



JAMBURA JOURNAL CIVIC EDUCATION  
<http://ejurnal.ung.ac.id/index.php./jacedu>  
E-ISSN : 2798-4818  
P-ISSN: 2808-2249

## Development of *Augmented Reality* (AR)-based Civics Learning Media to Improve Global Diversity Character in Junior High School

(Pengembangan Media Pembelajaran PPKn berbasis *Augmented Reality* (AR) untuk Meningkatkan Karakter Kebhinekaan Global Di Sekolah Menengah Pertama)

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### Article Info

#### *History of the article:*

Accepted (oct) (2024)

Approved (nov) (2024)

Published (nov) (2024)

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#### **Keywords:**

*Learning Media, augmented reality, global diversity characters*

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### Abstrak

This research is motivated by the needs and challenges of secondary school students learning civics in school. So far, Civic learning is still considered a saturated subject area, which has an impact on students' learning motivation and learning outcomes. Through *Augmented Reality*-based learning media can promote students' global diversity insights, the learning atmosphere is more fun and meaningful. This research is more about the development of *augmented reality* media designs to promote the understanding of global diversity insights and their impact on students' learning atmosphere. The results showed that the development of AR-based PELAJAR learning media received a percentage of 92.3%, which was included in the "very feasible" category. The benefits of the *Augmented Reality* learning media are expected to enhance the student's understanding of global diversity and to have an impact on the learning atmosphere in terms of interest and motivation to learn, curiosity and collaboration among the students in Gorontalo. The expected outcome of the research is to provide a reference and prototype for the development of *Augmented Reality*-based learning media that can be applied to Civics and Social Studies subjects in Junior High School.

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## INTRODUCTION

Education is an effort to prepare the next generation of the nation to welcome and face the development of the world in the digital age. For this reason, education must be carried out as well as possible in order to produce quality education and improve the quality of human resources. One of the efforts to improve the quality of education is the use of technology in the learning process.

The problem that is often faced in the world of education is the weak learning process. In the process of teaching and learning activities, students learn more theory. Learning in the classroom is more focused on the child's ability to understand the subject matter.

Meanwhile, the theory that students learn is less applied in everyday life. As a result, students need a deeper understanding of the subject matter. In teaching and learning activities, the presence of teachers is expected to develop students' potential and creativity. So that students can not only know the theory but also practice it for the future in the development of the times.

Civic education is a subject that focuses on national character and the practice of Pancasila values, which instils in students the desire to become good and intelligent citizens (Octavia et al.; M. A., 2017). For this to happen in learning, it must be well designed so that learning is meaningful for students. However, in reality, it is the opposite; today's children are only some who have memorized Pancasila. According to a survey conducted by the Presidential Working Unit for Pancasila Ideology Development (UKP PIP) in 2018, 24 out of 100 Indonesians had yet to memorize every commandment of Pancasila. Meanwhile, another survey conducted by the Setara Institute and the Forum on Indonesian Development (INFID) in 2022 found that 83.3 per cent of high school students (SMA) believed that Pancasila was not a permanent ideology and could be replaced (CNN Indonesia, 2022). This is very worrying because Pancasila is the ideology and foundation of why Indonesia exists. This condition means that there is something wrong with the learning process at school because students need to understand the meaning and importance of Pancasila. It is essential to pay close attention to it, and solutions to the nation's problems must be found immediately. This should not happen if citizenship education can be taught well and understood by children from an early age. However, in practice, students often find it challenging to learn because there is too much material or too much memorization in citizenship education. In fact, what should be emphasized more is the affective form or student behaviour rather than the cognitive.

The government, through the Ministry of Education and Culture, even made the Pancasila Student Profile a manifestation of Indonesian students as

lifelong learners who have global competence and behave in accordance with the values of Pancasila. The importance of Pancasila is not only in understanding the nation in a national context but also in the context of global diversity. Global Diversity Character is one of the characteristics included in the profile of Pancasila students. Global diversity is one of the dimensions of Pancasila students, who are supposed to maintain a noble culture, locality, and identity and be open to other cultures (Kemdikbud, 2020). This is what promotes mutual respect. The points included in global diversity are recognition and respect, building intercultural communication, and having a sense of reflection and responsibility. To maximize the cultivation of the character of global diversity and the material received by students, which is not only theoretical, the use of learning media is necessary. The existence of learning media as a tool in the learning process is a fact that cannot be denied. Teachers, as messengers, have a great interest in facilitating their task of conveying messages or learning materials to students. Teachers are also aware that with media, learning material will be easier for students to digest and understand, especially if the learning material to be conveyed is considered complicated and complex. For this reason, the use of media is essential to ensure that the material reaches the students effectively and efficiently.

One of the learning media that can develop the character of global diversity is Augmented Reality (AR). Augmented Reality (AR) based learning media is a concept of combining the virtual world with the real world to produce information from data taken from a system on a particular tangible object so that the boundaries between the two become increasingly thin (Bailey, B, 2022). Augmented reality can be used as a concept that combines real objects in the digital world (Saurina, 2016). Augmented Reality (AR) is also called "virtual reality" because it gives the effect of looking at real media with a relatively high degree of reality (Pawicara & Conilie, 2020). AR has interactive properties as a learning medium that can engage students' attention in learning material (Bailey, B., 2022). AR is used through printed pages with animated media, which can be a means to transport students to an interactive virtual environment (Setyawan, 2019). Although Augmented Reality technology is not new, its potential in the

world of education has yet to be appropriately utilized and developed, especially in civic education subjects.

Through augmented reality-based learning media, students' insights into global diversity can be promoted, and the learning atmosphere can be more enjoyable and meaningful. Some efforts have been made, such as the development of Augmented Reality-based puzzles to teach students the value of Pancasila by Nifta Noor Halimah in 2021, but this media has yet to be tested for effectiveness. In 2020, Eva Oktina Harini and Pujiriyanto examined the benefits of integrating augmented reality in learning materials at the primary school level. However, this research only describes the benefits of using augmented reality media in primary schools. While this research is more about developing augmented reality media design to foster an understanding of global diversity insights and their impact on the learning atmosphere of students,

## **RESEARCH METHODOLOGY**

This research uses qualitative and quantitative approaches with the research and development (R&D) method. This is done because this research will produce learning products. According to Sugiyono (2016: 297), the R&D method is research that is used to produce specific products and test the effectiveness of these products. This development research also refers to the model in the 4D model (Define, Design, Develop, and Disseminate), which is adapted from Thiagarajan (1974: 5), but in this study, it only reaches the development stage, namely development, and does not reach the dissemination stage or distribution of this product due to time constraints. In this study, the products produced in the form of Augmented Reality in civic education subjects. More details of this research design are divided into several stages as follows:

a. Definition.

In this stage, the researcher collects various information related to the product to be developed, in this case, interactive media (interactive multimedia), through document study activities (magazines, civics books in secondary schools and interviews with teachers and experts).

#### b. Design

Once the needs have been analysed, this stage involves the preparation of materials and the selection of products or learning media to be used. The preparation of source material is mainly based on document studies. The prototype (product design) is also carried out at this stage.

#### c. Development

In this stage, a product, a design for a cultural and civic literacy programme, was produced based on the opinions of experts as validators. The feasibility of this programme was assessed in terms of media and content.

### **RESULTS AND DISCUSSION**

This research develops augmented reality (AR)-based learning media on the theme of global diversity studies, with a focus on the human race in Indonesia, using the Assembler EDU platform. This learning media is designed to provide students with an interactive and comprehensive learning experience regarding ethnic and religious diversity in Indonesia and introduce them to 38 provinces in the country.

In this learning media, students can use devices such as smartphones or tablets to access AR content through the Assembler EDU application. By scanning the image or QR code that has been prepared, students can activate various AR elements that have been specifically designed to provide an engaging and in-depth visualisation of human races in Indonesia.

This AR content includes an explanation of the four primary races in Indonesia, namely Malayan-Mongoloid, Melanesian, Asiatic, and Caucasoid Indic. Each race is explained through 3D and 2D visualisations, images, text, and narratives that describe the physical, cultural, and historical characteristics of each race. For example, students can see 3D models depicting the physical traits and traditional clothing of each race, providing a more concrete understanding of ethnic diversity in Indonesia.

This learning media also includes information on the majority religion practised in each of Indonesia's 38 provinces. Through the AR element, students can view an interactive map showing the distribution of religions across the provinces, as well as icons representing the main places of worship in each province. This helps

students understand how different religions are spread across Indonesia and how they contribute to its rich cultural diversity.

One of the best features of this learning media is the presence of short videos about each province in Indonesia. These videos provide an interesting visual overview of the culture, traditions and daily life in each province. These videos not only add a visual dimension to learning but also help students experience the richness of Indonesian culture more deeply.

With this AR-based learning media, I want to make a significant contribution to Civics education, especially in understanding and appreciating the diversity that exists in Indonesia. This product not only helps students recognise the ethnic and religious diversity in Indonesia but also inspires them to celebrate and maintain the rich culture of our nation. Researchers believe that with AR technology, we can create more innovative and compelling learning experiences and encourage students to become more sensitive and open citizens towards diversity.

The next stage in the 4D development model is the development of AR-based Media PELAJAR learning media and validation by experts of AR-based Media PELAJAR media development products through the *project-based* learning model. This development stage produces a final product that has been revised based on criticism/suggestions from experts.

This development stage begins with product validation of AR-based Media PELAJAR through the *project-based learning* model. The purpose of validating this product is to determine the suitability, feasibility and quality of AR-based learning media. AR-based learning media is validated by material experts, media experts, linguists and expert users (teachers).

#### A. Material Expert Validation

The material expert validation stage aims to assess the content of the content in AR-based learning media made. 2 material experts validate media products. The first material expert is a lecturer from Gorontalo State University, Mr Dr Candra Cuga S.Pd., M.Pd., MCE. The second material expert is also a Gorontalo State University lecturer, Mrs Reska Putri Ismail S.Pd., M.Pd. The results of the validation of AR-based PELAJAR Media material, complete with information from material experts, can be seen in the

attachment. In summary, the recapitulation of validation scores from the material expert, Dr Candra Cuga S.Pd., M.Pd., MCE, is presented in the following table:

**Table 1. Recapitulation of Material Expert Validation Results**

Number of scores obtained	42	Very good
Presentase	95%	Highly Feasible
"Can be a medium for developing students' national insight"		

$$\begin{aligned}
 \text{Average} &= \frac{\text{Number of scores obtained}}{\text{Total number of scores}} \times 100\% \\
 &= \frac{42}{44} \times 100\% \\
 &= 95,4\%
 \end{aligned}$$

Based on table 4.3 above, it can be concluded that the material validation obtained a total score of 42, included in the 'Very Good' category and obtained a percentage of 95% so that it entered the 'Very Feasible' criteria. The results of the validation by the material expert above are that this AR-based PELAJAR media is expected to be a development media for students' national insight.

The second material expert who became a validator was a lecturer from the Gorontalo State University Department Mrs Reska Putri Ismail S.Pd, M.Pd. In summary, the recapitulation of validation scores from the material expert Mrs Reska Putri Ismail, S.Pd., M.Pd. is presented in the following table:

**Tabel 2. Recapitulation of Material Expert Validation Results**

Number of scores obtained	38	Very good
Presentase	86,3%	Highly Feasible

The suitability of images and material, language / vocabulary in cards that are easy to understand, the suitability of the material on the card with learning material and material according to the age level of students.

$$\begin{aligned}
 \text{Average} &= \frac{\text{Number of scores obtained}}{\text{Total number of scoresal skor}} \times 100\% \\
 &= \frac{38}{44} \times 100\% \\
 &= 86,3\%
 \end{aligned}$$

Based on table 4.4 above, it can be concluded that the material validation obtained a total score of 38, included in the 'Very Good' category and obtained a percentage of 86.3% so that it entered into the 'Very Feasible' criteria. The results of the validation by the material expert above are that this media is suitable for use without revision based on several aspects of the assessment that have been validated by the material expert validator.

In addition to media expert validation, it is also validated by teachers who aim to assess whether AR-based PELAJAR Media is suitable for use or not at school. Teachers who validate or not at school. The teacher who validated the media product was 1 teacher. In summary, a recapitulation of the validation scores from teacher Ratna S.Pd. is presented in the following table:

**Tabel 3. Teacher Validation Results Recapitulation**

No.	Aspek yang dinilai	Penilaian Ahli	Kategori
1.	The material on this learning media is in accordance with the learning objectives	4	Very feasible
2.	This learning media can be presented as one of the supports for learning Pancasila Education	4	very feasible
3.	This learning media can attract students' attention	3	feasible



4.	The images presented are relevant to the content of the material	4	feasible
5.	The language used in this media is easy to understand	4	very feasible
6.	This learning media can make it easier to present the material on the spread of RAS in Indonesia.	4	very feasible
7.	This learning media can be used by all students	3	feasible
8.	This learning media can help students learn independently and in groups	3	feasible
9.	Overall the appearance of this learning media is interesting	4	very feasible
10.	Instructions for using card media make it easy to use the media	3	feasible
Total		34	very feasible
Presentase		85%	very feasible

$$\begin{aligned}
 \text{Average} &= \frac{\text{Number of scores obtained}}{\text{Total number of skor}} \times 100\% \\
 &= \frac{34}{40} \times 100\% \\
 &= 85\%
 \end{aligned}$$

Based on Table 4.8 above, it can be concluded that the validation of AR-based Student Media obtained a total score of 34, included in the 'Very Good' category and obtained a percentage of 85% so that it fell into the 'Very Feasible' criteria. In the validation process, several aspects of assessment need to be refined by researchers because AR-based Student Media gets a score of 3 (Decent) from a perfect score scale of 4 (Very Decent) from the teacher as a user expert. The

assessment category is that this learning media can attract students' attention, the images presented are relevant to the content of the image, students can use this learning media, this learning media can help students learn independently or in groups, the overall appearance of the learning media is attractive, and the instructions for using the card media make it easy to use the media get a score of 3 (Decent) from a total perfect rating scale of 4 (Very Decent). Improvements to this learning media can attract students' attention, the images presented are relevant to the content of the image, students can use this learning media, this learning media can help students learn independently or in groups, the overall appearance of the learning media is attractive, and the instructions for using the card media make it easy to use the media will be carried out at the revision stage so that several assessment categories that are considered not to meet the criteria are very feasible will be maximised at that stage. However, in assessment categories, such as the material on this learning media being in accordance with the learning objectives, this learning media can be used as a support for Pancasila Education learning, and the language used in this media is easy to understand. This learning media can make it easier to present material on the spread of RAS in Indonesia.

This research has designed augmented reality (AR)- based learning media implemented based on the results of validation from experts and teachers. This media is designed to improve the characteristics of global diversity by utilising technology that can present an innovative and immersive learning experience. Augmented reality-based learning media provides an interactive and realistic learning experience; AR media allows students to explore cultures from different regions and countries directly through three-dimensional visualisation technology. This makes learning more vivid, engaging, and relevant to students' lives.

Augmented reality media can also increase the understanding of global diversity. With this media, students not only gain knowledge about cultural diversity but are also invited to understand the values of tolerance, respect for differences, and the importance of harmonious coexistence in a global society. The elements of diversity presented through AR are able to provide a strong visual

context, making it easier for students to link theory with the practice of their lives. The validation results showing the feasibility of this media reflect that AR technology is not only a technical innovation but also a strategic solution to overcome challenges in learning global diversity. The implementation of this media is expected to support learning that is more inclusive, adaptive, and relevant to the needs of education in the era of globalisation.

## **CONCLUSION**

Augmented reality (AR)-based learning media can make a real contribution to improving learners' global diversity characteristics. It utilises immersive technology to deliver rich cultural content visually and interactively, allowing students to experience more engaging and meaningful learning. Combining three-dimensional visual elements, sound, and narration provides a learning experience that not only broadens students' horizons but also builds their awareness of the importance of living in diversity. Validation results from experts and teachers confirmed that this AR media fulfils the pedagogical standards needed to support learning. Experts noted the advantages of this media in delivering diverse material innovatively. At the same time, teachers appreciated its use as a tool that is able to increase students' interest and involvement in the learning process. It also proved effective in instilling the values of tolerance, respect for differences and global harmony, which are the essence of diversity.

In addition, it is relevant to modern learning needs in the digital era. With an innovative approach, it utilises technology that is familiar to today's students, making learning more engaging and in line with their learning style. The integration of AR technology with learning content provides opportunities for students to explore the diversity of world cultures first-hand, allowing them to see, hear, and even interact with cultural elements that were previously difficult to access.

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