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THE EFFECTIVENESS OF USE OF THE MIPA LABORATORY IN BIOLOGICAL EDUCATION STUDY PROGRAM JABAL GHAFUR UNIVERSITY

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ABSTRACT

The laboratory is one of the main supports for Biology learning, both among students and students. The use of laboratories can improve process skills, learning motivation and learning outcomes. This study aims to analyze the effectiveness of the use of the Mathematics and Natural Sciences Laboratory of Jabal Ghafur University by students of the Biology Education Study Program, Faculty of Teacher Training and Education, Jabal Ghafur University. This research is an exploratory research with a mix method. Respondents in this study were students of the Biology Education Study Program, Faculty of Teacher Training and Education, Jabal Ghafur University, totaling 31 people and lecturers of Biology Education Study Program . Data collection instruments in the form of observation sheets, questionnaires on the effectiveness of the use of laboratories and documentation. The research data were analyzed descriptively and presented in tables. The results showed that the percentage of the use of the Mathematics and Natural Sciences Laboratory of Jabal Ghafur University was 89.1475% with a very effective category for the input aspect, 88.2075% in the very effective category for the process aspect and 89% in the very effective category for the Output aspect. The Mathematics and Natural Sciences laboratory still has shortcomings but has been very effective for students to use to improve the competence, Sains skill and literacy sains.

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INTRODUCTION

The Mathematics and Natural Sciences Laboratory (MIPA) is a facility that can be used as the main support for the learning process other than in the classroom. This laboratory is the same as a laboratory in general, equipped with various equipment and materials needed for learning (Vestari, 2020). The existence of a Mathematics and Natural Sciences laboratory is very important to support the success of students to gain concrete and comprehensive knowledge. The existence of a laboratory that supports and success of learning must of course meet the minimum standards of good facilities and infrastructure.

A representative laboratory has good management so that it can facilitate the learning process. In other words, its function can be optimized as a learning resource (Laeli and Maryani, 2020).All activities in the aspect of laboratory management in the form of providing, storing, securing and saving practicum tools and materials must follow the principles of being safe, easy to find and easy to retrieve (Kemendikbud, 2018). For this reason, a laboratory must meet good minimum standards of facilities and infrastructure. In Biology learning, building knowledge and skills through practicum is a must. It aims to obtain more information. With the use of the laboratory, it is hoped that the learning process can be carried out properly. Therefore, every school and college is facilitated with a Mathematics and Natural Sciences Laboratory complete with facilities (Mastika, 2014).

The Biology Education Study Program, Faculty of Teacher Training and Education, Jabal Ghafur University is one of the study programs that utilizes the Mathematics and Natural Sciences Laboratory as a support in the learning process . various courses patterning practicum in the learning process and have been stated in the Semester Learning Plan (RPS). The subjects are General Biology, Basic Physics, Laboratory Engineering, Microbiology, Plant Physiology, Plant Anatomy and Plant Morphology.

Practicum serves as a place to practice and develop intellectual skills, motor skills. Students become skilled in using the tools and practicum materials used.Various research results show that the use of laboratories is able to improve process skills through practicum methods (Marta *et al*., 2018) and serves as a learning tool (Rosdiani, 2022). The use of laboratories is also very effective for improving learning outcomes and learning motivation (Yuliana *et al*., 2017).Practical activities can also create a more interesting learning atmosphere and provide direct experience to students so that learning becomes more meaningful and able to increase interest in learning (Fitri*et al*., 2021).

However, the reality is that there are still many parties who do not use the laboratory as a learning support. This can happen due to several things, including inadequate laboratory space, lack of existing tools and materials, lack of laboratory management administration, and incompatibility of learning materials with existing tools.

This study aims to determine the effectiveness of the use of the Mathematics and Natural Sciences (MIPA) laboratory at the University of Jabal Ghafur by students in the Biology Education Program in terms of input, process and output aspects. Data on the use of the Mathematics and Natural Sciences Laboratory of Jabal Ghafur University has never existed so this research is very important to be carried out.

METHOD

This research is an exploratory research with mixed methods of qualitative and quantitative (mix method). This research was carried out at the Mathematics and Natural Sciences Laboratory (MIPA) of Jabal Ghafur University in the even semester of 2021/2022. Respondents in this study were Lecturers and students of the Biology Education Study Program, Faculty of Teacher Training and Education, Jabal Ghafur University who used the Mathematics and Natural Sciences Laboratory of Jabal Ghafur University.

The data collection instruments used were observation sheets, questionnaires on the effectiveness of using the laboratory and documentation. Observations and documentation are carried out when students of the Biology Education Study Program are practicing. The questionnaire given aims to measure the effectiveness of the use of the Mathematics and Natural Sciences Laboratory. The indicators of the effectiveness of the use of the laboratory in this study include 3 (three) items, namely input (laboratory users), process (procedures for using facilities and time allocation, and outputs (laboratory utilization). Data from research results were analyzed descriptively and presented in tabular form. Effectiveness of use laboratory refers to Table 1.

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Table 1. Categories of Effectiveness of the Use of the Mathematics and Natural Sciences Laboratory, Jabal Ghafur University

No	Interval	Categories
1.	86% - 100%	Very effective
2.	71% - 85%	effective
3.	56% - 70%	effective enough
4.	41% - 55%	less effective
5.	0% - 40%	ineffective

RESULT AND DISCUSSION

The results showed that the Mathematics and Natural Sciences Laboratory (MIPA) of Jabal Ghafur University was very effective to be used, especially by students of the Biology Education Study Program, Faculty of Teacher Training and Education, Jabal Ghafur University. The effectiveness of the laboratory utilization is viewed from 3 (three) indicators, namely input, process and output (Table 2).

Indicator	Percentage of Respondents (%)		Average	Category
	Student	Lecturer		
INPUT				
Laboratory Users	87,09	87	87,045	Very effective
Laboratory Facilities	87,5	95	91,25	Very effective
Total Input			**89,1475**	**Very effective**
PROSES				
Procedures using laboratory facilities	92,33	87,33	89,83	Very effective
Time Allocation	87,5	85,67	86,585	Very effective
Total Proses			**88,2075**	**Very effective**
OUTPUT				
Utilization of the Laboratory as a means and source of learning	88	90	89	Very effective
TotalOutput			**89**	**Very effective**
Total	**88,484**	**89**	**88,742**	
Category	**Very effective**	**Very effective**	**Very effective**	

Table 2 shows that the percentage of the use of the Mathematics and Natural Sciences Laboratory of Jabal Ghafur University is 89.1475% with a very effective category for the input aspect, 88.2075% in the very effective category for the process aspect and 89% in the very effective category for the Output aspect.

The input aspect data shows that the Mathematics and Natural Sciences Laboratory of Jabal Ghafur University has adequate facilities to support practicum. It provides sufficient electricity, wardrobes and mabelar. The process aspect data shows that every subject that is practiced already has a practicum guidebook, making it easier for students to carry out practicum. In terms of time allocation, students can visit the Laboratory every day during working hours. From the output aspect, information was obtained that the Mathematics and Natural Sciences Laboratory of Jabal Ghafur University could optimally be used as the main support in the Biology learning process.

However, the Mathematics and Natural Sciences laboratory at Jabal Ghafur University still has several shortcomings, including not functioning properly for air ventilation, unavailability of clean water sources, not having an evacuation route (has 2 doors, an entrance and an exit), some equipment is not functioning properly. , expiry grade chemicals and work safety tools are only first aid kits`

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Observations were carried out by analyzing several aspects, namely: laboratory conditions, laboratory layout, laboratory facilities, equipment conditions, practicum activities and the achievement of the results of practicum activities.The results of the observation of the practical process at the MIPA Laboratory can be seen in Table 3.

Table 3. Observations on the use of the Mathematics and Natural Sciences laboratory at Jabal Ghafur University

NO	OBJECT OF OBSERVATION	RESULT
1.	Laboratory conditions	Laboratory conditions are very good. The laboratory space is not too wide but enough to be used by students for practicum (as a workspace). All laboratory rooms have adequate lighting.
2.	Laboratory layout MIPA Biology FKIP UNIGHA	The layout of the laboratory facilities has met the requirements, although it is not perfect.
3.	Laboratory facilities MIPA Biology FKIP UNIGHA	In the laboratory room, there is a storage cupboard for tools and materials. The cupboard lists the names of the tools or materials stored in them so that they are easy to find. The laboratory has sufficient electricity. The number of practicum tables is still lacking but the number of chairs is sufficient. The size of the practicum table is sufficient to accommodate the equipment and materials used. There is no available water source to support practicum activities.
4.	Tool condition	The condition of the tools and materials to be used for the practicum is good. However, some chemicals have expired levels. Some tools are not working properly but can still be used. There are some practical equipment that is rarely used so that it is damaged.
5.	Tool updates	Practical materials and equipment are always rearranged after each practicum, the feasibility of laboratory equipment is always monitored by the laboratory manager. Laboratory equipment is always cleaned after use, periodic reports are always made regarding equipment damage. The series of activities to provide, store, secure and salvage tools and materials in the Mathematics and Natural Sciences laboratory at Jabal Ghafur University have followed the technical regulations for the management of science laboratories as stipulated in the Ministry of Education and Culture (2018). Storage of equipment and materials uses the principle of being safe, easy to find and easy to retrieve.
6.	Attention of students during practical activities	Students focus on participating in practical activities. Practicum provides an opportunity for students to improve their understanding of the concepts being studied. Practicum provides a more interesting learning atmosphere so as to increase interest in learning.
7.	Student activity during practicum activities	Students look active during the practicum. Students have been provided with a practicum guide beforehand. With practicum, students are trained to solve problems and interpret the results
8.	Achievement of results practical activities	The indicators that have been prepared have been achieved well. There is an increase in understanding of concepts and eliminating miss concepts. Students are able to use various practicum supporting

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		equipment and are able to prepare reports on practicum results
9.	Practice schedule at laboratory	The practicum schedule is not posted, but it is well scheduled. Each practicum is coordinated directly by the subject lecturer.

CONCLUSION

Based on the results of the study it can be concluded that:

- Students of the Biology education study program, FKIP University of Jabal Ghafur, have used the MIPA Laboratory for several compulsory study programs
- The use of the Mathematics and Natural Sciences Laboratory of Jabal Ghafur University is categorized as very effective by students of the Biology education study program, FKIP University of Jabal Ghafur, both in terms of input, process and output aspects.

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