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Projects Based Learning Model to Increase Results and Student Activities

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Abstract. The implementation of this research is Classroom Action Research (CAR). The data of SMKS 4 PGRI Bengkulu city. students from 14 students were only 5 students (36%) who had received Good grades, while 9 students (64%) needed guidance or had not reached KKM and based on the above background, the research problem can be formulated, namely how to apply the Project Based Learning model to improve student learning outcomes. The Method was conducted in two cycles with the flow of research, namely: action plan, implementation of action, observation and reflection. The results of the research that have been carried out can be concluded that the application of the Project Based Learning model can improve the quality of student learning process activities, by giving projects to students, providing feedback to students and motivating students. Learning models based on Project Based Learning can also improve the quality of student learning outcomes and activities. In each cycle there is an increase, this is seen from the results of the analysis of the cycle I test until the second cycle. Student learning outcomes, namely for the first cycle the average value of students is 71.66 with classical learning completeness 83.33%, increasing in the second cycle with an average value of 80.42 with 100% classical learning completeness. This research had a weakness which is the students had not ability to their kognitif aspect because to lowest the teacher was not creativity to leraning process in the classroom.

Keywords. Project Based Learning models, learning outcomes and activities

1. Introduction

The selection of learning models expected in the 2013 curriculum include: project based learning, problem based learning, and discovery learning can enable students and make students aware that being a student must have creativity and work both individually and in groups. Project-Based Learning begins with real problems around students to solve through creative and meaningful work. Therefore, learning that can facilitate students to work both individually and in groups of them is Project-based learning, in the standard process it is stated that to encourage students to produce contextual work, both individually and in groups, it is strongly recommended to use a learning approach that produces contextual work, both individuals and groups, it is strongly recommended to use a learning approach that produces project based learning based problem solving work.

The character of the learning model is 1. It has a syntax, 2. Meets the social system, 3. Meets the principle of reaction, 4. Meets the supporting system and 5. The instructional and accompaniment impacts According to Joice and Weill (Wahyu Widada, 2012), and then

According to Thomas in Putu Suka Arsa (2015: 39), Project Based Learning is complex tasks, which are based on questions or problems that involve students in design, problem solving, decision making, or investigative activities. This method gives the opportunity for students to work autonomously with the time specified, and finally produce a real product.

Learning outcomes are the most important part of learning. Rusman (2013: 123) defines student learning outcomes in essence is a change in behavior as a result of learning in a broader sense covering the fields of cognitive, affective, and psychomotor, so while according to Jihad (2012: 14) learning outcomes are the attainment of a form of behavior change that tends to settle from the cognitive, affective, and psychomotor domains of the learning process carried out in a certain time.

Based on the activities of teachers and students in the PBL approach, the PBL will be divided into three stages, namely preparation, learning and evaluation, but from the three stages can be described as six stages as. Based on the results of observations in the X Multimedia SMKS 04 PGRI class, data were obtained that, in basic programming learning there were still many students who had not yet reached the minimum KKM completeness criteria that had been set at 70, this could be seen from the daily value of only 65, while viewed from individual completeness based on KKM, students from 14 students were only 5 students (36%) who had received Good grades, while 9 students (64%) needed guidance or had not reached KKM.

Based on the above background, the research problem can be formulated, namely how to apply the Project Based Learning model to improve student learning outcomes?, and how to implement the Project Based Learning model to improve student learning activities? The purpose of this study was to determine the application of Project Based Learning models to improve student learning outcomes and improve student learning activities. In order to avoid misunderstandings in interpreting the title of this research, it is necessary to limit some of the terms of this study, namely, learning models, Project Based Learning, and basic programming, learning outcomes, and learning activities.

2. Methods

The research procedure used in this study is an action research procedure. The action research model in this study used the spiral model Kemmis and McTaggart. This model consists of four components, they are: planning, action observation, and reflection. The four components in the form of strands are seen as one cycle. The cycle here means a round of activities consisting of planning, action, observation and reflection (Basrowi, 2008: 2).

This study was successful if there was an increase in student learning outcomes and activities in using the project-based learning model frontline in the basic class X IT programming subjects as much as 60% (9 students) and met the minimum completeness criteria (KKM) used in SMKS PGRI 4 Bengkulu was 70.

The subject of this study was students of class X Multimedia SMKS 04 PGRI Bengkulu city. This research was conducted in March - April 2018/2019 academic year, totaling 12 students. The research instrument was the test at the end of each cycle and the student activity observation sheet. The data of the test results analyzed were the average value and completeness of classical learning.

3. 1. Results and discussion

3.1. Results

The results of the Pre-action exercise were conducted to find out the initial value of students in basic programming subjects in the if else branch logic material, this activity took the form of pre-test questions which amounted to 20 items. The results were 12 people who participated in

the Pre-Test students from 14 people in total in one class. A total of 10 people have not yet reached the KKM score and 2 people have reached the KKM score, and 2 people have not entered school. Based on the Pre-Test results above, it can be seen that the average value of students in the initial test was 55, and the percentage of learning completeness was 16.66%. The results of this test are very far from what the researchers expected, namely $\geq 65\%$. And the results of this test will be used by researchers as a reference for improving learning outcomes to be achieved by students. Therefore researchers will conduct classroom action research to improve student learning outcomes and activities. The hope of researchers with the application of the Project Based Learning learning model in the if else the results of branching logic results and student learning activities can be increased, so that the mastery of learning can be achieved 65% of the total number of students by fulfilling the minimum completeness criteria of ≥ 70 .

3.1.1. Cycle I

Based on the research cycle I, there were twelve students participating in the post-test, the question was in the form of multiple choices which amounted to twenty items. As a result, ten people (83.3%) were declared graduated, and two people (26.7%) did not yet meet the KKM, was ≥ 70 . The results of observations of the teaching and learning process carried out by observers in cycle 1 are:

- a) Students are not used to learning with groups.
- b) Students are still confused about syntax-syntax in turbo pascal.
- c) At the time of the post-test there are still students who see the answers of friends beside him.
- d) Student learning outcomes have reached KKM.
- e) In cycle 1 there are 2 students who are not present in the teaching and learning process because they never enter school again.

3.1.2. Cycle I Reflection

The researcher discusses the results of observations with colleagues and reflects to formulate the steps to be taken to improve cycle II. The design of cycle II actions to improve the cycle is:

- a) Researchers must be able to condition student noise.
- b) The researcher must explain again about syntax in Pascal.
- c) Researchers must prepare development material from the project that has been carried out in cycle 1
- d) Researchers must use time optimally.
- e) Researchers will motivate students to get used to learning in groups.

Results of Student Activity Observation Sheet in cycle I That in the first cycle of student learning activities based on observations of the average score spearheaded data, were 14. Overall student learning activities in the first cycle included enough categories.

3.1.3. Cycle II

In the second cycle that 12 students who took the Post-test, all students had achieved (KKM) which was gaining a score of ≥ 70 .

Therefore, it was found that student learning outcomes in cycle II were better than pre- cycle and cycle I.

The observation results in cycle 2 are:

- a) Students already understand the logic of if else branching and apply it to a project using the turbo pascal application.
- b) At the time of applying the Project Based Learning model students were used to learning in groups.

- c) Maximum use of researcher time
- d) In cycle II there are many students whose grades rise from cycle I.

3.1.4. Reflection II Reflection

Researchers and colleagues make a reflection on the second cycle the results are as follows:

- a) Researchers were able to apply the Project Based Learning model.
- b) The average value of students increases.
- c) Students understand the user if else branch logic that is applied in turbo pascal applications.
- d) Researchers must remind small things that are often forgotten by students such as the placement of points (;) in every statement, use of commas, quote one and others.

3.1.5. Results of Student Activity Observation Sheet in cycle II

That in the first cycle the learning activities of students were based on observing the average score spearheaded by the data, which was 21. Overall the learning activities of students in the first cycle included enough categories. Cycle I and cycle II have been carried out, and have got good results, therefore the research cycle ends in cycle II.

3.2. Discussion

Based on the results of the study based on the Post-test that only two students whose grades had reached KKM, with a total value of 660, average value of 55 and a percentage of completeness of 16%. This is because students still don't understand about if else branch logic material which is the reference for the Pre-test questions. After the pre-test, the researcher gave the action by applying the Project Based Learning model to improve student learning outcomes.

In this study researchers conducted 2 cycles of classroom action research, in the first cycle the Project Based Learning model was applied for two meetings and then post-tests were given to measure student learning outcomes in the first cycle, while the results obtained were 12 students who followed post-test cycle I, ten people managed to reach KKM, two people still did not reach KKM. The total score in the post-test cycle I was 860 with an average value of 71.66 and the percentage of completeness reached 83.33%. Two students whose grades have not yet reached KKM will be the focus of researchers in the second cycle.

The implementation of the Project Based Learning model is carried out again in the second cycle, this second cycle is also conducted in 2 meetings, after the action is taken and then post-tests are given to find out the learning outcomes in cycle II. In this cycle the researcher focuses on 2 people who have not reached the KKM in the first cycle, but all students are also included in the post-test cycle II.

The result is that two students who failed to achieve KKM scores in the first cycle managed to reach the KKM score in cycle II. In cycle II the total value obtained by students is 965 with an average of 80.42 and the percentage of completeness is 100%. After the second cycle is complete, the PTK cycle is stopped. The comparison of learning activities in cycle I and cycle II is show that in the first cycle, the average score obtained data is 14 which includes the Enough category, while in the second cycle student learning activities based on observations of the average score obtained data that is 21 Overall the learning activities of students in the second cycle included the Good category. So learning activities can be increased by applying the Project Based Learning model in cycle I and cycle II.

Conclusion

The conclusion can be proven from the results of this study, in the pre-cycle stage the average score obtained by students is still 55 with classical completeness of 16%, in cycle I increased

to 71.66 with classical completeness of 83.33%, in cycle II the value increases to 80.42 with classical completeness of 100%. The overall learning activity score in the first cycle is 11, this score is included in the less category, and the average score of learning activities in the second cycle is 17, this score has entered the sufficient category. The increase in results and activities has met the office of research success of 65% or with 9 students who fulfill the minimum completeness value that decided by SMKS 04 PGRI Bengkulu city. This research had a weakness which is the students had not ability to their kognitif aspect because to lowest the teacher was not creativity to learning process in the classroom.

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