THE EFFECT OF ROLE PLAYING LEARNING MODEL ON IMPROVING STUDENT CONCEPT UNDERSTANDING ON ENVIRONMENTAL POLLUTION MATERIAL

Jhon Riswanda ^{1) a)}, Indah Wigati²⁾, Erie Agusta³⁾, Teguh Kusuma⁴⁾

^{1), 2), 3), 4)} Departement of Biology Education, Faculty of Education and Teacher Training, UIN Raden Fatah Palembang Jl. Prof. KH Zainal Abidin Fikri No. 1A KM 3.5, Palembang 30126, Indonesia.

^{a)}Jhonriswanda_uin@radenfatah.ac.id

ABSTRACT

This study aims to determine the effect of Role Playing learning model on the understanding of concepts on environmental pollution material. This research was conducted in one of senior high school in Palembang on May 2017. Research method that used in this research is Quasi Experimental with research design of Non equivalent Control Group Design . The population this study consists of 4 classes in totaling 101 students. Sampling is using *purposive sampling technique*. The sample of this study X.1 class as the experiment amounted to 26 students and X.2 class as the control class amounted to 24 students. In the learning process, experimental class is taught by using *Role Playing* learning model and control class is taught by discussion method. Data retrieval is using conceptualization test with essay form that has been tested for its validity and reliability. The results showed that the N-gain average experimental class is 0,71 are categorized as high and N-gain average for the control class 0, 50 including the medium category. Data analysis that is using t-test with significant level 0,05 obtained sig 0,000 <0,05 with t arithmetic = 5.638 while t table = 1.677 seen that $t_{\text{arithmetic}} > t_{\text{table}}$. Therefore (H_a) is accepted and (H₀) is rejected. Based on this, it can be concluded that there is a significant influence on the model of learning Role Playing on the mastery of the concept of human circulatory system for X class.

Keywords: concept mastering, circulatory system, learning model, role playing

INTRODUCTION

Biology learning will be more meaningful if the learning emphasizes on giving experience directly to the students. Biology lessons are only taught by rote, then students will not be able to use their knowledge during the learning process developed by the teacher. Biology learning will be more meaningful if it allows students to understand the concept of the material they are learning rather than simply memorizing the material (Saptono, 2003). The low understanding of the concept of X-class students in high school is indicated by the results of the initial tests given to students consisting of 14 questions with the concept of conceptualizing. Based on the results obtained that the concept of studentunderstanding is still low it can be seen from the percentage of student test in XI.1 class and X.2 class shows that only 30% of students in grade XI.1 are able to meet KKM standards and only 20% of students in grade XI.2 are able to meet KKM standards. It shows that students' concept of understanding needs to be improved again. Based on the results of interviews done with teachers of Biology at the high school that the learning process is still applying the method of teacher-centered lecture with a reason to save time learning. Looking at the results of the initial tests conducted then needed a model of learning that can improve students' concept of understanding in high school. One of the best learning models to improve students' conceptual understanding is with Role Playing learning model which is a way of mastery of teaching materials through the development of imagination and appreciation of students .

RESEARCH METHOD

This research is quantitative research with *quasi experimental* approach. The research design used in this research is one experimental group and one control group with *Non-equivalent Control Group Design*. The population studied in this study is all students of class X in one of the high schools in Palembang City. The sampling technique used in this research is *purposive sampling method*. So that sample in this research is class X.3 as experiment class and class X.4 as a control class.

RESULT AND DISCUSSION

The statistical data shows pretest, posttest and N-Gain values of students' understanding of the experimental class concept and control class can be seen in Table 1.

Class	Average		N Goin	Cotogory
	Pretest	Post Test	N-Oalli	Category
Experiment	40.35	82.38	0.71	High
Control	40	70.17	0.50	Medium

Table 1. Statistical Data of Student Concept Understanding

Based on the data in the above table it can be seen the difference betweenpretest and posttest of experimental class and N-Gain control class in experiment and control class. The average value of the experimental class is 40.35 and the control class is 40. From the data it shows that the *pretest* grade of the experimental class has no significant difference. Then the average value of the experimental class is 82.38 and the control class is 70,17. The data show that the *posttest* result of the experimental and control classes is significantly different. The difference is seen with higher N-Gain experimental classes compared to the control class. As for N-Gain experimental class is 0,71 with high category and N-Gain control class is 0,50 with medium category. Percentage mastery of each indicator can be seen in Table 2.

No	Indicator	Percentage Completion (%)		
	mulcator	Experiment Class	Control Class	
1	Interpret	84	77	
2	Provide examples	69	45	
3	Classify	82	81	
4	Summarize	81	73	
5	Interesting inference	86	79	
6	Comparing	69	58	
7	Explain	92	47	

Table 2. Percentage Completeness of Understanding Concept

The results of the research also shows the percentage of mastery of each indicator of understanding the concept of the class ekpsrimen higher than the control class. The percentage of each indicator understanding of concepts:interpreting (*interpreting*), give examples (*exemplifying*), classification (*classifying*), summarizing (*su mmarizing*), draw inference (*inferning*) comparing (*comparing*) and explain (*explaining*) the experimental class is 84%, 69%, 82%, 81%, 86%, 69%, 92%. While in the control class is 77%, 45%, 81%, 73%, 79%, 58%, 47. The completeness level of each conceptual understanding indicator in the class of ekpersrimen is higher than the control class.

N-values for *the posttest* that is in the experimental class and a control is 5.638. Based on distribution table, t_{arithmetic} for df = 48 is 1.6 77, and the significance value 0.000 < 0.05. N-value is t_{arithmetic} > t_{table}, then in accordance with the basis of decision-making in t-test *Independent sample*, it can be concluded that H₀rejected and H_a accepted means there is influence of learning model *Role Playing* towards the students' understanding of the concept of understanding. The decision obtained is to receive Ha, which means

that students in the experimental class and control class on environmental pollution material are significantly different or have different concept mastery. Understanding the concept of students in the experimental class is higher than the control class is influenced by the application of *Role Playing* learning model. Model plays the role of making the participants understand the material better because learners make their own observations by playing directly so the lessons become more real (Yamin, 2005). While in the control class apply the method of discussion. Visible students are more passive than the control class. Because one of the methods of discussion is the course of discussion more dominated by clever students, thereby reducing other students' opportunities to contribute (Ichsan, 2016). Obviously it will be very influential tap the increasing understanding of student concepts. Based on the above description shows that different treatments lead to different outcomes between the experimental groups taught using the *Role Playing* learning model with a control group that teaches the method of discussion. Thus, it was proved that *Role Playing* can affect to the understanding of the concept of students in X class for environmental pollution material.

CONCLUSION

Based on the results of research conducted it can be concluded that the application of *Role Playing* learning model gives a significant effect on the understanding of student concepts. *Independent* test results using the technique*sampl Test* is Sig (0,000) <0.05 by, value (5638) > t table (1.677). Then referring to the provision of decision making hypothesis test can be concluded that H_o rejected and Ha accepted. The N-Gain score indicates a higher concept comprehension capability in the 0.71 experimental class including the high category, while the control class is medium category with N -Gain 0,5.

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