The Effect of Think Pair Share Learning Method Using Observation Approach Toward the Cognitive Learning Outcome of Senior High School Student Preferences the Study of Biology Lesson

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ABSTRACT

The current learning process of students is directed in a one way process. The teachers have to explain and the students are listening to them instead of being actively involved. It degrades their cognitive learning outcome. The application of Think Pair Share affects the students to become actively involved and giving an opportunity for those who want to comprehend their argument into the class. The additional approach of the method may support to make the students feel their own learning method which goes meaningful. The goal of this research is to know the role of Think Pair Share learning method toward the cognitive learning outcome of senior high school students. The research uses quasi experiments in terms of control class and experiment class approach. The result shows that the reduction of them are 33.53 and 17.21. The normality test result defines that the significance value is 0.0066 (>0.05). It means they have accepted H₀, meanwhile the pretest and posttest mark of each class control and experiment distribute normally. The homogeneity test results show a value of 0.439 (>0.05) so that H₀ is accepted, which means that the pretest and posttest values from the experimental and control classes come from the same or homogeneous population. The result of ANACOVA test show that SPSS result is 0.000 (>0.05) so the H₁ is accepted. It proves that Think Pair Share method using observation experiment is effectively significant towards the cognitive learning outcome of the students. From this situation, it concludes that the approach is having an impact into the cognitive learning outcome of the students

INTRODUCTION

Biology, as a branch of science requires the students to observe, defines the sub-competent using the relevant tools and sources to help them solve the problem in the daily life. It produces several branches including fact, concept, principal, theory, law, and postulates that relates within
creatures and the interaction with the surrounding (Depdiknas, 2002). The students have to involve actively for improving the potency that probably takes them to preserve the suitable learning method.

Furthermore, the current learning process of students is directed in a one-way process. The teachers have to explain and the students are listening to them instead of being actively involved. The degradation of student’s performance is affected from the higher amount of the student in the class within the limited facility and also limited approaches. Rogayan (2019) said that each student only get 50% only from the learning process that usually takes in the class. It shows that the approach is less effective and impact the student outcome becomes degrade. The learning method must be a way that makes student actively involved and takes them into their own suitable learning so it goes meaningful. Meanwhile, it needs a learning process which can improve the student outcome.

Think Pair Share learning method is a style of cooperative learning that involve the whole activity of the student to share their argument each other and having a good problem solving, and exactly be brave to serve in front of the class. This method has several advantages. Student would test their ability for each substance and understand the difficult concepts then also help their friends in problem solving. The advantage suits to spill into the field of animalia kingdom. The characteristic of animalia kingdom direct the student to differentiate and classify several kind of animal into the correct groups. By using this method for animalia kingdom, the student can be involved into the comprehend thinking and get to communicate their argument well. It would be more effective in the role takes them into their own way of experience in the learning process.

One of the methods are used an observation approach. It help student to progress their ability in collaborating, defines a decision, and able to solve a complex problem then improve the remind memory (Rabgay, 2017). Observation approach may dwell the knowledge that reach 90% skill improvement especially oral communication (Wirawan, 2012). It also has more advantage to make student becomes confidence of their own champion rather than others opinion or teacher’s explanation. Then, the natural behavior of the student reach the next level as well as their creativity to think. In terms of animalia kingdom, the role of think pair share method is suitable to improve the student outcome. So that, this research goal is to know the role of this method using observation approach toward the cognitive study in biology for senior high school student preferences (Rabgay, 2018)

METHODOLOGY

This research is a quassi experiment that uses control classes and experimental classes by applying think pair share learning models using observation methods in experiment classes and conventional learning in the form of lectures and discussions in control classes with a population of all X grade students numbering 134 students at Sma Negeri Rambipuji Even semester in March Academic 2019/2020. 2 weeks of 3 meetings with a total time allocation of 6 x 45 minutes in each experiment class and control class. This research was conducted in the Even Semester of Academic Year 2019/2020 in March. At the first meeting on March 3, a 3 x 45 minute control class and an experimental class conducted a 20-minute pretest activity used to measure students' initial abilities. Followed by core activities for 90 minutes.

Furthermore, on March 10, 2020 with an allocation of 2 x 45 minutes of lessons, the same lesson was carried out on the subject of Vertebrates, namely conventional learning methods for
control classes in the form of discussions and presentations, while for experimental classes using Think Pair Share models on observation methods. At the end of the study, on March 13, 2020 with an allocation of 1 x 45 minutes of lessons in experimental classes and control classes, posttest were conducted to measure students understanding of the material provided by the teacher as a result of students' cognitive grades for 20 minutes.

Data collection techniques are carried out using biological learning test results obtained from pretest and posttest results and observation in the classroom to obtain the value of oral communication skills. The study began with a population homogeneity test and then selected samples in a random way to determine control classes and experiments. The data analysis used in this study is Covariant Analysis Statistical Test (ANACOVA) to find out the affect of Think Pair Share model by using observation method on students cognitive learning results.

RESULT AND DISCUSSION

This study used 68 students from X MIPA 1 as the control class and X MIPA 4 as the experimental class. The experimental class uses the Think Pair Share learning model with the observation method, while the control class uses the conventional learning model (traditional lecturing method). Based on the results of the study, the mean value of daily task from entire class X Senior High School Rambipuji Jember can be seen in Table 1.

Table 1. Mean Value of Daily Test on CHAPTER 6 Plantae

| Number | Class       | The Number Of Students | Mean ± SD  |
|--------|-------------|------------------------|------------|
| 1      | X MIPA 1    | 35                     | 84.11 ± 3.81 |
| 2      | X MIPA 2    | 34                     | 87.53 ± 3.99 |
| 3      | X MIPA 3    | 31                     | 85.77 ± 3.05 |
| 4      | X MIPA 4    | 34                     | 83.41 ± 3.83 |

The mean value of daily test results from the 4 classes above were analyzed with the normality test to determine whether the data was normally distributed or not. The following are the results of the normality test which can be seen in Table 2.

Table 2. One-Sample Kolmogorov-Smirnov Test

| Normal Parameters a,b | Unstandardized Residual |
|-----------------------|-------------------------|
| Mean                  | .0000000                |
| Std. Deviation        | 3.98090919              |
| Most Extreme Differences |                        |
| Absolute              | .061                    |
| Positive              | .038                    |
| Negative              | -.061                   |
| Kolmogorov-Smirnov Z  | .711                    |
| Asymp. Sig. (2-tailed)| .693                    |
| a. Test distribution is Normal. |
| b. Calculated from data. |

Based on Table 2, it can be seen that the significance value is (p = 0.693)> 0.05, then the value data for entire class X Senior High School Rambipuji are normally distributed, so that the homogeneity test can be analyzed using the Levene's test. The results of the homogeneity test are shown in Table 3.
Table 3. The homogenity result of the daily test using the Levene’s Test.

| Levene’s Statistics | Df1 | f2  | P      |
|---------------------|-----|-----|--------|
| 0.676               | 3   | 130 | 0.568  |

Based on Table 3, the results of the homogenity test using the Levene’s test shows a significance value (p = 0.568) > 0.05 so that the daily test result of entire class X MIPA Senior High School Rambipuji Jember are homogeneous, then proceed to randomly determine the control class and experimental class, so that class X MIPA 1 is choosed as the control class and class X MIPA 4 as an experimental class. The following is the mean difference between the pretest and posttest values which are presented in Table 4.

Table 4. Mean difference between pretest and posttest scores

| Class     | The number of students | The mean pretest | Posttest mean | Reratas dispute |
|-----------|------------------------|------------------|---------------|-----------------|
| Control   | 34                     | 54.41            | 71.62         | 17.21           |
| Experiment| 34                     | 52.94            | 86.47         | 33.53           |

Table 4 shows that the mean difference between the pretest and posttest scores in the experimental class is higher, with the value of 33.53 compared to the mean difference between the pretest and posttest in the control class with the value of 17.21. The next test is the ANACOVA test, which is used to determine the effectiveness of the different treatments carried out by providing the Think Pair Share model learning in the observation method. Before the ANACOVA test was carried out, the normality and homogeneity tests were first carried out. The results of the normality test for students’ cognitive scores are in the appendix, which shows a significance value of 0.066, which means that the probability > 0.05 so that H0 accepted, which means that the pretest and posttest values of the experimental and control classes are normally distributed, so the homogeneity test is continued. Homogeneity test results are in the appendix and the results are 0.439 which indicates that the probability > 0.05 so that Ha accepted, which means that the pretest and posttest values of the experimental class and control class come from populations that have the same or homogeneous variance.

The next analysis is the ANACOVA test, used to analyze covariance with the pretest value as a covariate. The following results of ANACOVA test analysis are shown in Table 5.

Table 5. The results of the ANACOVA test for the pretest and posttest values

| Source            | Type III Sum of Squares | df | Mean Square | F     | Sig.  |
|-------------------|-------------------------|----|-------------|-------|-------|
| Corrected Model   | 6866.436*               | 2  | 3433.218    | 60.372| .000  |
| Intercept         | 7637.937                | 1  | 7637.937    | 134.310| .000  |
| Pretest           | 3116.069                | 1  | 3116.069    | 54.795| .000  |
| Class             | 4166.371                | 1  | 4166.371    | 73.264| .000  |
| Error             | 3696.431                | 65 | 56.868      |       |       |
| Total             | 435425.000              | 67 |             |       |       |
| Corrected Total   | 10562.868               | 67 |             |       |       |

a. R Squared = .650 (Adjusted R Squared = .639)

Based on Table 5, the SPSS results obtained are 0.000 which shows a probability <0.05 so that H1 accepted, which means that the Think Pair Share learning model using the
observation method has been shown to be significantly effective on student cognitive learning outcomes. The covariate value of the pretest was also known to have a significant effect on student learning outcomes \((p = 0.000)\). This study uses a Think Pair Share learning model using the observation method. Based on the results of the analysis in Table 4, it shows that the mean difference between the pretest and posttest scores in the experimental class is higher, with the value of 33.53 compared to the mean difference between pretest and posttest scores in the control class which is only 17.21. Based on the results of the analysis of the difference between the pretest and posttest mean scores in the experimental class and the control class, it shows the influence of the Think Pair Share (TPS) model with the observation method on the cognitive learning outcomes of class X students at Senior High School Rambipuji. Furthermore, students’ cognitive learning outcomes were analyzed using the ANACOVA test, which is a covariance analysis with the pretest value as a covariate. The ANACOVA test is carried out after conducting the homogeneity and normality test.

Normality test results on the value of pretest and posttest of the experimental and control class that is equal to 0.066 which shows that the probability of \(> 0.05\) so that \(H_0\) is accepted which means that the pretest and posttest of the experimental class and control normal distribution. Furthermore, based on the homogeneity test, the result is 0.439 which indicates that the probability \(> 0.05\) so that \(H_0\) is accepted, which means that the pretest and posttest values of the experimental class and control class come from populations that have the same or homogeneous variance.

Based on the analysis of students’ cognitive learning outcomes using the ANACOVA test which can be seen in the attachment, the results show that the probability value \((p)\) for the influence of the Think Pair Share (TPS) model with the observation method on student cognitive learning outcomes is 0.000. These results indicate that the probability value \(<0.05\) so that it can be stated that the Think Pair Share (TPS) learning model with the observational method is proven to be very significant effective on student cognitive learning outcomes because \((p = 0.000)\). The results of this study are in line with research conducted by Ariantini \textit{et al.} (2017) which states that the Think Pair Share (TPS) learning model is able to improve student learning outcomes in the cognitive domain. The conclusion is that there is a difference in cognitive scores between the experimental class and the control class in which the cognitive scores in the experimental class are higher than those in the control class. This is because the use of the Think Pair Share (TPS) model is able to help students understand concepts that are considered difficult in learning. In addition, students are required to actively participate in learning by expressing opinions, questions, knowledge and working together in conducting group discussions (Muslima \textit{et al.}, 2017).

The results of other studies conducted by Surayya \textit{et al.} (2014) confirmed the results of this study where the experimental class using the Think Pair Share (TPS) learning model had an average cognitive learning outcome score of 77.86 compared to the control class which only had an average value of 72.65. Better results were obtained by the experimental class because the use of the Think Pair Share (TPS) model was able to increase student learning activeness based on the stages in the TPS model. According to Arends (2008) the stages in the TPS model include the Thinking stage where at this stage students are given the opportunity to think in solving problems given by the teacher. At the Pairing stage, the teacher instructs students to pair up with their group friends in order to discuss answers to the problems given. This stage can also foster students’ social skills so that students who do not understand these problems can ask their friends as their partners. The last stage, namely the Sharing stage, directs students to share the
results they get with their classmates. The hope is that all students can communicate with their classmates and be able to understand the answers to the problems given by the teacher together.

In addition, in this study, the Think Pair Share (TPS) model is combined with the observation method in which the use of this method is able to facilitate students to experience a direct learning. This kind of learning is able to create a pleasant learning atmosphere, so that the learning process becomes more meaningful. Furthermore, in this observation process, the direct observations wasn’t the main purpose but students also need to appreciate the object being observed, be directly involved in actions, and be responsible for the results of the observations obtained (Mariyam, 2015). In addition, the material used in this study, the Animalia chapter is very suitable when it was used by the observation method because Animalia material consists of several species both on land and in the sea. When studying species in the sea students need to see directly and be involved in identifying the morphology of the species. The characteristics of Animalia material are classified as difficult material to understand because in the material from the kingdom level to the species it has different characteristics and there are many Latin names that must be memorized (Pinasthika et al., 2013). Students mostly face difficulties in many abstract concepts or topics in biology including Animalia (Chatila, 2017). Furthermore, Basic Competence of Animalia material requires students to observe, identify morphological features, and classify animals based on their similarities, so that if students do not carry out direct observations students will have difficulty understanding Animalia material (Agustina, 2017). Thus, it can be said that the use of the Think Pair Share (TPS) learning model using the observation method has a significant effect on student cognitive learning outcomes.

CONCLUSION
The learning that has been done in the experimental class using think pair share learning model with observation method compared to conventional learning, has a significant effect (p=0.000) on the cognitive learning outcomes of grade X students of SMA Negeri Rambipuji Jember. The average pretest and posttest values in the control class were 54.41±71.62 while in the experiment class it was 52.94±86.47 on a scale of 100.

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