E-ISSN: 2798-0472 **DOI:** 10.52562/biochephy.v4i2.1400

BIOCHEPHY: Journal of Science Education

http://journal.moripublishing.com/index.php/biochephy

LABORATORY MANAGEMENT FROM THE PERSPECTIVE OF PRINCIPALS, SCIENCE TEACHERS AND LEARNERS AT UPT SPF SMP NEGERI 24 MAKASSAR

Salma Samputri, Rifda Nur Hikmawati Arif*, Muh. Idham Amir, Reski Ramadhani
State University of Makassar, Indonesia
*Corresponding author: rifdanha@unm.ac.id

Abstract: This study aims to describe: 1) laboratory management from the perspective of school principals 2) laboratory management from the perspective of science teachers 3) laboratory management from the perspective of students. The research method of research used is the survey method. The study population was all people in UPT SPF SMPN 24 Makassar. The sampling technique used was random sampling, using the slovin formula with a sample of 120 students, sampling teachers and principals using saturated sampling techniques. Data collection techniques using questionnaires. Data analysis techniques using descriptive statistics. The results showed that: 1) laboratory management in terms of the principal's perspective on the evaluation aspect, the majority chose the answer "Always" as much as 66.7%, 2) laboratory management in terms of the perspective of science teachers in the planning aspect, the majority chose the answer "Always" as much as 51.5%, the implementation aspect, the majority chose the answer "Often" as much as 35.29%, and the evaluation aspect, the majority chose the answer "Rarely" as much as 40.74%, 3) laboratory management in terms of the perspective of students in the implementation aspect, the majority chose the answer "Always" as much as 27.06% in UPT SPF SMPN 24 Makassar.

Keywords: laboratory management, reviewed from head, teacher science, student

Abstrak: *Penelitian ini bertujuan untuk mendeskripsikan: 1) pengelolaan laboratorium dari perspektif kepala sekolah 2) pengelolaan laboratorium dari perspektif guru IPA 3) pengelolaan laboratorium dari perspektif siswa. Metode penelitian yang digunakan adalah metode survei. Populasi penelitian adalah semua orang yang ada di UPT SPF SMPN 24 Makassar. Teknik pengambilan sampel yang digunakan adalah random sampling, dengan menggunakan rumus slovin dengan sampel sebanyak 120 orang siswa, pengambilan sampel guru dan kepala sekolah menggunakan teknik sampling jenuh. Teknik pengumpulan data menggunakan kuesioner. Teknik analisis data menggunakan statistik deskriptif. Hasil penelitian menunjukkan bahwa: 1) pengelolaan laboratorium ditinjau dari perspektif kepala sekolah pada aspek evaluasi, mayoritas memilih jawaban "Selalu" sebanyak 66,7%, 2) pengelolaan laboratorium ditinjau dari perspektif guru IPA pada aspek perencanaan, mayoritas memilih jawaban "Selalu" sebanyak 51 5%, aspek pelaksanaan mayoritas memilih jawaban "Sering" sebanyak 35,29%, dan aspek evaluasi mayoritas memilih jawaban "Jarang" sebanyak 40,74%, 3) pengelolaan laboratorium ditinjau dari perspektif peserta didik pada aspek pelaksanaan mayoritas memilih jawaban "Selalu" sebanyak 27,06% di UPT SPF SMPN 24 Makassar.*

Kata Kunci: *manajemen laboratorium ditinjau dari kepala, guru ipa, siswa*

INTRODUCTION

Laboratories have a very important role in supporting teaching and learning activities at school, especially in the field of Natural Sciences (IPA), one of which is in learning biology. In learning biology, it is important to test and prove the theories obtained with the actual reality. According to Decaprio (2013), school laboratories have various important functions, including

creating various problems that can be solved, being an ideal place for students to conduct experiments, exercises, demonstrations, and other learning methods. In addition, laboratories can also increase students' understanding and awareness of the role of scientists, facts, principles, concepts, and generalizations of science. Laboratories also provide opportunities for students to work with certain tools and materials, collaborate with friends, and feel motivated to explore and discover something, thus achieving satisfaction with the results achieved.

According to Carin (2005:15), practice is an integral part of learning science subjects. Science subjects require students to understand things they did not know before, this is shown through practicum. Learners are given the opportunity to stimulate their curiosity and willingness to face challenges in order to better understand and explore what they will get after conducting experiments in the laboratory. Therefore, a good laboratory management system is needed to support practicum activities (Sudirman, 2011: 57).

Practical method is a way of presenting lessons to students to conduct experiments by experiencing and proving something that is learned. Thus, the practicum method is a way of presentation that is actively arranged to experience and prove for themselves what they are learning. Through practicum, students can have a lot of experience, either in the form of direct observation or even conducting their own experiments with certain objects. There is no doubt that through first-hand experiences, students can learn more easily than learning through books (Malik, 2019).

Natural Science (IPA). Science has four dimensions, namely scientific attitudes, processes, products, and applications. Science learning needs to be supported from the laboratory space. In education, the laboratory serves as a place to practice developing intellectual skills through observation activities, recording natural symptoms and developing students' motor skills (Nahdiyaturrahmah, 2020).

Suyanata (2010) has explained that laboratory management is the process of managing laboratories efficiently. Every junior high school is expected to have optimal laboratory management so that practicum activities can run smoothly and produce maximum learning outcomes. The results of research by Hamidah et al. (2013) on biology laboratory management in several private junior high schools in Mandailing Natal Regency found that management in some schools is still not effective, so that the laboratory has not been utilized properly.

Some schools have also done laboratory management well, for example, such as the existence of a person in charge of the laboratory, the placement of tools and materials in their place. In the implementation of laboratory use, there is data on discipline. In addition, there is also the management of tools and materials, the placement of tools and materials is in accordance with laboratory criteria by being stored separately or classified so that later it is easy to find when we need it (Irjus, 2020).UPT SPF Laboratory SMP Negeri 24 Makassar has not carried out laboratory management properly, it can be seen from the limited tools and materials in the laboratory which is also a contributing factor to the lack of effective practicum activities at school, so that science subject teachers rarely carry out practicum activities at school.

Based on this background and the results of an initial questionnaire at UPT SPF SMP Negeri 24 Makassar, with the head of the laboratory, there are several schools that have laboratories, but they are rarely used for practicum activities by teachers. In addition, the layout of laboratory tools and materials is also not in accordance with the procedures that should be. This condition is likely caused by the lack of effective implementation of laboratory management. Therefore, it is important to evaluate how the implementation of laboratory management has been carried out by laboratory managers at UPT SPF SMP Negeri 24 Makassar.

METHOD

The type of research is descriptive research with a quantitative approach using a questionnaire. As explained by Setyosari (2010), this type of research aims to explain various aspects of planning, implementation, evaluation through the use of numerical data and words. This research focuses on describing the state of science laboratory management in UPT SPF SMP Negeri

24 Makassar, which is located in Makassar Regency. The subjects of the study included the head of the laboratory and subject teachers and students of class VIII and Class IX at the school. The sample in this study was determined using random sampling techniques for students and saturated sampling for samples of school principals, teachers. According to Machali (2021: 75) where each sample is selected with certain considerations based on research objectives.

Determination of the sample of students using the Slovin formula, because the number must be representative so that the research results can be generalized and the calculation does not require a sample size table, but can be done with simple formulas and calculations. This is often done when the population is relatively small, less than 30 people. where each sample is selected with certain considerations based on the research objectives. The criteria used for sample selection are schools that have a special laboratory room. Based on the initial questionnaire from SMP Negeri 24 Makassar which has a special laboratory room.

Data collection in this study was carried out using triangulation techniques, where researchers collected data from a variety of different sources to obtain comprehensive information (Sugiyono, 2014: 330). Researchers used data collection techniques, namely questionnaires. The data from the questionnaire were analyzed using a Likert scale with categories of always, often, sometimes, rarely and never. The questionnaire used is a questionnaire for school principals, subject teachers, students to assess the implementation of laboratory management that has been carried out at the UPT SPF SMP Negeri 24 Makassar school. The questionnaire contains closed statements with answer choices that have been prepared, and is arranged using a Likert scale.

The data obtained is then analyzed by calculating the score on each indicator of the questionnaire answer which has been converted into quantitative form. This is done by using certain formulas to perform statistical analysis of the data obtained. The formula in question is as follows:

$$P = \frac{f}{n} \times 100\% \quad (1)$$

In this study, P for Laboratory Management Score, f for Percentage value, and n is an ideal score. the value of P is the score achieved in each aspect of laboratory management, divided into scores in the aspects of planning, implementation and evaluation. The value of f is the sum of the scores on the observation sheet. The value of n is the ideal score or maximum score. The purpose of descriptive statistical analysis is to know the percentage level of laboratory management indicators.

RESULT AND DISCUSSION

Based on the results of field observations, filling out questionnaires by the Principal, subject teachers and students, the assessment of laboratory management consists of several aspects, namely planning, implementation, evaluation.

Description of Science Laboratory Management Categories According to the Principal

Table 1. Principal Questionnaire Analysis Results

Indicator	*Percentage (%)*				
	Always	Often	Sometimes	Rarely	Never
Evaluation	66,7	33,3	0	0	0

Based on Table 1, the questionnaire analysis is obtained from the perspective of the school principal. In the evaluation indicator, the majority of answers are the "Always" option, which is 66.7%.

Table 2. Science Teacher Questionnaire Analysis Results

Indicator	*Percentage (%)*				
	Always	Often	Sometimes	Rarely	Never
Planning	51,5	12,12	18,18	15,15	3,03

Implementation	31,37	35,29	9,8	11,7	11,76
Evaluation	22,22	14,8	22,22	40,74	0

Based on Table 2, obtained questionnaire analysis according to the perspective of science teachers. In the planning indicator, the majority of answers are the "Always" option, which is 51.5%. In the implementation indicator, the majority of answers are the "Often" option, which is 35.29%. In the evaluation indicator, the majority of answers are the "Rarely" option, which is as much as 40.74%.

Description of Science Laboratory Management Categories According to the students

Table 3. Students Questionnaire Analysis Results

Indicator	*Percentage (%)*				
	Always	Often	Sometimes	Rarely	Never
Implementation	27,06	24,21	26,04	10,35	12,31

Based on Table 3, obtained questionnaire analysis according to the perspective of students. In the implementation indicator, the majority of answers are the "Always" option, which is 27.06%.

Based on the results of the research, the science laboratory planning at UPT SPF SMP Negeri 24 does not have a practicum guide and there is no Standard Operating Procedure (SOP) for the practicum process and safety from hazards. The organizational structure is not neatly installed, tools and materials are stored based on the classification of materials, constituent materials and uses. However, not all laboratory equipment is labeled, and there are no instructions for using the equipment, and there is no Cost Allocation Plan for the procurement of practicum tools and materials.

Based on the results of the study, the implementation of the science laboratory at UPT SPF SMP Negeri 24 Makassar does not have a laboratory usage schedule and a list of practicum activities carried out in the science laboratory. The observation results show that during practicum activities only in the classroom, the teacher guides students in using tools, materials and following work steps. Some students are also not aware of cleanliness, such as washing hands and practicum tables after the activity is complete. has good natural and artificial lighting, and is equipped with sturdy table chairs and smart boards. However, students still do not use lab coats in the laboratory, nor do they have awareness in cleaning the tools after practicum.

Based on the results of the study, the evaluation of the science laboratory at UPT SPF SMP Negeri 24 Makassar has a technical report on tools and materials reported by the science teacher to the head of the laboratory which contains details of the condition of laboratory tools and materials. There is also a laboratory head report on science laboratory management reported to the principal. The supervision and evaluation process is also carried out by the laboratory head and principal. However, there is no laboratory financial report prepared, so that the use of laboratory finances cannot be measured properly.

CONCLUSION

Based on the results of the research that has been carried out, it can be concluded that the management of science laboratories in UPT SPF SMP Negeri 24 Makassar in terms of the principal's perspective, namely the implementation indicator with a percentage answer of Always 66.7%, often 33.3%, sometimes 0% rarely 0%, and never 0%. The teacher's perspective, namely (i) planning with a percentage answer of Always 51.5%, often 12.12%, sometimes 18.18% rarely 15.15%, and never 3.03%, (ii) implementation with a percentage answer of Always 31.37%, often 35.29%, sometimes 9.8% rarely 11.7%, and never 11.76%, (iii) evaluation with a percentage answer of Always 22.22%, often 14.8%, sometimes 22.22% rarely 40.74%, and never 0%. Students' perspectives, namely the implementation indicator with a percentage answer of Always 27.06%, often 24.21%, sometimes 26.04% rarely 10.35%, and never 12.31%.

REFERENCES

Astuti, T. (2015). Manajemen Praktikum Pembelajaran IPA. *Jurnal Manajer Pendidikan*. 9(1): 57-64

Carin, C. (2005). *Mata Pelajaran IPA*. Bandung: PT Remaja Rosda Karya.

Decaprio, R. (2013). *Tips Mengelola Laboratorium Sekolah*. Yogyakarta: DIVA press.

Hamidah, A., Sari, N., & Budianingsih, R. (2013). Manajemen laboratorium biologi beberapa SMA swasta di kota Jambi. Sainmatika: *Jurnal Sains Dan Matematika Universitas Jambi*, 7(1), 221- 192.

Irjus, Indrawan., Safita, Reny., Novalyan, Devie. (2020). Manajemen Laboratorium Pendidikan, 32-34.

Muhith, A. (2022). *Educational Laboratory Management*. Yogyakarta: BILDUNG

Malik, A., Hasniah, A., & Seni, S. (2019). *Peran Praktikum Dalam Pembelajaran IPA*. Bandung: Pusat Penelitian Dan Penerbitan UIN SGD Bandung

Machali, I. (2021). *Metode Penelitian Kuantitatif*. Yogyakarta: Fakultas Ilmu Tarbiyah dan Keguruan.

Mastika, N., Adyana, P., & Setiawan, G. (2014). Analisis Standarisasi Laboratorium Biologi Dalam Proses Pembelajaran Di SMA Negeri Kota Denpasar. *E-Jurnal Program Pascasarjana Universitas Pendidikan Ganesa Program Studi IPA*. 4(1): 1-10.

Nilianti, M. (2021). Pengelolaan Laboratorium IPA Di SMA Negeri 3 Bengkulu Selatan. *Jurnal Manager Pendidikan*. 15(2): 1-5.

Nahdiyaturrahmah, Pujani, N. M., & Selamet, K. (2020). Pengelolaan Laboratorium Ilmu Pengetahuan Alam (IPA) SMP Negeri 2 Singaraja. *Jurnal Pendidikan dan Pembelajaran Sains Indonesia*, 3(2).118-129. https://doi.org/10.23887/jppsi.v3i2.29592

Suyanta. (2010). Manajemen Operasional Laboratorium. Yogyakarta: UNY

Sumarto. 2019. *Laboratorium Manajemen Pendidikan*. Rejang Lebong: Penerbit Buku Literasiologi

Setyosari, P. (2010). *Metode penelitian dan pengembangan*. Jakarta: Kencana.

Sugiyono. (2014). *Metodologi Penelitian Pendidikan*. Bandung: Alfabeta.

Sudirman. 2011. *Peran Laboratorium Pada Mata Pelajaran IPA*. Edisi Revisi. Jakarta: Raneka Cipta.