



Identifying Teaching Skills of Indonesian Prospective Elementary Teachers with Microteaching Technology 2.0

Neni Mariana¹(✉), Ulhaq Zuhdi¹, Natasha Anne Rappa², Susan Ledger³, and John Fischetti³

¹ Universitas Negeri Surabaya, Surabaya, Indonesia
nenimariana@unesa.ac.id

² Murdoch University, Murdoch, WA, Australia

³ The University of Newcastle, Callaghan, NSW, Australia

Abstract. As prospective elementary school teachers, students in the department of elementary teacher education (PGSD) are equipped with the basics of teaching skills through microteaching courses. However, in Indonesia, no microteaching courses utilize technology to help students develop their teaching skills. Through collaborative research with Murdoch University and the University of Newcastle, students at the department of elementary teacher education at Universitas Negeri Surabaya (Unesa) were allowed to do microteaching by utilizing Microteaching 2.0 technology in the form of a Simulation Laboratory (SimLab). This article aims to describe the teaching skills that the Unesa PGSD bilingual students have successfully developed with the help of SimLab. The data was collected through Zoom recording, interviews during reflections, and questionnaires. The results showed that the response of avatar students in Microteaching 2.0 technology helped prospective teachers develop the ability to hold variations in learning, ask questions, and teach small groups or individuals. This research shows that students who want to become teachers need this technology to practice teaching before they work with real students.

Keywords: Teaching Skills · Elementary Teachers · Microteaching technology

1 Introduction

Microteaching is a globally used course in all teacher education programs worldwide as a strategy that combines reflective practice and a conditioned teaching approach [1]. Students sometimes need to teach more thoroughly at microteaching, but the learning design is compressed and focused on developing specific teaching skills. This shortened learning design is intended for students to practice, be encouraged, and reflect on the teaching they do [2]. Thus, through this microteaching, prospective teacher students will intensively practice the necessary teaching skills.

Eight teaching skills are the focus of microteaching observation in Indonesia. The eight teaching skills are questioning, strengthening, holding variations, explaining, opening and closing lessons, guiding small group discussions, managing classes, and teaching

small groups and individuals [3]. During microteaching, students are usually asked to focus on displaying only a few teaching skills and then reflect afterward. This reflection was carried out by the students who performed and the observer students. However, the accompanying lecturer usually will also provide input on the student's display to become notes and lessons for other students [4]. This process shows the benefits of microteaching in providing a valuable experience for students to hone themselves before going to school.

Some researchers found the benefits of microteaching before prospective teachers were parachuted into schools and interacted with students. According to Aarsal [5], the main advantage of microteaching is that it can increase the confidence of prospective teachers' students in teaching. In addition, McLean-Davies et al. [6] assert that microteaching contributes to the ability of future teacher students to develop their teaching strategies. So far, microteaching has been packaged by bringing together students with classroom conditions directly and with actual students while practicing teaching in microteaching [7].

World education experts say that more than microteaching face-to-face with students alone is needed. According to Ledger and Fischetti [2], placing a beginner teacher candidate without teaching experience in classroom conditions with real students is not ideal. This is because students have never been allowed to demonstrate their abilities, so sometimes, they get the feedback they don't need [8]. In this case, technology needs to be used to close the gap between how teachers are trained in school and how they do their jobs in real life in schools.

During this time, experts have researched the effectiveness of several technologies used in microteaching. Most previous studies have looked at the impact of videotape recording technology on improving student performance in teaching during microteaching [9, 10]. So far, the technology used in micro-teaching is only in the form of audiovisual recordings from videotapes. Students practicing microteaching in front of other students are recorded with videos. Then the recordings are discussed as a form of observation analysis, reflection, and feedback from the student's display.

Of course, more than allowing such technology to play a role in this matter is required. There needs to be a human touch to make this an accurate and humanist technology. This kind of technology for microteaching needs was developed by the University of Central Florida [2] under the name "human in the loop" (HITL). Microteaching technology by creating an avatar for each student character is not just released. However, it is still controlled by humans through an avatar control system and dubbing that responds directly to instructions from prospective teacher students [11]. This technology is a bridge between conventional methods in microteaching and technology-based simulations. In essence, Microteaching 2.0 technology offers a teaching practice process that follows actual classroom conditions to develop students' ability to teach before meeting face-to-face with real students.

Several previous studies have been conducted to see the impact of using technology in student microteaching exercises [1]. Ledger and Fischetti found that by practicing this technology before meeting face-to-face in the classroom with real students, prospective teacher students become more confident and feel better prepared to face students. According to their research, this technology can also be used to diagnose weaknesses

and the need to improve the teaching skills of prospective teachers in Australia. Other researchers [2] also find it easier to identify learning strategies and models that future teacher students in Australia often choose. Furthermore, according to [12], for its continuity, it is necessary to conduct SimLab trials in Australia and expand again. So this study is intended to see how the results of the Simlab 2.0 trial for microteaching technology for students in Indonesia, in this case, to PGSD bilingual students.

The Department of PGSD FIP Unesa is committed to producing prospective elementary school teachers with international qualifications who can adapt to the 21st century. For this reason, since 2017, the PGSD Department has initiated one bilingual class in each batch as a prototype of a superior class containing selected students based on TEP (Test English Proficiency) scores and interviews with English. As for the curriculum, bilingual classes at PGSD still refer to the regular class curriculum but with additional efforts to enrich content with global issues in the world of education and skills of the 21st century.

Like other regular class students, this bilingual student must take the Microteaching course. Since the class of 2019, this course has changed its name to the Teaching Skills and Micro-Learning (KMPP) course [13]. However, to distinguish the capabilities of bilingual class students from other classes, it is necessary to pursue a different approach in each course, including in this Microteaching or KMPP course. For this reason, a collaboration with Murdoch University has been initiated, which has developed Microteaching 2.0 technology to facilitate microteaching of students on their campus.

Murdoch University, as the licensee of Human in the Loop (HITL) technology from the University of Central Florida, together with The University of Newcastle and The University of Western Australia, developed Microteaching 2.0 technology that combines traditional microteaching strategies with HITL simulation technology [2]. In their article, Ledger and Fischetti clearly describe this micro-teaching 2.0 technology. Students are represented by several avatars controlled and subbed by a Simlab technician based on a specific learning scenario directed by the lecturer and the student's learning design (see Fig. 1). Students teach and respond to avatars through their homes or in the laboratory room online. The lecturer, as an observer, can observe the course of microteaching wherever he is online. All microteaching processes can be recorded for the needs of student self-reflection and also for observation and assessment of lecturers.

Microteaching can still be done online through Zoom meetings with Simlab staff from Murdoch University, students in their respective homes, and lecturers in their places. This technology is very suitable for the current pandemic conditions and is very much in line with the target of increasing the capabilities of PGSD bilingual class students [9]. In addition, this technology provides valuable experience for PGSD bilingual class students to teach natives using English. They can also learn the characteristics of overseas students, which are undoubtedly different from students in Indonesia. In addition, this aligns with the mission of Surabaya State University, as stated in the Unesa 2021 Business Strategic Plan document, to optimize the use of technology in organizing practical lectures centered on students and to organize research in technology that is beneficial for the development of science.

Based on the background description in this study, the problem is formulated: how can PGSD bilingual class students develop teaching skills through Microteaching 2.0 technology? Thus, this article aims to describe the teaching skills that PGSD bilingual class students can develop through Micro-teaching 2.0 technology. This research is expected to provide theoretical and practical benefits in primary education. Theoretically, this research is helpful for the theory of technological development in higher education and as an initiation of Sim-Lab technology research in Indonesia.

2 Method

This collaborative research aims to improve the teaching skills of prospective teacher students in Indonesia, with monitoring and direction carried out by three universities; Surabaya State University, Murdoch University, and The University of Newcastle. Based on the formulation of the problem presented in the background section, the design of this study uses a mixed-method approach.

This study combined data obtained from observations, surveys, FGDs, and narrative writing data for the ten months of this study with online methods. The survey was conducted by providing a questionnaire developed by Murdoch University to students who had conducted a Simlab trial. Statements were made during the simlab trial and by observing repeated video recordings of the implementation. Every time a rehearsal or test is completed, a forum group discussion will be held, which will be attended by students, MK lecturers, teachers in Australia, and Simlab staff. Students are given constructive feedback during the FGD, and they also express what they can learn from the display that has been done. Next, they will write a reflective narrative related to the implementation of the Simlab trial that they have done. The detailed procedure for the performance of this study will be discussed in the second part.

The survey data will be analyzed quantitatively and descriptively, using percentages and diagrams in its presentation. In the meantime, the data from the other methods will be analyzed based on the patterns of themes found to answer the question asked.

Participants from this study consisted of 31 students who were taken from two bilingual classes of PGSD programmers in Microteaching and KMPM courses. But not all students from both types are involved. The sampling technique used is purposive sampling. With the goal of smooth communication when microteaching in English, students from the two-batch PGSD bilingual class are selected only those who have passed their English Proficiency Test (TEP) scores. From the TEP scores' screening results, the following research subjects were obtained: from the class of 2018A, 15 students were taken; from the course of 2019A, 16 students were accepted.

3 Result and Discussion

3.1 Research Results

The question on the questionnaire that asks students' responses related to teaching skills that develop using SimLab technology is in questionnaire number 4 regarding the outline of what teaching strategy you focused on in this micro-teaching session. This question

Table 1. Categories of student teaching skills.

No	Teaching skill	Responses
1	Asking	27 students
2	Providing reinforcement	0 students
3	Holding variations	11 students
4	Explaining	One student
5	Opening and closing a lesson	0 students
6	Guiding small group discussions	Four students
7	Manage class	Four students
8	Teaching small groups and individuals	Five students

led student SimLab users to evaluate their appearance and what teaching skills they felt developed while using this technology. The results of student comments on open questionnaire questions are categorized in Table 1.

From the table of categories of teaching skills of students that develop during the use of SimLab technology, it can be observed that 6 out of 8 teaching skills developed. The three most dominant of them are the skill of holding a variety of learning, the skill of asking questions, and the skill of teaching small groups or individuals. The presentation of the data from the questionnaire and student responses showed that this Microteaching 2.0 technology helped them focus on developing the three teaching strategies.

Most responses showed that most students felt that SimLab technology helped them to hold variations in learning.

(Add GForm screenshot data of responses to this category AND student statement data during reflection).

The second-most responses showed SimLab helped them develop the skills of asking and asking questions to students.

(Add GForm screenshot data of responses to this category AND student statement data during reflection).

Next, students feel that using SimLab with a limited number of avatars makes them focus on developing teaching skills for small groups and individuals.

(Add GForm screenshot data of responses to this category AND student statement data during reflection).

In addition to the three primary skills that look thriving, the lowest response ribs in a row are on the skills of managing classes, guiding small group discussions, and explaining the material.

(Discuss in more detail)

The other two teaching skills, namely strengthening and explaining, differ from the focus of the user students' SimLab. However, this can be explained in other questionnaire items that ask for the effectiveness SimLab in developing attendance and the ability to open lessons, deliver material, and close lessons (see Fig. 1).

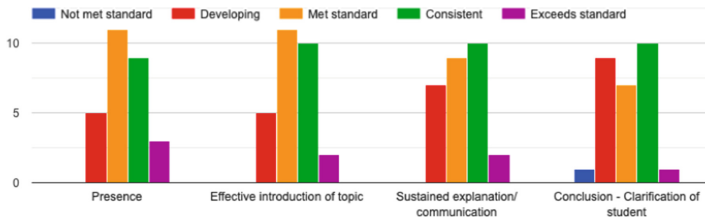


Fig. 1. Effectiveness of using SimLab.

From the diagram in Fig. 2, it can be concluded that SimLab technology also helps students develop the skills of opening and closing lessons. The graph shows that SimLab is very helpful for learning to open classes effectively. Meanwhile, due to the limited usage time, which is only 10 minutes for each student, some students feel that the ability to close their lessons still needs to be improved.

3.2 Discussion

For listing facts, use either the style tag List summary signs or the style tag List number signs.

4 Conclusion

Based on the data, the response of avatar students in Microteaching 2.0 technology helped prospective teacher students develop the ability to hold variations in learning, ask questions, and teach small groups or individuals. So that the future elementary school teachers mastered 3 out of 8 teaching skills after they were trained using the Microteaching 2.0 technology. Meanwhile, the lowest responses were on the skills of managing classes, guiding small group discussions, and the skills of explaining the material.

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