

ANALYSIS OF QUALITY OF SCIENCE LEARNING ON MATERIAL PROPERTIES OF LIGHT IN SDS BINA SATRIA MULIA

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ABSTRACT

The purpose of this research is to improve the quality of science learning in class IV through. This study used a Classroom Action Research design which was carried out in three cycles with one meeting each cycle, which consisted of planning, implementing, observing, and reflecting. Data collection techniques in this study were observation, interviews, tests, documentation and field notes. Data analysis techniques using quantitative and qualitative analysis. The results in this study were that the score of the teacher's skills in cycle I was 51 (good), 57 in cycle II (good), and 68 in cycle III (very good). The total score of student activity in cycle I was 17 (good), 23 in cycle II (good), and 27 in cycle III (very good). The percentage of completeness of student learning outcomes is 73.81% in cycle I, 83.33% in cycle II, and 100% in cycle III. The conclusion in this study is that through the Example Non-Example model assisted by audio-visual media can improve the quality of science learning.

Keywords: Science Learning Quality, Material Properties of Light

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1. INTRODUCTION

Education has a very important role in improving the quality of human resources (HR) and as an effort to realize the ideals of the Indonesian nation to achieve general welfare and educate the nation's life which is written in the preamble of the 1945 Constitution. Improving and developing the quality of education is a problem that always requires more attention. Law on the national education system Number 20 of 2013 states that the goal of national education is to develop the potential of students to become human beings who believe and fear God Almighty, have noble character, are healthy, knowledgeable, capable, creative, independent and become responsible human beings.

According to RI Law no. 20 of 2013 concerning the national education system, curriculum is a set of plans and arrangements regarding objectives, content, and learning materials, as well as methods used as guidelines for organizing activities to achieve certain educational goals. The 2013 curriculum requires students to grow and develop into productive, innovative, creative and affective people (Kasim, 2014). The 2013 curriculum is designed to produce graduates who are competent in all domains, both in the cognitive, affective and psychomotor domains. Implementation of the 2013 curriculum is not easy, the 2013 curriculum has new demands in its implementation, therefore the ability of teachers also needs to be improved so that they are able to meet the demands in the 2013 curriculum in order to achieve educational goals and produce graduates who are competent in all domains both in the cognitive, affective and psychomotor domains. The implementation of the 2013 curriculum has actually been regulated in the Minister of Education and Culture regulation no. 65 of 2013 (Ministry of Education and Culture, 2013), the government stipulates several principles that must be used as the basis for carrying out the teaching and learning process in the classroom, for example teachers must utilize information and communication technology to increase the efficiency and effectiveness of learning. This is in line with the 2010-2014 Ministry of National Education Strategic Plan Chapter IV concerning strengthening and

expanding the use of ICT for e- learning, e-management, and e-services, for example in the provision of ICT facilities and infrastructure in learning. This is due to the aspects of effectiveness, efficiency, and attractiveness offered by digital technology-based learning. Based on current digital technology policies and developments, teachers or instructors are required to be able to develop technology-based learning resources in schools. This is also supported by the development of digital technology in the Industry 4.0 era, which has brought changes and affected various aspects of human life, including the field of education. Hoyles & Lagrange (2010) emphasized that digital technology is the thing that most influences the education system in the world today, so that the use of multimedia in learning is a new demand in the implementation of learning today.

Students who have difficulty absorbing material can be assisted with media and simulations so that students are assisted in understanding the material. Science subjects have abstract concepts that can lead to misconceptions (Lilisari et al., 2016). Science subject matter is very diverse, some material concepts can be practiced or tried out directly in class, and some material can only be imagined by students. Science study materials are still abstract in nature, which has an impact on students' low science learning outcomes (Liliasari, et al., 2016). Students need help to understand material that is abstract in nature, so the use of instructional media is one of the solutions that teachers can use in overcoming the low student learning outcomes in science.

Good learning requires various efforts to realize these efforts, namely by fulfilling various supporting facilities in learning, one of which is the use of learning media in teaching and learning activities in the classroom. Learning media can provide accurate, varied, more flexible and easy-to-use information and can be applied directly. The use of learning media is able to increase student learning enthusiasm with attractive media displays that have never been used by teachers when teaching in class, using appropriate and appropriate learning media will certainly have a good influence on the teaching and learning process in the classroom, as well as the interaction between teachers and students for the better

2. RESEARCH METHODS/MATERIALS AND METHODS/LITERATURE REVIEW

This study uses Classroom Action Research (CAR). According to Aqib (2018: 3), PTK is research conducted by teachers in their own class through self-reflection with the aim of improving their performance so that student learning outcomes increase. In this classroom action research using 3 research cycles with each cycle 1 meeting. The research design used is in accordance with the opinion of Aqib (2011: 7), that Classroom Action Research (CAR) is a one-cycle process or cycle, which consists of planning, implementing actions, observing, and reflecting. The research subjects that the researchers studied in this study were teachers and fourth grade students, totaling 42 students, with details of 20 male students and 22 female students. The variables discussed in this study are: teacher skills, student activities, and student learning outcomes in science learning through the Example Non-Example model assisted by Audio Visual media. Data collection in this study was carried out using observation techniques, interviews, tests, documentation, field notes. The data analysis technique used is descriptive quantitative and qualitative analysis techniques. Quantitative data in the form of teacher skill observation scores, student activity observation scores, and student cognitive learning outcomes were analyzed using quantitative descriptive techniques by determining student scores and calculating classical learning completeness. Qualitative data were obtained from data processing obtained from observation instruments for teacher skills, learning climate, quality of materials, quality of media, and instruments for observing student activities. Poerwanti (2018: 6-9) explains how to process score data as follows (1) Determine the lowest score; (2) Determine the highest score; (3) Find the median; (4) Dividing the value range into 4 categories (very good, good, fair, poor).

3. RESULTS AND DISCUSSION

In this sub- chapter , student learning outcomes will be presented using the Index Card Match learning method . Before the learning process begins students are given a pre-test to determine students' initial abilities.

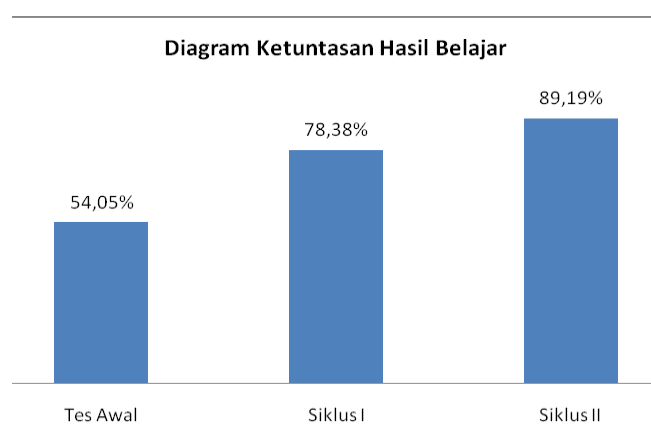
Based on the students' learning completeness diagram on the initial test it is known that the completeness score of the learning outcomes reaches 54.05% or there are 19 students out of 44 students who complete the study. These results indicate that in the classical initial test students have not finished studying.

At the end of the teaching and learning process students are given a formative test with the aim of knowing the level of success of students in the teaching and learning process that has been carried out. It can be explained that by applying the Index Card Match learning method .

In the first cycle, it is known that the learning completeness reached 78.38% or there were 29 students out of 44 students who completed the study. These results indicate that in the first cycle classically students have not finished studying. This is because students are new and do not understand what is meant and used by the teacher in applying the Midful Learning learning method.

After cycle I took place and the completeness of the learning outcomes was not satisfactory, therefore cycle II was held. The learning outcomes of the second cycle are known that the students' learning completeness reached 89.19% or there were 33 students out of 44 students who had completed their studies. The results show that from cycle II, the mastery of learning classically has increased from cycle I. There is an increase in student learning outcomes because the teacher informs that each lesson result will always be held a test so that at the next meeting students are more motivated to learn. In addition, students have also begun to understand what is meant by the teacher's wishes by applying the Index Card Match learning method .

After the initial test, cycle I and cycle II were carried out, therefore it can be seen from the completeness of the learning outcomes in the diagram below:



Picture 1. Completeness Learning Outcome Diagram

From the results of observations in cycle I, researchers saw students' interest starting to improve from the previous initial test. The class atmosphere has started to calm down, they see/pay attention to the teacher, but only some answer questions when the teacher asks them.

From the results of observations in cycle II it was clear that the students' interest was clear, where when the teacher explained the class atmosphere was very calm and when the teacher asked questions to students, they raised their hands in competition to answer the questions given by the teacher. And at the end of the lesson, the results of the questions given were satisfactory.

From the graph between cycles above it appears that there is an increase in student learning outcomes, student activity and research activity. The increase in the results of mastery of the basics of science can also be seen from the evaluation results of students. The results of the study before being given action, the classical learning completeness level was only 54.05 %. After giving action through learning with the Index Card Match learning method in cycle I the classical mastery level of student learning reached 78.38 %.

Then after giving action in cycle II through learning with the Index Card Match learning method, the classical completeness level was 89.19 %. By taking action through learning using the Index Card Match learning method in class X SMK Private PAB 2 Medan on the subject of the basics of science can improve student learning outcomes because students are more free to ask questions about things that are not yet understood in the material of the basics of science.

The author acknowledges that this thesis can be said to be imperfect, there are still limitations and shortcomings in the authors conducting research and analyzing research data. The limitations the authors face are caused by several factors including:

It is difficult to measure accurately the research on the Index Card Match learning method on students' natural science learning outcomes on the subject of understanding the basics of science. In addition to the limitations above, the writer also realizes that the writer's lack of insight in making a good cycle research coupled with the lack of guidebooks or references, is an unavoidable researcher's limitation. Therefore, with open arms the author expects constructive criticism and suggestions for the perfection of future writings

4. CONCLUSION

The use of the Index Card Match learning method turned out to be able to improve students' numeracy competence and student learning interest as well as student learning activities in learning science.

Student mastery of learning materials increases. This is indicated by the level of completeness of the evaluation results of students classically before using the Index Card Match learning method reaching 54.05% increasing to 78.38% then in cycle II increasing to 89.19%. During the teaching-learning process the students showed enthusiasm to be even more active in learning science.

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