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THE APPLICATION OF ACTIVE LEARNING TYPE LEARNING TOURNAMENT TO IMPROVE STUDENT'S ACHIEVEMENT ON BUFFER SOLUTION TOPIC IN CLASS XI SMAN 10 PEKANBARU

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Abstract- The Research is about application of the active learning strategy type learning tournament has been done to improve student's achievement on the topic of buffer solution in class XI IPA SMAN 10 Pekanbaru. This research is experimental research based on pretest-posttest design. The samples of this research were the students of class Xl IPA 3 as the control class and students of class XI IPA 2 as the experimental class that randomly selected after testing homogeneity. Experimental class is a class that is applied active learning strategy type learning tournament, while the control class was not. Data analysis technique used is the t-test. Based on analysis of data obtained $t_{arithmetic} > t_{table}$ is 3,13 > 1,67, means that the application of active learning strategy type learning tournament can improve student achievement on the subject of buffer solution in class XI Science SMAN 10 Pekanbaru where the effect of an increase is 12,6%.

***Keywords*:** active learning strategy type learning tournament**,** learning achievement, and buffer solution

1. INTRODUCTION

Learning is a process of change in the form of proficiency personality, attitude, and skill that are settled in behavior that occurs as a result of training or experience. Learning is a process intreraksi between students and students, students with learning resources, and students with educators.

The process of learning is at the core of the educational process as a whole with the teacher as the main role holder. Teachers have an important role in the learning process, between the role of the teacher is to make learning design, acting as a teacher who educates, and perform in accordance with various models of learning or learning strategies adapted to the conditions of students, learning materials and the condition of local schools. As happened at SMAN 10 Pekanbaru, based on interviews of one chemistry teacher at SMAN 10 Pekanbaru, in the academic year 2013/2014 the average - average test scores of students on the subject of the Buffer Solution is 70, while the minimum completeness criteria (KKM) established school is 78. the value is still below the KKM. The cause is due to lack of student centered learning. Teachers have implemented a discussion in the classroom but are not effective for most students just a spectator and an active role only smart students. As a result, not all students are active in the learning process, so that the necessary learning strategies that can make students become active during the learning process. One of the active learning strategies that can be used is the type of active learning strategies Learning Tournament. Learning Strategies Tournament is one way to develop active learning, with students divided into teams to learn together and then the results of the students are required to solve problems - about the tournament is given individually as a comprehension test. Learning the type of active learning strategies Tournament is a strategy that can be used to improve achievement, activities and student motivation.

Implementation of research carried out in class XI SMAN 10 Pekanbaru second semester of the school year 2014/2015. The research design used was experimental research with pretest-posttest design. Time data retrieval from February 9 to March 9, 2015. The sample consisted of two classes of grade XI IPA 2 as an experimental class and the class as a class XI IPA 3 randomly selected control after the normality test and homogeneity test. Experimental class is a class that is treated by providing the type of active learning strategies Learning Tournament, while the control group was not given active learning strategies Learning Tournament. Data collection techniques using test techniques derived from homogeneity, pretest and posttest.

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Based on the analysis of data obtained tcount greater than ttable ie 3.13> 1.67 means that active learning strategies Learning Tournament type can improve student achievement on the subject of the buffer solution in class XI IPA SMAN 10 Pekanbaru. The percentage increase student achievement through the application of active learning strategies Learning type Tournament on the subject of the buffer solution in class XI IPA SMAN 10 Pekanbaru at 12.6%. active learning strategies Learning Tournament type can be used as an alternative learning strategies to improve student achievement, especially on the subject of buffer solution.

2. METHODS

Research has been conducted in SMA Negeri 10 Pekanbaru second semester of the academic year 2014/2015. Time data collection was done on February 09, 2015- March 9, 2015.

Form of research is experimental research design with pretest and posttest, conducted on two groups of homogeneous classes. Experimental class by learning to use active learning strategies Learning Tournament type and grade control just by learning to use the information without additional discussion of active learning strategies Learning type Tournament.

Design of reserach was an experimental study with pretest-posttest. Research plan study design according to [2], can be seen in Table 1.

Table 1. Research Plan

Class	Pretest	Treatment	Postest
Eksperiment	To	X	T_1
Control	To	-	T_1

Information :
X : Treatment of experimental class using the type of active learning strategies Learning Tournament.
To : Value pretest experimental class and control class.
T1 : Value posttest experimental class and control class [2].

The first step in this research is the holding of normality test to see whether the data were normally distributed or not. Preliminary data on this study tested the normality with Lilliefors normality test equation. With the testing criteria: if $L_{maks} \leq L_{tabel}$ ($\alpha = 0.05$), then the data is said to be normal (Irianto, 2003). After the normal distribution of data homogeneity test continued using the formula F test and t-test two hypotheses testing diambiluntuk pihak.Data the form of student achievement test scores in the control class and experimental class.

The hypothesis was tested using data from an average difference of pretest and posttest. The formula used for the t-test are as follows:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{S_g\sqrt{\frac{1}{n_1}+\frac{1}{n_2}}}$$

The deviation standard (Sg) can be calculated using the following formula:

$$S_g^2 = \frac{(n_1-1)S_1^2 + (n_2-1)S_2^2}{n_1+n_2-2}$$ [1].

To determine the effect of the application of active learning strategies Learning Tournament type to increased student achievement on the subject of the buffer solution is performed by calculating the coefficient of determination (r^2) of the formula:

$$t = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$$

convert into:

$$r^2 = \frac{t^2}{t^2+n-2}$$

To calculate the percentage increase (coefficient of influence) obtained from:

$$Kp = r^2 \times 100\%$$

Information:
t : Coat statistic to test the hypothesisn : The number of members of the experimental class and control
r^2 :coefficient of determination
Kp : influence coefficient [3].

3. RESULTS AND DISCUSSION

The data used to test the hypothesis in this study is the difference between the posttest and pretest. The results of the analysis of hypothesis test can be seen in Table 3.

Table 3. Analysis of hypothesis

Kelas	N	∑X	$\bar{x}$	S_{gab}	t_{tabel}	t_{hitung}	Kp
Eksperiment	36	1824	50,667	15,579	1,67	3,13	12,6%
Control	34	1316	38,706				

Information:
N = number of students who receive treatment, Σ X = the number of the differences of the pretest and posttest, and $\bar{x}$ = the average value of the difference between pretest and posttest

Hypothesis testing is done by testing the H1 by using the t test right, H1 accepted if it meets the criteria thitung> ttabel with df = $n_1 + n_2 - 2$, criteria probability 1 - α is 0.95. The result is t = 3.13 and the value t table on α = 0.05 df = 68 is 1.67. Tcount greater than ttable ie 3.13> 1.67 thus H1 can be accepted, meaning that an increase in student achievement by using active learning strategies Learning Tournament mode is greater than the increase in student achievement without the use of active learning strategies Learning Type Tournament.

Improving student learning outcomes are determined using the formula Kp, but prior to the calculation of the value of Kp first determined value of the coefficient of determination (r). Through the calculation, r is 0.126 so the price obtained Kp prices by 12.6%, it can be concluded that the application of active learning strategies Learning mode Tournament effect of 12.6% to the improvement of student achievement.

Based on the research and analysis of hypothesis testing with df = n1 + n2 -2 and obtained α = 0.05 and t = 3.129 table = 1.67. This shows that thitung> ttable namely 3.129> 1.67, which means the application of active learning strategies learning type of tournament a positive effect so as to improve student achievement on the subject of the buffer solution in class XI SMA Negeri 10 Pekanbaru to increase student achievement by 12, 6%. This is because in this strategy each individual is required to be able to understand the material studied for each individual will be responsible for their group - one at the moment do the problems tournaments. With the tournament every student wants to get good grades, the desire of individuals and groups. Therefore, students are capable of weaker expected motivated to learn, in order to win the tournament and more capable students who feel the need to share knowledge in order to obtain a satisfactory score.

Match the type of active learning strategies Learning Tournament, held twice a round. Each round students are required to answer multiple choice questions which must be in individual in the group. The amount of matter in the second round more numerous than the first round of questions to determine the extent of students' understanding of the subject buffer solution. Lapse between the first round by round two students were given time to learn more in the group The aim of learning between rounds is to prepare ourselves to answer the question in the next round with a well in order to win the game. If the team members are excited to be a winning team they will help each other, encourage and evaluate the performance of each other and, if the individual is motivated to win the game on a learning tournament, they will do their best to fulfill their responsibilities and contribute in their team. The group winners of the tournament, a teacher giving a gift. Giving the prize is intended to motivate students in learning their next so that the group could be a winner and get a gift like other groups.

4. CONCLUSION

Based on the results of data analysis and discussion it can be concluded that the application of active learning strategies Learning Tournament type can improve student achievement on the subject of the Buffer Solution in class XI SMA Negeri 10 Pekanbaru. The percentage increase chemistry

student learning achievement through the application of learning strategies learning actif type learing tournament on the subject of buffer solutions in the experimental class at 12.6%.

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