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The Application of Discovery Learning Model to Improve Simulation and Learning Outcomes Digital Communication of Class X TKJ Students Vocational High School 7 Talaud

Mario Tulenan[1], Stevani Matandatu[1*], Ayu Patricya Langguna[1], Lusi Maryana Bahrun[1]

[1]Department of Graduate Vocational Technology Education, Universitas Negeri Manado, Indonesia, 95618

*Corresponding author: stevanimatandatu22@gmail.com

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ABSTRACT

This study aims to determine the application of the Discovery Learning Model at SMK Negeri 7 Talaud, as well as knowing the increase in student learning outcomes in class X at SMK Negeri 7 Talaud through the application of the Discovery Learning model. The form of research is classroom action research (CAR). The study was conducted in two cycles in each cycle consisting of several meetings that were adjusted to the material and time. Each cycle consists of planning-implementation-observation-reflection. The conclusions of the results of this study are: The Implementation of Discovery Learning Model Can Improve Simulation Learning Results and Digital Communication of Class X Students of SMK Negeri 7 Talaud. Can make students more confident, enthusiastic in learning, satisfied with the results achieved, independent, responsible with themselves and likes to accept learning challenges / problems. from the value results. In the second cycle with an average of 82.26 in a classical 93, 33% had an increase compared to the first cycle with an average of 70 and a classical 73.33%.

Keywords: *CAR, Discovery Learning Model, Learning Outcome*

INTRODUCTION

Education is an effort to develop and foster the potential of Human Resources (HR) through teaching and learning activities that are held at all stages of education, both from basic exposure,

secondary broadcasts and tertiary institutions. Education in schools has the goal of making students have good knowledge and learning attitudes to fulfill learning completeness in the learning process at school.

In the implementation of education in schools that involve teachers and students, it is manifested by the existence of teaching and learning interactions or the learning process. The teacher is a factor that determines the quality of education because the teacher deals directly with students in the learning process in the classroom. In the hands of the teacher, the quality and personality of students in the form. Because of that, it is necessary to have a teacher who is competent, responsible, skilled, and has high rigor. No matter how good the existing curriculum and education system is without the support of the ability of teachers, everything will be in vain. Teachers are competent and responsible, especially in overseeing the development of students to a maximum point. Teachers are professional educators with the main task of educating, teaching, guiding, directing, training, assessing, and evaluating students in early childhood education, formal education, basic education, and secondary education, (Sinar Graphic, 2009). Learning is a process of effort that is carried out by a person to obtain a new change in behavior as a whole, as a result of his own experience in interaction with his environment, this process produces changes in knowledge, skills, and changes in attitudes (Slameto, 2003).

Learning is a process of interaction between students and teachers who use all resources according to plans that have been prepared beforehand to achieve goals. The implementation of education must remember the principle of learning that every activity and activities are always limited to students. Learning is a systematic process through the stages of planning, implementation, and evaluation (Dimiyanti, et.al, 2006). Learning does not happen instantly, but has gone through the stages of learning planning. The learning process needs to be planned, implemented, assessed, and monitored so that it is carried out effectively and efficiently. Learning as a learning process built by the teacher to develop creative thinking that can improve students' thinking skills, and can increase the ability to construct new knowledge as an effort to increase good knowledge of the subject matter.

Based on the results of observations made in the teaching and learning process at SMK Negeri 7 Talaud in Dapihe, it shows that the learning process used does not vary. This can be seen in the learning activities that occur only centered on the teacher. Teachers in delivering material only apply conventional learning models. This makes students passive, less active in expressing opinions, asking questions, lack of interaction between friends or answering questions and students' absorption of material is also low. Even though one of the factors that can influence student success is the atmosphere during the learning process.

The results of the researcher's interview with TKJ teachers at SMK Negeri 7 Talaud in Dapihe stated that the learning outcomes of Digital Simulation were still unsatisfactory. The KKM score (minimum completeness criteria) is determined to be 75 while the value of students who achieve the KKM (minimum completeness criteria) is 40% and students whose scores are still below the KKM (minimum completeness criteria) are remedied so that student scores become better. This shows that student learning outcomes are still low. One learning model that can overcome the low student learning outcomes in learning is the Discovery Learning model, which is a learning model that conditions students to get used to finding, searching for, and discussing something related to teaching. This learning model prioritizes the teacher's role in creating learning situations that involve students learning actively and independently. Learning activities emphasize that students are directly involved in learning so that students can experience and discover for themselves the

concepts that they must master. The Discovery Learning model will make learning more meaningful because it will change passive learning conditions to become active and creative and change learning that was originally teacher oriented to student oriented. It is hoped that students will better understand the learning material presented.

It is hoped that the researchers with the Discovery Learning model can motivate students to work diligently and try hard to learn more deeply and become more active, and improve thinking skills. From the background of the problems that have been stated in the previous paragraphs, the researcher is interested in conducting research with the title "Application of the Discovery Learning Model to Improve Simulation and Digital Communication Learning Outcomes for Class X TKJ SMK Negeri 7 Talaud in Dapihe.

METHOD

The type of research used is Classroom Action Research (CAR), because this research aims to analyze or solve a real problem in education. The thing that needs to be prepared before conducting research is to choose a learning model that is assessed according to the material to be delivered, in this case the researcher uses the Discovery Learning model then makes a learning implementation plan, and learning tools.

Research procedure

This class action research procedure (CAR) consists of three cycles, according to the planned time. Each round consists of four stages, namely: planning, implementation, observation and reflection, while the class action research cycle can be described as follows.

Data collection

Data about the implementation process using the Discovery Learning model is taken using an observation sheet Data on student learning outcomes are taken using a learning achievement test. Data about reflection is taken using a journal.

Data collection techniques and tools

Data collection techniques and tools are carried out by: Test. A test is a series of questions, exercises or tools used to measure skills, knowledge, intelligence, abilities or talents possessed by individuals or groups (Arikunto, 2012). With the insights put forward, it can be concluded that the test is a series of questions, exercises or tools to measure skills, talent, knowledge precisely and quickly with predetermined rules, carried out before and after the action is carried out.

Observation, carried out by researchers during teaching and learning activities take place. Observation is a process of delivering lessons that involve students to observe directly. It is hoped that students will better understand the subject matter delivered by the teacher. Field notes to record all activities of students and teachers during learning takes place.

Data Analysis Techniques

The type of data in this study is the learning outcomes at the end of each cycle after the Discovery Learning model is applied. Then the data sources in this study were students, researchers used field notes to record all student activities during the lesson. The data analysis technique used to study and compare learning outcomes through a series of class actions with descriptive statistical

techniques, namely the percentage (%) of the achievement indicators for each material with the following formula:

$$P = \frac{F}{N}\ x\ 100\%$$

P = Learning Outcomes
F = Frequency of Students Reaching KKM
N = Number of Students (Sample)

Indicators of Terms of Learning Outcomes

The success of this research can be seen in terms of the results of the action, this research is said to be successful if at least 80% of students have obtained a minimum score of 75.00 according to the minimum completeness criteria (KKM) set at SMK Negeri 7 Talaud.

RESULTS AND DISCUSSION

General Conditions of Class X SMK N. 7 Talaud

1. Classroom Conditions

Class X SMK N. 7 Talaud is a class selected in the Implementation of Classroom Action Research (CAR). Class X students have a less active level. The results of the observation of the learning process before being implemented. With the Discovery Learning model, information was obtained that student activity included understanding the subject matter with full confidence and seriously asking the teacher about material that was not clear, answering questions posed by the teacher, daring to express active opinions in group work, trying to complete exercises or activity sheets given by the teacher, learning to use learning media/ subjects, and verbal discovery or appearances are still lacking. This can be seen when the learning process takes place.

Therefore, this class was chosen in the implementation of class action (PTK). With the implementation of PTK in this class, it is expected that student activity and learning outcomes in Simulation and Digital Communication subjects will improve better.

Results

From the results of observations made by previous researchers conducting research, it was obtained data on student completeness scores in the learning process of class X TKJ SMK N 7 Talaud.

The research was conducted pretest to determine students' ability to master the material before the researchers conducted the research. From the results obtained in the observation of the initial conditions, there are still many students in class X TKJ SMK N. 7 Talaud who have not reached the standard of learning completeness scores can be seen in table 1.

Table 1. Completeness of Student Learning Outcomes Before Action

Students Serial Number	Learning Outcomes	Description
1	76	Complete
2	54	Incomplete

3	62	Incomplete
4	55	Incomplete
5	65	Incomplete
6	75	Complete
7	78	Complete
8	55	Incomplete
9	78	Complete
10	56	Incomplete
11	50	Incomplete
12	78	Complete
13	50	Incomplete
14	76	Complete
15	74	Incomplete
Total	1,031	
Average	68	

Description:

$$P = \frac{F}{N}\ x\ 100\%$$

$$75 = \frac{6}{15}\ x\ 100\% = 40\%$$

P = Learning Outcomes
F = Frequency of Completed Students
N = Number of Students
≥75 = Complete,
<75 = Incomplete (Based on KKM)

Based on table 4.2, it can be seen that the value of the learning outcomes of Simulation and Digital Communication for class X students of SMK N.7 Talaud, there were 9 students who did not complete the lesson, where the overall average score of students was 68. In these results, it can be seen that learning success has not been achieved. To find out the mastery of learning classically, see table 2.

Table 2. Presentation of Learning Outcomes Before Action

No	Achievement Test	Result
1	Total Students	15
2	Top Rate	78
3	Lowest Rating	50
4	Point Average	68
5	Completed Students	6
6	Incompleted Students	9

7	percentage of student learning completeness	40 %

1. Implementation of the First Cycle (I)

In this first cycle, the researcher conducted four meetings by providing material on the introduction of digital simulation and communication, then after the teaching and learning activities, the researcher carried out tests to find out the learning outcomes by applying the Discovery Learning model, based on data analysis and test results in the first action, obtained student learning outcomes at each meeting, and the final test in the cycle.

From these results there is an increase in the average value of student learning outcomes compared to before the class action was carried out. For classical learning mastery in cycle 1 this can be seen in table 3.

Table 3. Presentation of Cycle 1 Achievement Results

No	Achievement Test	Result
1	Total Students	15
2	Highest Scores Per Cycle	85
3	Lowest Values Per Cycle	50
4	End of Cycle Average Value	74
5	Number of Completed Students	11
6	Unsettled Amount	5
7	Percentage of Student Learning Completeness	73,33%

2. Second Cycle (II)

From observations made both of the teacher's actions and student learning activities provide a new nuance in the teaching and learning process, because the situation of students in participating in learning activities is increasing and it turns out that after evaluating learning outcomes in the second round it shows a very significant increase. From these results there is an increase in the average value of student learning outcomes compared to before the class action was carried out. For classical learning mastery in cycle 2 this can be seen in table 4.

Table 4. Presentation of Cycle 2 Achievement Results

No	Achievement Test	Result
1	Total Students	15
2	Highest Scores Per Cycle	95
3	Lowest Values Per Cycle	74
4	End of Cycle Average Value	90
5	Number of Completed Students	14
6	Unsettled Amount	1
7	Percentage of Student Learning Completeness	93,67%

Discussion

After carrying out classroom action research by applying the Discovery Learning model, student learning outcomes can increase. This is based on improving students' cognitive, effective and psychomotor abilities. Cognitive abilities are seen from the attitudes and behavior of students, as well as psychomotor values seen from the development of students' skills. Overall learning outcome data can be seen in table 5.

Table 5. List of Learning Outcome Values

Number of Students	Learning Outcome Value		
	Before the class action	Cycle I	Cycle II
1	76	75	95
2	54	74	95
3	62	75	90
4	55	75	90
5	65	85	90
6	73	75	85
7	78	78	90
8	56	76	95
9	50	79	95
10	75	75	74
11	50	75	95
12	75	72	90
13	50	65	87
14	75	77	90
15	75	57	90
Total	1,031	1,110	1,351
Average	68,73	74	90,67

The following is a table of completeness and the proportion of learning outcomes from the pretest cycle 1, cycle 2. See table 6.

Table 6. Completeness

Learning outcomes	Highest score	Lowest score	Average	Completed Students	Uncompleted Students	Percentage of completeness
Pretest	78	50	68	6	9	40%
Cycle I	85	57	73	11	4	73,53%
Cycles	95	74	90	14	1	93,33%

CONCLUSION

Based on the results of the research and discussion, it can be concluded that the application of the Discovery Learning model can provide positive results for Simulation and Digital Communication learning outcomes for class X TKJ SMK N. 7 Talaud in Dapihe, this proves by increasing student

learning outcomes from the pretest stage of the results obtained, with the number of successful students only 6 students or 40%, in the process of cycle 1 the number of students who achieved a completeness score increased to 11 students or 73% until in cycle 2 the number of students who achieved a completeness score or very satisfying success with achieving 14 people or 90%. Recommendation of this study is 1). The school should pay more attention to quality. 2). existing learning and teacher performance in educating students. 3). Further improve existing facilities at school to help students in the learning process, especially in Simulation and Digital Communication subjects. 4). Teachers are expected to be able to master and understand and apply good and effective learning models in the learning process so that the learning outcomes obtained by students get maximum results

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