

The Effectiveness of Virtual Reality Media Utilization on the Thematic Learning Through the Elementary Students Engagement

Vera Yuli Erviana, Ramadhani Uswatun Khasanah* and Nor Sania Aripah

Universitas Ahmad Dahlan, Elementary Teacher Education Department, Faculty of Teacher Training and Education, 55191, Yogyakarta, Indonesia

ABSTRACT

This research is motivated by the advancements in technology in the era of Industry 4.0, which have permeated almost all aspects of life, including the field of education. However, despite these advancements, there are some challenges in the education sector, including the lack of student engagement during learning activities. One of the contributing factors to this issue is the underutilization of technology-based media in the learning process. One of the latest and emerging media in this context is Virtual Reality. This research's objectives are (1) to investigate the implementation of the learning process using Virtual Reality media and (2) to assess the effectiveness of Virtual Reality media on the level of student engagement in Grade I during Theme 7, "Objects, Animals, and Plants Around Me" at SD Muhammadiyah Mertosanan. This study uses an experimental design with a quantitative approach, namely the Pre-Experimental Design with a One-Group Pretest-Posttest type. The research was conducted at SD Muhammadiyah Mertosanan from March 2023 to August 2023, involving a sample of 24 students of grade 1. The linearity test resulted in a significant value of 0.537, indicating that the variables in this study have a linear relationship. Based on the findings, it can be said that Grade I students at SD Muhammadiyah Mertosanan benefit from virtual reality media in terms of increased learning engagement. This implies that virtual reality media can serve as a reference for teachers to improve student engagement in learning.

Keywords: Student engagement, thematic learning, virtual reality media

ARTICLE INFO

Article history:

Received: 12 December 2024

Published: 28 March 2025

DOI: <https://doi.org/10.47836/pp.1.2.018>

E-mail addresses:

vera.erviana@pgsd.uad.ac.id (Vera Yuli Erviana)

ramadhani.khasanah@pgsd.uad.ac.id (Ramadhani Uswatun Khasanah)

nor190005355@webmail.uad.ac.id (Nor Sania Aripah)

* Corresponding author

INTRODUCTION

Education is an effort made by families, communities and the government by guiding, teaching and providing training obtained through learning at school and outside of school to prepare students who can become appropriate individuals in the living environment in the future (Zulkifli et al.,

2022). Basically, education is an interaction between educators and students, to achieve educational goals that take place in a certain environment (Partono, 2020). This interaction is known as educational interaction, namely the mutual influence between educators and students. One tool educators use to aid in interpreting or presenting material in learning activities is learning media (Magdalena et al, 2021). According to Novita et al. (2019), learning media can inspire students to complete their coursework and push themselves to meet their learning objectives. In addition, Tafonao (2018) notes that learning media encompasses all aspects of the physical and technical aspects of the educational process. Thematic learning is learning that combines various subjects by using specific themes. The relationship between one subject and other subjects for students is an important thing in learning, so that what students learn will be more meaningful, easier to remember and easier to understand, processed and used to solve problems in their lives (Djamiluddin & Wardana, 2019).

Based on observations carried out in August 2022 at Muhammadiyah Mertosanan Elementary School, the research discovered the problem that occurred was that the learning activities of class 1 students on animal science materials in the animal garden had not used interesting learning media and were still monotonous, so that students were less interested pay attention to the material presented and causes a lack of student participation in learning activities and it can be said that students are not active while the learning activities are taking place. Despite the fact that student learning activities are crucial to the learning process, they also help students develop their skills, think critically, and solve problems in their daily lives (Saidah, 2016).

Virtual Reality technology, also called VR, is the implementation of digital media that is displayed in real-time (real-world data) and follows environmental conditions that exist in the real world. It can be applied to mobile devices. Virtual reality is very helpful in depicting things that are difficult to present directly in the real world. The main advantage of virtual reality is the experience that makes users feel the sensation of the real world in the virtual world (Raditya et al., 2020).

Based on the explanation above, it is known that there is still a lack of enthusiasm for undertaking an activity at Mertosanan Muhammadiyah Elementary School. Moreover, there is still a lack of utilization of technology-based learning media in the learning process. The efforts are to utilize virtual reality media in the learning process, hoping that learning activity can increase.

METHODS

The type of research used in this study is quantitative research with an experimental method. The research design used in this study is Pre-Experimental Design (non-design). In this research design, the researcher only used one class, namely the first grade of Muhammadiyah Mertosanan Elementary School, for the 2023 academic year, with a total

of 24 students. The researchers conducted a pre-test before administering the treatment and then a post-test after the treatment.

RESULT

At the beginning of the meeting, the students were asked to complete a Pre-test consisting of 20 questions conducted before the lesson on Animals in the Zoo was given. After that, the researcher provided the students with a lesson on the topic of Animals in the Zoo with the help of Virtual Reality media. Subsequently, the students were given a Post-test consisting of 20 questions. The final stage of this research is to provide a questionnaire with six items regarding students' learning engagement.

Researchers found that the students were more enthusiastic about this learning activity than before. This was evident from the students eagerly sharing their experiences using virtual reality media, such as telling about the animals that they see, their characteristics, and their habits. In the closing section, the students appeared to actively participate in summarizing and reflecting on the learning activities that had been carried out.

Based on statistical descriptive data, pre-test results can be known to show that 24 respondents had a minimum learning score before being given treatment of 40 with a maximum score of 70. Then, an average of 62.21 with a standard deviation of 7,729. The Average value (median) is 60,00, and the value of frequent appearance (modus) is 55. Based on the descriptive post-test statistics, the achievement of 24 respondents had a minimum learning outcome score after treatment of 70, with a maximum score of 95. Then, an average of 82,08 was obtained, with a standard deviation of 6,580. The median value is 80,00, and the frequently appearing value (mode) is 75.

It is in line with research carried out by (Magdalena et al., 2021) that Virtual Reality media has been shown to increase the participation of students in learning activities, improve the spirit of learning, as well as help students to more easily understand the material being communicated. Similarly (Tsaqib et al., 2022) also argues that the use of virtual reality media in learning activity makes students more interested and easier to understand the learning activity, so that use of this media is more effective than using conventional methods.

Based on the data above, the results of the pre-test and post-test values show significant differences. The average of the pre-test count is 60,21, while the average of the post-test count is 82,08. It indicates a fairly distant gap where the post-test score is higher than the pre-test. So, it can be concluded that virtual reality media is effective in improving the learning outcomes of pupils. The increased learning outcomes of the students will affect the student's learning activity towards the thematic learning process of Theme 7, namely about objects, animals and plants around me, on the animal identification material in the zoo at SD Muhammadiyah Mertosanan.

Learning activities are a system, in which there are a number of components that are interconnected with each other in order to achieve a goal. (Adiseil et al., 2022) believes that there are several components of learning that must be considered by an individual, namely learning objectives, learning sources, learning strategies, learning media and learning evaluation. Virtual Reality Media is a media capable of making its users feel a certain environment in the virtual world. Virtual Reality Media is a media capable of making its users feel a certain environment in the virtual world. (Supriadi, Hignasari, & Maheindradata, 2019) argues that the use of Virtual Reality media and related technologies has grown in recent years as these media bring unacquired benefits to classical education. In line with this, (Shabir, 2022) argues that the use of virtual reality media in learning is considered more efficient because virtual reality can be done anywhere and at any time without theory of space and time as long as it is in the network and virtual reality medium can make the virtual world like the real world. (Robi'in et al., 2022) submits that the use of Virtual Reality media allows learners to acquire cognitive skills through experiential learning, such as exposure to dangerous environments for real visits.

CONCLUSION

Learning activities using virtual reality media in class I at SD Muhammadiyah Mertosanan improved the students' engagement. The use of virtual reality media in learning activities impacts student engagement, which can be observed through the enthusiasm and participation of students during the learning process.

ACKNOWLEDGEMENT

The author would like to thank the headmaster of SD, Muhammadiyah Mertosanan, and all of the teachers and students.

REFERENCES

- Adiseil, A., Aprilia, Z. U., Putra, R., & Prastiyo, T. (2022). Komponen-komponen pembelajaran dalam kurikulum 2013 pada mata pelajaran IPS [Learning components in the 2013 curriculum in social studies subjects]. *Journal of Education and Instruction (JOEAI)*, 5(1), 298–304. <https://doi.org/10.31539/joeai.v5i1.3646>
- Djamaluddin, A., & Wardana. (2019). *Belajar dan Pembelajaran* [Learning and Studying]. CV Kaaffah Learning Center.
- Magdalena, I., Shodikoh, A. F., Pebrianti, A. R., Jannah, A. W., & Susilawati, I. (2021). Pentingnya media pembelajaran untuk meningkatkan minat belajar siswa SDN Meruya Selatan 06 pagi [The Importance of learning media to increase students' interest in learning at SDN Meruya Selatan]. *EDISI : Jurnal Edukasi Dan Sains*, 3(2), 312–325.

- Novita, L., Sukmanasa, E., & Pratama, M. Y. (2019). Penggunaan media pembelajaran video terhadap hasil belajar siswa SD [The use of video learning media on learning outcomes of elementary school students]. *Indonesian Journal of Primary Education*, 3(2), 64–72. <https://doi.org/10.17509/ijpei.v3i2.22103>
- Partono. (2020). Efektivitas metode circuit learning dalam meningkatkan keaktifan belajar siswa dalam mata pelajaran Qur'an Hadist [The effectiveness of the circuit learning method in increasing student learning activeness in the subject of Qur'an Hadith]. *Al-Ishlah Jurnal Pendidikan Islam*, 18(1), 133–146. <https://doi.org/10.35905/alishlah.v18i1.1166>
- Raditya, I. W. A., Darmawiguna, G. M., & Sindu, I. G. P. (2020). Pengembangan virtual reality untuk digitalisasi pura penataran agung di Pura Besakih [Development of virtual reality to digitalize the Penataran Agung Temple at Pura Besakih]. *INSERT : Information System and Emerging Technology Journal*, 1(1), 12-24. <https://doi.org/10.23887/insirt.v1i1.25872>.
- Robi'in, B., Erviana, V. Y., & Sulisworo, D. (2022). Outreach program, virtual reality, dan berpikir hipotetikal deduktif [Outreach program, virtual reality, deductive thinking, science and technology talk]. *Bincang Sains Dan Teknologi*, 1(1), 18–25. <https://doi.org/10.56741/bst.v1i01.46>
- Saidah, E. M. (2016). Peran psikologi pendidikan dalam pembelajaran PAI [The role of educational psychologist in PAI learning]. *Al-Ishlah: Jurnal Pendidikan*, 8(2), 310–329. <https://doi.org/10.35445/alishlah.v8i2.25>
- Shabir, A. (2022). Uji coba penggunaan teknologi virtual reality sebagai media pembelajaran [The trial use of virtual reality technology as learning media]. *Jurnal Pendidikan Tambusai*, 6(1), 696–702.
- Supriadi, M., Hignasari, L. V., & Mahendradatta, U. (2019). Pengembangan media pembelajaran berbasis virtual reality [Development of virtual reality-based learning media]. *KOMIK (Konferensi Nasional Teknologi Informasi Dan Komputer)*, 3(1), 578–581. <https://doi.org/10.30865/komik.v3i1.1662>
- Tafonao, T. (2018). Peranan media pembelajaran dalam meningkatkan minat belajar mahasiswa [The role of learning media in increasing student interest in learning]. *Jurnal Komunikasi Pendidikan*, 2(2), 103-114. <https://doi.org/10.32585/jkp.v2i2.113>
- Tsaaqib, A., Buchori, A., & Endahwuri, D. (2022). Efektivitas penggunaan media pembelajaran virtual reality (VR) pada materi trigonometri terhadap motivasi dan hasil belajar matematika siswa SMA. *Jurnal Ilmiah Pendidikan Matematika*, 7(1), 11–19. <https://doi.org/10.26877/jipmat.v7i1.995>
- Zulkifli, Z., Kristiawan, M., & Sasongko, R. N. (2022). Improving students' active learning through demonstration method. *AL-ISHLAH: Jurnal Pendidikan*, 14(4), 6539-6550. <https://doi.org/10.35445/alishlah.v14i4.2313>