Implementation of SQ6R Learning Model to Improve Reading Comprehension of Algorithm on Basic Programming Subjects

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Article Info

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ABSTRACT (10 PT)

The purpose of this research is to improve students' reading comprehension of algorithm on basic programming subjects, especially on basic competence of branch control structure by using SQ6R learning model (Survey, Question, Read, Reflect, Review, Rehash, Rethink, Reevaluate). Research began with identifying problems that occured in the classroom. Then designed an action to overcome it in an action cycle. In this research the administration of action takes place in 2 cycles. Each cycle consists of the stages of planning, implementing, observing, and reflecting. The technique of data collection has been done through reading comprehension test of student and observation of learning activity. Analysis of the data was carried out using quantitative and qualitative analysis. The results showed that the SQ6R learning model can improve students' reading comprehension algorithm. This is indicated by the percentage of completeness of student learning outcomes by 38.9% in pre-cycle, 47.2% in cycle 1 and 83.3% in cycle 2.

Keywords: Learning Model, SQ6R, Reading Comprehension

1.   INTRODUCTION

Education has a very important role in human life, because with the education ability and human personality can develop. According to Brown (in Ahmadi, 2004: 74) education is a conscious process of control where changes in behavior are generated within the person through the group. From this view of education is a process that begins at birth and lasts throughout life. The learning process is a process in which there is interaction activity between teacher-student and reciprocal communication that takes place in educational situation to achieve learning goals [21]. Components of learning that are integrated well with each other can support the occurrence of an effective learning process. "Learning is said to be effective if able to provide new experiences, establish competence, and lead students to goals to be achieved optimally" (Rusman, 2011, p.325).

The learning model is a form of learning illustrated from beginning to end that is typically presented by teachers (Sudrajat, 2008). In the learning model there are approaches, strategies, methods, techniques, and learning tactics. Therefore, the learning model has an important role in improving the success of learning. By mastering the learning model, teachers are expected to be able to convey the material correctly without causing boredom to the students, so that the results achieved in accordance with the purpose of education and learning. The learning model that is done by the teacher so far is still done conventionally by using the monotonous lecture method and relying on the memorization, the more active teachers while the passive students, consequently there is the element of coercion, the students are required to follow what the willingness of the teacher, although there are students who are critical, but all teachers' minds are deemed correct by the students and the method of teaching this lecture is not good [19].

One of the learning model that can help students understand the concept of programming algorithm is SQ6R. SQ6R is a learning model that consisted of 8 steps which is Survey, Question, Read, Reflect, Review, Rehash, Rethink, and Reevaluate. The use of SQ6R is to emphasize the students to not only read the material but also understanding the concept of material through a discussion. In this case, the SQ6R method is expected to improve student's reading comprehension of algorithm in Basic Programming learning. Thus, students will find a pleasant atmosphere so that the success of learning is expected to be more leverage.

The purpose of this research is to improve student's reading comprehension of algorithm by applying SQ6R learning model.

2. RESEARCH METHOD

This research was a class action research with the subjects was, 36 students of class X TKJ 1 SMK N 1 Sawit. The data used in this research is the student's result of reading comprehension test of algorithm. Sources of data obtained from several sources, namely the basic programming teachers, students of class X TKJ 1 and documents in the form of observations and comprehension test results. The performance indicator of the research is measured from the comprehension of students' reading comprehension comprehension, which is 75% of the total students.

This research was implemented in two cycles, cycle 1 and cycle 2. Cycle 1 is held in 4 meetings while cycle 2 is held in 3 meetings. In each cycle, there are four activities which were planning, action, observation, and reflection. The material taught in this research is the branch control structure. SQ6R learning model was applied on learning cycle 1 and learning cycle 2. SQ6R is a model that can train the reading comprehension of students to understand the algorithm. The SQ6R model emphasizes students to read and discuss what they have read with their friends, thus students would understand more easily than before and their reading comprehension of algorithm would improve.

3. RESULT AND ANALYSIS (10 PT)
3.1. RESULT
Pre-Cycle Data

Pre-cycle phase begins by making observations on the learning process, observation as well as tests of reading comprehension of algorithm. From the observation, the researchers identified the problems that occur when the learning process takes place. From the observations that have been done, researcher obtained the data that the learning process that took place in the class had less emphasis on understanding algorithms to complete a program, thus causing students understanding of the basic concept of program algorithm not yet optimal. Lack of understanding the concept of programming algorithms that affect the test result were demonstrated through pre-action testing conducted by the researcher. Of the 36 students, only 25.7% had scores above the KKM (Minimum Criterion of Completeness). For more details, preliminary test results are presented in Table 1.

Student's reading comprehension were less optimal indicated because of lack of understanding about the concept of basic programming learning. This is because the learning provided by the teacher still does not emphasize the student to understand the concept. Therefore, efforts are needed to improve the motivation to learn so their reading comprehension can improve. Efforts made to improve that aspect was to train the student's reading comprehension with SQ6R learning model

Table 1. Completeness of Reading Comprehension

Pre-Cycle

Criteria	Pre-cycle
Students that scored ≥ 67	14
Students that scored < 67	22
Classical Completeness	38.9%
Classical Uncompleteness	61.1%

Result of Cycle 1

Basic programming learning in cycle 1 applied SQ6R model. The teacher gave learning materials to the class, then students followed the teacher's instruction to read and discuss the problem with SQ6R model. The first exercises of the students are asked to finish 1 branched condition problem, while the second exercise of the students is assigned to finish 2 branched condition problem.

Percentage of completeness for cycle 1 reading comprehension of algorithm test results was 47.2%. Although the improvement in reading comprehension test achieved in cycle 1 is significant, the results have not yet reached the established performance indicators. Presented completeness data of reading comprehension test result for cycle 1 in Table 2. Based on the results of action cycle 1, the implementation of cycle 2 considers the reflection, among others: (1) learning outcomes of students has increased by 8.3%. However, student's reading comprehension of algorithm in cycle 1 have not reached the established performance indicators. This is due to the uneven learning experience of students. Due to computer limitations, some students do not feel the practice directly. (2) the subject matter of the branch control structure on student's worksheet were still

global. So it is necessary to strengthen the understanding of the branch control structure algorithm as a basis for understanding the concept of algorithm.

Table 1. Completeness of Reading Comprehension

Cycle 1

Criteria	Cycle 1
Students that scored ≥ 67	17
Students that scored < 67	19
Classical Completeness	47.2%
Classical Uncompleteness	52.8%

Result of Cycle 2

Based on the results of reflection on cycle 1, Teachers and researchers strive for each student to operate the computer so that they gain the same learning experience. In addition, Teachers and researchers prepare the material to be more detailed to the material of the branch control structure.

Student's reading comprehension of algorithm in cycle 2 experienced a significant increase. Among 36 students, 30 of them passed the KKM and only 6 of them did not. Completeness of reading comprehension test on cycle 2 reached 83.3%. Presented data completeness of learning outcomes of students cycle 2 in Table 3.

Based on the results that have been described, the results of reflection for learning cycle 2, among others: (1) student's reading comprehension of algorithm have achieved the target set; (2) the learning focus of students improves. Students are no longer preoccupied with anything else that disrupts the learning process; (4) Detailed material in the student worksheet has a positive impact on the smoothness of learning, most students can complete the steps of completion of the program well (4) learning by applying SQ6R model is considered quite effective, because it can train students to read and discuss the problem with observing others point of view.

Table 1. Completeness of Reading Comprehension

Cycle 1

Criteria	Cycle 1
Students that scored ≥ 67	30
Students that scored < 67	6
Classical Completeness	83.3%
Classical Uncompleteness	16.3%

Comparison of Cycle Results

Based on the description of the results of the actions of cycle 1 and cycle 2 that have been presented, then to show improvement of students' reading comprehension of algorithm, the researcher presents the completeness results of the actions in Table 4 below:

Table 1. Completeness of Reading Comprehension

Criteria	Pre-Cycle	Cycle 1	Cycle 2
Students that scored ≥ 67	14	17	30
Students that scored < 67	22	19	6
Classical Completeness	38.9%	47.2%	83.3%
Classical Uncompleteness	61.1%	52.8%	16.7%

3.2. ANALYSIS

Based on the description of the results of research that has been submitted shows that the application of SQ6R learning model can improve the reading comprehension of algorithm of students class X TKJ 1 SMK N 1 Sawit on the basic competence of the branch control structure. During the research process, found several important findings that are correlated with the basic theory and relevant research. The findings are: (1)

understand the basic concepts of branch control structure algorithms using the SQ6R learning model. According to Gray and Rogers (in Supriyono, 1998: 3) by reading a person can improve science, so that his reasoning power develops and views widely that will benefit him and others. It also happened in this research. With the SQ6R learning model students can develop their reasoning and become more widely-held to the problem of branching controls. So by understanding the concept of branch control will develop students' reasoning power and will improve student achievement; (2) Finding Work Steps for Solving Problems by Reading and Understanding Material. From the results of research on cycles I and II it is known that the teacher gives the material which is then read by the students to find the steps to solve the problem of branch control structure. This activity aims to form an understanding of the concept that prior to working on a program students need to find out in advance the algorithm of completion. This step is in line with the opinion of Susanta (2004: 1) that algorithms on computer programs have stages, namely: (a) problem analysis, (b) designing algorithms, (c) making computer programs, (d) testing the results of computer programs and (e) documentation. At the time of giving the first cycle of action, when starting to practice solving problems in a program with Pascal language, most students have not been able to find work steps to solve problems in the program. Based on the results of reflection this happens because the side worksheet used to lure students find troubleshooting steps that are made still global. The student worksheet only gives the story, then the students look for the algorithm. Whereas according Susanta (2014) to complete a program after analyzing the problem stage is done to find the idea of program resolution procedures and declare the completion of the steps structured and detailed. When this process search algorithm is not going well then it is difficult to form their understanding of problem solving on the program, thus causing the purpose of research in the first cycle can not be achieved optimally.As a form of solution to the problems that arise in class that students are still having trouble finding the steps to complete the program, researchers together with the teacher make improvements to the student worksheets in cycle II. The steps to complete the program are made in more detail and sequence, but some information from the step is still hidden or in other words the steps are still in a cross-section. Then students are presented to complete the completion steps. The result of this action is that most students can complete the steps to solve the problem correctly; and (3) Increase comprehension reading algorithm to find problem solving in a program. In Cycle II the action of the study continues on giving the exercise of the problem with the steps of solving the problem searched by the whole as a whole by the students. As explained by Nana Sujdana (1995) that the form of the ability of understanding in learning are: (1) the student can explain again what he read or hear with the composition of his own sentence, (2) the student can give another example beside the mentioned teacher, and (3)) students can use application instructions in other cases.The action given in this second cycle is one of the forms of the formation of understanding that Nana Sujdana implies above is using the application instructions to solve on different cases.In addition it is an effort to improve their reading comprehension to find the problem-solving steps that are at the core of using this SQ6R learning model.

4. CONCLUSION

Based on the results of classroom action research apllying SQ6R learning model to improve reading comprehension of algorithm on basic programming learning in class X TKJ 1 SMK Negeri 1 Sawit academic year 2016/2017 can be summarized that apllying SQ6R learning model were be able to improve students reading comprehension of algorithm, that shown by an increase in the percentage of student completeness from 38.9% to 47.2% in cycle I and completeness reached 83.3% in cycle II.

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