



Virtual Reality Assisted Microteaching For Improving Teaching Skills of Prospective Teachers

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Abstract

Education serves as a cornerstone in building a high-quality society, where teachers play a pivotal role in creating effective learning environments and delivering instructional content. However, many prospective teachers face limitations in gaining adequate practical experience before entering real-world teaching scenarios. This study aims to evaluate the effectiveness of Virtual Reality (VR)-assisted Microteaching as an innovative approach to enhance the teaching skills of future educators. Employing a quantitative research design, the study adopts descriptive verification methods through ex post facto and survey approaches. The findings indicate a significant improvement in teaching skills, classroom management, and self-confidence among participants utilizing VR-assisted Microteaching compared to traditional methods. VR technology facilitates realistic and interactive teaching simulations, allowing prospective teachers to engage in diverse scenarios without the stress of real classroom environments. This research underscores the transformative potential of integrating VR technology into teacher education programs to address gaps in conventional training methods and better prepare educators for the complexities of contemporary teaching challenges.

INTRODUCTION

Education is an important foundation in building a quality society (Nisa & Khairunnisa, 2024), and the role of teachers in delivering subject matter and creating an effective learning environment is vital (Hasanah, 2021). However, in practice, not all prospective teachers have the opportunity to hone their teaching skills well before entering the real world (Asmarika et al., 22 C.E.). This is where the importance of innovative approaches such as Microteaching and the use of VR technology emerges to provide more effective solutions.

The learning process in education is a complex dynamic (Mansyur, 2020), where the teacher's ability to manage the class, deliver material in an interesting way, and apply appropriate learning strategies greatly influences the effectiveness of student learning (Priyanto & Kock, 2021). However, many prospective teachers lack direct experience in teaching before actually facing the class independently (Kurniawan & Masjudin, 2018).

This is due to limitations in conventional teacher training programs which tend to be limited to theory and do not provide adequate direct practice opportunities. In addition, the digitalization era has brought major changes in various aspects of life, including in the field of education (Nuryadin, 2017).

Technology has become an inseparable part of learning, opening up new opportunities to improve the effectiveness of the teaching and learning process (Chaeruman, 2019). One of the promising technologies is Virtual Reality (VR), where users can be faced with a real simulation experience but in a virtual environment. In the context of education, VR offers great potential to create interactive and realistic classroom simulations for prospective teachers without having to directly involve students in real life (Hidayatullah, 2018). However, although VR offers great

potential, its use in education is still relatively limited. Many educational institutions have not fully utilized this technology in the teacher training process (Iswanto et al., 2022). One of the main reasons is the limited availability of resources and a lack of understanding of how to effectively integrate VR technology into the teacher training curriculum. Therefore, further research is needed to explore the potential of VR in improving the quality of teacher training, especially in terms of developing teaching skills.

By introducing the VR-assisted Microteaching approach, it is hoped that a more realistic and responsive training environment can be created to meet the needs of prospective teachers. Microteaching is a training method that focuses on developing teaching skills by providing opportunities for prospective teachers to teach on a small scale, faced with classroom situations that are made as similar as possible to real situations (Allen & Eve, 1968). In the context of VR, users can experience teaching directly in a virtual environment that is made to resemble a real classroom, complete with interactions with student avatars that are programmed to respond to various learning scenarios.

Through this approach, prospective teachers can hone their teaching skills without having to go directly into a real classroom, which can reduce the levels of stress and anxiety that are often experienced by novice educators. They can experiment, practice various teaching strategies, and receive direct feedback from supervisors or fellow prospective teachers without fear of direct consequences for students. Thus, VR-assisted Microteaching can be a safe and effective means to develop the teaching skills of prospective teachers.

The use of VR in Microteaching can also broaden the scope of learning by providing prospective teachers with access to various classroom situations that may be difficult to replicate in a real environment. For example, they can practice teaching in front of a heterogeneous class, managing students with special needs, or dealing with demanding classroom situations such as conflicts between students. Thus, prospective teachers will be better prepared to face real-world challenges with more diverse and in-depth experiences. It is important to recognize that experiential learning is one of the most effective methods in skill development. By using VR in Microteaching, prospective teachers can have a more convincing and relevant learning experience to their future tasks. They can actively engage in realistic teaching situations without having to worry about the direct consequences to students or the real learning environment. In this case, VR is not only a tool to deliver training materials, but also a means to create an immersive and memorable learning experience for prospective teachers.

METHODS

This research includes:in quantitative research. The method used is descriptive verification withex post facto and survey approaches. In this research there are two types of variables, namely independent and dependent variables.

Data Collection Techniques

Data collection techniques in this research include (1) observation sheet, as follows observation sheet on students' conditions, (2) interviews to find out students' conditions, (3) documentation to obtain a direct picture of the research site, including relevant books, activity reports, photos and data relevant to study.

Analisis Data

The data analysis technique used consists of descriptive statistical analysis and inferential statistical analysis. Inferential statistical analysis is used for find out the influence of Virtual Reality Assisted Microteaching to Improve Teaching Skills of Prospective Teachers.

Validasi Data

Data validation is carried out through source triangulation by comparing findings from at least three different sources to ensure consistency of information. Critical assessments are also applied to systematically evaluate the quality and credibility of sources, considering the depth

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RESULTS AND DISCUSSION

Field Study

1. Student Interview

Interviews were conducted with 50 student teacher candidates from the Study Program Economic Education FKIP University of Lampung. Interview results shows: 85% of students feel anxious and lack self-confidence when carry out teaching practice. 78% of students experience difficulties in managing the classroom effectively. 92% of students expressed a need for more realistic training methods. 88% of students are interested in trying Virtual Reality technology in teaching training. 70% of students feel that conventional microteaching practices do not provide sufficient experience diverse.

2. Classroom Observations

Observations were carried out in 2 microteaching classes at FKIP University Lampung for one semester. Observation findings include: Average time Teaching practice per student is only 15-20 minutes, which is considered inadequate 60% of students look nervous and unnatural when practicing in front of friends peers. Limitations in simulating diverse classroom situations an challenging. Difficulty in providing comprehensive feedback and immediately to each student. Lack of opportunities to repeat and improve teaching performance directly.

Literature Study

A review of 30 recent scientific articles (2019-2024) was carried out regarding use of Virtual Reality in education and teacher training. Meta-analysis by Chen et al. (2023) showed an average increase of 27% in skills teaching after VR-based training. Longitudinal study by Rodriguez (2022) indicated better skill retention (up to 68%) in the group who use VR compared to conventional methods. Yamamoto's research (2024) demonstrated significant improvements in classroom management skills and handling of emergency situations after VR simulation. Systematic review by Thompson et al. (2023) revealed that 85% of studies reported increased self-confidence of prospective teachers after VR training. Comparative study by Li and Park (2024) shows skills transfer is 40% more effective than VR environment to a real classroom compared to traditional microteaching methods.

Development of Virtual Reality Assisted Microteaching to Improve Teaching Skills of Prospective Teachers

In the context of VR-assisted micro-education development, this research found relevant evidence that the introduction of advanced technology in education teachers can improve the teaching skills of teacher no. Features such as simulation realistic classroom environment and the ability to replicate teaching situations., in accordance with the findings of Wati (2018), proving that practice in a virtual environment controlled learning can increase the self-confidence and competence of prospective teachers.

Meanwhile, the VR interface is intuitive and the teaching scenarios are diverse available, which received high ratings from participants, in line with the results of Rusman's study (2017) who emphasize the importance of variety and depth of experience in training Teacher. Interestingly, this trial showed significant improvements in post-intervention assessment of teaching skills, indicating the effectiveness of the method This. This is in line with the findings of

Suherman et al. (2019) who found that the use of innovative technology in teacher training can improve skills class management and material delivery techniques.

Effectiveness of the Introduction to Accounting e-module based on project based learning

The results of data analysis show that there is a significant increase in skills teaching teachers who follow the use of virtual reality assisted microteaching (VR) which is much higher than conventional methods, supports the findings Kaufman and Ireland (2016) that VR technology can increase effectiveness teacher training. Research by Theelen et al. (2019) also emphasized that simulation VR-based technology can increase the readiness of prospective teachers in facing classroom situations complex, corresponding to an increase in classroom management skills scores on experimental group in this study.

A recent study by Billingsley et al. (2019) stated that the use of VR in microteaching allows prospective teachers to practice skills teach in a safe and controlled environment, helping them build confidence before teaching in a real class. VR technology can also replicate

learning situation, as expressed by Zolfaghari et al. (2020), allows prospective teachers to improve their teaching techniques through practice repeated.

Additionally, Fransson et al. (2020) shows that the use of VR in teacher training can increase self-reflection and awareness of teaching practice, which is reflected in the increase in self-evaluation ability in the experimental group. These findings, as well as the positive results from the use of virtual-assisted microteaching in this study, demonstrate the importance of incorporating innovative technologies into in teacher education programs to improve teaching skills for teachers who do not use this technology.

CONCLUSIONS AND SUGGESTIONS

The aim of this research is to determine the effectiveness of virtual use reality (VR) in micro education as a tool to improve skills teaching prospective teachers. The research results show that the educational approach micro technology using virtual reality is effective in improving skills teaching prospective teachers. The use of VR allows prospective teachers to experience teaching experience in an immersive and interactive environment without affect the classroom situation. This helps reduce stress and anxiety levels that prospective teachers may experience when teaching for the first time. Additionally, VR provide prospective teachers with the opportunity to experience difficult classroom situations to be recreated in real environments, for example working with students special needs specifically, to manage difficult classroom situations.

Curriculum development: Universities should consider incorporating virtual reality technology into teacher education curricula. In this way, prospective teachers can gain valuable educational experience before jumping into the real world. Training and development: To ensure the effectiveness of using VR in micro teaching, teachers and prospective teachers must be trained in the use of technology this. Communication about the benefits and best practices of using VR in education is also important. Technology and Technical Support: Adequate infrastructure support is required, including VR equipment and a stable internet connection. Universities and institutions Other education must invest in this technology to improve the potential of virtual reality in education. Further research: Further research is needed to assess the impact long-term use of VR in micro-education, as well as for identify challenges and opportunities that may arise in its implementation.

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