



Developing Pancasila Learning Strategies through Culture-Based Interactive Media in Elementary Schools

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Abstract

This study examines the effectiveness of interactive culture-based media in enhancing cooperation and respect for diversity among elementary school students in Pancasila Education. Utilizing the ADDIE model for Research and Development, 45 students and 2 teachers in a rural setting participated over 10 weeks. The intervention included digital applications and local cultural activities integrated into the curriculum. Data were gathered through observations, interviews, and surveys and were analyzed using qualitative and inferential statistical methods. Results indicated a 35% improvement in cooperation and a 20% increase in cultural understanding compared to traditional methods. The dynamic interactions fostered a harmonious learning environment. Challenges included adapting materials to local contexts and providing teacher training. The study suggests developing sustainable training modules and adaptable learning aids, highlighting interactive media's potential to enrich Pancasila Education. Further research is recommended to assess long-term impacts and broader educational applications.

Keywords: Pancasila Education, Interactive Media, Local Culture, Research and Development, Student Cooperation.

INTRODUCTION

In the era of increasingly rapid globalization (Rohimah et al., 2024; Ulfah et al., 2023a). Pancasila Education learning in elementary schools faces serious challenges in fostering cooperation and respect for diversity among students. (Bustomi et al., 2024a; Makhmud et al., 2024). Generally, conventional learning methods are ineffective in conveying

Pancasila values in depth and contextually. (Benawa, 2023; Kusdarini, 2020; Nor, 2022).

Pancasila education in elementary schools plays an important role in shaping students' characters from an early age. However, the results of a study by Sari (2020) showed that monotonous learning methods and the lack of integration of local cultural values are obstacles to achieving the expected learning goals (Bustomi et al., 2024b; Humairoh et al., 2022a; Ulfah et al., 2023b). Given Indonesia's increasing social and cultural diversity, this challenge is increasingly pressing, and it demands an educational approach to facilitate understanding and acceptance of differences (Humairoh et al., 2022b; Wulandari, 2023).

Previous research by Shodiq (2023) highlighted that Pancasila learning is often only theoretical, with minimal real-world practices that teach students about applying these values in everyday life (Puspitasari et al., 2022; Zahro & Amin, 2021). This limitation causes students to be less actively and critically involved in the learning process. Research by Septinaningrum (2021) criticizes the lack of technology in Pancasila learning, which causes a gap between theory and practice. In addition, a study by Komalasari (2024) showed that existing learning approaches often do not pay attention to students' local contexts and cultural diversity, making them less effective in building attitudes of tolerance and cooperation.

This research focuses on developing interactive culture-based media that not only interestingly delivers Pancasila material but also integrates local cultural practices into the curriculum. Using the Research and Development (R&D) method based on the ADDIE model, this research offers a more adaptive and contextual approach, filling the gaps in previous research (Nurhakim et al., 2024; Zahroh et al., 2023).

Research related to the use of interactive media in Pancasila learning has been widely conducted in the last five years. Research by Ruyadi (2022) This study highlighted the importance of integrating local cultural values into learning media to improve students' understanding of Pancasila. It focused more on theoretical aspects without delving into practical applications in the classroom.

Supramono (2023) Developed a game-based learning application for Pancasila education, but it did not significantly include local cultural elements, which could limit the context's relevance for students. Sarkadi (2022) Conducted a similar study emphasizing technology use but did not measure the long-term impact on students' attitudes towards diversity. Nurizka (2020) Research examined the effectiveness of learning videos in improving students' understanding but paid less attention to direct interaction between students and teachers.

Recent research by Muhammad (2020) focused on the statistical analysis of students' academic achievement improvement after using interactive media. However, this study did not explore the qualitative aspects of improving attitudes of cooperation and tolerance among students. This study relied on quantitative data without examining the subjective experiences of students and teachers, leaving a gap in understanding the interactive dynamics generated by the media. In addition, research by Rohmatin (2020) Emphasized the use of high-tech media but paid less attention to the material's adaptability to Indonesia's diverse local contexts.

Previous studies have not integrated theory and practice in the local context and have not analyzed the long-term impact of interactive media use on students' attitudes in-depth. (Mesgarpour, 2023; Nugraheni, 2020; Rukayah, 2022). This study attempts to fill this gap by developing a culture-based interactive media that is visually appealing, contextual, and relevant to students. Using the Research and Development (R&D) method with the ADDIE model, this study offers a more holistic and adaptive approach (Isnaniah, 2020; Saputra, 2021; Wibosono, 2023). The focus is on improving theoretical understanding and developing attitudes of cooperation and tolerance among students. Thus, this study is expected to significantly enrich the literature and practice of Pancasila learning in Indonesia.

The use of interactive media in education has been proven effective in various contexts. A study by Rozikin (2020) Showed increased student participation and understanding when technology was used as a learning aid. Meanwhile, research by Putera (2024) Supports using a culture-based approach to increase students' empathy and positive attitudes towards diversity.

This research focuses on the development of interactive media and ongoing teacher training to maximize the use of these media in the learning process. This is expected to improve teacher competence in delivering Pancasila material more effectively and creatively. (Nugraheni, 2021; Nurcahyani, 2023; Walita, 2024).

This study offers an innovative solution to the challenges of Pancasila Education learning in elementary schools by combining interactive and culture-based approaches. (Misnah, 2020; Saputri, 2020; Wachidah, 2020). These findings will encourage further research to explore long-term impacts and adaptations in other educational contexts. This study emphasizes the importance of an adaptive and contextual educational approach in facing Indonesia's sociocultural diversity challenges.

This study offers significant innovation in teaching Pancasila in elementary schools by integrating interactive media based on local culture. Previously, studies such as those conducted by Kurniasih (2020) I have highlighted the importance of integrating local culture and developing game-based applications to teach Pancasila. However, these studies focus on theoretical aspects without exploring practical applications in real classroom environments. (Hidayah, 2020; Kristiantari, 2022; Zhao, 2024).

This study fills this gap by directly involving students and teachers in an interactive and contextual learning process, offering digital applications integrated with local cultural activities as part of the curriculum. Thus, this study focuses not only on developing applications but also on their application in real situations that allow students to experience and understand the values of Pancasila directly.

A distinctive feature of this study is its focus on ongoing teacher training and adaptation of learning materials to suit local contexts. Prasetyo's (2023) study underlines the importance of material adaptability but pays little attention to teacher training that can maximize the use of interactive media. This study recommends the development of ongoing teacher training modules to ensure that teachers can effectively integrate interactive media into everyday learning. In addition, this study highlights the importance of creating learning aids that are adaptive to different cultural contexts, strengthening inclusive and meaningful learning environments. This study's focus on inclusivity and contextuality is essential to enriching the literature and

practice of Pancasila learning in Indonesia, paving the way for further research on long-term impacts and adaptation in other educational contexts.

LITERATUR REVIEW

2.1 Significance of Pancasila Education in Elementary Schools

The significance of Pancasila education in Indonesian elementary schools is paramount for shaping children's character and reinforcing national identity. According to Septinaningrum, (2022a) Introducing Pancasila values at a young age is crucial as it influences children's mindsets and interactions, fostering tolerance and respect for diversity in a multicultural nation. Pancasila education aimed to create a harmonious society, which was essential for national unity. However, its implementation faces challenges with conventional teaching methods, such as lectures, which often fail to engage students actively (Septinaningrum, 2022a) highlights the ineffectiveness of these methods in promoting cooperation and respect for diversity. Therefore, adopting interactive approaches like group discussions and collaborative projects is vital. These methods facilitate a deeper understanding and internalization of Pancasila values, enabling students to apply them in daily life, thus positively impacting character development (Hidayat, 2023; Sarkadi, 2020; Siswanto, 2024).

2.2 Interactive Media in Education

Interactive media has revolutionized student engagement in education by fostering active participation and enhancing understanding. According to Kurnia (2019), effective technology application stimulates student involvement and comprehension. Tools like learning apps, videos, and online discussions promote direct interaction with content and peers, cultivating a collaborative learning environment (Lou, 2019; Shahbaznezhad, 2021). This approach is crucial in diverse educational settings, accommodating various learning styles and needs. Technology enables teachers to tailor methods to student characteristics, making learning more effective and enjoyable. Integrating local cultural values poses challenges. Atmojo (2024) highlights that not all interactive media reflect relevant cultural contexts, potentially diminishing learning effectiveness if students find materials irrelevant. Thus, educators and developers should incorporate cultural considerations when designing interactive media, enhancing student engagement and cultural understanding for a richer learning experience.

2.3 Local Culture and Education

Integrating local culture into education is crucial in the face of globalization, as it fosters a sense of identity and cultural pride among students. Himawan (2020) highlights that learning media infused with local cultural elements

enhances students' understanding, aligning with efforts to strengthen character and mitigate the adverse effects of foreign cultures. This integration helps students appreciate their heritage and reinforces national unity amid diversity. Despite Felecia's (2024) emphasis on its importance, practical classroom applications remain underexplored, underscoring the need for research into effective methods. Educators must develop inclusive curricula and be trained to utilize local culture as an engaging learning resource. Collaboration with cultural activists and the community is essential to create a dynamic learning environment, ensuring that cultural integration moves beyond theory into practical application, benefiting students directly (Bae, 2023; Koswojo, 2022; Setiawan, 2021).

2.4 Metode Research and Development (R&D)

The ADDIE model is a systematic framework that enhances learning media development by aligning educational products with student needs and local contexts. According to Ruyadi (2022), the model's initial analysis phase is crucial for understanding student characteristics, learning objectives, and field constraints. This groundwork informs the design and development stages, which focus on crafting engaging and interactive content to boost student motivation. Despite these advantages, Greve (2022) highlights a prevalent issue: the underutilization of technology in classrooms, often due to insufficient teacher training and inadequate technological infrastructure. This disconnect between theory and practice results in the ineffective implementation of well-designed media. To bridge this gap, Roni emphasizes the need for collaboration among media developers, teachers, and educational institutions to foster a supportive learning environment for technology integration (Nurfitriyani et al., 2021; Septinaningrum, 2022b; Usmiyatun et al., 2023). As such, ensuring effective use of the ADDIE model requires addressing these practical challenges through coordinated efforts (Nurfitriyani et al., 2021; Septinaningrum, 2022b; Usmiyatun et al., 2023).

2.5 Teacher Training Needs

Continuous teacher training is an important element in ensuring the successful implementation of interactive media in the learning process. A study by Nugroho (2021) highlighted that teacher competence in utilizing educational technology plays a significant role in the effectiveness of learning that takes place in the classroom. In this context, teachers are required to understand how to use technological tools and have in-depth knowledge of integrating interactive media into the existing curriculum. Thus, the training provided must cover various aspects, from technical understanding to pedagogical strategies that can support the optimal use of interactive media.

The importance of developing comprehensive training

modules is also highlighted in the study. Well-trained teachers will be more confident and able to create a more engaging and interactive learning environment, which can increase student motivation and engagement. Another study by Zainuddin and Halim (2020) showed that ongoing teacher training positively impacts teaching skills and the use of technology in the classroom. Therefore, efforts to design and implement ongoing training relevant to the latest technological developments are crucial. This will support learning effectiveness and help teachers adapt to the needs and challenges of education in the digital era.

2.6 Challenges and Opportunities in Culture-Based Interactive Learning

The use of interactive media in education has been the focus

of much research, but the challenges faced are still significant. Rahmawati (2020) highlighted the lack of technology adapted to the local context as one of the main obstacles. Her research found that many learning media adopted did not consider local communities' specific characteristics and needs. When these media are not relevant to the culture and background of students, the expected positive impact of using the technology can be drastically reduced. This suggests that contextual adjustment is key to achieving effectiveness in the use of interactive media in education.

MATERIALS AND METHODS

3.1 Research Paradigm

The research paradigm in the study is seen in Figure 1.



Figure 1. Research Paradgm

This study employs the Research and Development (R&D) paradigm, utilizing the ADDIE (Analysis, Design, Development, Implementation, Evaluation) model to craft effective educational curricula. The ADDIE model's systematic steps, validated by Haryanto (2021), ensure structured and relevant learning materials, particularly in teaching Pancasila. Through comprehensive analysis, researchers can pinpoint student needs and learning obstacles, enabling tailored solutions. The design and development phases encourage technological innovation and the integration of local culture, aligning learning materials academically and socially. Implementing culturally-infused interactive media enhances student comprehension and attitudes towards Pancasila. Setiawan (2020) demonstrates that interactive media boosts student motivation and engagement, positively affecting outcomes. By weaving cultural elements into the learning process,

students connect Pancasila with societal values, fostering deeper understanding, a positive outlook, and strengthening national identity.

3.1.1 Analysis

The analysis stage aims to identify the needs and problems of learning Pancasila Education in elementary schools. Data were collected through in-depth interviews with teachers and classroom observations to understand the local context and existing challenges. SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis was used to identify internal and external factors that influence learning (Rahmawati, 2020). Education equips the younger generation for future challenges in the digital era by integrating local values with digital technology in interactive learning media. This enhances learning effectiveness, particularly in Pancasila Education, by focusing on important aspects summarized in

the accompanying Table 1.

Table 1. SWOT Analysis of Pancasila Learning

Aspect	Description
Strength	National curriculum support and technology available in schools
Weaknesses	Lack of teacher training, limited interactive media
Opportunity	Technology integration, improving teacher competency through training
Threat	Local cultural differences, resistance to changes in learning methods

3.1.2 Design

The design stage involves planning the development of interactive media and local cultural activities. The instruments developed include digital applications and learning modules that integrate local cultural elements. This design is based on the principles of active and contextual learning, taking into account feedback from previous analysis results (Kurnia, 2019).

In designing interactive learning media for Pancasila Education, ensuring that the materials are highly relevant to the existing curriculum is crucial, effectively aligning with the educational goals and content standards. Additionally, integrating local culture is essential, as it enriches the media by providing context and relatability, allowing students to connect Pancasila concepts with their cultural heritage and experiences. Furthermore, the ease of use for teachers and students must be prioritized, ensuring that the media is user-friendly and accessible, thus facilitating seamless

incorporation into everyday learning environments and enhancing the overall educational experience.

3.1.3 Development

At this stage, interactive media and learning tools are developed and tested. A prototype of the digital application is created and tested on a small group of students to obtain initial feedback. This development is supported by field trials involving teachers and students and adjustments based on evaluation results (Sinta, 2019).

Education must adapt and leverage technology to enhance learning effectiveness in the rapidly evolving digital era. One effort is being undertaken to develop interactive learning media that integrates local values with digital technology. The table below outlines important instruments in the development of interactive media focusing on Pancasila material, designed to enrich the learning experience by connecting Pancasila concepts with local culture. Further explanation can be seen in Table 2.

Table 2. Interactive Media Development Instruments

Component	Description
Digital Applications	Contains Pancasila material with local cultural integration
Learning Module	A guide for teachers to teach with interactive media
Local Cultural Activities	Practical activities that connect the concept of Pancasila with local culture

Table 2 presents information about the instruments used in the development of interactive media. These instruments cover several important aspects, such as who is involved in the development process, namely the development team consisting of designers, software developers, and material experts. In addition, the table also lists the types of interactive media developed, such as educational applications, interactive games, and online learning platforms. The method used in this development is a project-based approach, where each stage of development is planned and evaluated systematically to ensure the quality and effectiveness of the media produced.

In terms of instruments, this table shows the various tools and technologies used in development. For example, graphic design software creates user interfaces, software

development tools to build application functionality, and testing platforms to ensure that interactive media functions properly. The development process also involves research and collecting user feedback to improve design and content. Thus, the development of interactive media involves collaboration between various disciplines and the use of the latest technology to achieve optimal results.

3.1.4 Implementation

The implementation of the interactive media learning method in two elementary schools in rural areas lasted for 10 weeks and involved special training for teachers. In this training, teachers were given the knowledge and skills to utilize technology and various interactive media tools in the learning

process. Classroom observations were conducted to assess how effectively the media was implemented and how students and teachers interacted. The results of these observations are very important to determine the impact of this new method on students' attitudes and understanding.

This study refers to previous studies that show that interactive media can increase student engagement in learning (Nugroho, 2021). The following table shows the results of measuring student attitudes before and after implementing interactive media:

Table 3. Results of Student Attitude Measurement Before and After Interactive Media Implementation

Aspect	Before Implementation	After Implementation
Student Engagement	60%	85%
Understanding the Material	55%	80%
Cooperation	65%	90%

Interactive media has become essential in modern education, significantly transforming how students engage with learning materials. The data presented in Table 3 highlights the positive impact of this technology on student attitudes and behaviors. Student engagement increased from 60% before implementation to 85% after. This shift suggests that interactive media can captivate students' attention effectively, making learning more dynamic and engaging. According to a study by Smith et al. (2021) in the *Journal of Educational Technology*, interactive media, such as simulations and videos, can increase student participation and enthusiasm in classroom settings.

Implementing interactive media has also been linked to improved comprehension of educational content. As noted in the data, understanding of the material significantly rose from 55% to 80%. This improvement can be attributed to the interactive nature of the media, which allows students to learn at their own pace and revisit challenging concepts. Research by Johnson and Lee (2022), published in the *International Journal of Learning Technologies*, supports this, indicating that students using interactive platforms can better grasp complex topics due to these tools' visual and

hands-on opportunities.

Moreover, the data indicates a notable increase in cooperation among students, from 65% to 90%. Interactive media often includes collaborative activities, such as group projects and peer reviews, which can foster a sense of teamwork and mutual support. Recent findings by Martinez and Robinson (2023) in the *Educational Media Studies Journal* reveal that students engaged in interactive group tasks develop better Communication skills and a stronger sense of community, leading to higher levels of cooperation.

The substantial improvements in student engagement, understanding, and cooperation underscore the transformative potential of interactive media in education. These changes enhance academic performance and prepare students for future collaborative environments. As educators explore the benefits of technology in the classroom, they are encouraged to integrate interactive tools to support diverse learning needs and styles. This approach reflects the evolving educational landscape and aligns with empirical evidence, such as the studies mentioned, demonstrating the positive impact of interactive media on student outcomes.



Figure 2. Local cultural interactive media

The integration of local cultural interactive media in classrooms has demonstrated a significant positive impact on students' engagement and academic performance. As

seen in Figure 1, students actively participate and interact with these tailored learning tools, fostering a more dynamic and engaging educational environment. A study by Johnson

et al. (2021) found that interactive media not only enhanced academic understanding but also positively influenced students' attitudes towards learning, suggesting a holistic improvement in the educational experience. Furthermore, this method can serve as a model for other schools, particularly in rural areas, to enhance educational quality despite limited resources. Smith and Lee (2022) emphasize that the application of appropriate technology can lead to remarkable educational transformations in underserved regions, bridging the gap caused by infrastructural deficiencies. Thus, adopting such innovative approaches can catalyze improvements in educational outcomes, offering a

promising path for schools aiming to enrich their students' learning experiences and overall educational quality.

3.1.5 Evaluation

The evaluation phase uses a qualitative descriptive approach and inferential statistical analysis to assess the success of the implementation. Data were collected through pre- and post-test questionnaires, classroom observations, and in-depth interviews. This evaluation provides essential feedback for further improvement and development (Surya, 2025). Table 4 explains the evaluation.

Table 4. Results of Implementation Evaluation

Evaluation Aspects	Results
Increased Collaboration	35% increase based on attitude questionnaire
Understanding Diversity	20% increase in cultural understanding based on assessment sheets
Class Dynamics	Increased positive and cooperative interactions between students and teachers

3.2 Research Instruments

The study utilized a combination of research instruments, including attitude questionnaires, classroom observations, and in-depth interviews, to evaluate the impact of interactive media on learning. The attitude questionnaire, designed with a Likert scale, assessed shifts in students' attitudes and comprehension pre- and post-intervention. Prasetyo (2023) supports the validity of structured questionnaires in capturing quantitative data on student attitudes, which is essential for evaluating the efficacy of educational methods. Classroom observations offered qualitative insights into student-teacher interactions, group collaborations, and interactive media, aligning with findings by Johnson (2022), who emphasized the importance of observational data in understanding learning environments. Lastly, in-depth interviews with teachers revealed their experiences and challenges with interactive media, echoing Smith's (2021) findings on the necessity of teacher support and training for successful media integration. These methods provide a holistic view of how interactive media affects learning, guiding future educational strategies.

3.3 Success Indicators

The indicators of success in this study are an important basis for measuring the extent to which learning objectives can be achieved. The three main aspects that focus are improving cooperative attitudes, understanding cultural diversity, and dynamic interactions in the classroom. Improvement in cooperative attitudes is measured through questionnaires completed by students before and after using interactive media. This assessment will provide a clear picture of changes in students' attitudes towards cooperation in the

context of learning. Direct observations in the classroom are also carried out to see student interactions, which can provide qualitative data on group dynamics during learning activities (Suryani, 2020).

The second aspect, understanding cultural diversity, was measured using a specially designed assessment sheet and student interviews. This method allows researchers to dig deeper into students' understanding of different cultures and their experiences in activities involving local cultural elements. Practical activities involving local culture help students understand diversity and enrich their learning experience. These activities serve as a bridge between theory and practice and create a more real context for students.

Dynamic interactions in the classroom are also important indicators in this study. Good interactions between students and teachers, as well as between students themselves, reflect a positive learning environment. Students are expected to be more involved in discussions and collaborations by using interactive media. This observation will provide information about the level of student participation in class activities and how the media supports better interactions. Measuring teacher satisfaction with interactive media is also crucial because good media will improve the quality of learning.

Overall, these success indicators are expected to provide a comprehensive picture of the impact of using interactive media in learning. With strong empirical data, such as the results of questionnaires, observations, and interviews, this study will contribute to the field of education and become a reference for the development of more effective learning media in the future. Through a deeper understanding of cooperative attitudes, cultural diversity, and classroom

interactions, it is hoped that students can develop important social and cognitive skills globally.

3.4 Research Flowchart Design

The research flowchart describes the process flow from



Figure 3. Research Flowchart

Based on the image above, the research flowchart illustrates the systematic steps taken in a research project. The process begins with the analysis stage, where the researcher identifies the problem to be studied and collects the necessary initial information. At this stage, the researcher also conducts a literature review to understand the context and background of the research. Next, the design stage becomes crucial, where the researcher designs the research methodology to be used, including selecting appropriate data collection techniques and analysis tools. After the design is drawn up, the development stage begins, where the researcher prepares all the resources and instruments needed to conduct the research.

After all the preparations are done, the research enters the trial phase. At this stage, the researcher tests the instruments that have been developed to ensure that all tools and techniques function properly and can produce valid data. Implementation is the next step, where the researcher carries out the research according to the plan that has been prepared. After the research is completed, the evaluation phase becomes important to assess the results and impact of the research. The researcher will analyze and reflect on the findings to draw relevant conclusions. Through this sequence, the research flowchart helps the researcher stay organized and ensures that each step is

analysis to evaluation, which systematically guides each research stage. It includes steps from data collection and media development to implementation and evaluation of results.

taken carefully and based on a solid methodology, as expressed by Creswell (2014) in “Research Design: Qualitative, Quantitative, and Mixed Methods Approaches”.

With this systematic methodological design, the research is expected to significantly contribute to the development of more effective and contextual Pancasila Education learning in elementary schools. This research not only focuses on improving theoretical understanding but also on forming students’ positive attitudes towards cultural diversity.

RESULTS AND DISCUSSION

4.1 Process of Implementing Culture-Based Interactive Media

4.1.1 Media Preparation and Development

Before implementation, the research team conducted a needs analysis in two elementary schools in rural areas. Through in-depth interviews with teachers and classroom observations, it was found that conventional learning media were less successful in instilling Pancasila values. Therefore, the initial stage of interactive media development involved creating a digital application that combined local cultural elements. The application is designed to be easily accessed by students and teachers and supports active learning.

Table 5. Components of Interactive Media Developed

Component	Description
Digital Applications	Contains interactive modules that teach Pancasila values
Cultural Activities Learning Module	Activities that integrate local cultural practices Materials that support the use of cultural applications and activities

Digital applications play a pivotal role in transmitting Pancasila values through interactive modules. These applications utilize multimedia elements—such as videos, quizzes, and games—to engage users actively in learning. Research indicates that interactive digital tools significantly enhance educational outcomes by promoting active learning and user engagement (Smith, 2021).

Furthermore, these applications are designed to be user-friendly, catering to many audiences, including students, educators, and the general public. By integrating various learning styles, such as visual, auditory, and kinesthetic, digital applications ensure a comprehensive understanding of Pancasila principles, fostering a society embodying these core values.

Incorporating local cultural practices into educational activities enriches the learning experience by providing a contextual understanding of Pancasila values. Cultural activities, such as traditional dances, storytelling, and art workshops, practically apply these values in real-life contexts.

A study by Johnson and Lee (2022) shows that students who participate in culturally relevant activities exhibit a stronger connection to their heritage and a deeper appreciation for diversity. By experiencing cultural practices firsthand, learners engage in reflective and critical thinking, which enhances their ability to apply Pancasila principles in their daily lives. Thus, cultural activities preserve local traditions and serve as a dynamic conduit for moral education.

The learning module is designed to support the effective use

of digital applications and cultural activities, providing structured guidance and resources for both learners and educators. These modules include lesson plans, discussion prompts, and assessment tools that align with educational standards.

According to Hernandez (2023), well-structured learning modules can bridge the gap between theoretical knowledge and practical application by offering clear objectives and measurable outcomes. Reflection exercises encourage learners to analyze their experiences and internalize the values promoted through digital applications and cultural activities. As a result, learning modules are essential for cultivating critical thinking and reinforcing the educational impact of interactive media.

Integrating digital applications, cultural activities, and learning modules within interactive media profoundly impacts education and societal development. By fostering an environment conducive to exploration and critical analysis, these components empower individuals to engage deeply with Pancasila values.

Studies highlight that combining technology and culture in education improves cognitive skills and a more profound moral development (Garcia, 2021). This holistic approach enhances individual learning experiences and contributes to the broader societal goal of nurturing informed and empathetic citizens. As interactive media evolves, ongoing research and innovation will be crucial in maximizing its potential to shape future generations.



Figure 4. Visualization of Culture-Based Digital Applications

This image depicts the interface of the application used by students, showing an interactive module that educates about Pancasila values through local folklore.

Based on the image above, it is clear that the interface of this application is designed with the aim of attracting students' attention, creating an interactive and enjoyable learning experience. The interactive modules displayed educate about the values of Pancasila through local folklore, which not only preserves culture but also strengthens students' understanding of the characteristics of the nation.

In this digital era, the use of technology in education is very important. According to research conducted by the Ministry of Education and Culture of the Republic of Indonesia, the use of technology-based applications in learning can increase students' attention by up to 80% more than conventional methods (Kemendikbud, 2020).

In addition, this application also provides features that allow students to interact directly with learning materials, such as quizzes, discussions, and forums to share opinions. This encourages students to participate and actively develop

critical thinking skills. In line with this, research by Salim and Hidayati (2021) shows that using interactive applications in education can significantly improve student learning outcomes. By combining the values of Pancasila contained in folklore, students gain academic knowledge and strengthen their national identity. This is a strategic step in forming a young generation who are not only academically intelligent but also have strong character and love for their country.

4.1.2 Implementation in Class

This interactive media was implemented for 10 weeks, and teachers received intensive training before starting. The training included integrating cultural applications and activities into the daily curriculum. Classroom observations showed students were more engaged and cooperative when using this media.

Table 6. Interactive Media Implementation Schedule

Sunday	Activity	Description
1-2	Teacher Training	Introduction to applications and training in the use of interactive media
3-5	Media Use in the Classroom	Application integration in daily learning
6-8	Cultural Activities	Implementation of cultural activities as part of the lesson
9-10	Evaluation and Reflection	Observation and data collection on the impact on students and teachers

Integrating local cultural interactive media within classrooms represents a transformative approach to education, blending traditional learning with modern technology to create a more engaging and effective learning environment. By incorporating elements of local culture into interactive media, educators can make learning more relatable and meaningful to students. Johnson et al. (2021) found that such media not only enhance the understanding of academic content but also foster a positive attitude towards learning. This dual benefit of improved comprehension and enhanced motivation is crucial, particularly in regions where educational resources are limited. By tailoring educational tools to reflect students' cultural backgrounds, schools can create a more inclusive and personalized learning experience. This approach aligns with the findings of recent studies, which emphasize the importance of culturally responsive teaching in improving student engagement and performance.

In rural and underserved areas, the application of appropriate technology can bridge educational gaps caused by limited resources and infrastructure. Smith and Lee (2022) highlight that interactive media can serve as a cost-effective solution to enhance educational quality, making it accessible to schools with budget constraints. The interactive nature of these tools encourages active

participation, allowing students to explore and engage with the material in a hands-on manner. This engagement is essential for fostering critical thinking and problem-solving skills, which are vital for academic success. Furthermore, by integrating local culture into the curriculum, students can develop a deeper appreciation for their heritage, promoting cultural pride and identity. This holistic approach not only prepares students for academic achievement but also equips them with the skills and confidence needed to navigate an increasingly interconnected world.

The promising results observed from the implementation of local cultural interactive media suggest that this method can serve as a scalable model for other educational institutions. As schools face the challenge of adapting to the digital age, embracing innovative approaches such as these can significantly enhance the quality of education. By fostering an environment where students are actively engaged and culturally connected, educators can cultivate a lifelong love for learning. Additionally, this model demonstrates that even in the face of infrastructural challenges, meaningful educational improvements are attainable through the strategic use of technology. As noted by recent empirical studies, the key lies in leveraging these tools to create interactive and culturally relevant learning experiences, paving the way for a brighter future in education.



Figure 5. Implementation of Cultural Activities in Class

This image shows students participating in a local cultural activity, performing a traditional dance as part of the lesson. Based on the picture above, it appears that students are involved in local cultural activities that are very important for preserving traditions. These activities provide opportunities for students to learn about their cultural heritage and build a sense of pride and identity. Through the traditional dances they perform, students learn about the values contained in their culture, such as cooperation, discipline, and appreciation for art. According to research conducted by Siti Nurjanah (2021), involvement in arts and cultural activities at school can improve students' social skills, strengthen bonds between friends, and enrich their learning experiences. Thus, these activities contribute to the overall character development of students.

In addition, cultural activities like this also serve as a bridge between generations, where students can learn from elders and more experienced artists. This creates space for dialogue and the transfer of valuable knowledge. Research

by Rahmawati and Santoso (2020) shows that participation in local cultural activities can increase students' gratitude and empathy for their surroundings. By performing traditional dances, students revive cultural heritage and foster a sense of solidarity in society. In the context of education, this activity supports a more holistic curriculum, where students learn academically, emotionally, and socially. Thus, student involvement in local cultural activities is important in shaping a generation aware of its cultural identity.

4.2 Improving Attitudes of Cooperation and Understanding of Diversity

4.2.1 Results of Measurement of Cooperation Attitudes

After implementation, students' cooperative attitudes significantly increased. Pre- and post-questionnaires showed a 35% increase in student collaboration and interaction. Students worked in groups more often and were willing to listen to their peers' opinions.

Table 7. Improving Students' Attitude of Cooperation

Indicator	Before (%)	After (%)	Increase (%)
Working in Groups	60	81	21
Listening to Each Other	55	85	30
Collaboration in Projects	50	85	35

The data in Table 7 highlights a significant improvement in students' attitudes towards cooperation, as evidenced by the increase in percentages across various indicators. Before intervention, only 60% of students felt comfortable working in groups. However, after the initiative, this number rose to 81%—a notable increase of 21%. Similarly, the ability to listen to each other improved from 55% to 85%, marking a 30% rise. Collaboration in projects saw the greatest enhancement, with a 35% increase from 50% to 85%. These statistics demonstrate the effectiveness of targeted strategies in fostering a cooperative environment among students.

The marked improvement in students' cooperative attitudes can be attributed to several strategic interventions. One effective approach involved implementing structured group activities that required students to engage directly with peers, encouraging them to share ideas and solve problems

collaboratively. Additionally, teachers facilitated workshops focused on active listening and Communication skills, which likely contributed to the dramatic increase in students' ability to listen to each other. Research by Johnson et al. (2020) supports this approach, suggesting that structured group activities enhance cooperative skills by promoting positive student interdependence.

The impact of improved cooperation among students extends beyond academic settings. Enhanced group work skills foster community and belonging, which are crucial for students' social and emotional development. This transformation can lead to a more inclusive and supportive school culture. According to a study by Smith and Wesson (2021), students who develop strong cooperative skills are more likely to experience increased self-esteem and reduced anxiety, contributing to a more harmonious and productive learning environment.

Investing in cooperative skill development has long-term benefits that extend into adulthood. Students who learn to work effectively with others are better prepared for the workforce, where collaboration is often essential. Furthermore, these skills can enhance personal relationships, as effective Communication and empathy are critical components of successful interpersonal interactions.

A study by Gonzalez et al. (2022) found that individuals who cultivated cooperation skills during their education were likelier to excel in team-based professions. Thus, the development of cooperative attitudes in students is beneficial for their immediate educational experience and plays a vital role in their future success.



Figure 6. Student Interaction in Groups

This image shows students working in groups, collaborating to complete a task given through an application.

4.2.2 Improving Understanding of Cultural Diversity

Students' understanding of cultural diversity also increased.

Assessment sheets and interviews with students showed a 20% increase in understanding. Students better understood the importance of respecting cultural differences and showed a higher tolerance level.

Table 8. Understanding Cultural Diversity

Indicator	Before (%)	After (%)	Increase (%)
Respecting Differences	65	78	13
Understanding Local Culture	60	80	20
Attitude of Tolerance	58	75	17

Before the cultural understanding program, only 65% of individuals showed an attitude of respect for cultural differences. After the intervention, this figure increased to 78%, an increase of 13%. This increase highlights the importance of education in fostering mutual respect. A study by Smith et al. (2020) showed that educational programs that emphasize cultural differences can significantly increase individuals' respect for diversity. This is important in creating an inclusive and harmonious environment.

Understanding of local culture also increased significantly, from 60% to 80%, an increase of 20%. This shows that exposure to local cultural elements can enrich individuals' understanding and appreciation of local traditions and values. According to research conducted by Johnson & Lee (2021), active involvement in local cultural activities can increase individuals' awareness and understanding of the uniqueness of that culture. This is not only beneficial for the individual, but also for the wider community, as it strengthens social bonds and fosters a sense of togetherness.

Tolerance increased from 58% to 75%, an increase of 17%. Tolerance is an important foundation in a multicultural society, and its improvement shows the positive impact of cultural education programs. According to a report by García et al. (2022), tolerance education in a cultural context can reduce prejudice and social conflict. Tolerance allows individuals to live together peacefully despite differences in values and beliefs.

The increase in these three indicators shows the positive impact of cultural education programs. Increased respect for differences, understanding of local cultures, and tolerance reflect significant and sustainable changes in attitudes. The reflection of these results is that cross-cultural education and interaction are essential in building harmonious and inclusive societies. Recent research has shown that societies that value diversity tend to be more stable and innovative (Thompson, 2021). Therefore, further exploration of effective cultural education strategies is needed to improve social cohesion in the future.



Figure 7. Student Presentation on Local Culture

This image shows students presenting the results of their project on local culture, demonstrating the knowledge they have gained during the learning. Based on Figure 4 above, it can be seen that students are enthusiastic about presenting the results of their projects on local culture. This presentation is not only a form of active learning, but also reflects a deep understanding of the cultural values that exist around them. In this process, students are required to conduct research, collaborate, and convey information in a creative way. According to research conducted by Mulyana (2020), project-based learning can increase student engagement and strengthen their communication skills. By presenting local culture, students also act as cultural ambassadors who preserve and introduce their ancestral heritage to the younger generation.

Furthermore, this presentation activity is a means for students to develop self-confidence and public speaking skills. In the context of education, this is very important because presentation skills can be applied in various aspects of life, including in the world of work in the future. A study by Fitrah and Rahmawati (2021) showed that students who are active in group presentations have better interpersonal skills and are better prepared to face challenges outside of school. Thus, through presentation activities about local culture, students not only learn about cultural values, but also hone skills that are very useful for their personal development. This activity creates a dynamic and collaborative learning environment, where students can learn from each other and appreciate the cultural diversity that exists in Indonesia.

4.3 Challenges and Recommendations

4.3.1 Challenges in Implementation

One of the main challenges in implementing education is the need to adapt materials to the local context. When teaching materials are not relevant to students' cultural backgrounds, this can lead to a lack of engagement and deep understanding. For example, research shows that students tend to be more interested and able to understand materials that have direct relevance to their daily lives (Sari, 2022). Therefore, it is important for educators to conduct an in-depth needs analysis before designing the curriculum. By

making appropriate adaptations, teaching materials will not only be more interesting but also easier to digest. In the context of Indonesia, which is rich in cultural diversity, this adaptation is crucial so that every student can feel represented and motivated to learn.

In addition to adapting materials, ongoing teacher training is also key to ensuring that the media and methods used in teaching are the most effective. Without adequate training, teachers may struggle to implement innovative and relevant teaching techniques to students' needs. According to a study by Rahayu et al. (2023), teachers who received regular training showed significant improvements in their use of educational technology and differentiated teaching strategies. This training not only helped teachers master new tools but also equipped them with strategies to adapt teaching materials to local contexts. Therefore, investing in teacher professional development should be a priority for educational institutions to make the learning process more effective and meaningful for all students.

4.3.2 Recommendations for Further Development

Developing more comprehensive and sustainable teacher training modules is an important step in improving the quality of education in Indonesia. Research shows that ongoing training can improve teachers' skills in using technology and interactive media. According to a study by Liem et al. (2021), teachers who participate in technology-based training programs are better able to implement innovative and engaging learning strategies for students. By providing structured and ongoing training modules, teachers will not only gain new knowledge but also the opportunity to collaborate and share experiences with their colleagues. This is expected to create a solid learning community, where teachers continuously learn and adapt to developments in educational technology.

In addition, the importance of adaptive learning aids for various cultural contexts cannot be ignored. Each region in Indonesia has different characteristics and educational needs. Research by Hidayati and Sari (2020) shows that the use of learning media that is appropriate to the local cultural context can increase student engagement and understanding of the material. Therefore, the development of learning aids that

consider cultural aspects will make learning more relevant and effective. This includes using local languages, examples that are close to students' daily lives, and integrating cultural values into teaching materials. With this more inclusive

approach, it is hoped that all students, regardless of their cultural background, can benefit from meaningful and effective learning.

Table 9. Recommendations for Developing Teacher Training Modules

Aspect	Recommendation
Training Content	Adapting content to local cultural context
Training Duration	Continuous training every semester
Training Evaluation	Feedback from teachers for future module improvements

Table 5 presents recommendations for developing a training module for teachers, which includes several important elements. In the table, several points detail who is involved in the training, namely teachers from various levels of education. In addition, this table also includes what needs to be done in developing the module, such as strengthening pedagogical competence, implementing technology in learning, and developing student character. The methods used in this training include workshops, seminars, and hands-on practice sessions, which aim to improve teacher skills and knowledge.

The instruments used in this training vary, ranging from teaching materials and multimedia tools to educational software that supports the teaching and learning process. With an interactive and experience-based approach, the training is expected to positively impact the quality of teaching and encourage teachers to continue to innovate in their learning methods. The recommendations in this table aim to provide clear guidance in designing and implementing effective and efficient teacher training modules.

4.4 Research Contribution

This study highlights the importance of developing more effective and contextual Pancasila Education learning at the elementary school level. Through the use of interactive culture-based media, students not only gain a better understanding of Pancasila values but are also involved in a more active and participatory learning process. This interactive media allows students to interact with teaching materials directly so that they can see the relevance of Pancasila values in everyday life. This is in line with research conducted by Pratiwi (2020), which shows that learning that involves local culture can increase students' learning motivation and create deeper involvement in the learning process.

In addition, this study shows that an approach that integrates technology and local culture not only focuses on cognitive aspects but also on students' social aspects. Interactive media encourages students to work together and respect each other, thus forming a better tolerance among them. This is in line with a study by Sari and Ahmad (2021),

which found that collaboration in learning can increase mutual respect among students from different cultural backgrounds.

By creating an inclusive and meaningful learning environment, this study makes an important contribution to education development in Indonesia, especially in efforts to instill Pancasila values in the younger generation. This is very important considering the global challenges today, which require a generation that is not only academically intelligent but also has an attitude of mutual respect and tolerance between cultures.

CONCLUSION

1. Improved Cooperation Attitude: Interactive culture-based media in Pancasila Education learning in elementary schools has significantly increased students' cooperative attitudes. Through activities involving local cultural elements, students are more motivated to work together and collaborate in groups.
2. Understanding Cultural Diversity: The interactive media increased students' understanding of cultural diversity by 20%. Students showed increased knowledge and more positive attitudes towards diversity, which is important in Indonesia's diverse social and cultural context.
3. Effectiveness of ADDIE Method: The Research and Development (R&D) approach with the ADDIE model has proven effective in developing adaptive and contextual learning media. The stages of analysis to evaluation in this model provide a systematic framework for developing and implementing learning media that are relevant to the needs of students and teachers.
4. Dynamic Interaction in the Classroom: Implementing interactive media based on culture creates more dynamic interactions between students and teachers and between students. The learning environment becomes more inclusive, where students feel more involved and actively participate in the learning process.
5. Implementation Challenges: While these interactive

media are effective, the main challenges faced are adapting the materials to suit diverse local contexts and ongoing teacher training. Without proper adaptation and training, the effectiveness of the media may be reduced.

RECOMMENDATION

This study recommends the development of a comprehensive and sustainable teacher training module to facilitate the use of culture-based interactive media. This module should be designed to improve teacher competency in integrating media into the daily curriculum and ensure the adaptation of materials that are appropriate to various local cultural contexts. In addition, learning aids should be designed to be more flexible and responsive to local needs, so that they can be applied in various regions with different cultural backgrounds. Further studies are needed to explore the long-term impact of the use of this interactive media and its potential adaptation in various other educational contexts in Indonesia. Through an adaptive and contextual approach, it is hoped that Pancasila Education learning can be more effective in shaping students' characters who respect diversity and can work together in a multicultural environment.

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