INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY: APPLIED BUSINESS AND EDUCATION RESEARCH
2024, Vol. 5, No. 12, 5371 – 5378
http://dx.doi.org/10.11594/ijmaber.05.12.31

Research Article

Implementation of Mobile Based Virtual Reality on the Knights and Garuda Birds Folklore in the Legend of Mount Mekongga at Grade 7 of SMP Negeri 2 Kendari

Arifin Tahir[1], Muhlis Tahir[2]*, La Ode Muhammad Ruspan Takasi[1], Alif Adillah Nugraha Arifrahman[4]

[1]Faculty of Teacher Training and Education, Universitas Terbuka UPBJJ Kendari, 93232, Indonesia
[2]Department of Informatics Education, Universitas Trunojoyo Madura, 69162, Indonesia
[3]UPT-TIK, Universitas Terbuka UPBJJ Majene, 91412, Indonesia

Article history:
Submission 19 December 2022
Revised 16 May 2023
Accepted 21 November 2024

**Corresponding author:*
E-mail:
muhlis.tahir@trunojoyo.ac.id

ABSTRACT

Indonesia is a country rich in cultural values passed down from generation to generation, such as folklore. This challenge is because folklore in Indonesia is told orally and mostly only documented in the form of story books. So that folklore can be re-interested by children and to achieve the objectives of the learning process, visualizations are made using Virtual Reality technology. The folklore that will be raised is a folk tale from the province of Southeast Sulawesi entitled About the Knights and the Garuda Bird in the Legend of the Formation of Mount Mekongga. The purpose of this research is to be able to maintain folklore as a national culture in the midst of the development of fictional stories by utilizing Virtual Reality technology. By using 2D moving image visualization and using Virtual Reality technology with the Sprint Model, it is hoped that students will be more interested in knowing folklore. There is an effect of learning models using Virtual on students on folklore material in class VII at SMPN 2 Kendari based on the gain test results that get a value of 0.6093, meaning that the learning outcomes before getting treatment with already getting treatment have increased by 0.6093. Student responses to questionnaires from student answers obtained a percentage of 85.5%, student responses after the learning process can be included in the "Very Strong" category. So, it can be concluded that the learning process by applying Virtual Reality gets a good response from all students.

***Keywords**: Virtual reality, Folklore, Mobile application*

How to cite:
Tahir, A., Tahir, M., Takasi, L. O. M. R., & Arifrahman, A. A. N. (2024). Implementation of Mobile Based Virtual Reality on the Knights and Garuda Birds Folklore in the Legend of Mount Mekongga at Grade 7 of SMP Negeri 2 Kendari. *International Journal of Multidisciplinary: Applied Business and Education Research*. *5*(12), 5371 – 5378. doi: 10.11594/ijmaber.05.12.31

Introduction

Indonesia is a country that is rich in cultural values that have been passed down from generation to generation such as folklore (Swalaganata et al. 2020). Folklore is a story from ancient times that lived among the people and was passed down orally. The structure of folklore is usually simple so that folklore will be easily accepted by the community, especially among children. At this time, folklore faces challenges to continue to grow and develop in society, as well as challenges to innovate, especially in the way it is presented to compete with fiction stories from abroad (Ariatama et al., 2021). This challenge is due to fact that folklore in Indonesia is told orally from generation to generation and most of them are only documented in the form of storybooks and simple animated films, so they are no longer popular in the community, especially among children. In fact, as one of Indonesian culture, folklore contains many norms and values of the nobility of an area, therefore folklore is not only entertaining but also has many benefits to shape children's personalities from an early age.

At this time, which is the era of modernization, it is very unfortunate that the interest of the people, especially the younger generation, in folklore is very concerning. Usually, children know folklore from teachers at school or through bedtime stories that parents tell their children. But along with the times, parents are very busy with their respective jobs. Another factor that causes folklore to be less desirable is because the characters and background of most Indonesian folktales are considered no longer relevant to today's life and the presentation displayed in each school uses the lecture method, meaning that the teacher only tells tales or folklore verbally (Ariatama et al., 2021; Pratiwi, 2019). Therefore, it is felt necessary to present folklore in a more dynamic and interesting way. One of the currently developing technologies in the multimedia field is Virtual Reality (VR) or virtual reality. Virtual Reality is a technology that is able to make users feel or be able to interact in a virtual world environment that is simulated by a computer or a real environment that is imitated like the original.

There have been many uses of virtual reality for various purposes, including research on virtual reality-based applications to support spider phobia therapy using google cardboard. The application that was built using Unity 3D and the result of this research is a simulation of real-world spider conditions in a 3-dimensional environment (Abdulghani et al., 2018). Another research is research on the development of virtual reality-based interactive virtual museums at the Ranggawarsita museum. The application built is desktop-based and the results of this study are in the form of a virtual museum created using the game engine, namely Unity03D, the characters are created using the Blender program, with several 3D animations. The features that exist are user interaction with objects that can display information about museum objects. Encountered (Sukaryawan et al., 2019).

The folklore that will be discussed is a folk tale from the province of Southeast Sulawesi entitled About the Knights and the Garuda Bird in the Legend of the Formation of Mount Mekongga. This story was chosen because not many people know the story behind the origin of Mount Mekongga. The essence of the story of the origin of the naming of Mount Mekongga is about the struggle of the citizens of Sorume Country. Especially when there is an attack from the eagle on their livestock and when there is a deadly disease disaster after the death of the garuda. The message that can be obtained is that one of them is about the virtue of not giving up easily (Abdulghani et al., 2018). Even though there are problems that occur in the Land of Sorume, all of its citizens have never just stood still and given up hope. They are trying hard to find help so that their country can be separated from the disaster that befell them.

Based on the problem regarding the lack of interest in folklore, the use of virtual reality technology can be applied to this problem. In this research, a virtual reality application will be built by Folklore Legend of Mount Mekongga using the Android platform. In this application users can play 4 existing stages complete with narration of the story which consists of

pictures and text. With this application, it is hoped that it can display the story of the Legend of Mount Mekongga in a more interesting and dynamic way so that it can help increase public interest in being more fond of Indonesian folklore and assist in new learning innovations. The main problem in this study is that VR-based fairy tale books at SMPN 2 Kendari have not yet been developed. Limited media sources for digital-based reading books that can be accessed with smartphones are still limited, so that the implementation of learning fairy tales or folklore tends to be passive and the learning process is not optimal (Sukaryawan et al., 2019).

Methods

Research problem

Viewed from the aspect of cultural literacy, Indonesian students also have a similar problem, namely the low cultural literacy of students. Cultural literacy begins with the concept of cosmopolitanism, namely as an embodiment of one's identity (ethnic, national, cultural) and cultural capital that is accumulated through experience with the educational process. In line with this definition, the low cultural literacy of students is shown by the weakening of students' sense of pride in their ethnic identity, as well as the weakening of their love for their homeland and culture. It is understood that by having cultural literacy skills, a person can improve his social interaction and can also increase knowledge of the norms that apply around him. The choice of folklore as one of the solutions to develop students' two literacy is in line with the fact that folklore has inherent vitality to the indigenous people and the power of their local language. At the same time, folklore reveals the life and spirit of ordinary people and describes their emotions and ways of thinking. Practically all students are familiar with folklore even though they may not be aware of its distinctive character. Use. Virtual Reality can improve student learning outcomes. Not only improving the abilities of certain students, the use of VR has also been claimed to be able to develop learning abilities in students with low spatial abilities. In addition, VR is able to prove that it can make a very significant contribution to the potential for collaboration with peers. Thus, that the application of VR in the learning process can support the development of student abilities and can improve communication and collaboration between students which is in line with competence in the 21st century (Sukaryawan et al., 2019).

Objective of the research

Making this application is expected to be able to maintain folklore as a national culture in the midst of the development of fictional stories from abroad. Then made a visualization of folklore in the form of animation by utilizing Virtual Reality technology using mobile devices (Sukaryawan et al., 2019). By using 2D moving image visualization and using Virtual Reality technology, students are expected to be more interested in knowing folklore than modern stories and more easily absorb the norms and values of the nation contained in the folklore. So that in the first year (1) a needs analysis is carried out to produce a prototype design of learning media based on Virtual Reality, (2) the development of thematic learning tools (textbooks), and (3) testing the validity of learning tools and research instruments. In the second year, (1) the prototype design obtained in the first year will be tested to see its practicality, and (2) a trial is to see the effectiveness of implementing Virtual Reality learning media in thematic learning (Pratiwi, 2019).

Folklore

Folklore is a story from ancient times that lived among the people which was passed down orally and was traditional. The term folklore refers to stories that are part of the people, namely literary results that are included in the scope of folklore (Swalaganata et al., 2020). Folklore is a translation of the English word folklore which means part of the culture of a collective, which is spread and passed down from generation to generation, among any kind of collective, traditionally in different versions, both in spoken form and examples accompanied by motion, cues or reminder aids.

Virtual reality

Virtual reality is a technology that allows a person to perform simulations by presenting three-dimensional visuals and atmosphere. So, when you use it, it will make you feel as if you are present and directly involved in the atmosphere. To taste virtual reality technology today, you still have to use supporting devices. Through this tool you can see a pseudo-world which is the result of a computer simulation but seems dynamic and seems real. The term virtual reality became popular in 1980 by Jaron Lanier who is the owner of the VPL Research Company. To support the development of Virtual Reality technology, Lanier is also developing virtual reality equipment such as gloves and special glasses (goggles) (Thahir & Kamaruddin, 2021).

Methods

This study was an experimental study with a Design Sprint method. Sprint design is a framework based on Design Thinking. Design thinking in question is a framework that is carried out in a short time which will then be used to solve existing problems (Anggraini et al., 2022; Tahir & Sitompul, 2021). A design sprint is a time-limited five-phase process that uses design thinking with the goal of reducing risk when bringing a new product, service or feature to market. This process aims to help the team clearly define goals, validate assumptions and decide on a product roadmap before starting development. It seeks to address strategic issues using interdisciplinary, rapid prototyping, and usability testing. This design process is similar to Sprint in the agile development cycle. The stages of this research method are described in Figure 1.

The initial stage of making the program begins with creating an Android-based application in which the program contains Virtual Reality (AR) technology. This VR technology is expected to make it easier for users to describe 3D objects from the tools and materials that will be needed to create fairy tales. Tests are carried out to find out whether the system built is in accordance with the design and process, to find out each feature has carried out its function properly or there are still things that need to be improved.

The respondents were 55 students in VII grade divided into 2 groups, including 30 students for the experimental group and 25 students for the control group. Meanwhile, validation for the system used ISO 25010 Standard Testing, validation of student learning, and response questionnaires.

Figure 1. Design sprint method stage

Understand stage

The initial stage carried out by Understand Figure 2 is to equate a perception of a discussion. At this stage, dig up information needs by interviewing a number of Indonesian language teachers. The resource persons (experts) in this study were Indonesian class VII teachers.

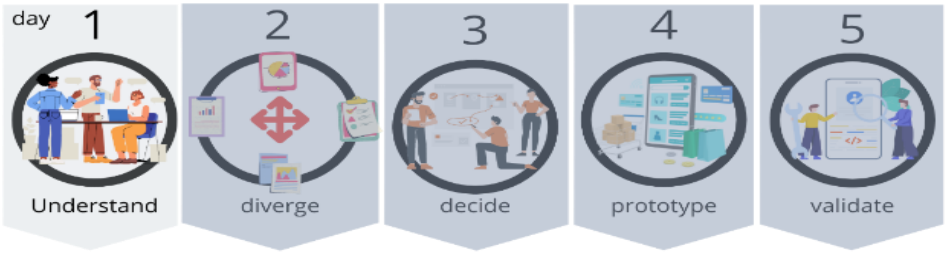

Figure 2. Understand stage

Diverge stage

The next stage is diverge. Figure 3 stage is carried out by individuals from each team by providing as many ideas as possible (Chusyairi & Subari, 2020). Ideas can be in the form of fairy tale materials or from technology which will later be used as a description of the features that will be applied to the application.

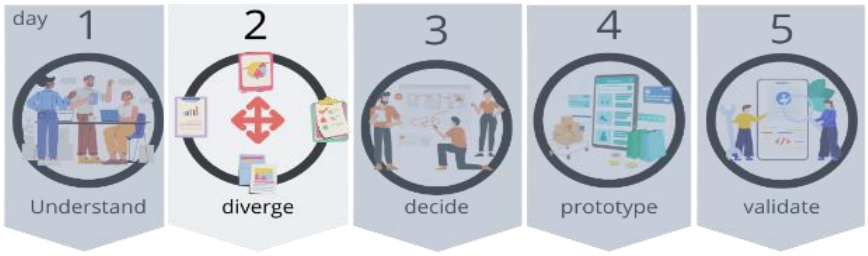

Figure 3. Diverge stage

Decide stage

The stage on the third day is decide. In the Figure 4 stage the team gathers to decide the best design by means of voting. The results of the most votes were found that the system built involved knowledge in the field of Indonesian specifically for folklore fairy tales, Virtual Reality (AR) technology.

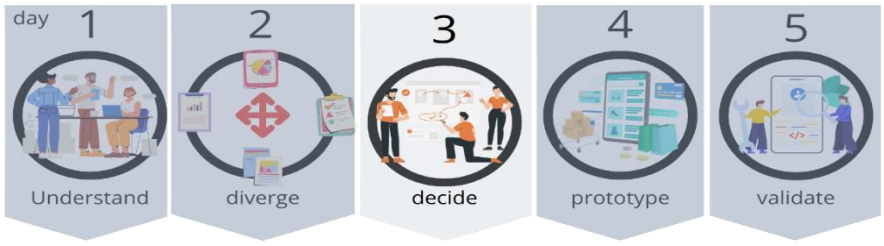

Figure 4. Decide stage

Prototype stage

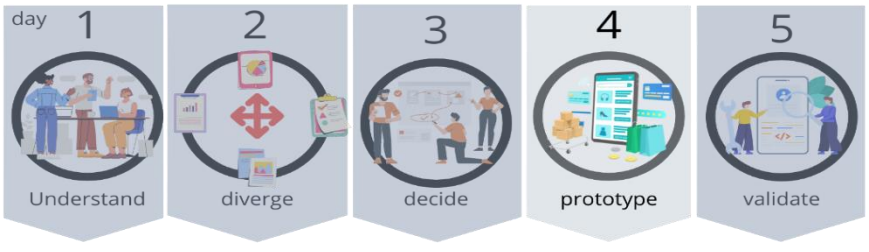

Figure 5. Prototype stage

The stages in Figure 5 will design the system interface that will be made based on the approved system design (Chusyairi & Subari, 2020). The main page in the form of a splash screen that appears the first time we open the application Figure 6. The menu page consists of the game level that will be used by the plant user according to the instructions in the application.

Figure 6. Prototype display

Validate stage

In the last stage of Figure 7, the prototype is tested directly on potential users. The goal is to get feedback from the user by knowing whether the system built is by the design and process (Chusyairi & Subari, 2020).

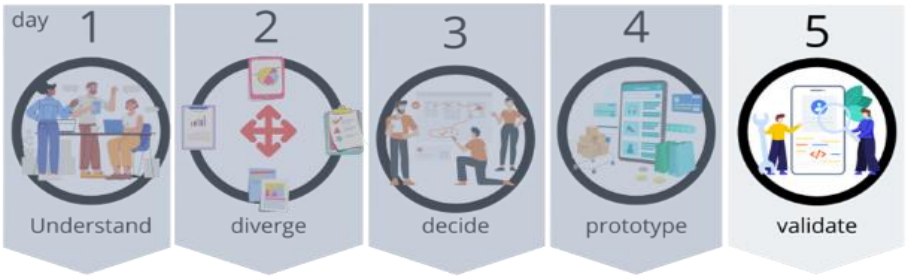

Figure 7. Validate stage

Result and Discussion

The learning outcomes test in this study was carried out twice, namely pre-test and post-test. Pre-test questions were given to students in the experimental class and control class, before the learning process. Post-test questions were given to the experimental class and control class after the learning process was carried out (Dewi, 2020; Monita et al., 2019). The pre-test and post-test questions consist of 20 multiple choice questions that have passed the validation and trial process. Thus, the questions used for the pre-test and post-test have been declared valid and in accordance with the indicators to be achieved. Based on the results of the pre-test in the experimental class with a total of 30 students and the control class with a total of 50 students. In the experimental class obtained an average of 36, while in the control class obtained an average of 35.2. The learning outcomes test in this study was carried out twice, namely pre-test and post-test (Abdjul, 2019). Pre-test questions were given to students in the experimental class and

control class, before the learning process. Post-test questions were given to the experimental class and control class after the learning process was carried out. The pre-test and post-test questions consist of 20 multiple choice questions that have passed the validation and trial process. Thus, the questions used for the pre-test and post-test have been declared valid and in accordance with the indicators to be achieved. Based on the results of the pre-test in the experimental class with a total of 30 students and the control class with a total of 50 students. In the experimental class obtained an average of 36, while in the control class obtained an average of 35.2.

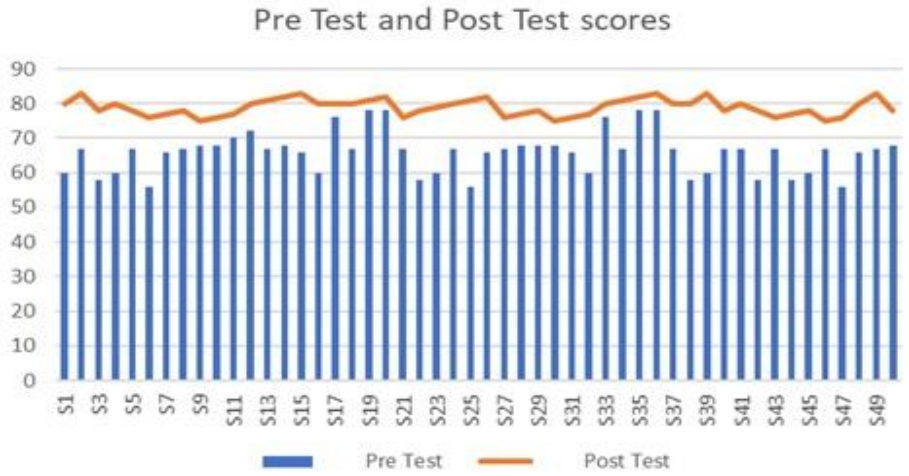

Figure 8. Pre-test and post-test score

Based on the results of the Figure 8, it can be concluded that the application of Virtual Reality in Indonesian Language Learning Folklore Fairy Tale Material can improve students' understanding abilities which are marked by the target of student completeness exceeding the set target of 66.7% of students succeeding in achieving the KKM. Achievement of 90% completeness.

Conclusion

The results of calculations and discussions that the application of Virtual Reality in learning Indonesian folklore material can have a positive impact on student learning outcomes (cognitive domain) at SMP Negeri 2 Kendari. Student learning outcomes are declared complete if they have achieved the Minimum Completeness Criteria (MCC) which is 75. Resulting in 70% of class VII students (experimental class) having obtained complete scores, with details of 21 students getting complete scores and 9 students getting incomplete scores. Furthermore, the significant test with a significant level of 0.05 obtained a count of 4.611 and a table of 2.048. From these two values, the results obtained are count > table or 4.611 > 2.048, so that HO is declared rejected and Ha is declared accepted. So, it can be concluded that there is an effect of the learning model using Virtual Reality on the learning outcomes (cognitive domain) of students on the subject of Information and Communication Technology class VII at SMPN 2 Kendari. This is also confirmed from the results of the gain test which got a result of 0.6093, meaning that the learning outcomes before getting treatment with already getting treatment increased by 0.6093. Student response questionnaires from student answers obtained a percentage of 85.3%, so student responses after the learning process with the learning model can be included in the "Very Strong" category. So, it can be concluded that the learning process by applying Virtual Reality in Indonesian Language Learning Folklore Materials received good responses from all students.

Acknowledgement

Thank you to the Academic Community of SMP Negeri 2 Kendari for their willingness and assistance during the research process.

References

Abdjul T (2019) Penerapan pembelajaran berbasis virtual laboratory terhadap hasil belajar siswa pada konsep gelombang bunyi dan cahaya di SMA Kabupaten Bone Bolango. Seminar Nasional Teknologi dan Humaniora (SemanTECH). 1(1):382-387.Abdulghani T, Ramadhan B, Jayusman Y (2018) Buku dongeng timun mas berbasis augmented reality sebagai media pembelajaran untuk anak. J Bangkit Indones. 7(2):10-16. https://doi.org/10.52771/bangkitindonesia.v7i2.80

Anggraini WF, Susanto T, Ahmad I (2022) Sistem informasi pemasaran hasil kelompok wanita tani desa sungai langka menggunakan metode design sprint. JTSI. 3(1):34–40. https://doi.org/10.33365/jtsi.v3i1.1657

Ariatama S, Adha MM, Rohman, Hartinio AT, Ulpa EP (2021) Penggunaan teknologi virtual reality (VR) sebagai upaya eskalasi minat dan optimalisasi dalam proses pembelajaran secara online dimasa pandemik. In Seminar Nasional FKIP on Bandar Lampung: 16 February; Indonesia. Bandar Lampung: Universitas Lampung.

Chusyairi A, Subari SS (2020) Perancangan e-recruitment dosen baru berbasis web dengan metode design sprint. Informatics Educators Professional: J Informatics. 5(1):11-22. https://doi.org/10.51211/itbi.v5i1.1408

Dewi RK (2020) Pemanafaatan media 3 dimensi berbasis virtual reality untuk meningkatkan minat dan hasil belajar IPA siswa kelas V SD. J Pendidikan. 21(1):28-37. https://doi.org/10.33830/jp.v21i1.732.2020

Monita T, Sari RD, Randikai M, Ibrahim A (2019) Analisis pengaruh minat belajar siswa/i terhadap media pembelajaran berbasis augmented reality. POSITIF: J Sistem Teknologi Informasi. 5(1):34-38. https://doi.org/10.31961/positif.v5i1.675

Pratiwi E (2019) Efektifitas metode bercerita dengan media berbasis digital pada anak usia dini di era industri 4.0. Seminar Nasional Inovasi dalam Penelitian Sains, Teknologi dan Humaniora - InoBali 2019:629-636.

Sukaryawan IM, Sugihartini N, Pradnyana IMA (2019) Pengaruh penggunaan media virtual reality terhadap hasil belajar anak kelompok B pada tema pengenalan binatang buas. JPTK. 16(1):118-128. https://doi.org/1.23887/jptk-undiksha.v16i1.16978

Swalaganata G, Octareissa A, Rosyadi HE (2020) Buwung AR: Media pembelajaran buku dongeng burung pipit berbasis augmented reality untuk anak usia dini. In Seminar Nasional Sistem Informasi (SENASIF) 2020 on Malang: 20 October 2020; Indonesia. Malang: Universitas Merdeka.

Tahir M, Sitompul N (2021) Penerapan algoritma fp-growth dalam menentukan kecenderungan mahasiswa mengambil mata kuliah pilihan. J Ilmiah Nero. 6(1):56-63. http://dx.doi.org/10.21107/nero.v6i1.216

Thahir R, Kamaruddin R (2021) Pengaruh media pembelajaran berbasis augmented reality (AR) terhadap hasil belajar biologi siswa SMA. J Ris dan Inov Pembelajaran. 1(2):24-35. https://doi.org/10.51574/jrip.v1i2.26