

## Mini Studio: an Online Learning Solution

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**Abstract**—Face-to-face learning cannot be carried out during a pandemic. Changes in student learning styles from face-to-face to online learning suddenly resulted in several new problems, one of which was a decrease in student understanding of lecture material. To overcome this, we are trying to overcome these problems by designing a mini studio that is used to carry out the online learning process. This study aims to determine the effectiveness of the mini studio in improving students' conceptual mastery of the material presented by the lecturer. Using a pre-experimental method, this study involved 132 biology education students at Universitas Pasundan. The results showed an increase in student concept mastery (N-gain = 0.49) in the medium category. Thus, we can conclude that the mini studio is quite effective in increasing students' mastery of concepts. Mini studios can be used as a face-to-face replacement solution for online learning, although it is necessary to increase the learning support devices used in mini studios.

**Keywords**—mini studio, online learning, concept mastery

### 1 Introduction

The sudden change in learning styles due to the COVID-19 pandemic has spread all over the world. Learning that used to be done face-to-face was suddenly forced to do online learning. This resulted in lecturers having to immediately change learning methods by integrating technology that could be used at that time. Online learning needs to be reorganized using blended learning (BL) strategies to provide a theoretical framework that integrates the learning models needed during the pandemic [1]. Learning design can be done using the block method, this method offers various ways of student involvement in learning [2]. Online learning needs to guarantee several facilities and orientation of new models by integrating technology in an emergency [3]. Online learning is actually quite effective to train students to learn independently and grow independent learning abilities [4].

In online learning, of course, it requires qualified technology support so that the learning process can take place well. Student satisfaction and needs are important components in online learning [5]. Most of them use various applications such as Moodle, UBL, Zoom, Google Meet and others to support the continuity of the learning process. All the tools used can be said to be not effective enough after being carried out in

two semesters. Lack of internet connection with low bandwidth, expensive technology devices and lack of digital literacy of teachers and students will be obstacles in online learning [6]. Countries with strong economies will not be a problem in implementing online learning, but countries with low economies have been shown to lack internet access, computer literacy and low teacher qualifications will be the biggest obstacles in the online learning process [7]. Teachers still lack supporting tools, there is no standard virtual platform policy and difficulties in assessing students' seriousness in learning are obstacles in online learning [8].

The problem that arises from online learning is the decrease in student motivation in learning. This of course invites new problems that must be addressed immediately. Learning motivation, learning model, learning ability, learning attitude and learning environment will affect students' learning satisfaction and cognitive [9, 10]. The level of student saturation began to be seen with the existence of online learning. Students begin to show boredom, anxiety and attitude changes in online learning related to several factors that support online learning [11]. Online learning during the COVID-19 pandemic was quite effective but inefficient [12]. This is related to the costs that students have to pay which are quite large, while the family income is not sufficient. Lecturers must try various methods so that student motivation can rise again, and strive to make learning more effective and efficient.

There are many learning methods that can be used in the implementation of online learning, one of which is hybrid learning. Hybrid learning is a trend that is often used by teachers in the online learning process. Hybrid learning integrates online and offline learning thus can improve independent learning abilities, cooperative learning and personal development of students, online and offline learning depends on students' attitudes and participation [13]. Teachers are facilitated in conducting online learning because students' ability to operate digital devices is very good at this time. students prefer to solve problems with online media and do not like conventional methods [14]. The creativity and digital skills of teachers are needed in designing an online learning by integrating various supporting applications. Online learning applications can assist lecturers in delivering lecture material without face to face, one of which is with the help of the zoom application, although it is always constrained by an unstable network [15, 16]. Distance learning methods using various applications need to be further developed [17]. This shows that not all applications can be accepted by students. In several studies students showed negative attitudes to the zoom application which was considered a negative effect on their learning experience [18]. However, most of them gave a positive appreciation of online learning using the zoom application as a form of online activity [19].

In online learning, teacher competence and the platform used cannot be separated. The digital ability of teachers on digital technology platforms is an important factor for the successful achievement of pedagogical goals [20]. The digital technology platform will provide convenience in the assessment system, training workshops, online technical support and others [21]. Many platforms are commonly used around the world for online learning. Google meet, Zoom and Microsoft Teams are often used as the main platforms for non-traditional learning [22]. Based on these problems, we tried a new method, namely by designing a mini studio that will be used in the learning process during this pandemic. The mini studio is designed in such a way that it looks like

students are in a face-to-face class. With the help of the Zoom platform, we are trying our best to design a method that is expected to be quite effective to replace face-to-face learning.

## 2 Method

The method used in this study was a pre-experiment involving 132 semester 3 students. The research design used is descriptive quantitative. We obtained quantitative data from the pretest and posttest. The research instrument was developed from the concept mastery indicator using the Bloom framework. We obtained qualitative data by distributing questionnaires and brief interviews to several students. This research was carried out in the early semester of the 2021 academic year. Data analysis is needed to see the results of increasing mastery of concepts by calculating the Ngain value.

## 3 Result

Mastery of the material concepts given by the lecturer is very important for students. With online learning, it is expected that students' mastery of concepts will increase with the right learning methods. We deliver lecture materials using a specially designed mini studio as if students were studying offline (face to face). We measured the effectiveness of using the mini studio as a learning support device by giving pretest and posttest to students. The results of the average pretest, posttest and Ngain scores are presented in Figure 1.

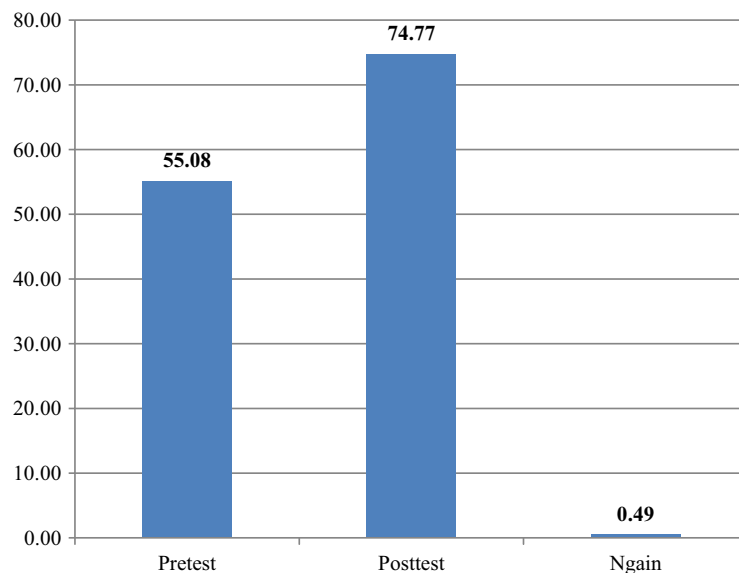


Fig. 1. The value of pretest, posttest and Ngain mastery of student concepts

The increase in students’ mastery of concepts ( $N_{gain} = 0.49$ ) was included in the medium category. This is a phenomenon that needs to be considered what is the obstacle for students when learning to use a mini studio to have high concept mastery skills. To complete the research data, we compiled a questionnaire that was distributed to students as a form of their response to online learning using a mini studio. The results of the questionnaire are presented in Figure 2.

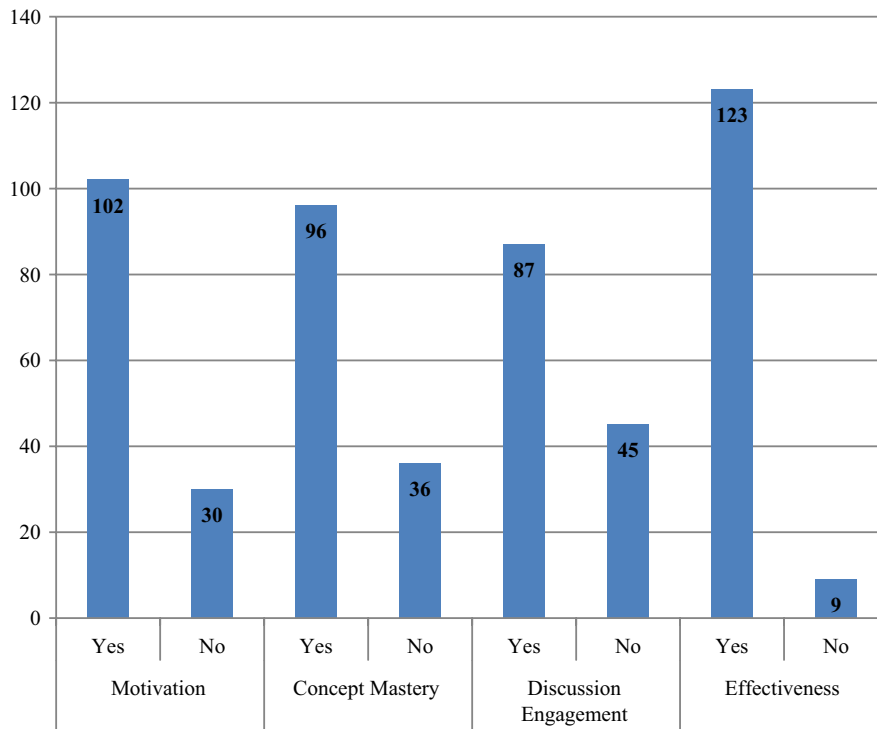


Fig. 2. Student responses to online learning using mini studio

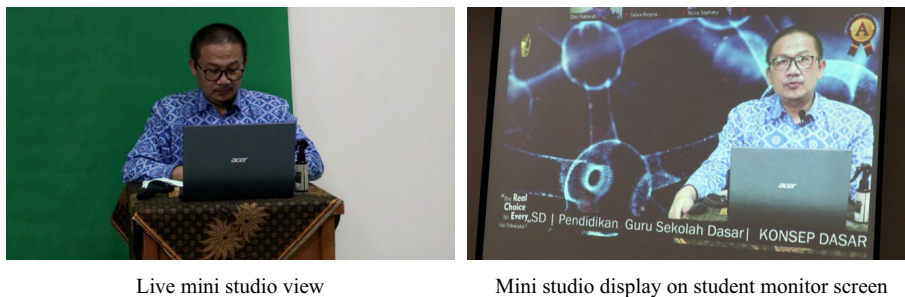
Based on the questionnaire distributed to students, most of the students’ motivation increased, as many as 102 students felt that their learning motivation had increased. In mastering the concept of the material given, only 96 students could understand the lecture material. Involvement in discussions as many as 87 students were active in discussion forums and the effectiveness of learning using a mini studio, most of the students felt it was quite effective (123 students) this was inversely proportional to their ability to master concepts.

#### 4 Discussion

Changes in student learning styles during the pandemic experienced quite significant changes. Face-to-face learning simultaneously becomes online learning, forcing all elements of teachers, students and digital devices to be ready to face these changes. In various lecture meetings, we use various online learning methods by integrating

various technology platforms used. We designed synchronous and asynchronous methods through a Learning Management System (LMS) using Moodle. We feel that the effectiveness of lectures has decreased, especially student motivation, decreased mastery of concepts, involvement in discussions and learning effectiveness during online learning. We have tried various efforts by integrating various applications that can be used to support online lectures, such as Zoom, Google Meet, Social Media, Youtube and other applications with the aim of adding variety to learning so that it is not monotonous.

The mini studio which is specially designed for online learning as a face-to-face substitute by integrating the Zoom application is expected to be able to overcome the problems of online learning. The results of the study illustrate that students' mastery of concepts increases even though in the moderate category, of course this is a positive finding that can be used as the basis for the development of future research. Students' motivation is increased by the existence of a mini studio that we specially designed, because even though learning is done online, lecturers and students can interact directly as if they were in a classroom equipped with several cameras. Discussions can be held directly and lecturers can freely see student activities through the big screen.



**Fig. 3.** Mini studio display directly and through the monitor screen

We conducted interviews with several students related to this mini studio. Most of them expressed their interest in participating in learning, seriousness in the learning process could be seen as if they were in the classroom. However, the obstacle they face is an unstable network problem because they use the Zoom application and the main obstacle is the limited data package owned by students. In addition, we explored the conceptual understanding of the material, they stated that they understood better than asynchronous lectures or independent study. Based on the findings of this study, we suggest further research, although in the future learning will be carried out face-to-face, it is possible that this method can be used and developed.

## 5 Conclusion

The right online learning method will increase effectiveness in learning. A teacher must be more creative in designing methods and digital devices used to support online learning. In this study, we designed a mini studio that was used to support online learning during the COVID-19 pandemic. From several research findings, we conclude that

the mini studio designed is quite effective for use in online learning. Some technical problems can be overcome properly. In the future, it is necessary to develop a more interactive mini studio by minimizing technical disturbances.

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