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ANALYZING THE IMPLEMENTATION OF ONLINE PRACTICUM DURING THE COVID-19 PANDEMIC: A STUDY ON BIOLOGY EDUCATION STUDENTS AT ALAUDDIN STATE ISLAMIC UNIVERSITY (UIN) MAKASSAR

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ABSTRACT

This study aimed to describe how the microbiology practicum process was implemented for biology education students at UIN Alauddin Makassar during COVID-19. The type of research applied in this study was descriptive-quantitative. The sample for this study consisted of 54 biology education students from the 2018 class. The instruments used included student response questionnaires, interviews with lecturers and students, and observation sheets. The data analysis technique employed was descriptive statistical analysis. With an average score of 89%, the results showed that the preliminary practicum activity implementation went very well. The working phase of practicum activities was also carried out very well, with an average score of 88%. Lastly, the closing stage of the practicum activities was performed very well, with an average score of 86%.

Keywords: Learning media; online learning

1. INTRODUCTION

Education plays a crucial role in fostering students' potential, characteristics, and overall development. To achieve the goals of education, various aspects must be considered, including four categories of development: interaction with others, individual development, vocational development, and academic pursuit (Nana, 2013).

In education, one recurring challenge is the effectiveness of the learning process. Learning serves as a means to facilitate behavioral change and encompasses several components such as curriculum, learning facilities, models, methods, and media. The practicum approach is among the commonly used learning methods in schools and universities.

Practicum offers a valuable opportunity for students to enhance their skills, understanding, and attitudes through hands-on experiences. Its benefits include: 1) training students in relevant skills, 2) enabling the practical application of knowledge, 3) providing scientific evidence, and 4) fostering appreciation for acquired skills (Zainuddin, 2006). By engaging in practicum activities, students can simultaneously develop cognitive, psychomotor, and affective abilities by utilizing laboratory resources (Ali, 2019).

At Alauddin State Islamic University (UIN) Makassar, particularly within the Biology Education Study Program of the Faculty of Tarbiyah and Teacher Training, teaching and learning activities encompass various methods such as face-to-face classes, discussions, seminars, and laboratory practicum sessions. This reflects the essence of biology education, emphasizing practical laboratory work alongside theoretical knowledge, as the learning process is considered equally important.

Practicum activities are conducted throughout the six semesters of the biology education program. Courses involving practical activities include general biology, animal structure, invertebrate zoology, lower plant botany, plant anatomy and physiology, microbiology, animal physiology, vertebrate zoology, higher plant structure, and human physiology anatomy. The microbiology course, in particular, is offered in odd semesters and involves 3 credits, indicating the significant role of practicum in the learning process. Each practicum session encompasses various stages such as preliminary tasks, hands-on activities, report preparation, and examinations.

However, the outbreak of the COVID-19 pandemic has necessitated the shift to online platforms for various activities, including learning. Consequently, practicum activities have also had to adapt to the new online environment. This poses a unique challenge for courses traditionally relying on practical laboratory work, such as microbiology. Analyzing the implementation of online practicum.

2. METHODS

This type of research was descriptive. Descriptive research describes a symptom, event, and event that is happening now and is used to find the widest possible knowledge of the object of research on a particular problem (Erni, 2019).

The instruments used in this study were questionnaires, interviews, and observation sheets. The sample was 54 biology education students from 2018 classes 1, 2, 3, and 4. In addition to the questionnaire, interviews and observations were conducted during the practicum activities to corroborate the research results. The interview, or interview method, is one of the techniques that can be used to collect research data. In simple terms, it can be said that an interview is an event or a process of interaction between the interviewer and the source of information or the person being interviewed through direct communication (Yusuf, 2014). Questionnaires are used by circulating a form containing several questions to several subjects (respondents) to obtain written responses (Bagja, 2006). The observation sheet is the recording of data carried out by the observer on the types of symptoms to be observed (Miranda, 2019).

Activities during the COVID-19 pandemic, particularly for biology education students at Alauddin State Islamic University (UIN) Makassar, present an interesting research opportunity to understand this adjustment's dynamics further.

3. RESULTS AND DISCUSSION

Based on the results of an analysis of the implementation of online practicum during the Covid-19 pandemic, Biology Education Students at the State Islamic University (UIN) Alauddin Makassar obtained data regarding the results of practicum activities through three stages, namely the preliminary stage, the working stage, and the closing stage related to the data obtained, interpreted in table 1.

Table 1. Interpretation of Data on Practicum Activities

No	(%)	Interpretation
1	76-100	Perfect fit
2	51-75	Corresponding
3	26-50	Not Appropriate
4	1-25	Very Inappropriate

Preliminary Stage

The results of the preliminary practicum activities include indicators directing students about the activities to be carried out, motivating members, linking the activities to be carried out with previous activities, and explaining the work steps that students must carry out can be seen in Table 2.

Table 2. The Results of Practicum Activities in the Preliminary Stage

No	Indicator	(%)	Interpretation
1	Directing students about the activities to be carried out.	91	Perfect fit
2	Give motivation.	90	Perfect fit
3	Link the activity to be carried out with the previous activity.	86	Perfect fit
4	Explain the work steps that must be done by students.	89	Perfect fit

Based on Table 2 on the results of the practicum activities in the preliminary stage for indicators directing students about the activities to be carried out, 91% of presentations are in the very appropriate category. The indicator of giving motivation is at 90% presentation with a very suitable category for indicators linking the activities to be carried out with previous activities is at 86% presentation with a very suitable category and for indicators explaining the work steps that students must carry out are at presentation 89% with the category very suitable.

Work Stage

Table 3. Results of Practicum Implementation Activities at the Work Stage

No	Indicator	(%)	Interpretation
1	Students do practical activities.	88	Perfect fit

Based on table 3 on the results of practicum activities at the work stage for indicators of students working on practicums at a percentage of 88% with a very appropriate interpretation.

Closing Stage

No	Indicator	(%)	Interpretation
1	Make a report	94	Perfect fit
2	Discuss	87	Perfect fit
3	Making Conclusions	87	Perfect fit

Based on Table 4 on the results of the practicum activities at the closing stage, the indicator for making reports is at a presentation of 94% with a very appropriate interpretation and the discussing indicator is at a percentage of 87 with a very

appropriate interpretation. The indicators for making conclusions are at 87% presentation with very appropriate interpretations.

According to Widodo &Ramdhaningsih, the grouping of practicum stages into (1) the preliminary stage, (2) the work stage, and (3) the closing stage.

Preliminary Stage

During the initial phase, students receive guidance on the upcoming activities and are briefed on the various tasks involved in the practicum. This includes providing students with a comprehensive schedule outlining the preparation process leading to the practicum exams. In addition to providing a schedule of activities, students are also given general assistance in general assistance activities. The lecturer explains to all students the steps to be taken during the practicum. Furthermore, students are directed to connect previous material from both class and previous practicum activities. For example, when students are in class getting material about sterilization, during the practicum an experiment will be carried out on sterilization so that students have no difficulty when asked to experiment offline.

Practicum activities have been explained according to the flow and carried out directly via Zoom, so the assistant only has to explain the steps to be carried out. Providing response questions related to practicum steps that have been carried out online also makes it easier for students to carry out practicum activities. The presentation of the implementation of the practicum online at this preliminary stage receives a score of 91% (very appropriate), the motivating indicator receives a score of 90% (very appropriate), the indicator linking the activities to be carried out previously receives a score of 86% (very appropriate), and indicators explaining the work steps that students must carry out receive a score of 89% (very appropriate). This is because the process of delivering practicum steps can make it easier for students to do the next activity. The practicum objectives are not entirely achieved with the online process. Offline activities are still needed for assistance and material provision. This aligns with the findings of Wilson's (2020) study, which revealed that conducting online meetings over a semester can result in successful lectures and favorable learning outcomes. It is crucial for the participants to engage in the practicum process independently in order to cultivate a sense of self-reliance in their learning.

Work Stage

At the work stage, students carry out practical activities online by reading guides related to tools, materials, and procedures. In the online experiment, students only see the procedure for experimenting with each title. When doing practicum online, the

lecturer only shows a video on how to experiment with students to get an overview of the practicum that will be carried out in the laboratory offline.

When doing practicum offline, students carry out experiments without working on preliminary or response assignments anymore. They were asked to look at their reports when conducting online trials and discuss them based on the offline experiment activities. Based on the research results, learning methods that are suitable for an online practicum are discussion and observation methods. The discussion method is considered appropriate because it provides broad opportunities for students and lecturers to interact and carry out effective learning related to the practicum material being experimented with. At the working stage with indicators, students working on practicum activities get a score of 88%. This is in line with the statement from ErniNetti (2015) that discussion is a learning method in which there are conversations between individuals and other individuals that are formed into containers or groups that are faced with a problem so that they can exchange ideas to get the correct solution through mutual agreement.

Closing Stage

In the closing stage, students make a report on the experimental results during the practicum process, written on a worksheet and directly assisted by the lecturer concerned. At the online stage, the discussions were very limited because they only assisted WhatsApp. When making a report, students can discuss it with their friends or with the lecturer. Even though it was carried out online, student discussions with lecturers continued. The lecturer's directions regarding making an online observation report (video experiment) were carried out by students. In conclusion, students are directed to relate the results of experiments to practicum objectives. This shows that the preparation and discussion of reports to conclude are carried out simply and focus on important matters from the practicum report so that students can easily understand. This is in line with Bunga NugriaDestri (2016), which states that discussions with lecturers provide opportunities for students to hold scientific talks to gather opinions, draw conclusions, or compile various alternative solutions to a problem to achieve good learning outcomes. The presentation of the implementation of online practicum at this closing stage, from the student indicators for making reports, obtained a value of 94% (very appropriate), the indicator for making reports received a value of 87% (very appropriate), and the indicator for making conclusions obtained a percentage value of 87% (very suitable), so the average presentation value obtained at the closing stage is 89%.

Based on the results of an interview with one of the lecturers for the microbiology practicum course, the practicum in the current semester uses two systems, namely the online stage and the offline stage. At the offline practicum stage, it is very limited

because only student representatives in each group are recorded using a camera and then shown to other students online using the Zoom application. At the online stage, almost all experimental titles were carried out because, apart from via Zoom, they were also carried out by sharing several videos related to the practicum.

At the online stage, the lecturer prepares guides of two types: online guides and offline guides, where in the online guide there is a link to observe or see the practicum process according to the practicum title to be carried out. Practicums are held outside of class hours. The practicum implementation schedule for all experiments is 4 weeks. The practicum that was carried out during the pandemic did not have enough time because time was very limited.

CONCLUSION

Based on the research findings and analysis, it can be inferred that the preliminary phase, work phase, and closing phase of Microbiology practicum activities for Biology Education Students of the 2018 class at Alauddin Makassar State Islamic University (UIN) were implemented with high effectiveness. The preliminary phase achieved an average rating of 89%, indicating a highly appropriate implementation. Similarly, the work phase received an average rating of 88%, reflecting a very suitable execution. Lastly, the closing phase attained an average rating of 86%, indicating a highly appropriate implementation.

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