
The Analysis of Student Process Skills in Implementing Practicum on Straight Motion Material in High School

Medya Sartika, Nur Islami, Zuhdi

Physics Education Study Program, FKIP, Universitas Riau,
Pekanbaru, 28293, Indonesia
Email: Medya.sartika@gmail.com

Abstract: This study aims to describe students' skills in carrying out practicum on straight motion material in high school. This type of research is descriptive research supported by a quantitative approach while the method is survey. The sample in this study is class X IPA 1 and class X IPA 2 with a total of 67 students, the determination of the sample is done by purposive sampling. The data in this study in the form of scores of students' skills in carrying out practicum on straight motion material in high school which were analyzed descriptively, scoring, tabulating and categorizing according to the category level of students' process skills. This research is seen from the aspects of preparation, implementation and closing. Based on the data analysis obtained the skill level in the preparation aspect gained a score of 3.35 with good category, the implementation aspect gained a score of 3.25 with a fairly good category and the closing aspect gained a score of 3.49 with a good score. Thus it can be concluded that students of class X IPA 1 and X IPA 2 in SMA Negeri 14 Pekanbaru have the skills to carry out practicum on good straight motion material.

Keywords: Process skills, Practicum, Straight motion.

1. Introduction

Every teacher must have competence, not least in science learning, especially high school physics. Said Suhil (2014) stated that the competence of science subject teachers was designing physics experiments aimed at learning or research purposes and carrying out the correct physics experiments. When carrying out the Field Practice Program (PPL), based on the results of observations carried out showed that students rarely do Physics experiments can even be said to have never been done at all, students are only taught concepts and formulas. This is in accordance with research conducted by Wiyanto, et al (2007) which shows that in general, learning Science, especially Physics tends to be monotonous with low science activities. Teachers tend to lecture and explain in front of the class and while students listen and record, so laboratory activities are rarely done.

The results of observations that have been made at SMA Negeri 14 Pekanbaru on Physics lessons, to achieve the learning objectives are only conveyed using the lecture method, if there is material that requires experimentation, the teacher just skips. This is due to various problems, namely the incompleteness of laboratory facilities and infrastructure, lack of availability of tools and materials, absence of guidebooks in the lab, student worksheets are still very limited, there is no practical schedule provided by the teacher.

In reality, laboratory or practicum activities are the right skills in science learning. Practicum not only encourages students to learn, but also emphasizes on understanding concepts so that students can do something and make students learn to find something (Widodo and Ramdhaningsih, 2006). Adisendjajaand Romlah (2009) also stated that practicum activities greatly support students to develop students' skills and understanding in exploring material. When doing practical work students are expected to be able to understand the theoretical basis, the ability to observe, understand the practicum implementation procedure, the ability to use tools and materials, interpretation and convey the results of their observations.

This study aims to determine the extent to which students' skills in carrying out practicum, if practicum is carried out with the availability of tools and materials, place and time is efficient. In previous studies that have been conducted by (Tarigan et al, 2015), in the learning process carried out using PBL-based practicum methods, encouraging students to discuss and research conducted by (Arisman and Permanasari, 2015) shows that the STAD type cooperative learning model uses practicum method is better in carrying out students' scientific literacy. From the above explanation, it can be examined how the students' skills in practicum implementation and analyzing students' skills in carrying out practicum especially in Physics subjects.

2. Methodology

This research was carried out in the 2016/2017 school year with research subjects at SMA Negeri 14 Pekanbaru in class X students consisting of two classes. This type of research is descriptive research supported by a qualitative approach. The method used is a survey method (RahmatKriyantono, 2009) in which this survey is a method that uses questionnaires as instruments in data collection. The aim is to obtain information about a number of respondents who are considered to represent a particular population. In addition, data collection techniques use the observation method, which is defined as systematic observation and recording of the phenomenon under study (SutrisnoHadi, 1997) and an interview that aims to obtain information directly from the source, which is one of the usual methods used in qualitative research (RahmatKriyantono, 2009).

The data obtained from this study are primary data obtained by distributing questionnaires supported by observation and interviews. Data from this study were analyzed using descriptive analysis which aims to see the results of students' process skills in carrying out practicum on each indicator. Data interpretation is done by scoring, tabulating and categorizing according to the category level of students' process skills in carrying out practicum on straight motion material in high school.

3. Result and Discussion

The analysis of the skills to carry out practicum on the straight motion material in high school is seen from the aspects of preparation, implementation and closing. The results of the study revealed that the level of skill in carrying out practicum on straight motion material in high school class X IPA 1 and X IPA 2 in SMA Negeri 14 Pekanbaru can be seen in Table 4.1.

Table 3.1 Level student process skill in implementing practicum on straight motion material in High School

No.	Aspects	Score	Category
1.	Preparation	3,35	Good
2.	Implementation	3,25	Fair
3.	Closing	3,49	Good
Average		3,36	Good

Based on Table 3.1 it is known that the average score of the skills to carry out practicum on straight motion material in SMA which is viewed from all aspects in the good category. This means that the skill to carry out practicum on the material of motion has been carried out optimally.

3.1 Skills in the Process of Implementing Practicum on Preparation Aspects

Preparation activities in student process skills carry out practicum can be explained the acquisition of indicator scores set the title and goal of the practicum in the preparation aspect to get a score of 3.70. Preparation activities with activities knowing the title and purpose of the practicum have been carried out with good categories. The determination of the title and purpose is conveyed by the teacher in front of the class. This is done so that students can know what practicum will be done. Then on the student worksheet (LKS) also stated the title and purpose of the practicum to make it easier for students to connect the material they have learned with the practicum activities they do.

Indicators preparing the tools and materials needed in the preparation aspect get a score of 3.67. Preparation activities with activities to prepare the tools and materials that will be practiced have been carried out with good categories. The tools and materials needed by students are prepared by students at their group table by first arranging to check the equipment to be used as stated in the Student Worksheet.

Indicators preparing a practicum place in the preparation aspect get a score of 2.11. Preparation activities with activities knowing where to go to carry out the practicum have been carried out with a pretty good category. However, during the practicum, students do practical work in the classroom. Basically practicum activities are carried out in the laboratory. The state of the laboratory in SMA Negeri 14 shows that the physics laboratory room is joined by biology which is not available for chairs and tables for practicum.

According to Widyarti (2005) states that the laboratory is a place to conduct practical activities or research that is complemented by the presence of a set of laboratory equipment and the existence of a complete laboratory infrastructure. The laboratory has an important role in carrying out the practicum so that students are more flexible and easy to carry out practicum without damaging classroom learning facilities. In the practicum the classroom is used as a practical place not just a place to study.

3.2 Skills in the Process of Implementing Practicum on Implementation Aspects

The results of the research on the skills to carry out practicum on straight motion material in the implementation process are the Indicators stipulating conducting practicum in accordance with the instructions and steps of the practicum in the implementation aspect obtaining a score of 3.47. Preparation activities with practicum activities in accordance with instructions and practical steps have been carried out with good categories.

If students do an experiment, they will not experience problems when collecting data, so that the time is wasted doing the next experiment. During the practicum, students have followed the instructions and steps - steps that are correct in the implementation of the practicum.

Indicators of observing practicum in the aspect of implementation get a score of 3.39. The activity of observing or making observations while doing the practicum has been carried out in a good category. In observing this activity students observe how the dynamics train runs in this straight-motion practicum. At a distance student worksheets have been determined, so the train dynamics must be stopped at that distance.

Recording data and analyzing this data is needed during the practicum process to find out the results obtained in the experiments that have been carried out until eventually the students get the goal of the practicum conducted to prove the validity of irregular straight movements and irregularly changing straight movements which are marked with a ribbon they can from practicum. The ability to process and analyze information data through reasoning and rational thinking activities is an important competency that students must possess to find a connection between one data and other data (Ridwan, 2014). When attaching a typing ribbon students analyze the results they get to graph the relationship between speed and time in GLB and analyze the results of the tapes of paper tape attached to graph paper to get a graph of the relationship between acceleration and time. RafikaWarma, et al (2014) argument that students are trained to interpret data with various features such as using charts, diagrams or graphs.

In the activity of answering this question in the implementation of students answer questions based on the results of the data that has been obtained. The results of these data are used to find the results of speed on GLB and the results of acceleration on GLBB. In the activity of communicating the results of the practicum, it provides an opportunity for students to discuss with group friends. Students complement data that has been obtained during practice. From the results of the practicum obtained by students, it is processed together so that there is no mistake in entering data into the table of practicum results. In this activity students are trained to be skilled in working together and respecting the opinions of friends in one group.

3.3 Skills in the Process of Implementing Practicum on Closing Aspects

The results of the research process of students' skills carry out practicum on straight motion material in the closing process. In the execution after students have finished practicing, they tidy up the practicum tools and clean the classroom. Each group re-records the tools they have used when practicing. After checking, then students return the practicum tools they use.

After students carry out the practicum, at the end of the students, students also discuss the obstacles they encountered during the lab work with other groups. Students can actively communicate in doing the practicum that has been done. This is because the students' enthusiasm is very high to get the right results during the practicum.

Practicum activities provide benefits to students, which is more to improve the skills of students, because students do activities directly, not only hear the explanation from the teacher. Students can better understand something concrete that is by practicing it themselves. The learning experience experienced by students when carrying out the practicum that makes students find a concept is a process that is far more important in science learning (Adisendjaja and Romlah, 2009).

In making the report on the results of the practicum students collect reports in written form. LKS that has been filled by students, is completed by rewriting the results students get in the double folio accompanied by graphic paper. In the implementation of this activity students are actively involved in communicating the results of the data that has been obtained from the results of the practicum from the group. Other groups gave responses and objections when the results of the data obtained were different

4. Conclusion

Based on the results of the study, it can be concluded that the level of skill in carrying out practicum on straight motion material in high school, in terms of three aspects included in the good category with an average score of 3.36. Based on the grouping of three aspects, the acquisition of the categories of each aspect is, the preparation indicators are in good category, the implementation aspects are in good enough category, (3) the cover aspect is in good category. So, it can be analyzed that by practicing, the teacher can see the science process skills of students in good categories.

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