Association of Researcher of Skills and Vocational Training, Malaysia

ANP-JSSH
ISSN 2773-482X eISSN 2785-8863
DOI: https://doi.org/10.53797/anp.jssh.v5i1.8.2024

Development of ICT Learning Media with Quizland Based on the Papari Scratch Games Application to Improve the Understanding of Pancasila Values in Grade V

Ningrum, Riska Anis Wulan, Fajrie, Nur, Zuliana[1*], Eka, Basir, Mochamad Abdul[2] & Abdullah, Armansyah[3]

[1*]Faculty of Education and Teacher Training, Universitas Muria Kudus, Kudus, Central Java, INDONESIA

[2]Universitas Islam Sultan Agung, Semarang City, Central Java, INDONESIA

[3]Faculty Technical and Vocational, Sultan Idris Education University, 35900 Tanjong Malim, Perak, MALAYSIA

*Corresponding author: eka.zuliana@umk.ac.id

Received: 20 May 2024; Revised: 10 June 2024; Accepted: 12 June 2024; Available Online: 25 June 2024

Abstract: Character education, especially understanding Pancasila values, is a major focus in teaching at the elementary school level in Indonesia. However, there are challenges in conveying these values in a way that is relevant and interesting to students. This study aims to design and develop an innovative technology-based learning media, namely Quizland Papari, using the Scratch application. This media is designed to improve fifth grade students' understanding of Pancasila values through an interactive approach. The main question raised is to what extent Scratch-based media is able to support character education through gamification elements. This study applies the Research and Development (R&D) method with the ADDIE (Analysis, Design, Development, Implementation, Evaluation) approach. Data were collected through needs surveys, media trials, and effectiveness evaluations using pre-tests and post-tests, which were analyzed using paired sample t-test statistical tests. The results showed that Quizland Papari was able to significantly improve students' understanding of Pancasila values. This media utilizes gamification elements, case study-based questions, and automatic assessment features, which overall succeeded in increasing students' motivation and engagement in learning. These findings indicate that technologies such as Scratch can be adapted for the development of educational media that support character education. In conclusion, ICT-based learning media such as Quizland Papari can be an effective and interesting solution in improving students' understanding of Pancasila values. This study opens up opportunities for the development of similar learning media for other themes and further exploration in different age groups and learning contexts.

Keywords: Pancasila Values, Interactive Learning, Gamification, Scratch, Character Education

1. Introduction

Pancasila is the foundation of the state as well as the ideology of the Indonesian nation which plays an important role in shaping the character and morals of the younger generation. In addition to being a legal basis, Pancasila also functions as a moral guideline that directs the behavior and attitudes of every citizen. In the world of education, the values of Pancasila must be integrated from an early age as an effort to build a generation with character and morals. This is in line with the goals of national education which aim to create intelligent, competitive, and noble human beings. Education of Pancasila values at the Elementary School (SD) level is very important to ensure that students understand and practice these values in their daily lives (Resmana & Dewi, 2021).

Although Pancasila values have become part of the formal curriculum, the challenges in the process of internalizing them at the elementary school level are quite significant. Especially for fifth grade students, understanding abstract concepts such as social justice and unity is still often an obstacle. The low level of students' understanding of Pancasila values is caused by a learning approach that tends to be monotonous and less innovative. Students at this age are more

*Corresponding author: eka.zuliana@umk.ac.id
https://www.arsvot.org/All right reserved

interested in fun and interactive learning media, so traditional approaches such as lectures or memorization are less effective (Nurgiansah, 2022; Fadilah, 2023).

Traditional learning approaches that are widely used to teach Pancasila values often focus on delivering material theoretically without actively involving students. This results in students feeling bored and less motivated to learn these values. In addition, the limitations of teachers in using innovative learning media further exacerbate the low level of student involvement in the learning process. As a result, the goal of education to build student character through internalizing Pancasila values is not optimally achieved (Ni'mah, 2022).

The advancement of information and communication technology (ICT) provides great opportunities in creating more effective learning media innovations. Technology can be used to create learning experiences that are more interactive, engaging, and relevant to the needs of students in the digital era. One technology-based approach that is increasingly popular is gamification, which is the integration of game elements into learning. Research shows that gamification can increase student motivation, engagement, and learning outcomes, making it very relevant to be applied in learning Pancasila values (Syaputra & Sasmita, 2021).

Scratch is an ICT-based learning media development platform designed to facilitate students' learning process. With a block-based interface, Scratch allows users, including children, to create animations, games, or simulations without requiring complex programming skills. The use of Scratch in learning has been proven to increase students' learning motivation, build critical thinking skills, and help students understand difficult concepts in a more practical way where scratch can be accessed via the link (https://scratch.mit.edu/) (Sholeh et al., 2022; Hardiansyah, 2023). The scratch feature section used will be explained as follows: 1) Sprite. Sprite is a character or figure that will be used on the backdrop. In Scratch, you can use the default sprite or upload your own according to your wishes. We can change the position, direction, and size of the sprite according to what we want. Backdrop is the background of the display. Scratch also provides backdrops that we can choose from, but you can also download them via the internet according to the theme of your choice; 2) Code. Code is a collection of command blocks used to create a program. This code block is used according to its use, because each block has its own code (Rommadonia, 2024). Code is also used to run sprites. What the programmer needs can be edited through code; and 3) Sounds. The sounds feature is used to add background music, select available sound effects, or record sound directly.

In learning Pancasila values, Scratch has great potential to help students understand abstract concepts through an educational game-based approach. Scratch-based learning media allows teachers to integrate game elements and Pancasila values into one engaging and interactive platform. Previous research has shown that the use of Scratch in learning can improve students' understanding while building 21st-century skills, such as creativity, collaboration, and problem solving. This study aims to develop ICT-based learning media with *Quizland Games Papari* to improve fifth grade students' understanding of Pancasila values. In addition, this study also aims to analyze the effectiveness of this learning media in creating a more meaningful learning experience. The results of this study are expected to provide a significant contribution to the development of technology-based learning media, as well as a reference for educators to utilize technology in learning character values (Marni, 2023).

2. Literature Review

The development of ICT-based learning media such as *Quizland Games Papari* is very relevant to answering the needs of modern education. This learning media not only improves students' understanding of Pancasila values but also builds critical and creative thinking skills that are important in 21st century education. Previous research has shown that the integration of technology in learning can improve the quality of education while creating a more positive and enjoyable learning atmosphere (Purba et al., 2022). The main problems raised in this study include the low understanding of fifth grade students towards Pancasila values, the limitations of interactive learning media, and the potential of Scratch which has not been optimally utilized in elementary schools. By developing interactive and relevant learning media such as *Quizland Games Papari* , it is hoped that this gap can be overcome and provide innovative solutions to support learning of Pancasila values at the elementary school level (Chasannudin et al., 2022). One of the innovations of Scratch-based learning media is *Quizland Games Papari* , which is designed to improve students' understanding of Pancasila values through an interactive and fun approach. This media integrates game elements such as quizzes and challenges designed to test students' understanding of Pancasila values. In addition, the use of *gamification* in *Quizland Games Papari* allows students to learn while playing, thus increasing their motivation to be active in learning (Zakiyah & Chotijah, 2023).

In learning Pancasila Education scratch can be applied where teachers create interactive games to support the PAPARI learning process, namely the Application of Pancasila in Daily Life. That way learning becomes more fun and relevant, so that it can help students understand the principles in Pancasila and examples in everyday life. To access the Scratch link in this study via https://scratch.mit.edu/projects/1107359611. In *Quizland Games Papari* there are 15 Backdrops, characters or sprites used as shows on Fig. 1.



Fig. 1: This sprite is used in Papari's Quizland Games

3. Methodology

This research was conducted using a Research and Development (R&D) approach using the ADDIE model which consists of five stages: Analysis, Design, Development, Implementation, and Evaluation as shows in Fig. 2.

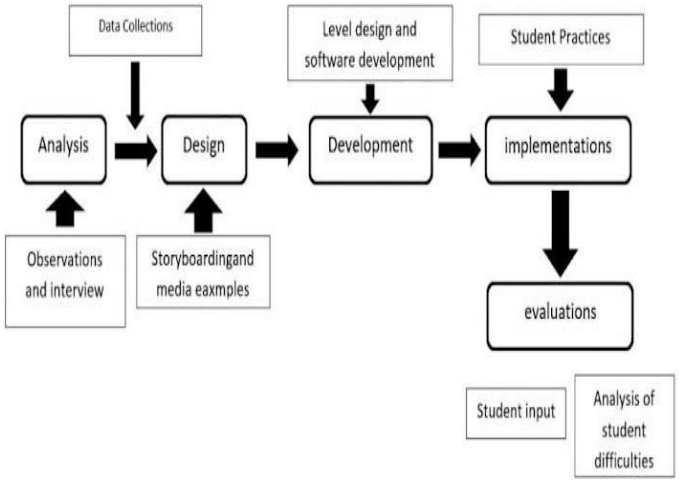


Fig. 2: ADDIE Model Development Procedure

In the analysis stage, researchers identify the needs of students and teachers for relevant information technology-based learning media. Data were obtained through interviews and surveys to understand the challenges in learning Pancasila values. This process is an important foundation in ensuring that the media developed is in accordance with user needs (Azzahrah et al., 2022; Syarifuddin & Oktaviani, 2022). The results of this analysis provide a strong foundation for the next development steps.

The design stage is carried out by designing the media structure, learning content that contains Pancasila values, and gamification elements to increase student involvement. Gamification elements are designed to make learning more interesting and interactive, in line with research showing that game-based approaches can increase student motivation and learning outcomes (Azzahrah et al., 2022) . At this stage, the content is structured in such a way that it is easy to understand and interesting for class V students.

Table 1: Prototype Design of The Application Developed

Backdrop	Information
	This backdrop is the main page in *Quizland Games Papari.* In the backdrop there is a START sign which when pressed will go to the next page with a greeting to start learning

continued

	The second page contains a sentence explaining the meaning of Pancasila
	On the next page or the third page there are sentences explaining the material and the Pancasila theme
	On the third page to page 14, the material on the application of Pancasila in daily life is explained in accordance with its principles
	This is the "Papari" Quiz Backdrop or Quizland ames Papari where 10 questions will appear and students will answer the questions by typing in the column below so that students will get a score if the answer is correct
	In this Bakdrop, if students answer correctly, they will get 10 points for each correct answer

continued

	In this backdrop, if students answer incorrectly, they will not get a score or grade

Fig. 3: Prototype design

Next, the development stage involves implementing the design in the form of an application using Scratch. This Quizland Papari learning media is equipped with interactive features, such as an automatic scoring system, case studies based on Pancasila values, and attractive visual designs. The use of Scratch allows the preparation of easily accessible learning media, in accordance with modern learning needs (Syarifuddin & Oktaviani, 2022). This media was then tested on grade V students to ensure its feasibility and effectiveness. In the implementation stage, the learning media is applied directly in the classroom, followed by an evaluation of its effectiveness. This analysis is used to evaluate the extent to which Quizland Papari can improve students' understanding of Pancasila values. The supporting literature used in this study was selected based on the relevance of the topic, the reliability of the source, and the year of publication, with reference to databases such as Google Scholar and Science Direct to ensure data validity (Sayekti, 2023). Information obtained from various sources is then summarized and synthesized to support the development of innovative and effective learning media. Each step is carried out carefully in coding to achieve the expected quality standards. The following are the steps for developing coding from the prototype from start to finish into a product.



(a) (b) (c)

(d) (e) (f)

Fig. 4: (a) Code Sprite, Material and Teacher; (b) Start; (c) Next; (d) Previous; (e) True; (f) False

4. Results and Discussion

The results of the study showed that the development of the Quizland Papari learning media based on the Scratch application succeeded in producing an interactive and interesting platform that was effective in improving the understanding of fifth grade students about Pancasila values. This media is designed with visual features that display representative characters of Pancasila values, thus helping students to more easily relate these concepts to everyday life. Case study-based questions provide real context, allowing students to understand how Pancasila values can be applied in everyday life situations. In addition, the assessment feature with an automatic scoring system provides additional motivation to students, creating a fun and enthusiastic learning atmosphere (Daulay, 2023).

This media was implemented through a trial on fifth grade students, with an evaluation of effectiveness using a comprehension test before and after using the media. The data collected were analyzed using a paired sample t-test to determine whether there was a significant increase in student understanding after using Quizland Papari. The evaluation results showed a significant increase in students' understanding of Pancasila values, indicating that this learning media is very effective in achieving learning objectives (Syuhada, 2023). The discussion of the results of this study confirms previous findings showing that gamification elements can increase student motivation in learning. Research by Azzahrah et al. (2022) also shows that gamification can make learning more fun and interactive, making it easier for students to understand the material. In addition, the use of technology such as Scratch has been shown to be effective in creating innovative and easily accessible learning media (Herlianus & Gunadi, 2022). However, this study makes a new contribution by integrating Pancasila values into technology-based learning media, filling the gap in existing literature.

Thus, this study provides a comprehensive understanding of how technology-based learning media, equipped with gamification elements and case study-based content, can improve students' understanding of Pancasila values. This approach is relevant and innovative to be applied in basic education and can have a positive impact on the development of student character education in Indonesia. The synthesis of various findings shows that Quizland Papari is an effective, interesting learning media, and has the potential to be adapted in other learning. Three experts were interviewed to verify the validity of the research data. They have expertise in learning media in the form of quizzes and games, as well as the creation and assessment of learning materials. The interviews covered 9 topics about the Quizland Papari game with ICT to assess its effectiveness in technological development. The questions were divided into three parts: Part A discussed personal history, educational background, and expert experience in the field of Pancasila Education subject matter. A summary of their backgrounds is presented in Table 2.

Table 2: Expert Background and Expertise

Respondent	Gender	Background
R1	Male	Lecturer at the Faculty of Teacher Training and Education, Department of Mathematics, UMK
R2	Male	Expert Engineering for Vocational College
R3	Female	SDN Sumberarum Teacher Expert in Pancasila Education Learning Media

Section B describes the findings related to ICT learning media on the material of Implementing Pancasila in Daily Life. This section consists of five (5) questions, including analysis of student challenges, common misconceptions, basic information and recommendations for improvement, forming this component. Details regarding the questions in Section B are provided in Table 3.

Table 3: Part B Questions and Expert Opinions

No	Question	Expert View
1	Is this Pancasila material appropriate to the level of students' understanding in scratch media?	The topics chosen in this scratch media game for all themes are in accordance with the students' level of understanding because the interactive animations are added with descriptions in the text
2	Can Quizland Papari content help students understand the relevance to applications in everyday life?	This media is good at explaining the application of Pancasila in everyday life through the content displayed in each backdrop
3	Is the information presented in the scratch application regarding this material clear and easy to understand?	The content in this game is very clear and easy to understand because the instructions are very clear and interesting according to all panels
4	Can the content in the scratch application increase users' knowledge regarding the application of Pancasila in everyday life?	This application material can increase students' knowledge regarding the application of Pancasila in everyday life because students can more easily see direct examples using images with demonstrations for experiments

continued

5	What are some suggestions for improvements that can be made to this aspect of Quizland Games Papari?	The suggestion given by all panels is that in quizland, images should be displayed so that students can better understand the questions even though the instructions in the questions are clear

The discussion section often includes a synthesis of key findings relating back to the research questions or objectives outlined in the introduction.

Table 4: Questions Part C And Expert Views

No	Question	Expert View
1	Are the design elements used in Quizland Games Papari such as text, images, colors attractive and appropriate?	This application uses an attractive design and is in accordance with the needs of accepted students and the three panels
2	How about the navigation design and interface design, is it attractive and easy to use?	Quizland Games Papari uses an attractive navigation design and all panels are easy for students to operate
3	What is the proper leveling structure, storyline, and goals in the papari quizland games?	The leveling structure is sorted from easy to difficult, where these games are easy for students to answer so they can get the maximum score
4	What are some suggestions for improvements that can be made from the design aspect in the Papari Quizland Games mechanism?	The strength of the storyline should be strengthened by explaining the purpose of each level

ICT media such as Scratch in *Quizland Games Papari* are very suitable for elementary school children because the visuals are attractive and easy for students to understand. Although with a simple flow and simple instructions, it is very interesting for students to demonstrate and evaluate this material. In improving Pancasila learning in the material on the application of Pancasila in everyday life for elementary school students, it has been designed according to the integrity and abilities of students. Using simple analogies and equipped with clear guidelines to facilitate elementary school students' understanding.

5. Conclusion

This literature review successfully answered the research question regarding the effectiveness of Scratch application-based learning media in improving students' understanding of Pancasila values. Quizland Papari has successfully combined technology, gamification elements, and case study approaches an interesting and innovative learning method. The results of the study indicate that the Scratch application can not only be used to train technical skills but also has the potential to support students' character education, especially in understanding and internalizing Pancasila values. The main contribution of this study lies in proving that interactive technology such as Scratch can be designed into an effective learning medium to improve students' learning motivation and their understanding of the material. However, this study has several limitations, namely the focus is still limited to fifth grade students and Pancasila values. Therefore, further exploration is needed to apply Scratch-based learning media to other age groups or for different learning topics, such as civic education or other moral values. Further studies can expand the scope of technology utilization in education and evaluate its impact on various aspects of learning at different levels of education. This study is a strong foundation for innovation in technology-based learning media in the future, especially in elementary education in Indonesia.

Acknowledgement

The authors would like to thank fellow authors and organizations whose intellectual properties were utilized for this study.

Conflict of Interest

The authors declare no conflicts of interest.

References

Azzahrah, A., Budiman, I. A., Haryanti, Y. D., & Mahpudin, M. (2022). Development of Android Application Learning Media Using Ispring Suite 9 to Increase Student Learning Motivation. *Eduhumaniora - Journal of Elementary Education, Cibiru Campus*, *14*(2), 121–126. https://doi.org/10.17509/eh.v14i2.41994.

Chasannudin, A., Nuraini, L., & Luthfiya, N. A. (2022). Scratch Application Training to Improve Computational Thinking Skills in Teachers. *Kifah Journal of Community Service*, *1*(2), 153–168. https://doi.org/10.35878/kifah.v1i2.502.

Daulay, A. R. (2023). Development of Learning Media Based on Game Quiz Applications in Islamic Religious Education Subjects. *Jurnal Educatio Jurnal Pendidikan Indonesia* , *9* (2), 744. https://doi.org/10.29210/1202323205.

Fadilah, N. (2023). Utilization of E-Learning in Pancasila Education Learning. *Melior*, *3*(1), 8–13. https://doi.org/10.56393/melior.v3i1.1633.

Hardiansyah, B. (2023). Implementation of Game Applications Using Scratch in Improving Student Learning Outcomes and Motivation. *J-Abdi Journal of Community Service*, *3*(4), 707–716. https://doi.org/10.53625/jabdi.v3i4.6464.

Herlianus, H., & Gunadi, G. (2022). Development of Android-Based Animal and Human Movement Organ Learning Media Using Kodular. *Informatik Journal of Computer Science*, *18*(1), 88. https://doi.org/10.52958/iftk.v17i4.4605.

Marni, Y. (2023). Pancasila Philosophy in Character Education in Elementary Schools. *Didactic: Scientific Journal of PGSD STKIP Subang*, *8*, 2679–2687. https://doi.org/10.36989/didactic.v8i2.567.

Ni'mah, A. C. (2022). Integration of Cultural Values in Value in Depth Based PPKn Learning in Junior High Schools.
Mindset , *2* (1), 18–22. https://doi.org/10.56393/mindset.v2i1.1123.

Nurgiansah, TH (2022). Pancasila Education as an Effort to Form Religious Character. *Basicedu Journal*, *6*(4), 7310–7316. https://doi.org/10.31004/basicedu.v6i4.3481.

Purba, D. E. R., Simamora, M., & Gulo, P. S. (2022). Use of the Development Planning Evaluation System (SEPP) Application at the Planning Research and Development Service of North Padang Lawas Regency. *Ulead E-Service Journal* , 48–52. https://doi.org/10.54367/ulead.v1i2.1679.

Resmana, M. T., & Dewi, D. A. (2021). The Importance of Pancasila Education to Realize Pancasila Values in Community Life. *Journal of Education and Entrepreneurship*, *9*(2), 473–485. https://doi.org/10.47668/pkwu.v9i2.134.

Sayekti, D. P. (2023). Development of Interactive Power Point Learning Media to Teach Asking and Giving Opinion Material. *Journal of Education and Teaching, 4*(3), 357–371. https://doi.org/10.51454/jet.v4i3.284.

Sholeh, M., Pradnyana, I. W. J., & Ridhoni, I. W. (2022). Cultivating Children's Interest in Learning Coding Using the Scratch Application. *Abdiformatika Journal of Informatics Community Service*, *2*(2), 72–79. https://doi.org/10.25008/abdiformatika.v2i2.151.

Syaputra, A., & Sasmita, S. (2021). Implementation of the Promethee II Algorithm in the Selection of Online Learning Media in the Covid-19 Pandemic Era. *Sisfokom Journal (Information and Computer Systems)*, *10*(3), 340–345. https://doi.org/10.32736/sisfokom.v10i3.1290.

Syarifuddin, N., & Oktaviani, RR (2022). *AnyFlip-Based Digital Teaching Materials on the Eating Habits of the People of Palembang to Support Online Learning,* pp. 257–272. https://doi.org/10.2991/978-2-494069-63-3_24.

Syuhada, H. (2023). Development of Gamification in Elementary Mathematics Lessons Using the Addie Method to Increase Students' Interest in Learning. *Rabit Univrab Journal of Technology and Information Systems*, *9*(1), 1–14. https://doi.org/10.36341/rabit.v9i1.466.

Zakiyah, Z., & Chotijah, U. (2023). Development of Web-Based Educational Games for Early Childhood with Construct 2. *National Journal of Computing and Information Technology*, *6*(3), 287–293. https://doi.org/10.32672/jnkti.v6i3.6213.