

# The Influence of Mind Mapping Learning Method on Student Learning Results

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**Abstract:-** This study aims to determine the effect of Mind Mapping Learning Methods on student learning outcomes. The research instruments used were pretest and posttest in the form of multiple choices of 20 items. The population in this study were all students of class XI IPA 1 and XI IPA 2 in the even semester of SMA Negeri 2 Kotapinang, and the samples in this study were all 60 students. The data collection technique was carried out by means of tests. Before the research the questions were first validated including content validity, different power, difficulty index and reliability. Based on the average post-test scores in the experimental class 75.50 with the largest value of 95 the smallest value of 60 while in the control class the average value of 64.33 with the largest value of 75 the smallest value of 50, based on the calculation of learning outcomes improvement of the experimental class 50% and the control class 30%. From these results it can be concluded that  $H_a$  is accepted by  $t_{count} > t_{table} = 337,158 > 1,671$  in other words there is the effect of mind mapping learning methods on student learning outcomes. Data obtained from the results of the test are then analyzed using the t test with different samples. Before the t test is carried out, the requirements test which includes normality and homogeneity tests is carried out. The results showed that there were effects of Mind Mapping Learning Methods on Student Learning Outcomes.

**Keywords:-** *Mind Mapping Learning Method, Biology Learning Outcomes.*

## I. INTRODUCTION

Teaching and learning process is essentially a communication process, namely the process of delivering messages from the message source through the message channel in the form of teaching content and education in the curriculum is poured by the teacher or other sources into communication symbols. In an effort to prepare a generation that is ready to face the challenges of the times, that is why humans are needed to have quality human resources, but in the world of education in Indonesia, especially in school education today is still very alarming

because of the low quality of education. This is a challenge for teachers in shaping students to have quality resources (Dansa, 2007).

Teachers and students are the main components in the learning process. Teachers must be able to guide students in such a way that they can develop their knowledge in accordance with the knowledge structure of the subject of study. Teachers in addition must understand the material being taught are also required to know the exact way in which the level of student knowledge at the beginning or before participating in the learning process. Furthermore, the teacher looks for learning methods that are suitable with the learning material (Djamarah, 2010).

Based on this description, it is necessary to have a study that aims to improve student learning outcomes and support the way students in completing the learning process towards a better future, that is, with the Mind Mapping learning method. Mind Mapping learning method is one of the graphical based learning methods (Zeilikik, 1998).

Based on the results of visits and interviews with teachers who teach biology at Kotapinang State High School that 60% of students scored  $<70$ , with a minimum completeness criterion (KKM) of 75, the teacher concerned rarely used varied learning methods or models, but only guided by the handbook teachers and lecturing without utilizing the facilities and infrastructure available at school. When teaching and learning activities take place, many students look bored and bored. Likewise, the sitting position of the students also becomes one of the problems that arise during the learning process, because some students have limited vision so that it is less optimal in understanding the lesson, resulting in low student learning outcomes in SMA Negeri 2 Kotapinang especially in class XI Science. Hopefully this research can improve student learning outcomes. Considering the difficulty and lack of utilization of learning facilities and infrastructure by teachers as well as low student learning outcomes, so researchers are interested in conducting research on: "The Effect of Mind Mapping Learning Methods on Student Learning Outcomes in Class XI IPA of SMA Negeri 2 Kotapinang.

## II. METHOD

The research method used is Quasi Experiment. The learning method is a planned and systematic way of working that is used by a teacher in the implementation of learning activities to facilitate the implementation of a learning activity and to achieve a learning goal in accordance with what has been determined (MONE 2003). This research was conducted to find out the effect of mind mapping learning methods on student learning outcomes. Sampling was determined in total (total sampling) with a total of 60 students.

Data collection techniques by conducting tests with pretest and posttest. With multiple choice questions as many as 25 validated questions, then conducted research instrument techniques including Test Validity Test aims to interpret the significance of the price validity of each question then the price is consulted to the product price criticism  $r$  table with criteria price  $r$  count  $>$   $r$  table for the  $\alpha =$  level 0.05 then the correlation is said to be valid. (Arikunto, 2009)

Then performed the Test Reliability Test, Difficulty Level, Different power tests after that Data Analysis Techniques include the Normality Test where the square count or  $X^2$  count has been obtained from the results of subsequent calculations compared to the square squared table or  $X^2$  table with degrees of freedom  $dk = n-2$  and significance level  $\alpha = 0.05$ . Data can be said to be normal if the square of black flower or  $X^2$  count  $<$  chi square table or  $X^2$  table. (Arikunto, 1996). Homogeneity test where the results obtained from the  $F$  count are then compared to the  $F$  table which has a numerator  $dk$  equal to  $(n-1)$  and denominator  $dk$   $(n-1)$  and a significance level of  $\alpha = 0.05$ . It said the experimental group and the control group came from populations that had relatively similar variances if  $F$  count  $<$   $F$  table. (Arikunto, 1996), Then the hypothesis test (t-test) is used to test the regression coefficient partially to find out whether the independent variable influences the dependent variable. Testing criteria:  $H_0$  is accepted if the price of  $t$  count  $<$   $t$  table and  $H_a$  is rejected,  $H_a$  is accepted if the price of  $t$  count  $>$   $t$  table and  $H_0$  is rejected.

## III. RESULTS AND DISCUSSION

### ➤ Test Validity Test

Number of students  $(n) = 30$  people. If it is determined using a level of confidence  $\alpha = 0.05$ ,  $r$  table = 0.361 is obtained. Keriteria validity assessment used is if  $r$  count  $>$   $r$  table on the product moment then said the problem is valid. Of the 30 test instruments tested were obtained 20 valid questions, while invalid there were 10 questions. Then 20 valid questions were used as research instruments for taking data on student learning outcomes in the material reproductive system in humans.

### ➤ Test Reliability Test

The reliability of the test can be calculated with the help of Ms-Excel which is determined at the level of trust ( $\alpha = 0.05$ ).  $r$  arithmetic  $>$   $r$  table then the problem is declared reliable.

### ➤ Level of Problem Difficulties

Obtained the results of the level of difficulty of the questions that have been tested are 11 questions in the easy category while 19 questions in the medium category,

### ➤ Difference Power of Problems

Based on the analysis of the item, the matter of distinguishing matter is obtained 14 questions in the ugly category, 11 questions in the sufficient category and 5 questions in the good category.

### ➤ Student Learning Outcomes Data

#### Pretest Data

Before the two samples are given a different treatment first given a pre-test (pretest) to determine the initial abilities of each student in the experimental class and the control class. From the research, it was obtained the results of the pretest taught by the Mind mapping learning method with the number of 30 students obtained the highest value in the experimental class 75 in the control class 70.

### ➤ Student Learning Outcomes in the Experiment Class and Control Class.

From the research, the results of the posttest with the number of 30 students obtained the highest value in the experimental class 95 in the control class 75 and the lowest experimental class 60 in the control class 50. The average value (mean) 75.50 in the experimental class and 64.50 in the control class. The variance value is 154.05 in the experimental class and 135.09 in the control class. While the standard deviation (SD) in the experimental class was 11.62 and the control class was 12.41 with a total of 30 student subjects.

### ➤ Normality test

The criteria for testing a sample are normally distributed if the Chi Square value is calculated  $<$  Chi square table price at the significant level  $\alpha = 0.05$ . From the calculation results it is stated that both samples are normally distributed. Normality test data of the experimental class pre-test (which was learned using the mind mapping learning method) obtained Chi Square test  $<$  the Chi square table price (10085.22  $<$  11.07), and the pre-test data in the control class (which was learned using learning conventional  $\rightarrow$ ) Square calculation  $<$  Chi square price (6854,957  $<$  11.07), and experimental class post test data (which is taught using the Mind mapping method) Calculate square  $<$  Chi square price (11024.42  $<$  11.07). And post test data in the control class (which is learned by using conventional learning) Square squares  $<$  Chi square values (10,085,11.02, 6,855, 10,831  $<$  11,07) at the real level  $\alpha = 0.05$ . Thus it can be concluded that the distribution of data there is a difference between the effect of student learning outcomes that are learned using the Mind mapping method

and student learning outcomes that are learned using conventional learning with normal distribution.

#### ➤ *Homogenesis Test*

Homogenesis testing is intended to determine whether the two groups of students used as research samples have homogeneous data variance or can represent other populations. Homogeneity testing is done by the F test in both groups of samples. Based on the results of calculations in appendix 16, it is concluded that both research samples come from populations that homogeneous with  $F_{count} < F$  table. With the homogeneity test calculation results of the experimental group pretest and control class pretest data that is  $1.19 < 1.85$ , the results of the calculation of the experimental class posttest and the control class posttest are  $1.14 < 1.85$  at the  $\alpha = 0.05$  level. Thus the sample used in this study was stated to represent other populations.

#### ➤ *Hypothesis testing*

Hypothesis testing is done using t test. From the calculations obtained  $t_{count} > t$  table is  $337,158 > 1.67155$  then  $H_a$  is accepted or there is an influence on the improvement of student learning outcomes that are taught using Mind Mapping learning methods in class XI IPA SMANegeri 2 Kotapinang.

### IV. DISCUSSION

Based on the results of the study, it was found that there was an influence of the MindMapping Learning Method on Biology Learning Outcomes of Class XI Natural Sciences Students in SMA Negeri 2 Kotapinang, namely the value of the experimental class students obtained an average of 50.83 pre-test with a fairly good category, from 30 students there were 30 % or 9 students who completed KKM and post-test were 75.50 with a good category, where there were 50% of students who completed KKM students from 30 students. While the control class students obtained an average pre-test score of 43.83 with a less good category and a post-test of 64.33 with a fairly good category. another case with students who are taught using conventional learning methods many students who look bored, inactive, and not enthusiastic in learning because they only focus on textbooks and lectures.

This is consistent with the opinion of Novac and Canas (2007) that mind mapping is a way to present children's conceptual understanding and observe changes in concepts that shape children's understanding and to present a framework for forming relationships between concepts (Broggy and McClelland, 2008).

This is in line with Mulyatiningsih (2014). Mind mapping will use both sides of the brain, namely the left brain and right brain because the mind map uses images, colors, and imagination (right brain) by using words, numbers, and logic (left brain) which then in the application is very helpful for quickly understanding the problem because it has been mapped.

This, the results of the study indicate that there is an influence on student learning outcomes that are learned by using the mapping learning method. Based on the theories above, it shows that students' understanding and learning outcomes that are learned using mind mapping learning methods are more influential compared to students who are taught using conventional learning methods.

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