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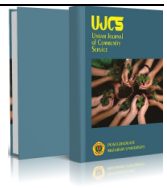

# Virtual Tour Training as Micro-Learning Media for Senior High School Teachers

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**Abstract:** Virtual tour is one of the technological innovations that has great potential in providing an immersive learning experience for students, and is appropriate for use in the midst of the current industrial revolution. In addition to the existence of technology, the readiness and skills of educators to utilize the technology optimally are also needed. The results of the initial survey found that many teachers were familiar with virtual tour technology. Therefore, this service activity was carried out to provide training on virtual tours as micro media in learning. The participants of this service activity were teachers of SMA N 1 Idi Rayeuk. This virtual training used an android camera with the help of the Foxpoi 360 sphere camera application, and also the Lapentor platform. The result of this training is a virtual tour micro media for learning in high school. The response results of the training participants showed enthusiasm and interest in the development of virtual tours.

**Keywords:** Micro media; Virtual tour; Non-immersive virtual reality.

## Introduction

In the fast-paced industrial revolution, education faces the challenge in adapting to emerging technologies that can lead to better learning quality. One technology that shows great potential in supporting learning is Virtual Tour. Virtual Tour can be an effective tool in enriching the learning experience (Dasdemir and Koca, 2023). Virtual Tour allows users to explore a place or environment virtually through a 360-degree view. This Virtual Tour provides an experience for users as if they were in a place (Peruzzini et al, 2023)

In high school, there are complex concepts that require in-depth understanding, and often ineffective if the teacher only uses conventional methods. The subjects such as history, geography, biology, and art will be more lively and interesting if students can visit places related to their subjects such as museums, historical sites, art galleries, and natural ecosystems such as forests, mountains and grasslands. However, visiting these locations can be limited due to accessibility and cost and time effectiveness. Here is the importance of virtual tour as an effective, cheap and interactive learning tool. Some researchers who have developed virtual tours as learning media, that is history lessons (Herdin et al, 2022), social science (Haswin and Putra, 2024), art (Kwon and Morrill, 2022), geography (Wu dan Lai, 2022), biology (Bennet and Saunders, 2019), physics (Yavoruk, 2024) and english (Moreno-Reyes et all, 2022)

The application of Virtual Tour in education is not only depends on the availability of technology, but also the readiness and skills of educators to utilize the technology optimally. Many educators are still unfamiliar with virtual tour technology, especially how to integrate it into their teaching. The team of service has conducted an initial survey of teacher knowledge at SMA N 1 Idi Rayeuk, and only 13% of teachers know information about virtual tour technology, where 6.5% of them get information from social media and 6.5% get information from others. But, among the 13% of teachers, none of the teachers in the school had applied virtual tour technology in learning, because they did not know how to use/develop virtual tours. Therefore, virtual tour-based media micro training is conducted to ensure that teachers are able to utilize this technology optimally so as to improve the quality of learning. Other

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advantages of virtual tour technology that make this technology urgent to do are adjusting modern learning needs, optimizing the use of existing technology, increasing teacher professional competence, enriching student learning experiences, and supporting distance learning.

## Method

This activity is carried out within the training of micro media based on virtual reality (virtual tour). The training was given to 20 teachers at SMA N 1 Idi Rayeuk and was held at SMA N 1 Idi Rayeuk. Details of the stages of training activities are as follows:

1. Collecting initial information about teachers' knowledge related to virtual tour technology.
2. The introduction of the material includes:
   - Virtual Reality technology including virtual tours and prospects for the development of Virtual Reality in the future.
   - Installation of devices/applications needed in making virtual tours.
   - 360 sphere panoramic photo taking technique
3. Virtual tour project preparation
   - Developing a story line
   - Prepare several 360 sphere panoramic photos that will be used as virtual environment
   - Collecting assets (video, sound, articles, information) that will be included in the virtual tour
4. Project execution of virtual tour
   - Rendering 360 panaroma photos into VR maker application (Lapentor)
   - Setting the hotspot used in the virtual tour
   - Inserting assets (video, sound, articles, information) into Lapentor
   - Testing
   - Publication of work
5. Data collection on teachers' perceptions of the use of virtual tour in learning

## Result and Discussion

The initial activity of this activity is an introduction to micro media and also Virtual Reality (VR) technology. As a result of the initial survey in the field, data was obtained, only 13% of teachers knew about VR technology. But after being introduced to the types of VR and given examples of games on the game station, they just understood the technology called virtual reality. The teachers were only unfamiliar with the name virtual reality, but they were aware of the technology from games.


**Figure 1.** Trainees try out the immersive VR experience with the help of Oculus 2

Conceptually, Virtual Reality (VR) is a technology that is able to create an immersive virtual environment, so that users feel as if they are really in the virtual world. However, based on its immersive capabilities, VR is classified into immersive VR that provides a fully immersive experience, semi-immersive VR such as flight simulation and non-immersive VR such as virtual tours (Salatin et all, 2023). The application of VR as one of the most significant innovative technologies in the digital world has reached many sectors and has a large market in the world today. In the world of education, VR is also a transformer in changing teaching methods and technology. However, the existence of technology will not be optimal if education agents are not familiar with VR technology. So that it becomes a necessity in introducing the technology to teachers. When introduced to the types of virtual reality technology, teachers seemed interested and enthusiastic to gain experience using the technology. Figure 1 shows a teacher who is enthusiastic about experiencing immersive VR using an oculus 2 headset. Due to this activity, VR creation training is only limited to non-immersive VR, namely virtual tours.

The second activity of this program is to introduce a 360-sphere camera that is used to take 360 sphere panoramic photos. The application used to take these photos is Foxpoi 360 Photo Sphere Camera which can be downloaded for free at PlayStore. It takes a little technique in taking 360 panoramic photos so that good photo quality is produced (without glitches). In this second meeting, participants were directly taught the technique of taking 360 sphere panoramic photos. Furthermore, participants were also provided with training modules related to the photo-taking technique.


**Figure 2.** Foxpoi 360 Photo Sphere Camera
Source:https://play.google.com/store/apps/details?id=com.foxpoi.panorama

As well as using smartphone cameras with freely accessible apps, participants were also introduced to insta 360 cameras that are very easy to use to take 360 panoramic photos and also have high quality that is much better than smartphone devices, unfortunately, insta 360 cameras are not friendly in its price. Figure 4 shows the comparison results of taking panoramic photos with the Foxpoi 360 Photo Sphere Camera application from a smartphone and an insta 360 X3 camera.

**Figure 3**. X3 insta 360 camera for high quality panoramic photo capture

**Figure 4 (a).** The result of taking photos with the Foxpoi 360 Photo Sphere Camera app from a smartphone

**Figure 4 (b).** The result of taking photos with the insta 360 X3 camera

In the next activity, participants were introduced to the lapentor application and its features that will be used to create a virtual tour. Furthermore, they were taught how to upload panoramic photo files, utilize the features contained in Lapentor and add hotspots as a form of interaction in the virtual tour. The training module book has also presented the steps and explanations of each feature contained in Lapentor.

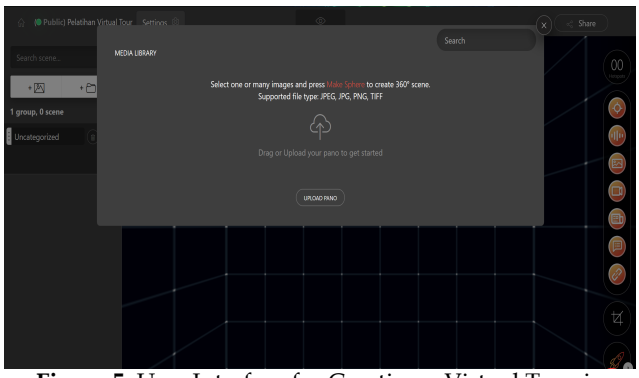


**Figure 5.** User Interface for Creating a Virtual Tour in Lapentor

Teachers are given some sample panoramic photos that can be tried into Lapentor and try adding hotspots and features in Lapentor.

**Figure 6.** User Interface for Creating Virtual Tour in Lapentor

The result of this activity is the teacher's perception of the use of Virtual Tour in the educational environment. Perceptions are taken through a questionnaire with simple questions covering aspects of perceived usefulness, perceived ease of use, attitude towards use and intention to use. Figure 8 shows the results of teacher perceptions of the use of virtual tours in learning based on these four aspects.

Based on Figure 7, it can be seen that 100% of teachers strongly agree that using VR (Virtual Tour) micro media will make teaching more interactive (perceived usefulness aspect). Teachers have already had an idea about how this virtual tour will help provide real visuals of environments that cannot be reached directly. Such as history lessons that require site/museum locations as contextual learning locations, biology lessons that can introduce plant species according to the types that are in the real environment, and also geography lessons that can show the topography and landforms in an area.

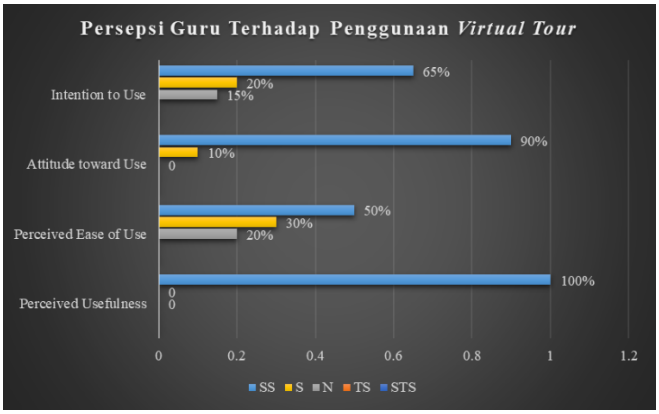


**Figure 7.** Chart of teacher perceptions towards utilizing virtual tours in learning

In the aspect perceived ease of use, the average teacher agrees that this virtual tour is easy to develop and use by students later with details of 50% strongly agree, 30% agree, 20% neutral. The obstacle that according to the teacher is not easy in making this virtual is when taking 360 sphere panoramic photos. In particular, it required tools such as a tripod to make the photo taking stable, as well as skills in rotating the direction of the camera so that the stiching results are neat. Taking panoramic photos also takes a little longer and also depends on network.

In the aspect of attitude toward use, 90% of teachers strongly agree, 10% of teachers agree, and express their interest in VR (Virtual Tour) micro media. But for integrating VR (Virtual Tour) micro media in teaching (Intention to Use aspect), only 85% of teachers intend to integrate virtual tour media in learning, while 15% of them still doubt whether or not to integrate the media later in learning.

## Conclusion

The Community Service activity of training micro media based on virtual reality (virtual tour) has been carried out at SMA N 1 Idi Rayeuk. This activity provides new knowledge for teachers about virtual reality (VR) technology and new experiences for teachers in making virtual tours. The results of this training all teachers agree that this virtual reality-based micro media will make teaching more interesting and interactive, but only 85% are sure and intend to integrate it into learning.

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## References

Bennet, J.A. & Saunders, C. P. (2019). A Virtual Tour of the Cell: Impact of Virtual Reality on Student Learning and Engagement in the STEM Classroom. *Journal of Microbiology & Biology Education*, 20(2), https://doi.org/10.1128/jmbe.v20i2.1658

Dasdemir, I, & Koca, N. (2023). Effects of Using Virtual Tour Applications in Social Studies on Academic Achievement, Motivation, and Attitude. *Psycho-Educational Research Review*, 12(1), 273-288. https://doi.org/10.52963/PERR_Biruni_V12.N1.17

Haswin, A. & Putra, A.K. (2024). Pengembangan Virtual Tour 360o Sebagai Media Belajar IPS Materi Kepulauan Maritim. *Jurnal Integrasi dan Harmoni Inovatif Ilmu-Ilmu Sosial*, 4(8).

Herdin, M., Robin, A.A., & Andi. (2022). Pemanfaatan Museum Tour Virtual Sebagai Sumer Media Pembelajaran Sejarah di Era Digitalisasi. *Kalpataru: Jurnal Sejarah dan Pembelajaran Sejarah*, 8(2). https://doi.org/10.31851/kalpataru.v8i2.10715

Kwon, H. & Morrill, K. (2022). Virtual Reality: Immersive and Situated Art Education With 360-Degree Cameras, and Augmented and Virtual Reality Technology. *Art Education*, 75(4), 27-32. https://doi.org/10.1080/00043125.2022.2053458

Moreno-Reyes, J.M., Alejos, D.J., Siefker, D., & Martinez-Meza, R. (2022). 360 Virtual Tour And Escape Room Design As A Video Games-Based Learning Process For Diagnosis And Strengthening Of The English Language. *Journal Computer Technology*, 6(16), 1-14. https://doi.org/10.35429/JCT.2022.16.6.1.14

Peruzzini, M., Cavallaro, S., Grandi, F., Martinelli, E., & Canio F. D. (2023). Exploring How to Use Virtual Tours to Create an Interactive Customer Remote Experience. *Journal of Industrial Information Integration*, 35, 100509. https://doi.org/10.1016/j.jii.2023.100509

Salatino, A., Zavattaro, C., Gammeri, R., Cirillo, E., Piatti, M.L., Pyasik, M., Serra, H., Pia, L., Geminiani, G., & Ricci, R. (2023). Virtual reality rehabilitation for unilateral spatial neglect: A systematic review of immersive, semi-immersive and non-immersive techniques. *Neuroscience & Biobehavioral Reviews*, 152, 105248. https://doi.org/10.1016/j.neubiorev.2023.105248

Wu, X, & Lai, I.K.W. (2022). The Use Of 360-Degree Virtual Tours to Promote Mountain Walking Tourism: Stimulus–Organism–Response Model. *Inf Technol Tourism* 24, 85–107 (2022). https://doi.org/10.1007/s40558-021-00218-1

Yavoruk, O. (2024). Virtual Reality Representations of Timelines in Physics Classes. Proceedings of the 2024 5th International Conference on Education Development and Studies, 21-25. https://doi.org/10.1145/3669947.3669948