

The Effect of Augmented Reality Cartoon Learning Media Integrated with Tri-sipaka Values on Student Awareness of the Three Great Sins in Education

Arizka Amaliah M^a, Devi Wahyu Nengsi^a, Ummu Salamah B.Hi Muhammad^a,
Nadifah Amaliyah^b, Wahyu Hidayat^c, & Dian Dwi Putri Ulan Sari Patongai^{a,*}

^aFaculty of Mathematics and Natural Sciences, Makassar State University, Indonesia

^bFaculty of Language and Literature, Makassar State University, Indonesia

^cFaculty of Engineering, Makassar State University, Indonesia

Abstract

This study aims to determine the influence and effectiveness of the use of ARTOON: Augmented Reality Cartoon learning media integrated with Tri-sipaka values in increasing students' awareness of the three major sins in education, namely bullying, sexual violence, and intolerance. The research method uses a mixed method approach with convergent design. The population in this study was grade XI students of SMA Negeri 11 Pinrang and the sample used consisted of all grade XI students specializing in biology totaling 43 students. Sample withdrawal uses the Non-probability sampling technique with the purposive sampling method. Using a mixed method approach with convergent design, the study involved 43 students in grade XI of SMA Negeri 11 Pinrang. The data analysis technique uses descriptive analysis, inferential statistics with Paired Sample T-test, Miles and Huberman interactive analysis for qualitative data, and data interpretation. The results of this study show that there is an influence of the application of augmented reality cartoon learning media integrated with tri-sipaka values in increasing students' awareness of the three major sins in education. In addition, this learning media has also proven to be effective in increasing students' awareness of the three major sins in education. The results of this study can be a reference for schools in terms of integrating tri-sipaka values in learning.

Keywords: Augmented reality, learning media, tri-sipaka,, the three great sins in education.

1. Introduction

Trauma in the field of education often occurs in the student environment. Minister of Education, Nadiem Makarim said that the world of education is now faced with three serious problems, namely bullying, sexual violence, and intolerance. These three problems are known as the three great sins in education. Consequently, in addition to hindering the creation of a positive learning environment which is one of the sustainable development goals (SDGs), namely creating quality education, these three problems can also cause trauma that lasts throughout students' lives.

Bullying is a situation where there has been an abuse of power or authority by a person or group with the aim of harming or hurting others. Meanwhile, intolerance according to Kamaluddin et al., (2021) is a form of intolerance to differences and diversity, both in the form of differences of opinion, ethnic differences, religious differences and others. Furthermore, sexual violence is a crime related to a person's sexuality (Khoirunnisa et al., 2022).

The Auditor General of the Inspectorate General of the Ministry of Education, Culture, Research, and Technology (Kemendikbudristek) revealed the number of cases of three major sins in educational institutions. The three deadly sins include sexual violence with 115 cases, bullying with 61 cases, and intolerance with 24 cases. The majority of these issues are reported to occur in the university environment. In addition, the results of the 2022 National Assessment (AN) survey explained that there were 34.51% of students who had the potential to experience sexual violence, 26.9% experienced physical punishment, and 36% faced bullying. The Indonesian Child Protection

* Corresponding author.

E-mail address: dianputriulan@unm.ac.id

Commission (KPAI) also stated that children victims of physical or psychological violence have the highest category of reporting. Meanwhile, children victims of pornography and cybercrime reached 2,133 cases (Savitri., 2023).

The case of the three big sins in education is one of the serious issues that need to be addressed. It is always necessary to make preventive and repressive efforts through the Regulation of the Minister of Education, Culture, Research and Technology (Permendikbud Ristek) Number 46 of 2023 concerning Prevention and Handling of Violence within the Education Unit (PPKSP), the cultivation of moral and character education needs to be increased through education units.

One of the efforts that can be made in the cultivation of character education is through strengthening the Tri-sipaka values, namely sipakatau meaning mutual respect, sipakainge meaning mutual reminder, sipakamase meaning mutual love. The introduction and integration of Tri-sipaka values in learning and in everyday life, especially for students, is expected to prevent and reduce the number of existing violence. Through this Tri-sipaka value, the three big sins in education can be slowly overcome. An understanding of character education is needed to be applied in social life, especially in the field of education so as not to cause deep trauma for students who are victims of the problem of the three big sins in education (Awaliah and Paksi., 2022).

Strengthening the value of Tri-Sipaka in learning and daily life can be done through several interesting methods and media, especially if the target is children and adolescents. One of them is by utilizing augmented reality-based media. Augmented reality or AR is the incorporation of two dimensions or three dimensions that are projected in real time so that users can interact with virtual objects. Augmented reality is used to explore user understanding of the concepts to be studied. The interaction that can occur in augmented reality is to combine the three senses of seeing, hearing, and touching so as to produce more detailed information. The use of augmented reality provokes the mindset of its users in thinking critically about information that is conveyed anywhere and anytime by utilizing the use of information technology (Mustaqim., 2016).

Augmented reality technology will be realistic in classroom teaching to encourage students' creativity and innovation. The use of photos and videos in virtual reality design helps students develop critical thinking towards problems. By utilizing this technology, the effectiveness of learning increases, which is supported by the potential interests of children from birth (Jaka et al., 2023). The use of augmented reality is in line with the times that strengthen Tri-sipaka character education to overcome the three cardinal sins in education. The target for this research is high school teenagers so that innovation is needed that is not boring in providing education for students. This is important to discuss because it is related to the psychology of students and has a huge impact on the survival of each individual.

Based on this description, the problem formulation raised in this study is whether there is an effect of augmented reality cartoon learning media integrated with the value of tri-sipaka and how effective it is in efforts to increase student awareness of the three major sins in education. Through this research, it is hoped that it can provide an overview of the relationship between the value of tri-sipaka and the three major sins in education and add to the repertoire, especially for teachers in order to design strategies in learning.

2. Literature Review

According to data from Komnas Perempuan in 2017, documented cases of sexual violence in Indonesia 4,444 cases of violence against women in 2016. There were 259,150 cases of violence against women (Noviani, et al, 2018). Women (Noviani, et al, 2018). Many students have recently noticed bad behavior (Yunina, et al, 2023). Bullying is often characterized by norms that support bullying and high levels of peer conflict and peer and associations with aggressive friends. Bullying is an attempt by adolescents to increase their power and status in the peer group, so that the bully needs an audience and supporters, this refers to the concept that bullying involves the three refers to the concept that bullying involves three parties that influence each other, in this case the perpetrator, the victim, and the witness. influence each other, in this case the perpetrator, the victim and the witness, called a bystander or witness (Swearer and Hymel, 2015).

The goal is for students to understand things that are prohibited, especially in the educational environment. The three cardinal sins of education are bullying, sexual and intolerance. These actions have a major impact on children's good cognitive development and cause trauma that can even last a child's lifetime. can last for the child's lifetime. In fact, educational institutions should have 4,444 places that provide a sense of security for children. According to Santika (2020) in Izharifa, et al (2024), character education is an effort to realize a smart generation that is noble and has national character. realize a smart generation with noble character and national character. Indonesia. Education in this case does not only refer to potential and ability, character must also be emphasized in order to realize a smart

generation that has noble character and Indonesian national character. abilities, character must also be emphasized in order to improve the standard of living of the community.

Preserving the cultural form of a region may not be easy, but preserving the content or cultural values is important. preserving the content or values of culture is important. There are at least two reasons why regional values must be preserved, namely the first reason of identity and the second reason is the humanitarian reason that requires life orientation (Akhmar, 2017). Life orientation (Akhmar, 2017). This can be seen in the word 'sipa', namely sipakatau (mutual respect), sipakamase (mutual love) and sipakainge' (mutual reminder) in community interactions and later known as 'sipa' (mutual respect). Remind each other in community interactions and became known as “3-S Philosophy”. The philosophical values of sipakatau, sipakainge and sipakamase contain positive values that should be instilled in everyone to become a better person to become a better person. The widespread conflict in today's environment shows that the philosophical values of sipakatau, sipakainge and sipakamase have been eroded both internally and externally (Irnawati, 2020).

Sipakatau (mutual respect) shows that the Makassarese culture depicts human beings as God's. Therefore, humans must be respected and treated well. Sipakainge (remembering and reprimanding each other) is one of the preventive activities that help people avoid behavior that violates established norms. norms that have been established. Sipakamase means loving each other, the values of this philosophy reflect compassion and kindness. This philosophy reflects the compassion and empathy that form the basis of strong emotional bonds with others (Herzog, 2012). Strong emotional bonds with others (Herlin, 2020). The main supporting factor because the 3S culture (Sipakatau, Sipakamase, Sipakainge) has local wisdom and there are tribal factors and the existence of tribal factors, while the inhibiting factors are due to external cultural factors, psychological, socio-economic and community factors (Irnawati, 2020).

Learning media is one of the factors that play an important role in the learning and teaching process. In learning, educators usually use learning media as an intermediary in delivering material so that it can be understood by students. The use of learning media in the teaching and learning process can develop new interests and desires, arouse motivation and even have a psychological influence on learning (Wulandari, 2023).

Learning in the 21st century focuses on improving skills, communication, collaboration, critical thinking and solving, creativity and innovation. The efforts that Indonesian students can make to acquire these abilities are to obtain an education that emphasizes higher-order thinking skills. In addition, an equally important focus is character development. Character development can help students be more respectful and positive. Currently, there are still many gaps in character education, especially global education. The lack of character education is manifested in the delinquent behavior of school students, which is often due more to cognitive ability and environment than personality development (Saparuddin and Patongai, 2022).

The criteria for effective learning media in learning is that students can play an active role in the learning process. Thus, it is necessary to have learning media design criteria that can assist in efforts to develop and implement learning strategies as an effort and effort to help students to be active and creative in the learning process (Nurlinah., Adnan., and Muhiddin, 2018).

Augmented Reality (AR) is the use of technology that contains 2 dimensions and 3 dimensions so that it can be projected in real time. Augmented Reality is not much different from other systems. Augmented reality has advantages, namely more effective use, more interactive, objects that are displayed are easy to understand, can be used anytime and anywhere (Setiawan, 2021).

The use of Augmented Reality-based learning media can stimulate students' thinking by making them think critically about problems and events in everyday life AR has an entertainment aspect because it can increase students' interest in learning and playing and can project the type of learning and playing in real life (Mustaqim, 2016). With the use of Augmented Reality Cartoon media not only as a learning medium but also can be used to understand the history and culture in Indonesia, especially in the Bugis tribe so that it can be widely known cultural values that become identity and need to be preserved.

3. Research Methods

The research conducted used a mixed method approach with convergent design. The population in this research was class XI students of SMA Negeri 11 Pinrang and the sample used consisted of all students of class XI specialization

biology totaling 43 students. Withdrawal of samples using Non-probability sampling technique with purposive sampling method. The design model adapted from Creswell & Plano Clark (2017) as follows.

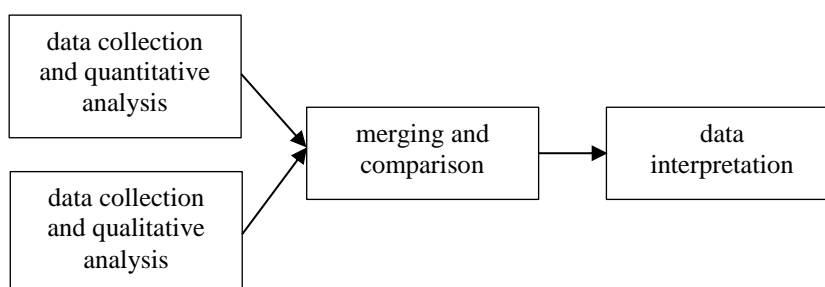


Figure 1. *Mixed Methode with Convergent Design*

The quantitative data collection technique is to use the One Group Pre-test Post-test design. The initial stage of this design is that before being given treatment, the experimental group is first given a pre-test to determine the initial awareness of students. Furthermore, the experimental group was given treatment in the form of using Artoon. After the learning stage, the experimental group will be given a post-test to measure students' awareness of the three big sins in education. Meanwhile, qualitative data collection uses the interview method to further see the effectiveness of the application of Artoon learning media.

The data analysis process was carried out in four stages, namely: (1) Descriptive analysis to see the description of students' knowledge of the three major sins in education consisting of mean, standard deviation, highest score, and lowest score, (2) Inferential statistical analysis which includes prerequisite tests (normality test using the Kolmogorov-Smirnov test and homogeneity test using the Levene test) and hypothesis testing to see whether or not there is an effect of using ARTOON (Augmented reality cartoon) media integrated with tri-sipaka values in overcoming the three big sins in education using the Paired Sample T-test with the help of the Statistical Package for Social Science version 27 application and the N-Gain test to see the extent of the effectiveness of the treatment given, (3) Miles & Huberman interactive analysis in (Sugiyono, 2021) which is carried out in four stages, namely data collection, data reduction, data presentation, and conclusion drawing, (4) Data interpretation by combining the results of quantitative and qualitative data analysis.

4. Results and Discussion

4.1. Result

4.1.1. Descriptive Statistical Analysis

After collecting data in the field by distributing questionnaires to respondents, the data was analyzed descriptively and presented in the table 1.

Table 1. Results of Descriptive Analysis of Pretest and Posttest

Criteria	Treatment	
	Pretest	Posttest
N	43	43
Average	82.6	87
Lowest score	70.8	74.2
Nilai tertinggi	95.8	98.3
Standard deviation	6.2	5.8

Based on the data in table 1, it is known that a sample of 43 people obtained the lowest score of 70.8, the highest score of 95.8, an average score of 82.6 with a standard deviation of 6.2 on the pretest and the lowest score of 74.2, the highest score of 98.3, an average score of 87 with a standard deviation of 5.8 on the posttest. Thus, it can be concluded that students' awareness of the three big sins in education at SMA Negeri 11 Pinrang has increased.

Table 2. Awareness Data on the Three Great Sins in Education

Awareness TDDP	Treatment	
	Pretest	Posttest
Bullying	85.2	88.4
Sexual violence	81.3	87.2
Intolerance	81.4	85.4

Based on the data in table 2, the average bullying score is 85.2, sexual violence is 81.3, and intolerance is 81.4 before treatment and after treatment, the average bullying score is 88.4, sexual violence is 87.2, and intolerance is 85.4. Thus, it can be concluded that students' awareness of the three cardinal sins in education consisting of bullying, sexual violence, and intolerance has increased after being given treatment in the form of augmented reality cartoon learning media integrated with tri-sipaka values.

4.1.2. Inferential Statistical Analysis

4.1.2.1. Normality Testing

Table 3. Normality Test

Treatment	Significance Value of Kolmogorov Test	α	Conclusion
Pretest	0.2	0.05	Normally distributed
Posttest	0.2	0.05	Normally distributed

The results of normality testing obtained pretest significance value Sig α of 200 then the Sig value is greater than the α value ($0.2 > 0.05$) so that the data is normally distributed. Posttest Sig α value of 200 then the Sig value is greater than the α value ($0.2 > 0.05$). From the results of normality testing using Kolmogorov Smirnov, it can be concluded that the pretest and posttest scores have a normal distribution of data.

4.1.2.2. Homogeneity Testing

Table 4. Homogeneity Test

TDDP Awareness score	Significance Value	α	Conclusion
Based on median	0.7	0.05	Homogeneous

The results of homogeneity testing obtained Sig $\alpha = 0.7$, this means that the Sig value is greater than α ($0.7 > 0.05$) so it can be concluded that the data is homogeneous. So, the statistics used in inferential statistical analysis are parametric statistics using the T-test (independent sample t-test).

4.1.2.3. Hypothesis Testing

In this research, the hypothesis testing carried out is the t-test with an independent sample.

H_0 = There is no effect of ARTOON: augmented reality cartoon learning media integrated with tri-sipaka values as an effort to increase student awareness of the three big sins in education

H_a = There is an effect of ARTOON: augmented reality cartoon learning media integrated with the value of tri-sipaka as an effort to increase student awareness of the three major sins in education

Based on the hypothesis test conducted on the post-test results, Sig (2. Tailed) = 0.001 that $0.001 < 0.05$, then H_0 is rejected and H_a is accepted. So it can be concluded that there is an effect of ARTOON: augmented reality cartoon learning media integrated with tri-sipaka values as an effort to increase student awareness of the three big sins in education.

4.1.2.4. N-Gain Testing

The results of data management that have been carried out show awareness of the three big sins in education normalized gain or average gain temornalization of students after the learning media augmented reality cartoon integrated tri-sipaka value is applied.

Table 5. N-Gain Test

<i>Pretest</i>	<i>Posttest</i>	Gain	N-Gain	Category
82.66	87.016	4.36	0.25	Low

Based on the results of the N-Gain test calculation, it shows that the value of 0.25 is included in the low category. So, it can be concluded that the use of augmented reality cartoon learning media integrated with tri-sipaka values is effective in the low category as an effort to increase students' awareness of the three major sins in education.

4.1.2.5. Miles and Huberman Interactive Analysis

The results of the qualitative data analysis show that Artoon is effective in influencing students' views on the importance of tri-sipaka values and awareness of the three cardinal sins in education. Most students found Artoon interesting and effective in conveying moral values, with 3D animation and visuals that make the message easier to understand. Although tri-sipaka is not taught directly, the use of 3D animation proved effective in capturing students' attention and presenting a clear context, including the issue of sexual violence.

Discussion

Based on the results of research that has been carried out during the meeting, it can be seen that there is an influence on student awareness of the three big sins in education based on the average value of pretest and posttest results and interviews with the use of augmented reality cartoon learning media integrated with tri-sipaka values in class XI biology specialization students of SMA Negeri 11 Pinrang. This can be seen when students are given LKPD and the provision of augmented reality cartoon learning media integrated with tri-sipaka values makes the learning process ideal because direct learning by involving students to the fullest. The learning conditions of students are also active because they develop their own knowledge directly and relate it to the current material. Then, in the classroom it is also more effective and fun because learners can visualize abstract concepts for understanding and structure of an object model by combining the virtual world that can increase the imagination of learners with the real world directly.

The results also show that the integration of tri-sipaka values in learning media can increase awareness of the three big sins in education by students with an average of 82.652 to 87.0128. This is possible due to the application of sipakatau, sipakainge and sipakamase values integrated with interesting learning media so that these values can be more easily internalized by students. The value of sipakatau reflects mutual respect, the value of sipakainge reflects mutual reminders, and sipakamase means mutual love. The internalization of these values is very relevant to the prevention of the three cardinal sins in education. Intolerance, bullying and sexual violence can be prevented by appreciating and respecting the values, beliefs and rights of other individuals regardless of existing differences, the behavior of giving each other warnings, advice or reminders to others with the good purpose of maintaining applicable norms, as well as behaving well and spreading love to others so that an inclusive environment can be created.

This is reinforced by the theory (Halima et al., 2021) which states that the tri-sipaka value is a strategy used by individuals to act defensively in bullying situations, which is one of the three cardinal sins of education. So it can be seen that the values that apply in a group play a role in shaping behavior in dealing with social situations in society. The values that arise in the association of fellow human beings appear as a driver of individual respect, appreciation, and reminders driven by religious values.

Another thing found by Herlin et al., (2020) shows that the Sipakatau, Sipakainge and Sipakamase culture of Bugis Makassar contains tolerance values, namely mutual respect, mutual reminders and mutual respect which can be used as an effort to prevent intolerant attitudes. In line with Izharifa et al., (2024) The three cardinal sins in education need to be avoided to create a safe and comfortable school environment for learning. Where students show progress in increasing students' understanding of the three cardinal sins in education can be seen in the pretest and posttest results at SD 4 Tengeles.

5. Conclusion

Based on research conducted on the use of ARTOON (Augmented reality cartoon) learning media for students at SMA Negeri 11 Pinrang with the integration of tri-sipaka values in increasing awareness of the three big sins of education, it can be concluded that there is an influence that occurs when after the application of augmented reality cartoon learning media integrated tri-sipaka values and effectively increases students' awareness of the three big sins in education. Evidenced by an increase in understanding related to the application of tri-sipaka values in the realm of education.

References

- Akhmar, A. M., Arafah, B. & Pardiman, W. (2017). Cultural Strategies of the Bugis People Pagatan in Maintaining their Bugis Identity in a Multicultural Society. *Kapata Archeology*, 25, 73-82.
- Awaliah, I. & Paksi, H. P. (2022). Development of E-Book “Trisipaka” Based on Bugis Local Wisdom for Strengthening the Character of Elementary School Students. *Journal of Elementary School Teacher Education*, 10 (8).
- Creswell, J. W. & Clark, V. L. P. (2017). *Designing and Conducting Mixed Methods Research*. Singapore: Sage Publications.
- Halima, A., Asniar, K. & Kurniawati, Z. (2021). Sipakatau, Sipakainge, Sipakalebbi: A Cultural Values for Bullying Prevention with Optimized Bystanders Role. *Indonesian Psychological Research*. 3 (2). ISSN: 2655-9013.
- Hermawan, A. & Saptono, H. (2024). The Reality of the Effect of Using Augmented Reality Technology in Learning on Student Concept Understanding. *Simki Pedagogia Journal*. 7 (1), 328-340.
- Irnawati, I. (2021). Implementation of the Values of Sipakatau, Sipakainge and Sipakamase in the Regional Organization of Hipmi Pare (Doctoral Dissertation, Makassar State University).
- Izharifa, F. R., Haidir, Y. A., Umy, S., Desma, A. R., & Fajar, K. (2024). Efforts to Prevent the Occurrence of the 3 Great Sins in Education at SD 4 Tenggeles. *Journal of Muria Community Service*. 1 (1), 13-24.
- Kamaluddin, K., Sari, I. & Anggraini, M. (2021). Intolerance According to Islamic and Christian Religious Leaders. *Studia Sosia Religia*, 4(1).
- Khoirunnisa, M., Dayat, U. & Febriantini, K. (2022). The Impact and Handling of Sexual Violence in the Personal Domain. *NUSANTARA: Journal of Social Sciences*, 9(5), 1517-1522.
- Kusuma, J. W., Supardi, Rijalul, A., Hamaidah, Ratnah, Fitrah, & Sepriano. (2023). Dimensions of Learning Media (Theory and Application of Learning Media in the Era of the Industrial Revolution 4.0 Towards the Era of Society 5.0). Sonpedia Publishing Indonesia: Jambi. ISBN: 978-623-09-2595-5.
- Mustaqim, I. (2016). Utilization of Augmented Reality as learning media. *Journal of technology and vocational education*, 13(2), 174-183.
- Nurlinah, Adnan. & Muhiddin P. (2018). Development of Learning Media E-Learning Based Portable Moodle Coordination System Material for High School Class XI IPA. *Journal of Biology Teaching and Learning*. 1 (2). -ISSN 2621-5535. 160-166.
- Noviani, U. T., Arifah, R., Cecep, C. & Humaedi, S. (2018). Overcoming and Preventing Sexual Violence in Women with Assertive Training. *Proceedings of Research and Community Service*, 5(1), 48-55.
- Saparuddin, S., & Patongai, D. D. P. U. S. (2022). Strengthening Lesson Study in supporting Digitalization of Learning for Driving schools at High 9 Makassar. *SMART: Journal of Community Service*, 2(1), 63.
- Savitri, D. (2023). Kemendikbudristek Uncovered the Number of Cases of the Three Great Sins in Education Units. DetikEdu. URL: <https://www.detik.com/edu/edutainment/d-7017200/kemendikbudristek-expose-number-of-cases-of-three-great-sins-in-education-units>. Accessed February 16, 2024.
- Setiawan, A. H. 2021. Study of Augmented Reality (Ar) Media in Improving the Learning Outcomes of Students on Kd Understanding the Types of Heavy Equipment. *Journal of Building Engineering Education Studies*, 7 (1).

- Sugiyono. (2021). *Quantitative, Qualitative, and R&D Research Methods*. Bandung: Alfabeta Publisher.
- Swearer, S. M., and Hymel, S. 2015. Understanding The Psychology of Bullying: Moving Toward a Social Ecological Diathesis-Stress Model. *Journal American Psychologist*, 70 (4). 344.
- Wulandari, A. P., Annisa, A. S., Karina, C., Tsani, S, N., & Zakiah, U. (2023). The Importance of Learning Media in the Teaching and Learning Process. *Journal on Education*. 5 (2). ISSN: 2654-5497.
- Yunina, D. S., Nissa, N. L. F., Nuzula, F., Hamdan, M. A., Al-Ghozali, G. M., Mustaqim, M. & Noviyanti, M. (2023). Socialization of the 3 Great Sins in Education to Instill Character Values in Students at Sdn Banjar Kemuning. *Budimas: Journal of Community Service*, 5(2)