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ANALYSIS OF LABORATORY MANAGEMENT AND UTILIZATION IN SCIENCE LEARNING AT BANYUAJUH 2 ELEMENTARY SCHOOL
IMPLEMENTATION OF FARMING ACTIVITIES TO GROW CHILDREN'S NATURAL INTELLIGENCE

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ABSTRACT

Science learning does not require that students only understand the material in theory, but students must be able to learn the theory they have learned. One of the facilities for carrying out practicum activities is the laboratory. Laboratory facilities certainly have elements of laboratory management and utilization which make all laboratory activities more systematic so that laboratory use can run optimally. The purpose of this research is to find out the management and utilization of laboratories at Banyuajuh 2 Elementary School before the pandemic and after the Covid-19 pandemic. The research method used in this research is descriptive qualitative. The data collection technique used is interview. Based on the research results obtained, the Banyuajuh 2 Elementary School has a laboratory facility in which there are many laboratory tools that can be used in science learning. The school also has manuals or SOPs for laboratory management and use. During the Covid-19 pandemic, all students carried out courageous learning and carried out practical work independently at their respective homes

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A. Introduction

According to PERMENPAN No. 3 of 2010 Laboratory is an academic support unit in educational institutions, in the form of closed or open rooms, permanent or mobile in nature, managed systematically for testing, calibration and/or production activities on a limited scale, using equipment and materials based on certain scientific methods, in the framework of implementing education, research, and/or community service. A laboratory that is in good condition is a laboratory that is managed, cared for and used properly. According to Sangi and Tanauma (2018: 20-21) it is stated that managing and maintaining a laboratory is an effort made so that the laboratory can continue to function as it should. Efforts to always prevent and minimize the occurrence of accidents when doing practicum in the laboratory and handling them in the event of an accident is an effort to maintain safety. Teachers and students must have sufficient knowledge about laboratory management, laboratory safety and security because teachers and students are users of laboratory facilities.

Natural Sciences is one of the subjects in the basic education curriculum. IPA is a science that is dynamic, and always develops in accordance with the progress of Science and Technology (IPTEK). Science learns about life in all its complexities (Agustina, 2018). There will always be new findings from the experimental results. Experiments need to be carried out because in accordance with the nature of students who study Biology can make direct contact with the object under study using the five senses or using tools. Therefore, adequate school facilities and infrastructure are needed to support the science learning process (Salabi, 2016: 36).

In essence, science learning requires a laboratory in conducting practicum. The laboratory is very important as a support in the implementation of science learning because through the laboratory students can do practical work on the science material being studied. Science does not only learn things in theory, but science learning should be done in practice to make it easier for students to understand each material by the teacher (Agustina, 2018). Science laboratory is a special place to do a practicum.

Practicum activities can generate motivation to learn science for students. Students will be given the opportunity to fulfill their curiosity and want to be able to do it through activities in the laboratory. This is a principle that can encourage students to find knowledge through exploration with practicum. Students will be

trained to develop basic skills in conducting experiments. Experiments are activities that are usually carried out by scientists. Practicum activities carried out in the laboratory can train students to develop the ability to conduct an experiment (Agustina, 2018). Conducting an experiment will train students to make careful observations, measure accurately with measuring instruments, use and maintain tools safely, design, conduct and interpret experiments. Practicum becomes a vehicle for learning a scientific approach for students. Making students as scientists is the best way to take a scientific approach (Emda, 2014: 226).

Based on the results of observations and interviews conducted at Banyuajuh 2 Elementary School has a science laboratory. The laboratory has special management and is used to support science learning. The purpose of the observations and interviews that have been conducted is to find out the management and use of laboratories in learning science.

B. Method

This study uses a qualitative descriptive research method. Qualitative descriptive research is research that reveals events, facts of a phenomenon, variables and situations that correspond to what actually happened (Rifa'i, et al., 2021). According to Yusuf in Rifa'I, et al (2021: 4) argues that qualitative descriptive research is the process of collecting data in depth, objectively to understand the object of research (Yusuf, 2016).

The object of this research is a teacher and two students. This research took place at Banyuajuh 2 Elementary School. The data collection technique used in this study was interviews. Interview is a data collection technique by conducting question and answer between researchers and informants, so that meaning can be constructed in a particular topic (Sugiyono, 2016). The data analysis technique used in this study consisted of four stages, namely data collection, data reduction, data presentation, and drawing conclusions. Data analysis techniques can be interpreted as a way to process data into information. This process is necessary so that the processed data is easier to understand.

C. Result and Discussion

The existence of a science laboratory is very beneficial for students, because it is a place for students to do practicum according to the material they have obtained (Agustina, 2018). The laboratory also plays an important role in learning

science (Wardhiana & Wahyono, 2021). Based on the results of an interview that was conducted on November 25 2022 with the manager of the science laboratory at Banyuajuh 2 Elementary School, Mr. Taufik Ismail, S.Pd.SD. explained that the school has laboratory facilities. In the laboratory there are tools and learning media for science that can support learning activities and science practicum activities. The laboratory equipment includes male and female torsos, electric kits, magnetic kits, chemical laboratory equipment, and so on. The tools are still in good condition, there was damage to one of the tools but it has been repaired. Laboratory tools are stored in the library and managed properly.

Arrangement and maintenance of the laboratory is an effort made so that the laboratory can be used properly. Teachers and students are required to have sufficient knowledge about laboratory management, utilization, safety and security because teachers and students are users of laboratory facilities (Sangi & Tanauma, 2018). The laboratory at Banyuajuh 2 Elementary School has a special manager, namely senior teachers who are trusted by the school principal to look after and maintain the laboratory. In essence, all teachers are responsible for the science laboratory equipment at Banyuajuh 2 Elementary School. Teachers who use laboratory tools are responsible until they finish using them. The procedure for borrowing science laboratory equipment is that one student representative contacts the teacher concerned to borrow the necessary equipment. Before students borrow laboratory equipment for practicum, students have previously been explained about the learning material and the steps in carrying out the practicum. If any laboratory equipment is damaged, the damage will be borne by the school. After the damaged laboratory equipment was repaired, students were asked to be more careful in using laboratory equipment.

With so many laboratory tools at hand, guidebooks or SOPs (Standard Operating Procedures) are needed to maintain the maximum use of these tools (Rifa'i, et al., 2021). SOP (Standard Operating Procedure) is a written guideline for carrying out an activity or activity (Cahyaningrum, Sari, Iswandari, & et al, 2019). The laboratory equipment at Banyuajuh 2 Elementary School has a guidebook for its utilization. The use of laboratory equipment for practicum purposes is also in accordance with the guidebook because students who carry out practicums are directly guided by the teacher. The use of laboratory equipment is also directly supervised by the school principal because the principal is also responsible for the laboratory equipment. The principal oversees the implementation of practicum

carried out by students of course with the teacher's guidance. The principal also ensures that laboratory equipment is used properly and correctly. Laboratory tools that are often used by students are electric kits, magnetic kits, and torsos. Science laboratory tools have also been used in other studies, such as IPS (Social Science) and PLH (Environmental Education). These laboratory equipment began to be rarely or even not used at all during the Covid-19 pandemic.

The Covid-19 pandemic started in early 2020 which caused health problems around the world including in Indonesia. Not only health and economic problems, problems also occur in the education sector. Everyone is not allowed to leave the house and must keep their distance so that learning activities at school cannot be carried out. Therefore, a new breakthrough emerged, namely distance learning implemented in a network (online learning). The online learning system is a learning system without direct face-to-face meetings between teachers and students, but is carried out online using an internet network (Harnani, 2020). During the Covid-19 pandemic the Banyuajuh 2 Elementary School implemented online learning. In grade 6, the teacher carries out online learning by providing an explanation of learning material through the Whatsapp Group media. During online learning, the teacher once asked students to carry out practicum. Practical implementation is of course slightly different from practicum carried out in schools. Practicums are carried out in groups and practicums are carried out by students with simple tools at home. If the student group does not have the necessary tools, the teacher asks the students to jointly buy the tools needed for the practicum. Of course the teacher asks students to buy practicum tools whose prices are still affordable by students. In carrying out practicum activities, students are still guided by the teacher through video calls. During online learning, teachers have also used laboratory equipment, but their use is conditional according to needs. The obstacle experienced during online learning is that the teacher cannot meet students face to face. Students have difficulty understanding learning material because the delivery cannot be done directly. Students also find it difficult to ask if there is learning material that has not been understood.

At the end of 2021 until early 2022 limited face-to-face learning (PTM) will be held. Limited face-to-face learning can of course be carried out by fulfilling various conditions. The requirements for face-to-face learning are limited, namely having carried out vaccinations for all educational staff and limiting study hours at each meeting (Masyithoh & Arfinanti, 2021). There are several things that must be

considered when carrying out limited face-to-face learning, including: 1) Vaccinating all elements in the school, 2) Increasing the immunity of each element in the school, 3) Preparing facilities and infrastructure according to health protocols (Pattanang, Limbong, & Tambunan, 2021). When face-to-face learning is limited, the teacher teaches by conveying the important points of the learning material which are summarized in order to make time efficient so that the learning material delivered can be completed. In limited face-to-face learning, students also carry out practicums that are not too complicated so that it only takes a short time. The practicum also uses laboratory equipment such as conductors and insulators. The obstacle experienced during limited face-to-face learning is the implementation of practicum which is less than optimal due to limited learning time.

D. Conclusion

Based on the results of research and discussion, Banyuajuh 2 Elementary School has laboratory facilities. In the laboratory there are many tools that can be used in learning science, including practicum. There is a guidebook for the use of laboratory equipment that will facilitate students in using these tools. Practicum activities will also be guided by the teacher so that practicum activities can be carried out properly. During the Covid-19 pandemic, all learning at Banyuajuh 2 Elementary School was carried out online. Teachers and students experience difficulties in carrying out practicum activities, however practicum activities can still be carried out at home independently with the teacher's guidance through video calls. When face-to-face learning is limited, teachers and students can carry out practicum activities at school with limited time.

References

Agustina, M. (2018). PERAN LABORATORIUM ILMU PENGETAHUAN ALAM (IPA) DALAM PEMBELAJARAN IPA MADRASAH IBTIDAIYAH (MI) / SEKOLAH DASAR (SD). Jurnal Ilmiah Pendidikan Islam, 10, 1-10.

Cahyaningrum, D., Sari, H., Iswandari, D., & dkk, C. (2019). Faktor-Faktor Yang Berhubungan Dengan Kejadian Kecelakaan Kerja Di Laboratorium Pendidikan. Jurnal Pengelolaan Laboratorium Pendidikan.

Emda, A. 2014. 'Laboratorium Sebagai Sarana Kimia dalam Meningkatkan Pengetahuan dan Keterampilan Kerja Ilmiah'. Lantanida Journal, 2(2).

Harnani, S. (2020, Juli Selasa). Efektivitas Pembelajaran Daring Di Masa Pandemi Covid-19. Retrieved from Kementerian Agama RI: https://bdkjakarta.kemenag.go.id/berita/efektivitas-pembelajaran-daring-di-masa-pandemi-covid-19

Masyithoh, D., & Arfinanti, N. (2021). ANALISIS PELAKSANAAN PEMBELAJARAN TATAP MUKA TERBATAS (PTMT) PADA ERA NEW NORMAL TERHADAP HASIL BELAJAR MATEMATIKA SISWA MADRASAH ALIYAH. Jurnal Pendidikan Matematika, 13(2), 160-167.

Muna, I. A. 2016. Optimalisasai Fungsi Laboratorium IPA Melalui Kegiatan Praktikum Pada Prodi PGMI Jurusan Tarbiyah STAIN Ponorogo. Kodifikasia, 10(1).

Pattanang, E., Limbong, M., & Tambunan, W. (2021). Perencanaan Pelaksanaan Pembelajaran Tatap Muka Di Masa Pandemi Pada SMK Kristen Tagari. Jurnal Manajemen Pendidikan, 10(2), 112-120.

Rifa'i, M. R., Fibriana, N. I., Nur, F. A., Salma, F. F., Habibi, M. W., & dkk, R. (2021). Analisis Pengelolaan Laboratorium IPA SMP Negeri 1 Sukodono Lumajang. Edulab: Majalah Ilmiah Laboratorium Pendidikan, 6(1), 1-14.

Salabi, A. (2016). Needs Assessment Laboratorium Biologi Pada Madrasah Aliyah negeri (MAN) di Kota Banjarmasin. Jurnal PTK dan Pendidikan, 2(2).

Sangi, M. S., & Tanauma, A. (2018). Keselamatan Dan Keamanan Laboratorium IPA. Jurnal MIPA, 7(1), 20-24.

Sugiyono. (2016). Metode Penelitian Kuantitatif, Kualitatif, dan R&D. Bandung: Alfabeta.

Wardhiana, I. K., & Wahyono, U. (2021). Penerapan Perangkat Laboratorium IPA Untuk Meningkatkan Hasil Belajar Siswa Sekolah Dasar Di Daerah Terpencil. Jurnal Pendidikan Fisika Tadulako Online, 12-16.