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THE EFFECT OF *REACT* TYPE LEARNING MODEL ON STUDENTS' LEARNING OUTCOMES IN WAJO SOUTH SULAWESI

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Abstract : His study aims to determine the learning outcomes of grade X science students at SMA Negeri 9 Wajo who were taught using the REACT learning model in physics. Knowing the learning outcomes of grade X science students at SMA Negeri 9 Wajo who were not taught to use the REACT learning model in physics learning. And it was knowing the effect of the application of the REACT type learning model on the learning outcomes of class X science students at SMA Negeri 9 Wajo. The research design used was The Posttest-Only Control Group Design. The population in this study were all students of class X IPA SMA Negeri 9 Wajo for the academic year 2019/2020, totaling 88 people spread over three classes. The research sample came from classes X IPA 2 and X IPA 3, each of which amounted to 33 people. Sampling was carried out using the Simple Random Sampling technique. The instrument used in this study was a learning outcome test. The data analysis technique used was descriptive analysis and simple regression analysis. The results of the descriptive research show that (1) the average value of the learning outcomes of class X IPA 1 students who were taught using REACT type learning was 89.85. (2) the average value of student learning outcomes that were not taught with REACT type learning was 77.87. (3) There was a significant effect on student learning outcomes. It can be seen in the output value obtained with a coefficient of determination (R Square) of 0.532, which means that there was an influence of the independent variable (Application of the REACT Type Learning Model) on the dependent variable (Participant Learning Outcomes) by 53.2%. Therefore, the application of the REACT learning model has a significant effect on student learning outcomes. The implication of this research was learning using the REACT learning model (Relating, Experiencing, Applying, Cooperating, Transfering) was able to encourage students to be active in the learning process and will affect student learning outcomes.

Key words: Learning outcomes; *REACT* model; Types of learning.

INTRODUCTION

Education was essentially an effort to increase the knowledge gained from formal and non-formal institutions. The meaning of education can simply be interpreted as a human effort to foster his personality through values in society and culture. However simple the society or nation was, where an educational process occurs or takes place. So it was said that education has existed throughout human civilization.

Education aims to develop the potential of students. In this case, not only potential skills but also personality. So to improve the quality of education, the steps can be started by analyzing the factors that affect the problems in the learning process. To get a good education, meaningful learning was needed. Education in Islam was very important, as Allah says in Al-Qur'an surah Al-Mujaadilah/58:11:

> *"O you who believe, when it was said to you: "Be generous in the assembly", then be generous, God will give you room. And when it was said: "Stand up", then stand up. God will elevate the believers between you and those who have been given knowledge of several degrees. And Allah was All-Knowing of what you do"* (Shihab, 2020).

In achieving educational goals, the government seeks to improve the quality of education from elementary school to university level. Learning Natural Sciences (IPA), especially physics was one of the subjects beneficial for a nation. For the material welfare of a nation, a lot of knowledge was learned, because it was the basis of technology. In contrast, technology was often referred to as the backbone of development. Learning science was not just memorizing theories and formulas, but also using science process skills such as connecting with the real world (Safril & Gaddafi, 2018).

One of the educational problems faced by the Indonesian people was the low quality of education at every level and unit of education, especially primary and secondary education. Many factors cause the quality of education to not experience a significant increase, one of which was the weakness of the learning process in schools.

Based on information obtained from interviews with students and teachers conducted on Friday, March 29 2019, the model used by teachers in learning physics was a teacher-centered model in the form of lectures because teachers find it difficult to innovate in determining the appropriate learning model. This was also based on inadequate laboratory facilities or supporting the physics learning process. Students were passive in practicum-based learning through tools or the media.

Efforts to increase learning outcomes were not only desired to be optimally achieved because there were factors that affect the learning outcomes themselves. The improvements and improvements include improvements to the education system or matters directly related to learning practices such as the use of learning models (Rafiqah, 2018).

A learning model was a plan or pattern used to form a curriculum, plan learning materials, and guide learning in the classroom or vice versa. A learning model was a form of learning described from beginning to end and presented specifically by the teacher. In other words, a learning model was a wrapper or frame from applying a learning approach, method, and technique (Komalasari, 2011).

The ideal learning model was a model that explores effective learning experiences, namely learning experiences that allow students to experience or act directly and actively in a learning environment. The science learning process, especially physics, should emphasize providing direct experience to students so that students gain a deep understanding of the natural surroundings and prospects for further development that can be applied in everyday life (Sukardi, 2013).

REACT type learning model was the development of a contextual learning model that can help teachers connect the material being taught to real-life situations and encourage students to connect the knowledge they have acquired and its

application in everyday life. *REACT* learning model requires students to find their knowledge based on previous knowledge and experience (Yuliati, 2008).

Student learning outcomes were a reflection of the level of success or achievement of the objectives of the learning process, which ends with an evaluation at its peak. Learning outcomes can be interpreted as the final result of making decisions about the high and low grades of students during the teaching and learning process, learning was said to be successful if the level of student knowledge increases from previous results (Djamarah & Syaiful Bahri, 2004).

Based on the description above, the researchers were interested in researching with the title "The Influence of the Application of the *REACT Type Learning Model* (Relating, Experiencing, Applying, Cooperating, Transfering) on the Learning Outcomes of Class X Science Students.

The *REACT* learning model, a learning development from a contextual approach, was first developed by Michael L. Crawford in the United States. The contextual-based learning model concern constructivism because it requires students to involve continously in various activities, think about and explain reasoning, know the relationship between themes and concepts, not just memorize and read facts repeatedly and listen to lectures from the teacher. It consists of five elements: Relating (connecting), Experiencing, Applying, Cooperating (working together), and Transferring (Directorate General of Primary and Secondary Education, 2002).

The five stages of learning provide opportunities for students to connect material with real contexts, find concepts, apply concepts, work together to solve problems and use concepts learned in new contexts. and thinking skills as the basis for problem solving skills (Fadillah, 2017).

Learning was a change in behavior caused by experience or a result of an individual's interaction with his environment (Azwar, 2008). Hamalik argues that "Learning is the modification or strengthening of behavior through experience" (Hamalik, 2001). In other words, learning was an effort process carried out by a person to obtain a new behavior change as a whole as a result of his experience in his interaction with the environment (Sutikno, 2004).

Learning outcomes were abilities that students have after receiving their learning experiences. Kingsley divides three kinds of learning outcomes, namely skills and habits, knowledge and understanding, and attitudes and ideals. Each type of learning outcomes can be filled with material in the curriculum. Meanwhile, Gagne divides five learning outcomes into verbal information, intellectual skills, cognitive strategies, attitudes, and motor skills (Sudjana, 2009).

Based on the description above, this research was located from the variable (Y), namely student learning outcomes on the Business and Energy material. With the application of the *REACT learning model* , we can see how much influence it has on student learning outcomes, especially in physics.

In this study, a hypothesis can be formulated, namely that there was a significant effect on student learning outcomes after the *REACT type learning model was applied* in physics learning for class X IPA SMA. This study aims to determine the effect of the application of

the *REACT type learning model* on the learning outcomes

METHOD

This type of research was Quasi Experimental research. The research design in this experiment was The Posttest-Only Control Group Design. In this design there were two groups. The group that was treated was called the experimental group and the group that was not treated was called the control group. then both groups were given a post-test (Sugiyono, 2010).

This study's population were all class X IPA SMA students totaling 88 people consisting of 3 classes. The sampling technique in this study used a simple random sampling technique. Sugiyono says that simple random sampling technique was a technique of taking samples from members of the population which was done randomly without regard to the existing strata in the population. This sample can be determined with a table of lottery numbers, ordinal, or random. In this case the researcher made a lottery by writing the three classes on a small piece of paper, then taking two papers randomly. Two classes become experimental class and control class. After the draw, class X IPA 1 consisted of 33 students as the control class, and class X IPA 2 of SMA consisted of 33 students as the experimental class as the experimental class.

The data collection technique used in this research was to measure student learning outcomes by doing a test of learning outcomes in the form of multiple choice questions consisting of 5 answer choices and one correct answer as many as 20 numbered questions. Previously, a validity analysis was carried out which was validated by 2 experts and analyzed using the Aiken Index at 3.90 at the (high) level of validity. As for the reliability of the *post* -test questions used, it was analyzed using the *percent of agreement test.* The reliability value obtained was > 0.7 which proves that the questions were said to be reliable.

The data analysis technique used was descriptive and inferential statistics using the Simple Regression Test (Gunawan, 2017). A t-test with a significance level was used for hypothesis testing. Therefore, the normality and linearity tests were carried out before testing the hypothesis. The normality test aims to see whether the data about learning outcomes deviate from the normal distribution. While the linearity test to determine whether the data has an effect or not which was analyzed using SPSS 22.

FINDINGS

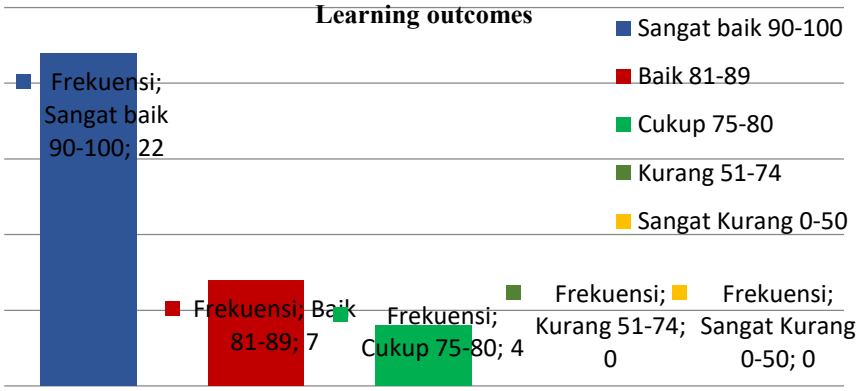
This research was conducted in two classes, the Experiment class (X IPA 1) and the Control class (X IPA 2). In this study, the *REACT* (Relating, Experiencing, Cooperating, Transfering) learning model was used in the Experimental class and the direct learning model in the control class. The results of the analysis in this study were as follows:

1. Learning Outcomes Students of class X IPA who were taught using the *REACT* (Relating, Experience, Applying, Cooperating, Transfering) type of learning model in physics learning.

After the researchers processed the data that had been obtained from the learning outcomes test (multiple choice) with a total of 20 questions, the

researchers conducted a descriptive analysis test to obtain an average score.

Figure 4.1
Students'learning outcomes using *REACT*type learning (Relating, Experiencing, Applying, Cooperating,Transferring) class X IPA 1

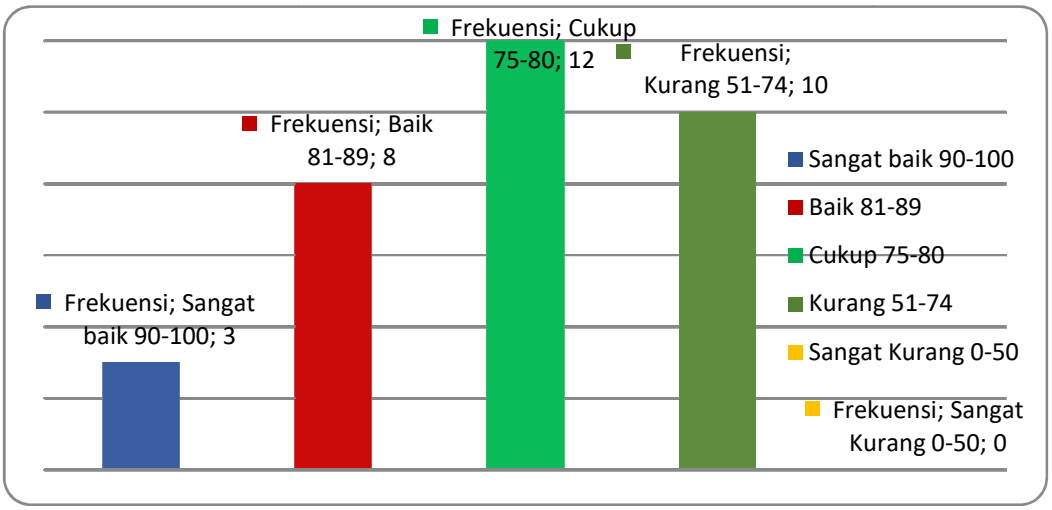


The histogram above shows the categorization of student learning outcomes in class X IPA 1 after applying the *REACT type learning model* (Relating, Experiencing, Applying, Cooperating, Transfering) there were 22 students with very good student learning outcomes. This happens because during the learning process, students were active in class and listen carefully to the explanations of the teacher and friends so that they can answer the questions given well. Thus, it can be said that the learning outcomes in the experimental group were very good.

2. The learning outcomes of class X science students who were not taught using the *REACT* (Relating, Experiencing, Applying, Cooperating, Transfering).

After the researchers processed the data that had been obtained from the test (multiple choice) with a total of 20 questions, the researchers conducted a descriptive analysis test to obtain an average score of 68.94.

Figure 4.2
Student learning outcomes without applying the *REACT type learning model* (Relating, Experiencing, Applying, Cooperating, Transfering) class X IPA



The histogram shows the categorization of student learning outcomes in class X IPA 2 without applying the *REACT type learning model* (Relating, Experiencing, Applying, Cooperating, Transfering).There were 3 students in the very good category, 8 in the good category, 12 in the enough category, 10 in the poor category, and none in the very bad category. This happens because during the learning process there were students who were active in class and there were also students who paid less attention to explanations during learning. Thus it can be said that learning outcomes in the control group were lower than those in the experimental group.

3. The effect of the application of the *REACT type learning model* (Relating, Experiencing, Applying, Cooperating, Transfering) on the learning outcomes of class X science students

The results showed that there was an effect of the application of the *REACT type learning model* (Relating, Experiencing, Applying, Cooperating, Transfering) on the learning outcomes of students in class X IPA. This was reflected in the results of the analysis of the Linearity Test and the Simple Regression Test on the learning outcomes of class X IPA 1 students after applying *REACT* (Relating, Experiencing, Applying, Cooperating, Transfering) learning using SPSS.

tab 4.3
Results of Linearity Test Analysis of the Effect of Application of Variables of the *REACT Type Learning Model* on Student Learning Outcomes
ANOVA TABLE

			Sum of Squares	df	Mean Square	F	Sig.
Dependent* Independent	Between Groups	(Combined)	122.146	4	30.536	,347	,844
		Deviation from Linearity	49,374	1	49,374	,561	,460
		Linearity	72.772	3	24,257	,275	,843
	Within Groups		2465,733	28	88.062		
	Total		2587,879	32			

Based on the significant value of the output above, the value of sig Deviation From Linearity obtained. was 0.843. Where the value of 0.843 was greater than 0.05. So it can be concluded that there was a significant linear relationship between the independent variable (learning model) and the dependent (learning outcome). Based on the F value, the calculated F value was 0.275. Where the calculated F value was 0.275 smaller than the F table value, which was 2.92. Because the calculated F value was smaller than the F table value, it can be concluded that there was a significant relationship between the independent variable (learning model) and the dependent variable (learning outcomes). After obtaining the linearity test scores, the data were analyzedusing simple regression on the learning outcomes of class X science students.

Table 4.4
Results of Simple Regression Test Analysis The Effect of Application of the *REACT Type Learning Model* on Student Learning Outcomes

ANOVA [a]

Model		Sum Of Squares	df	Mean Square	F	Sig.
1	Regression	214.786	1	214.786	14,849	.000 [b]
	Residual	1731.032	20	86.552		
	Total	1945,828	21			

a. Dependent Variable : Student Learning Outcomes
b. *REACT* Type Learning Model

Based on the results of the Simple Regression analysis of learning outcomes in the experimental group (X IPA 1) which was taught using the *REACT type learning model* (Relating, Experiencing, Applying, Cooperating, Transfering), then the output of the ANOVA table was known that the calculated F value was 14.849 with a level of significance 0.000 < 0.05, then the regression model can be used to predict learning outcome variables. This shows that the application of the *REACT type learning model* (Relating, Experiencing, Applying, Cooperating, Transfering) has an effect on student learning outcomes. Then the regression model can be used to predict the variable of the Application of the *REACT Type of Learning Model* or in other words there was an effect of the variable of the Implementation of the *REACT Type of Learning Model* (X) on the variable of Student Learning Outcomes (Y).

Table 4.5
Results of Simple Regression Test Analysis Summary Model of the Effect of Variables Application of *REACT Type Learning Model* on Student Learning Outcomes

Model Summary

Mode 1	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.729[a]	.532	.501	3.369

a. Predictors: (Constant), Model Pembelajaran Tipe *REACT*

Based on table 4.5 above, it can be explained that the correlation value (R) was 0.729. From the output, the coefficient of determination (R Square) was 0.532, which means that the effect of the independent variable (Application of the *REACT Type Learning Model*) on the dependent variable (Student Learning Outcomes) was 53.2%. So it can be concluded that there is an effect of the Application of the *REACT* Type Learning Model on student's learning outcomes.

Based on the description above, it can be concluded that *REACT type learning* (Relating, Experiencing, Applying, Cooperating, Transfering) affects student learning outcomes in physics subjects. This can be seen in the experimental class, when the learning process takes place students were very enthusiastic to participate in learning

activities. Based on observations made during the learning process, all students were actively involved and can help students find concepts, work together and apply them in everyday life so that in practice they always present natural or environmental phenomena that students easily encountered.

DISCUSSION

In this study, researchers measured learning outcomes in the experimental group and the control group. The experimental group was a class that was taught using the *REACT -type learning model (Relating, Experiencing, Applying, Cooperating, Transferring). In contrast,* the control class was a class that was taught without using the *REACT type learning model. (Relating, Experiencing, Applying, Cooperating, Transferring).* The hypothesis in this study was that there was a significant effect on student learning outcomes after applying the *REACT type learning model to* physics learning in class X IPA.

Based on the results of the analysis of the One-Sample Kolmogorov-Smirnov Test data for learning outcomes in the experimental group, X IPA 1 posttest taught by *REACT type learning* (Relating, Experiencing, Applying, Cooperating, Transfering) normally distributed because the value of sig > was (0.089 > 0 ,05). Meanwhile, the results of data analysis for the control group (X IPA2) posttest taught without learning the *REACT type* (Relating, Experiencing, Applying, Cooperating, Transfering) were normally distributed because the sig value. > in a row (0.114 > 0.05).

Based on the results of the simple regression test, the correlation value (R) was 0.451. From the output, the coefficient of determination (R Square) was 0.424, which means that the effect of the independent variable (Application of the *REACT Type Learning Model*) on the dependent variable (Student Learning Outcomes) was 42.4%. So it can be concluded that there was an effect of the application of the *REACT* Type Learning Model on the Learning Outcomes of Class X Science Students at SMA Negeri 9 Wajo.

This was reinforced by research conducted by Ismaya & Harijanto (2015) with the title "Application of *Relating, Experiencing, Applying, Cooperating, and Transferring* (*REACT*) Learning Models on Motivation and Learning Outcomes in Physics Learning in High School". The study and data analysis results showed that Sig obtained the results of the Independent Samples T-test. (2-tailed) 0.022 <0.05. This shows significant differences in learning outcomes between students in learning using the *REACT model* and the Direct Instruction (in) model. The second problem in the analysis uses questions of motivation. The result of the average percentage for all indicators in the form of questions was 82.7% motivation, based on these results it can be concluded that learning Physics using the Relating, Experiencing, Applying, Cooperating, and Transferring (*REACT*) model has a positive impact on students' learning motivation and student learning outcomes.

In line with the research conducted by Riyanto & Muslim (2014) entitled "Application of *REACT Learning Strategy* to Improve Student Learning Outcomes". The results of the research from the validation results indicate that the learning tools used in the *REACT learning strategy were*declared suitable for use with the

results of the student book validation rating of 82.08%, learning implementation plans 83.08%, and posttest pretest questions of 81.40%. Students' activity was said to be active, because the number of good and very good assessments was more than the number of poor and sufficient assessments. Based on the results of the t-test calculation, the t-count of cognitive learning outcomes was 6.091, and the t-table was 2.04. T count learning outcomes affective domain 5.944, and t table 2.04, t count learning outcomes in psychomotor domain of 12.22 and t table 2.04. and significant level = 0.05. Thus the value of tcount > tTable, so it can be concluded that student learning outcomes which include cognitive domain learning outcomes, affective domain learning outcomes, and psychomotor learning outcomes in classes that use *REACT learning strategies* through MPBM were higher than classes using direct learning models. .

Based on the description above, it can be concluded that the *REACT type of learning (Relating, Experiencing, Applying, Cooperating, Transfering)* has an effect on student learning outcomes in physics subjects. This can be seen in the experimental class, when the learning process takes place the students were very enthusiastic to participate during the learning activities.

The implication of this research waslearning using the REACT learning model (*Relating, Experiencing, Applying, Cooperating, Transferring)* was able to encourage students to be active in the learning process and will affect student learning outcomes.

CONCLUSION

Based on the results of research that has been carried out using the *REACT type learning model* (Relating, Experiencing, Applying, Cooperating, Transfering), it can be concluded that: The learning outcomes of class X science students who were taught using the *REACT type learning model* (Relating, Experiencing, Applying, Cooperating, Transfering) in physics learning obtained an average score of 89.85. They were classified in the very high category. The learning outcomes of class X science students who were not taught using the *REACT type learning model* (Relating, Experiencing, Applying, Cooperating, Transfering) in physics learning obtained an average score of 68.94.They were classified in the sufficient category. There was a significant effect between learning outcomes and the application of the *REACT type learning model* (Relating, Experiencing, Applying, Cooperating, Transfering) in class X IPA SMA with a coefficient of determination of 0.532.It means that the influence of the independent variable on the dependent variable was 53,2%.

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