



Improvement Teacher Skills in through Mentoring Virtual Reality Learning Media

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ABSTRACT

The Industrial Revolution era 4.0. technological developments in the world of education are growing rapidly. Teachers as one of the determinants of the quality of student graduates are required to master technology for a smooth and innovative learning process. Generation Z students are happy with the world of technology, one of the things teachers can use to motivate their students is to use virtual reality media. The purpose of this training is to develop teacher competencies in creating and utilizing creative use of technology-based learning media. The development of learning media based on virtual reality is one of the programs to improve teacher competencies in teaching. The method used is the delivery of material by brainstorming then discussions and the latest games of problem-solving and problem-based evaluation. The training is carried out for Muhamamdiyah school teachers in the East Jakarta area which has a positive impact and provides new experiences for teachers to be applied in the classroom because virtual reality involves several senses and memorable learning for students. So this training is needed by teachers.

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INTRODUCTION

Education in the industrial revolution era 4.0 experienced an impact and impact both on the learning process and learning outcomes. With technological advancements, teachers are required to use technology literacy. Improving teacher performance must continue to be done either through seminars, workshops, or other training. Teachers are the frontline in improving the quality of education. Therefore regulations in the world of education affect the course of the learning process and affect the outcomes of graduates. What teachers can do to make learning more fun is through meaningful learning. The ability of teachers to create or use learning media is demanded to be more creative, innovative, and interactive. But in reality, the teaching teacher only aborts his obligations so that the learning achievements are complete and the material has been delivered. It doesn't matter if the student understands. And at the end of learning, students are expected to be able to complete the evaluation with satisfactory grades. This is where the teacher's mistakes collectively teachers are only oriented towards values and cognitive without paying attention to the process of improvement only looks at the results. The current condition of the teachers at Muhammadiyah is a target school that is under the Muhammadiyah Basic Education Council of East Jakarta. Teachers there 70% still use conventional learning and therefore there is a need for special assistance to improve teacher competence in teaching. The students currently faced are millennials who are happy with everything instant, fast, and interesting. Then the teacher is required to make learning media interesting and innovative so that students are motivated to follow the lessons. Many teachers assume that learning media is not important, because according to the teacher the most important thing is how the teacher completes the material and continues the next material. This is what blinds students and schools with minimal achievement.

Seeing this phenomenon, our community service team wants to solve the problem of how to improve teacher competence in creating and utilizing creative and interactive learning media. The purpose of this activity is to develop teacher competencies in creating and utilizing creative and interactive learning media so that the learning situation attracts more students 'interests and fosters teachers' creativity in delivering material in a class by using technology-based learning media. The benefits of this training increase competence, foster a spirit of creativity in teachers that will bring creativity to students.

LITERATURE REVIEW

The use of virtual reality can help other professions to improve their performance, for example, prospective pilots who are learning to fly their planes (Aromaa, Goriachev, & Kymäläinen, 2020). Also, virtual reality is widely used for gameplay that can affect intense positive and negative emotional experiences for its users (Lavoie, Main, King, & King, 2020). Previous research revealed that virtual reality has a different impression because in it there is a robotic that can control one's body movements

(Al-Sada, Jiang, Ranade, Kalkattawi, & Nakajima, 2019). Chinese researchers from China created a complex and interactive animation in the form of virtual reality to be used in traditional Chinese wayang shows using motion sensors that are presented when displaying shadows (Liang et al., 2018). Previous research revealed that when teaching teachers using virtual reality media will increase interaction in learning by linking learning engagement both in the virtual world and in the real world (Christopoulos, Conrad, & Shukla, 2018). Many have used virtual reality media to explore the surrounding environment so that it minimizes the risks that arise and can save travel costs in addition to that virtual reality can increase one's cognitive power (Harris, Wilson, & Vine, 2019). Many forms of virtual reality media can be utilized as the simplest learning media, namely virtual reality display that is paired on coconut (head-mount display, HMD), which can provide spatial awareness by utilizing the vestibular and proprioceptive senses when compared to traditional desktop displays (Krokos, Plaisant, & Varshney, 2019). The experience in learning will give a good impression on students, by using virtual reality media that is placed on the head it will have a direct impact in learning realistically, with lots of exploration that allows direct interaction so students get clarity of the material, interactivity, presence and learning experiences (Kwon, 2019). The use of virtual reality media allows users to interact to browse and explore world information indefinitely (Reski & Alissandrakis, 2020). The research results also prove. That the virtual reality platform can provide recommendations on the construct validity between cognitive and motor skills in the academic and professional simulator recruitment activities needed to perform both in the real world and in the virtual world (Wood et al., 2020).

MATERIAL AND METHOD

Based on the existing problems, assistance in developing technology-based learning media includes: 1) Needs analysis, 2) Program planning, 3) Development of technology-based learning media, 4) Mentoring training of Virtual Reality-based learning media. The training activities agenda is described in Table 1.

The target of this training is East Jakarta Muhammadiyah school teachers who are under the guidance of the East Jakarta Majelis Dikdasmen in collaboration with UHAMKA. Before conducting assistance and training, the service team conducted a needs analysis based on the analysis data obtained as can see in Figure 1.

Based on teacher percentage data using technology-based media it can be seen that it is still low, which always uses only 8%, sometimes 52%, never 40%. This shows that it is very necessary to assist in the development of technology-based learning media. The expected target in this service is all participants in particular and Muhammadiyah teachers generally can implement technology-based learning media such as virtual reality. With a variety of methods offered ranging from understanding media learning

Table 1.
Training Activities

Theory	Material Coverage	Duration	Method
The concept of learning media	Learning media theory Learning problems faced by teachers in making learning media	4 <u>lh</u>	Discourse and Discussion
Understanding the Urgency of Learning Media	The importance of learning media The urgency of creative, innovative, and interactive learning media	4 <u>lh</u>	Discourse and Discussion
Virtual Reality based learning media	An easy way to make Interactive and Creative learning media	8 <u>lh</u>	<i>Problems Base Solving</i>
Assistance in making creative and interactive learning media	Implementation of making learning media Training on mentoring creative and interactive learning media based on Virtual reality	8 <u>lh</u>	<i>Problems Base Solving</i> <i>Workshop</i>

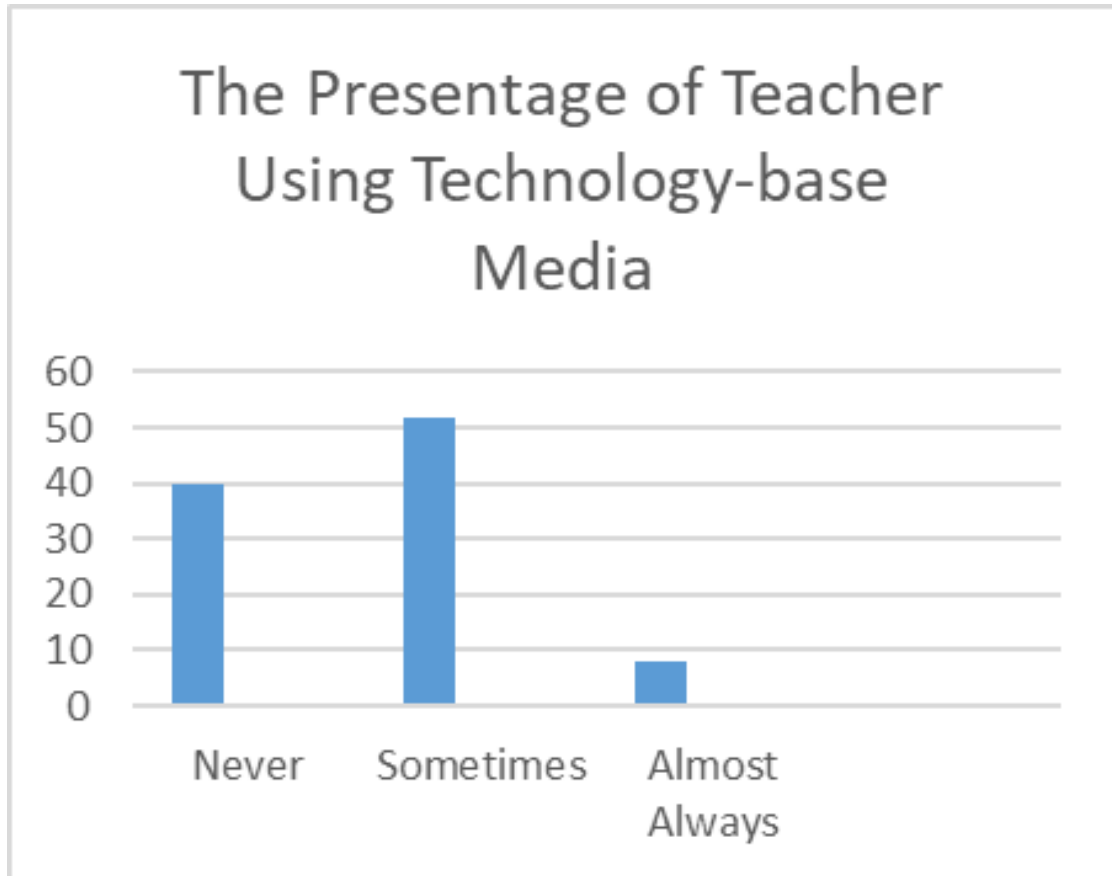


Figure 1.
The Percentage of Teacher Using Technology-based Media.

materials, discussion, problem-solving, to assisting in making learning media.

RESULT AND DISCUSSION

The implementation of virtual reality-based learning media training was carried out for two days. And the assistance was carried out by the team for 3 months.

In the activity of assisting in making learning media on the first day the material which was conveyed was related to the importance of learning media. And teachers are required to have the skills and technological literacy in the era of the industrial revolution 4.0. The second day the teacher was introduced to the virtual reality-based learning media it turns out that many teachers did not know about virtual reality learning media. Based on the data obtained can be seen in Figure 2.

Based on the diagram, it can be seen that teachers who have used virtual reality-based learning media are 14% and who have never used virtual reality as much as 86%. The data requires assistance in the use of virtual reality-based learning media.

The teacher was very enthusiastic about this training because it was the first experience the teacher felt. Then the teacher must understand the use of virtual reality media well before the teacher uses it in the classroom. Virtual reality allows learning to enter students 'emotions in new ways and attract students' cognitive abilities that integrate with motorists. As can see in Figure 3.

Virtual reality is a powerful technology that aims to emulate its real world with the environment produced by computer sophistication that can be felt by all five senses. Because virtual reality headsets are becoming affordable and mainstream, many schools around the world have begun to include virtual reality in their learning plans. As can see in Figure 4.

Teachers who understand the technique of using virtual reality media will be able to bring students to the imagination by optimizing the five senses. Then students will get a meaningful learning experience and student learning outcomes.

Based on the KKM value presentation data in Figure 5., it can be seen that there are significant changes after the teacher uses Virtual Reality-based learning media. The value determined above the KKM is 88% while that which is still below the KKM is 12%. This shows how to use learning media on students who provide motivation and improve cognitive, imaginative, and motor student abilities with interactive involvement. The potential that is accepted by virtual reality-based learning media is an effective way but there are still some learning media that are more suitable to use traditional learning.

Seeing the success of virtual reality-based learning media it is very possible if schools provide adequate facilities related to the provision of technology-based learning media.

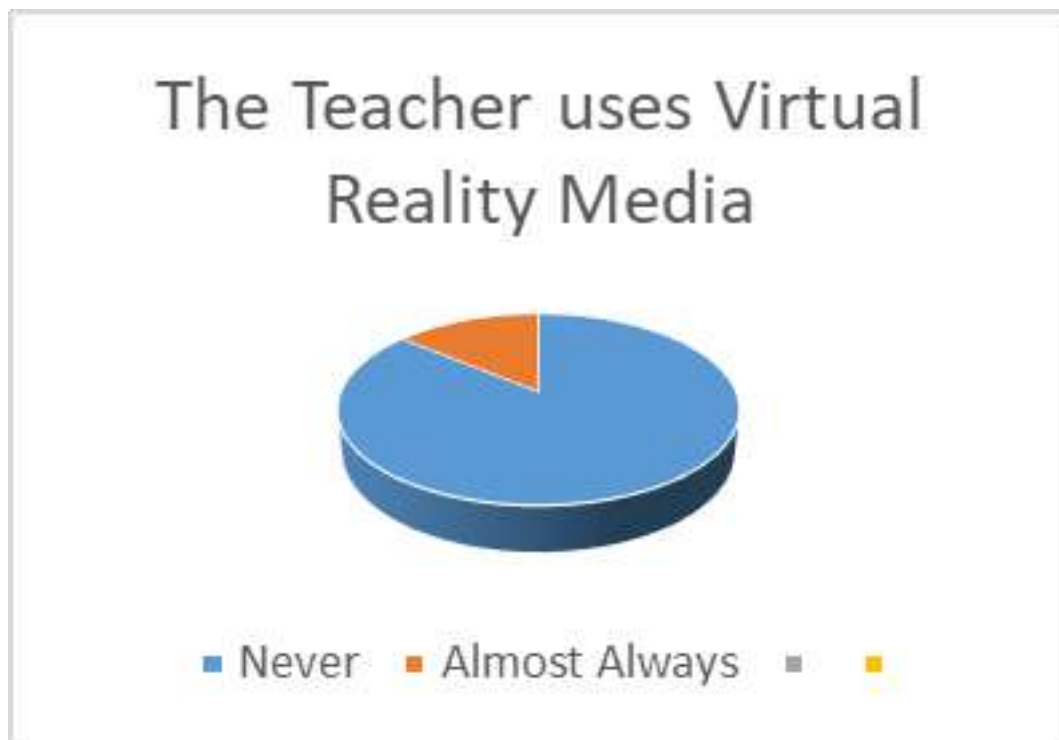


Figure 2.
The Teacher Uses Virtual Reality Media



Figure 3.
Enthusiastic participants tried Virtual Reality



Figure 4.
The teacher tries virtual reality with five senses

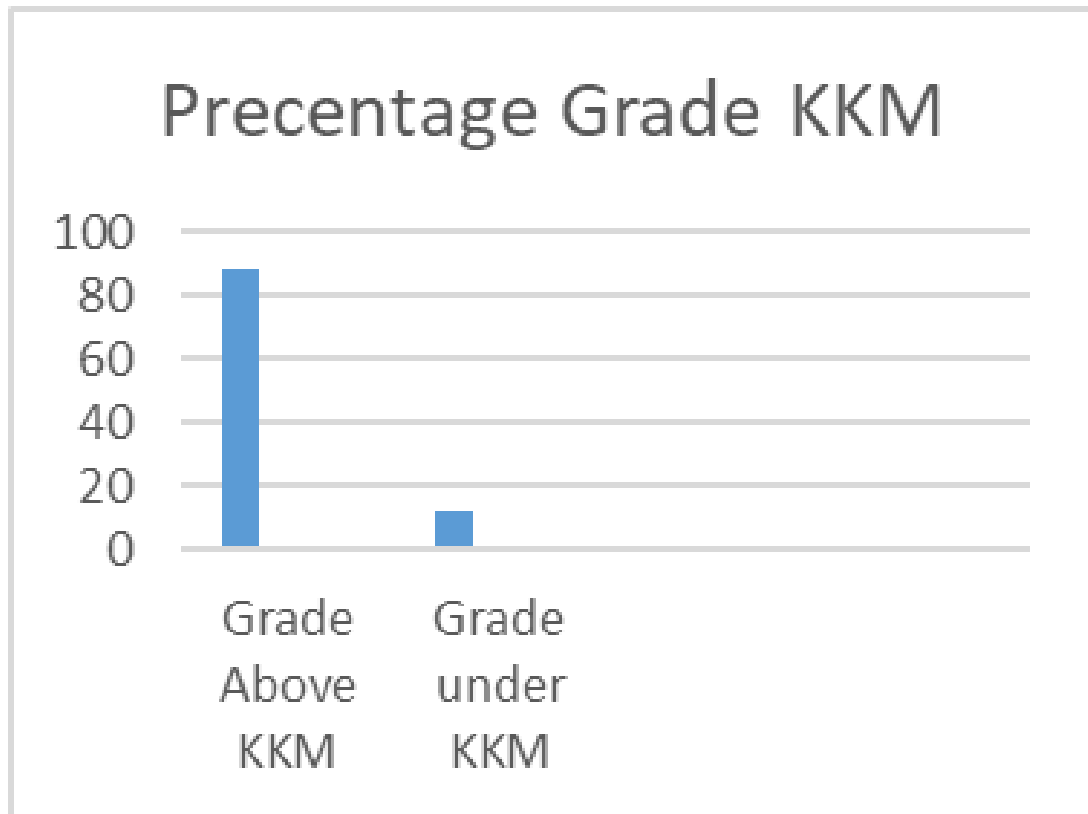


Figure 5.
Percentage of Grade KKM

CONCLUSIONS AND RECOMMENDATION

Based on the description of community service, it can be concluded as follows:

Conclusions

This community service activity gained success because it can foster the enthusiasm and motivation of teachers in choosing, determining, and making learning media that is appropriate to the characteristics of students. Our training is to use technology-based learning media as an example in virtual reality. Virtual reality media has meaningful experience in the learning process of students. Because students can be involved and interact directly by exploring the world. Remarkably, this media has succeeded in improving student learning outcomes.

Recommendation

The following suggestions can be given to improve the quality of teachers in teaching by using technology-based learning media.

1. Teachers should always update the knowledge needed in technology-related education so that the learning process becomes fun.
2. Principals, as my policy, should provide facilities for school needs with the analysis of the situation needed by teachers and students.
3. For lecturers who will do community service related to learning media, they should follow the development of technology and the needs of the school.

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