



Virtual Reality Media for Fun Learning

REFMIDAWATI*

Pharmacy Study Program, Kesuma Bangsa Health Polytechnic, Bandar Lampung, Indonesia

Corresponding author: refmidawati73@poltekkesba.ac.id

Abstract

Organizations can support and enhance knowledge management methods with the use of technologies. To begin with, it will be simpler to define the terms augmented and virtual reality to comprehend them better. Knowledge management processes can be enhanced and supported by enterprises through the use of artificial intelligence technologies. The study aims to elucidate the present trend in science education involving artificial intelligence and augmented reality. A review of the most recent techniques is carried out by following the recommended reporting items for reviews and meta-analyses (PRISMA) criteria. The development of AI technology is one innovation in educational technology to aid in learning. If technology is used sensibly and appropriately, it can expedite education. The advancement of artificial intelligence technology has the potential to foster greater independence in students. Although the teacher does not need to take on such a prominent role, his duties are outlined in providing clarity through important keywords. Managing student conduct and morale is the cornerstone of education, and it should be the foundation for all technology use by educators.

Keywords: Artificial Intelligence, ChatGPT, Industry 4.0, Educational materials

Acknowledgments: Thank you to LP2M Kesuma Bangsa Health Polytechnic, Bandar Lampung, Indonesia

For citation:

Refmidawati. (2023). Virtual Reality Media for Fun Learning. *Journal of Digital Learning and Distance Education*, 2(3), 544-547. <https://doi.org/10.56778/jdlde.v2i4.69>.

Introduction

Learning science involves more than just memorizing facts, concepts, principles, or theories; learning will have greater meaning if students apply what they are learning. For this reason, educators have worked extremely hard to make sure that students can apply what they learn in the classroom to their everyday lives. Technologies like virtual reality and augmented reality have been studied for several years (Al-Ansi et al., 2023). Nonetheless, a few of the line's created items are available to the

general public. However, in other locations, this technology has stagnated because of societal needs and variances. As a result, it's critical to understand how their recent research has changed and, as a result, to look at current trends to predict the fields in which they will be used in the years to come. The Knowledge Age, also known as Era 4.0, is characterized by the increased use of knowledge-based solutions to satisfy demands in a variety of contexts. in the fields of politics, education, the economy, and society as well as in the industrial sector. This was sparked by the development of computer science and technology. They stand out as very useful training and learning resources in both business and education, fostering more participatory, engaging, and successful learning. The current state of education necessitates that technology be viewed as an enabler of learning media sets. Applications-specific tools have been created, and public access to hardware and software standards has been made possible for a range of educational uses (Kamińska et al., 2019). Therefore, all educational institutions should recognize the value of incorporating technology into the teaching and learning process.

The need for technology to be used in educational settings has led to the emergence of new social groups with diverse perspectives, values, cultures, and technological intelligence. The Millennial Generation is a relatively young population that presents a lot of challenges for educators because of its propensity for learning through frameworks that integrate advanced artificial intelligence, visuals, sounds, videos, complex creative tasks, and diversions. One of the reasons we need to change our vision for education is the emergence of the millennial generation. We need to develop new curricula that empower students to find resources for knowledge and skill acquisition, improve where and how they learn, and improve performance through data-driven modifications. Peers play a crucial role in this process by learning alongside one another, and the teacher facilitates learning (Svelling et al., 2021).

Naturally, the role of peers, teachers, and culture in the learning environment cannot be entirely replaced by technological advancements, generational transfers, or educational visions; after all, technology merely serves to improve human performance in an efficient learning process. Organizations can support and enhance knowledge management strategies with the use of artificial intelligence technologies. To begin with, it will be simpler to define the terms augmented and virtual reality to comprehend them better. There are various definitions for virtual reality (VR), but the most encompassing and broad one is probably as follows: As stated by Tjostheim and Waterworth (2022), "Virtual reality is defined as a real or simulated environment in which an observer experiences telepresence." This description was chosen to avoid the need to define Head Mounted Displays (HMD) or any other globe. Alternatively, we could focus on engineering and application to ascertain the course of technology. Similarly, we could define augmented reality (AR) as a technique for incorporating new data into the real world (Gralak, 2020). This description eliminates the need to talk about specific hardware, allowing us to focus on the development of technology while identifying approaches and uses. We can claim that, despite their extensive development, AR and VR technologies have only just begun to leave the lab. This is mostly because of a combination of declining device counts and increasing computing power. Currently, augmented reality and virtual reality can be used with middle-class smartphones. Even though it costs a little bit more, using more sophisticated technology may be more immersive and interesting. Given the background information provided above, the current trend in scientific education—augmented reality with artificial intelligence—must be studied.

Methodology

We followed PRISMA criteria in conducting this work as a systematic review. When writing a systematic review, there are many considerations to make according to the PRISMA standards. The primary focus of this study will be on the following areas: Augmented Reality, Industrial Revolution 4.0, Artificial Intelligence, and Learning Media. Using a small number of carefully chosen keywords, we first gathered the most recent research on the integration of artificial intelligence and augmented reality in scientific education. Next, we apply the collection's eligibility requirements. To give you a

general idea of current trends, we have only included literature that was released in 2017 or after. Furthermore, we restrict the categories of literature to only those that take the form of proceedings and journals.

Results and Discussion

Virtual reality (VR) is increasingly recognized for its potential in fun learning experiences. Research highlights various aspects of VR in education, such as collaborative learning, language learning, and educational games. VR offers immersive and interactive experiences, engaging learners through gamification (Marougkas et al., 2023). It supports collaborative learning by enhancing engagement, motivation, and social skills (Van Der Meer et al., 2023). In language learning, VR positively impacts motivation, particularly in vocabulary acquisition, although long-term retention remains a challenge (Alizadeh & Cowie, 2022). Educational games in VR are engaging due to high immersion levels, but effective feedback mechanisms are crucial for learning (Chen et al., 2023). Recent studies show an expansion in VR-assisted language learning research, exploring cognitive and affective benefits and drawbacks (Hua & Wang, 2023). Overall, VR presents exciting opportunities for fun learning across various educational domains.

In the field of education, virtual reality (VR) offers learners an immersive and interactive learning experience, allowing them to comprehend challenging concepts and ideas more efficiently and effectively. VR technology has enabled educators to develop a wide range of learning experiences, from virtual field trips to complex simulations, that may be utilized to engage students and help them learn. Learning theories and approaches are essential for understanding how students learn and how to design effective learning experiences.

Virtual reality (VR) enhances interactive learning experiences by promoting engagement, autonomy, creativity, and metacognition (Yang et al., 2023); (Zaen & Mardiani, 2018); (Essoe et al., 2022). VR technology facilitates a shift from traditional teaching methods to immersive, three-dimensional learning environments, fostering situational and contextual learning. Through VR, students can explore, experiment, make decisions, and solve problems actively, leading to enriched learning experiences. The interactive nature of VR, with its ability to display spatial models realistically and enable movement in three-dimensional space, significantly boosts motivation and engagement in education. By providing students with autonomy over their learning time, location, and style, VR technology enhances motivation, autonomy, and learning outcomes, ultimately improving the overall learning experience.

Conclusion

The development of AI technology is one innovation in educational technology to aid in learning. If technology is used sensibly and appropriately, it can expedite education. The advancement of artificial intelligence technology has the potential to foster greater independence in students. Although the teacher does not need to take on such a prominent role, his duties are outlined in terms of providing clarity through important keywords. Managing student conduct and morale is the cornerstone of education, and it should be the foundation for all technology use by educators.

Conflicts of Interest

The authors declare no conflict of interest

References

Alizadeh, M., & Cowie, N. (2022). Language learning and virtual reality: A scoping review. *ASCILITE Publications*, e22258. <https://doi.org/10.14742/apubs.2022.258>

- Adel, A. (2022). Future of Industry 5.0 in society: Human-centric solutions, challenges, and prospective research areas. *Journal of Cloud Computing*, 11(1), 40. <https://doi.org/10.1186/s13677-022-00314-5>
- Adriyendi, A. (2018). Inference Menggunakan Forward Chaining Pada Food Affordability. *Sainstek: Jurnal Sains dan Teknologi*, 9(2), 108. <https://doi.org/10.31958/js.v9i2.671>
- Ajayi, O., Bagula, A., & Maluleke, H. (2023). The Fourth Industrial Revolution: A Technological Wave of Change. In M. Gordan, K. Ghaedi, & V. Saleh (Eds.), *Artificial Intelligence* (Vol. 16). IntechOpen. <https://doi.org/10.5772/intechopen.106209>
- Chen, Y., Kay, J., & Yoo, S. (2023). Feedback and Open Learner Models in Popular Commercial VR Games: A Systematic Review. In N. Wang, G. Rebolledo-Mendez, N. Matsuda, O. C. Santos, & V. Dimitrova (Eds.), *Artificial Intelligence in Education* (Vol. 13916, pp. 541–552). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-36272-9_44
- Essoe, J. K. Y., Reggente, N., Ohno, A. A., Baek, Y. H., Dell'italia, J., & Rissman, J. (2022). *Enhancing Learning and Retention with Distinctive Virtual Reality Environments and Mental Context Reinstatement*. <https://doi.org/10.31234/osf.io/vy4b6>
- Hua, C., & Wang, J. (2023). Virtual reality-assisted language learning: A follow-up review (2018–2022). *Frontiers in Psychology*, 14, 1153642. <https://doi.org/10.3389/fpsyg.2023.1153642>
- Hakim, A. R. (2019). Artificial Intelligence Based Autogate System Development Concept in Immigration Examination for Indonesian Citizens at Immigration Examination In Soekarno-Hatta International Airport. *Tematics: Technology Management and Informatics Research Journals*, 1(1), 69–80. <https://doi.org/10.52617/tematics.v1i1.74>
- Haleem, A., & Javaid, M. (2019). Additive Manufacturing Applications in Industry 4.0: A Review. *Journal of Industrial Integration and Management*, 04(04), 1930001. <https://doi.org/10.1142/S2424862219300011>
- Hübner, P., Weinmann, M., Hillemann, M., Jutzi, B., & Wursthorn, S. (2018). Combining Independent Visualization and Tracking Systems for Augmented Reality. *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, XLII–2, 455–462. <https://doi.org/10.5194/isprs-archives-XLII-2-455-2018>
- Maroukhas, A., Troussas, C., Krouska, A., & Sgouropoulou, C. (2023). Virtual Reality in Education: A Review of Learning Theories, Approaches and Methodologies for the Last Decade. *Electronics*, 12(13), 2832. <https://doi.org/10.3390/electronics12132832>
- Van Der Meer, N., Van Der Werf, V., Brinkman, W.-P., & Specht, M. (2023). Virtual reality and collaborative learning: A systematic literature review. *Frontiers in Virtual Reality*, 4, 1159905. <https://doi.org/10.3389/frvir.2023.1159905>
- Yang, H., Cai, M., Diao, Y., Liu, R., Liu, L., & Xiang, Q. (2023). How does interactive virtual reality enhance learning outcomes via emotional experiences? A structural equation modeling approach. *Frontiers in Psychology*, 13, 1081372. <https://doi.org/10.3389/fpsyg.2022.1081372>