all forms of information, both in writing and verbally. The use of PowerPoint sheet on Mind Map aims to make subject matter patterned visually and graphically which can ultimately help record, strengthen, and recall information that has been learned.

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In the affective domain competency, the control class students as a whole get enough criteria. Students are less active to perform and lack of students' interest in doing every attitude assessment indicator. Furthermore, when teachers and students draw conclusions from the subject matter they have written in their notebooks, most do not respond well and reason not understand. Similarly, during the group discussion the students did not socialize well and enthusiastically contributed their opinions to complete the material notes in their notebooks. According to Anas (2018) cooperative learning requires students to cooperate optimally appropriate with the circumstances of their groups.

The high aspects of affective assessment in the experimental class compared to the control class because the PowerPoint sheet on Mind Map can increase indicators of students' curiosity, discipline and confidence in the subject matter so as to make students more focused and active in the learning process. Students are confident in conveying questions, responses and writing a summary of the material contained in a PowerPoint sheet in their own sentences. The discipline of the students in existing observation activities is quite high, because the group members have a curiosity about this learning media. In addition, the use of PowerPoint sheet on the Mind Map can increase activity and be able to connect concepts / principles in understanding, strengthening and transferring to individual students. This is in line with Jeanne's (2000) statement of the way in which the teacher arranges class instructions can determine how students interact with each other and with the teacher, which in turn can affect cognitive and affective teaching outcomes.

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