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Interactive Multimedia for Elementary Civic Education: Integrating the Values of Pancasila Student Profile

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Abstract. Civic education in elementary school requires meaningful and interactive learning experiences to assist students in understanding and applying civic values in daily life. However, instruction is still often dominated by conventional methods and limited use of media, which reduces student engagement and hinders the internalization of values. Therefore, this study aimed to develop interactive multimedia for Pancasila Education instruction in fifth-grade elementary school by integrating the Pancasila Student Profile (PSP) values into the curriculum, learning activities, and assessment. To achieve this objective, a Research and Development method was applied following the ADDIE (analysis, design, development, implementation, and evaluation). The subjects comprised subject-matter, language, and media experts, as well as teachers and elementary school students. Data were gathered through observation, interviews, questionnaires, and learning outcome tests and were subsequently analyzed using descriptive statistics and N-gain. The results showed that the developed multimedia demonstrated very high validity (average score: 88%) and practicality (average score: 91.7%). The effectiveness of multimedia was shown by an increase in the average student score from 55.68 on the pretest to 90.88 on the posttest, with an N-gain value of 0.82 (high category). These findings confirmed that the resulting interactive learning medium was appropriate for supporting Pancasila Education. In addition to improving learning outcomes, multimedia provided a learning environment that integrated the values of PSP through contextual, reflective, and participatory activities in elementary school civic education.

Keywords: interactive multimedia; civic education; Pancasila Education; Pancasila Student Profile; elementary school

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1. Introduction

As social and digital life becomes increasingly complex, civic education is no longer focused only on mastering civic knowledge but also on developing values, character, and competencies that support students' responsible participation in a democratic society (Kennedy, 2019; Schulz et al., 2023). At the elementary school level, this objective becomes increasingly important because the stage is a critical period for shaping student attitudes, habits, and value orientations. Therefore, learning should provide experiences that encourage reflection, participation, and the application of values in daily life (Kawashima-Ginsberg, 2023; Payne et al., 2020). As digital technology advances, interactive multimedia is increasingly used to integrate diverse media into learning environments that support student engagement (Cavanagh & Kiersch, 2023; R. E. Mayer, 2024).

The civic education implementation in elementary schools still faces several persistent challenges. Instruction remains dominated by conventional methods with limited use of media, making abstract concepts of citizenship and character values difficult to grasp and use in everyday contexts (Pandita & Kiran, 2023). In Indonesian context, civic education is implemented through the subject "Pancasila Education," which serves to develop the "Pancasila Student Profile" (PSP) as the values framework of Merdeka Curriculum. It encompasses six dimensions: faith and noble character, global diversity, mutual cooperation, independence, critical thinking, and creativity. However, the use of contextual and interactive learning materials in Pancasila Education remains limited, preventing the full integration of these values into learning experiences (Sari et al., 2023; Wulandari et al., 2024).

International studies have shown that values-based digital learning is developing outside Indonesia. For example, mobile learning has been used in Kazakhstan to develop national values among prospective teachers through interactive learning activities, digital content, and reflective tasks (Zhumabayeva et al., 2024). Other studies have used digital learning resources and interactive modules to connect civic participation, ethical reasoning, collaboration, and values-oriented learning with student learning activities. These international developments show that embedding national or ethical values into interactive software is becoming a broader pedagogical trend. However, the frameworks and values embedded in such systems are generally shaped by the cultural and educational contexts of each country.

Prior research indicates that interactive multimedia may enhance student academic performance, motivation, involvement, and participation (Molina et al., 2021; Pandita & Kiran, 2023; Pazmiño Constante et al., 2024). However, much of this research continues to concentrate on improving cognitive achievement and learning engagement. On the other hand, studies in civic education have increasingly emphasized the importance of value-oriented learning through contextual, reflective, and participatory experiences (Hajj-Hassan et al., 2024; Zakopoulos et al., 2023). Nonetheless, investigations on how multimedia is

designed to integrate civic and character values remain relatively limited. Furthermore, there is still little investigation systematically integrating these values into learning materials, learning activities, reflective tasks, and assessments within a single interactive multimedia environment. In civic education, value development is a fundamental component of the learning process (Kennedy, 2019; Payne et al., 2020). Therefore, multimedia is needed that promotes the attainment of learning outcomes and also integrates civic values into students' learning experience.

Based on the research gap, this current study developed interactive multimedia for teaching Pancasila Education to fifth-grade elementary school students by embedding the PSP's values into the content, contextual activities, reflective assignments, educational videos, and learning assessments. The integration of values is achieved through a presentation that combines visual and verbal representations, contextual activities, and reflection, ensuring students not only receive information but also connect citizenship concepts with relevant learning experiences.

The model aligns with the Cognitive Theory of Multimedia Learning (CTML), stating that integrating multiple learning representations can deepen understanding while promoting richer learning experiences (Mayer, 2024). The distinctiveness of this study resides in the systematic integration of the PSP's values into content, instructional activities, and assessments within a single interactive multimedia environment. Using the ADDIE model, this study aimed to produce valid, practical, and effective media, while also providing a conceptual contribution to the use of interactive multimedia to integrate civic and character values into meaningful learning experiences.

Therefore, the following research questions are proposed:

RQ 1: How is interactive multimedia designed to integrate the PSP values into Pancasila Education instruction in elementary schools?

RQ 2: To what extent does interactive multimedia development meet the criteria of validity and practicality for use in Pancasila Education instruction in elementary schools?

RQ 3: To what extent is interactive multimedia developed effectively in improving student learning outcomes?

2. Literature Review

2.1 Interactive Multimedia for Civic and Value-Oriented Learning

Civic education aims not only to develop student knowledge of citizenship but also the values, attitudes, and behaviors necessary for life in society (Kennedy, 2019). Since values such as responsibility, cooperation, tolerance, and social concern are abstract, instruction should provide learning experiences that connect them to real-life situations (Tang et al., 2025). Interactive multimedia enables students to explore, observe, and reflect through a combination of text, images, audio, video, animation, and interactive tasks (Meixner, 2018; Saripudin et al., 2026). According to the Cognitive Theory of Multimedia Learning (CTML),

integrating pictorial and verbal representations promotes deeper understanding than using a single representation (Mayer, 2024). It also creates meaningful learning by connecting abstract concepts and values with authentic, engaging learning experiences (Betancur-Chicué & García-Valcárcel Muñoz-Repiso, 2023; Cavanagh & Kiersch, 2023). For elementary students, this method makes abstract concepts and values more concrete and easier to understand.

Studies have shown that interactive multimedia improves learning outcomes, motivation, engagement, and participation (Peláez & Solano, 2023; Risda et al., 2025). It also supports participatory learning through contextual activities, simulations, reflection, and problem-solving that foster cognitive and affective engagement (Eliringia Mariki, 2024; Olusola-Fadumiye et al., 2023). Therefore, interactive multimedia serves as more than a content delivery medium; it also operates as a pedagogical resource for value-oriented learning.

2.2 Integrating the Pancasila Student Profile (PSP) Values into Elementary Civic Education

Civic education aims not only to develop civic knowledge but also the values and character traits that support democratic life (Kennedy, 2019). Its success is measured not only by students' mastery of concepts but also by the capacity to understand, absorb, and enact these values in daily life (Komalasari, 2012; Schulz et al., 2023). Accordingly, values education constitutes an essential component of civic education because democratic citizenship requires integrating knowledge, values, and action (Payne et al., 2020).

In Indonesian context, the orientation is realized through Pancasila Education, which supports the PSP development as the Merdeka Curriculum's values framework. This framework consists of six dimensions: faith and noble character, global diversity, cooperation, independence, critical thinking, and creativity (Muhardis, 2023; Rachman et al., 2024; Wulandari et al., 2024). These dimensions guide the translation of civic education goals into learning experiences (Harjanti et al., 2026; Sari et al., 2023).

Embedding values within learning remains challenging because instruction often emphasizes subject mastery over learning experiences that promote reflection, decision-making, collaboration, and problem-solving (Komalasari & Rahmat, 2019; Purwati et al., 2024). Although multimedia improves learning outcomes and student engagement, its use for integrating civic and character values remains limited. To address the gap, this current study developed interactive multimedia, integrating the PSP values into learning content, activities, reflective assignments, and assessments to support meaningful Pancasila Education in elementary schools.

3. Methodology

3.1 Research Design

The study used a Research and Development (R&D) approach structured around the ADDIE model (Branch, 2009). The model provided a structured process for the development, validation, implementation, and evaluation of instructional multimedia (Borg & Gall, 1971; Creswell & Creswell, 2018). The product developed was interactive multimedia for fifth-grade Pancasila Education that integrated the PSP values into learning content, contextual exercises, reflective tasks, and assessments. The analysis stage used classroom observation, student questionnaires, and teacher interviews to identify learning conditions and media needs. This stage was important because previous studies showed interactive and digital learning media could improve conceptual understanding, participation, and student engagement in Pancasila Education.

The design stage aligned the learning objectives with the curriculum and organized multimedia flow through a structured storyboard for the text, images, videos, audio, and quizzes to form a coherent sequence. Such media organization is consistent with recent developments in interactive multimedia for elementary learning, which emphasize contextual presentation, visual appeal, and students' interaction. The development stage produced multimedia prototypes, followed by expert reviews from content, language, and media specialists. This validation stage ensured that the product was valid in terms of material accuracy, readability, visual layout, and usability, as also shown in recent studies on interactive multimedia development for elementary education.

Implementation was conducted through a small-group trial involving nine fifth-grade students at SD Negeri 4 Ngulak, with participants drawn from high-, medium-, and low-achieving groups. Students downloaded multimedia through WhatsApp, used it independently, and completed a practicality questionnaire. The results showed that multimedia was highly practical, with an overall score of 91.7%, aligning with previous studies reporting highly practical interactive multimedia products. Both formative and summative evaluation procedures were applied. Formative assessment was embedded across the ADDIE stages through expert validation and revision, while summative evaluation used pretest-posttest data and N-gain analysis to determine effectiveness. This procedure was used to confirm multimedia validity, practicality, and effectiveness in Pancasila Education learning.

3.2 Participants and Research Context

This study took place at Ngulak 4 Public Elementary School, Musi Banyuasin Regency, South Sumatra, Indonesia, in the latter half of the 2025/2026 academic year. A purposive sampling strategy was applied based on expertise in multimedia evaluation and implementation (Patton, 2002). The participants included one Pancasila Education expert, one language expert, one educational media expert, one fifth-grade teacher, and 25 fifth-grade students. The experts evaluated the content, language, and media aspects, while teacher and students assessed multimedia practicality and effectiveness during implementation. This

study was conducted with school approval, and all participants provided voluntary consent.

3.3 Development Procedures

Development started by conducting needs assessment via classroom observations and teacher interviews to identify learning conditions, student characteristics, and instructional media needs. The results showed that learning remained dominated by conventional methods, with limited use of media. Therefore, multimedia integrated text, images, audio, educational videos, animations, interactive quizzes, contextual activities, and reflective tasks aligned to the intended learning objectives and the PSP values. The product was subsequently validated by experts in Pancasila Education, language, and instructional media, and revised based on their feedback before implementation (Taherdoost, 2016; Yusoff, 2019).

The development stage was performed after completing the design stage. At this stage, the flowchart and storyboard layout were implemented as a prototype storyboard that included the flow of material presentation, navigation, interaction, animation, and multimedia visual display. The storyboard served as a guideline for creating media consistent with the characteristics of elementary school students and the PSP principles.

Interactive multimedia was developed using Smart Apps Creator (SAC), while visual assets, such as images and backgrounds, were sourced from relevant sources or designed using Canva. Other supporting assets included text, illustrations, animations, sound effects, and video. Multimedia architecture consisted of an opening page, main menu, learning materials, interactive activities, and evaluations. The opening page contained the material title "Diversity in Indonesia", instructions for use, and navigation buttons. Each page was organized around a storyboard, integrating text, images, animations, audio, video, and next, back, and home navigation buttons.

Development began by creating a new project in SAC using landscape orientation and a blank project template. Next, pages, backgrounds, materials, and multimedia assets were added through the Insert-Image menu in storyboard order. Interactions were implemented by selecting specific objects and organizing them through Interaction menu. In the evaluation section, students selected the available answers and received feedback directly. After completing all components, an evaluation was undertaken to examine the materials, display, navigation, sound, animation, and evaluation functions suitability on computers and smartphones. The results of the inspection were used to refine Prototype 1 before it entered the validation stage conducted by material and media experts.

3.4 Data Collection and Instruments

Information was gathered using observations, interviews, expert-review forms, learner-response questionnaires, and achievement tests. Observations and interviews supported the needs analysis by identifying learning conditions, student characteristics, and instructional media needs (Creswell & Creswell,

2018). Validation sheets assessed content, language, media design, interactivity, and alignment with learning objectives. Student response questionnaires measured multimedia usability after implementation, while learning outcome tests administered before (pretest) and after (post test) instruction measured learning improvement. Each instrument was designed in accordance with the learning objectives and multimedia characteristics (Taherdoost, 2016; Yusoff, 2019).

3.5 Data Analysis

Expert validation and student-response data were examined descriptively utilizing percentages to establish multimedia validity and practicality (Creswell & Creswell, 2018). Learning outcomes were analyzed using pretest, posttest, and normalized gain (N-gain) scores (Hake, 1998). N-gain values were classified as high, moderate, and low, respectively, for $g > 0.70$, $0.30 \leq g \leq 0.70$, and $g < 0.30$. The results were used to evaluate multimedia validity, practicality, and effectiveness.

4. Results and Findings

4.1 Integration of Pancasila Student Profile (PSP) Values in the Developed Multimedia

This study produced interactive multimedia tools for teaching Pancasila Education to fifth-grade elementary school students, designed not only to deliver instructional content but also to integrate the PSP values within the learning experiences. The integration of these values was achieved through instructional materials, educational videos, contextual activities, reflective assignments, interactive quizzes, and assessments aligned with the learning objectives of Pancasila Education (Figure 1).

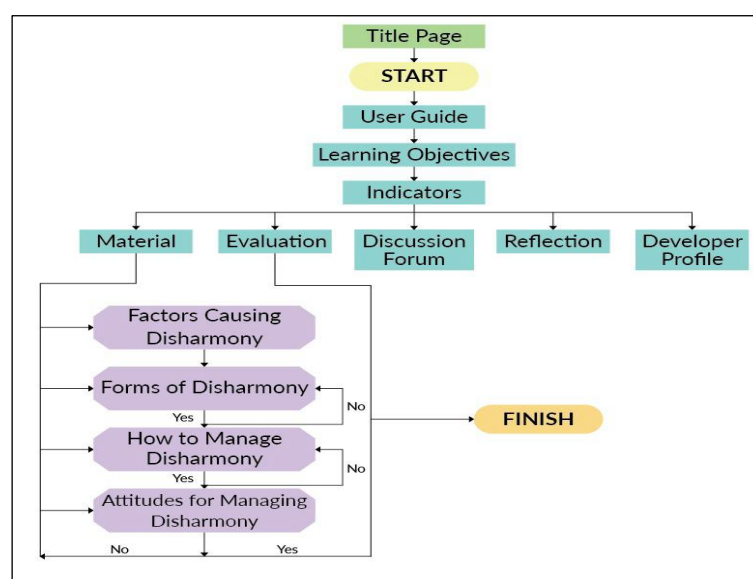


Figure 1: Structure and Learning Flow of Interactive Multimedia for Elementary Civic Education

The PSP values were embedded across various multimedia components. Critical thinking was fostered through situational analysis, reflective questions, and problem-solving quizzes. Creativity was promoted through exploratory tasks that encouraged students to generate ideas and solutions. Independence was developed through self-directed learning, allowing students to independently access materials and finish tasks at personal pace. Lastly, cooperation was supported through activities that encouraged discussion, collaboration, and social interaction.

In addition to delivering content, multimedia connects learning materials with daily life through videos, illustrations, and contextual activities that help students recognize civic values in authentic situations. Consequently, it supports not only the understanding of Pancasila Education concepts but also the internalization and application of values. These results showed the PSP values could be systematically embedded within multimedia design, enabling civic education to emphasize both subject mastery and values development.

4.2 Expert Validation Results

The suitability of multimedia underwent expert appraisal by experts in content, language, and media evaluation. The validation findings showed the resulting multimedia demonstrated a strong level of validity for every assessed dimension (Table 1).

Table 1: Expert validation results

Validation Aspect	Percentage (%)	Category
Content	96	Very Valid
Language	80	Valid
Media	88	Very Valid
Average	88	Very Valid

Note. Higher percentage scores indicate greater multimedia validity. An average score of 88% indicated that the developed multimedia was highly valid.

Multimedia met the quality criteria for content, language, and media design. The content aspect received the highest score, confirming strong alignment with the learning objectives of Pancasila Education and the PSP values. Language validation showed that the material was appropriate and understandable for elementary school students, while media validation confirmed that the visual design, navigation, and interactive features supported classroom use.

4.3 Practicality Testing Results

The practicality of multimedia was evaluated through a small-group trial involving nine students with varying skill levels. After using multimedia, students were asked to provide feedback on various aspects of the product use.

Table 2: Results of multimedia usability test

Validation Aspect	Percentage (%)
Ease of use	94.7
Appropriateness of Content	94.0
Time Efficiency	93.0
Media Appeal	91.0
Practicality of Learning	84.0
Average	91.7

Note. Higher percentage scores indicate greater multimedia practicality. The average score of 91.7% demonstrates a very high level of practicality.

The test results showed that multimedia fell into the “very practical” classification, corresponding to a mean score of 91.7%. Ease of use received the highest score, followed by content relevance and time efficiency. Therefore, students were able to use multimedia easily and participate in the presented learning activities without encountering significant difficulties. In addition to supporting efficient use, the visual presentation, interactive features, and simple navigation structure also contributed to student engagement during the learning process.

4.4 Effectiveness Testing Results

The multimedia’s effectiveness was evaluated by examining differences in pretest and posttest results obtained before and after its use in Pancasila Education.

Table 3: Pretest and post test results

Statistics	Pretest	Posttest
Mean Score	55.68	90.88
Achievement Rate < 70 (%)	84	0
Achievement Rate ≥ 70 (%)	16	100

Note. Achievement rate is the percentage of students who meet the minimum mastery criterion (score ≥ 70).

Findings showed a marked gain in student learning outcomes following the implementation of multimedia. The mean score increased from 55.68 to 90.88 on the pretest and posttest. Furthermore, the percentages of students achieving the minimum mastery criterion (≥ 70) before and after the intervention were 16% and 100%, respectively, while the proportion of students scoring below 70 decreased from 84% to 0%. An evaluation was performed with the N-gain index to obtain a more accurate picture of the improvement level in learning outcomes.

Table 4: N-Gain analysis results

Pre-test	Posttest	N-Gain
55.68	90.88	0.82

Note. The normalized gain (N-gain) score was used to determine the magnitude of learning improvement following the instructional intervention. Based on Hake (1998), N-gain values are classified as high ($g > 0.70$), medium ($0.30 \leq g \leq 0.70$), and low ($g < 0.30$).

An N-gain value of 0.82 confirmed that multimedia developed was highly effective in supporting Pancasila Education. This improvement in learning outcomes showed integrating content, interactive activities, educational videos, and assessments into a single multimedia environment helped students better understand the learning material. Therefore, multimedia served not only as a tool for delivering content but also as a learning environment for supporting active engagement in civic education.

5. Discussion

The results showed that interactive multimedia could support civic and values-based learning by embedding PSP values into a single learning environment rather than presenting them as isolated moral statements. This is important because values are more likely to be internalized when students encounter them through repeated learning actions such as observing, responding, reflecting, and completing tasks within meaningful contexts (Cavanagh & Kiersch, 2023; Mayer, 2024). In this study, the integration of content, contextual activities, reflective assignments, educational videos, and assessment tools helped transform abstract civic values into visible, actionable learning experiences.

Qualitatively, this integration was reflected in the way students encountered tolerance, respect, cooperation, and cultural appreciation values through the sequence of content, examples, interactive tasks, and evaluation. Therefore, the values were presented as learning practices that students could observe and respond to, rather than as isolated definitions to be memorized.

5.1 Interactive Multimedia as a Medium for Value Integration in Civic Education

Civic education in the 21st century transcends developing civic knowledge to strengthening values, dispositions, and responsible democratic participation (Kawashima-Ginsberg, 2023; Kennedy, 2019). This view is consistent with the International Civic and Citizenship Education Study (ICCS), emphasizing the importance of balancing civic knowledge, attitudes, values, and participation (Schulz et al., 2023). Within this context, the findings indicated that interactive multimedia could integrate the PSP values into elementary Pancasila Education.

Based on analysis, the PSP values were embedded across learning activities, educational videos, reflective assignments, and assessments rather than being treated as supplementary content. This method is important because values cannot be developed through verbal instruction only but require learning experiences, enabling students to observe, reflect upon and connect them to everyday situations (Payne et al., 2020). Contextualized learning similarly suggests that values are internalized more effectively when students actively connect learning materials with their social contexts (Gebre & Polman, 2020; Bernard, 2024; Purwati et al., 2024). Therefore, multimedia not only presents content but also supports value internalization by means of meaningful educational experiences.

This study further showed critical thinking, creativity, independence, and cooperation could be systematically integrated into multimedia-based instruction. The results extended current understanding of technology in civic education, which had largely focused on improving student access to information and engagement. Recent studies suggested that digital technology supported values-based learning through reflective, participatory, and contextual activities (Zakopoulos et al., 2023), while digital learning environments fostered values awareness through active learning experiences (Hajj-Hassan et al., 2024). Therefore, multimedia developed in this study served as a pedagogical medium to integrate cognitive learning with the development of values in civic education.

These findings further enriched the discourse on civic education by showing that the development of civic values could be integrated into digital learning design without separating cognitive and affective aspects. According to Bennion & Laughlin, (2018), civic education needs to offer students opportunities to experience and reflect on the values learned, while Chapman (2023) emphasized the importance of revitalizing civic education through more meaningful learning experiences. In line with these perspectives, this current study reported interactive multimedia could serve as a pedagogical alternative for integrating civic values into Pancasila Education in elementary schools.

5.2 Interactive Multimedia and Meaningful Learning Experiences

High validation results and practicality showed that the developed multimedia met the educational requirements of students in terms of content, language, graphic design, navigation, and interactivity. These results further confirmed the quality of multimedia design played a crucial role in creating a learning environment and supporting student engagement (Cavanagh & Kiersch, 2023). In line with the CTML, learning is more effective when content is conveyed using complementary linguistic and pictorial representations, enabling more efficient information processing (R. Mayer, 2022).

Improved learning outcomes and high N-gain scores reinforced evidence that multimedia improved the quality of learning. The use of purposefully constructed visual elements may enhance student learning outcomes while reducing cognitive load (Albus & Seufert, 2022), while the consistent application of multimedia learning principles has been shown to improve students' understanding across various learning contexts (Betancur-Chicué & García-Valcárcel and Muñoz-Repiso, 2023; Kassa et al., 2024). Therefore, integrating multiple multimedia elements into a single learning environment more effectively supports learners' comprehension of Pancasila Education material.

The multimedia's effectiveness in this study was however determined not solely by the information's presentation but also by its capacity to create opportunities for students to explore information, complete tasks, reflect, and engage with various learning activities. This active engagement is a hallmark of meaningful learning, as students act as knowledge builders through their interaction with the learning environment (Bernard, 2024). The results were consistent with Olusola-

Fadumiye et al. (2023), where authentic multimedia-based activities could improve students' cognitive and behavioral involvement.

Learner engagement strongly influences success in digital learning. Learning environments that provide opportunities for interaction, exploration, and control have been shown to foster engagement (Harverson et al., 2026). Studies likewise indicate that interactive learning settings improve engagement, motivation, and learning performance through active student participation in the instructional process (Sugden et al., 2021). In support, this study showed educational videos, interactive quizzes, contextual activities, and reflective assignments fostered a more active, student-centered learning experience. This report was also supported by Eliringia Mariki, (2024), where interactive multimedia not only promoted skill development but also fostered learning experiences.

5.3 Educational Implications for Elementary Civic Education

The results had important implications for shaping civic education's development at the elementary school level. Based on the ICCS report, a major challenge in civic education involves finding ways to develop civic knowledge, values, and participation in an integrated manner within student learning experiences (Carstens & Schulz, 2018; Schulz et al., 2023). This study showed interactive multimedia could serve as a pedagogical alternative to address this challenge through learning, connecting civic content with reflective, contextual, and participatory activities (Sartono et al., 2022; Yan, 2024).

In Indonesian context, the results supported the PSP implementation as a values guideline within Merdeka Curriculum. The dimensions of critical thinking, creativity, independence, and cooperation can be embedded within multimedia-based instructional designs featuring activities that encourage students' active engagement (Harjanti et al., 2026). Therefore, multimedia supports academic gains; it also facilitates the values integration into students' learning experiences.

More broadly, the results showed that the multimedia development in civic education should transcend technical aspects and improvements in academic achievement. Multimedia design needs to provide space for students to reflect, make decisions, collaborate, and engage with issues relevant to social life. This perspective aligns with trends in civic education, emphasizing participatory, contextual, and values-oriented learning (Chapman, 2023; Connolly, 2022). Therefore, the primary contribution of this study lies not only in multimedia development but also in the provision of a pedagogical model for integrating civic values into digital learning experiences in elementary schools.

5.4 Interactive Multimedia and Meaningful Learning Experiences

High validation results and practicality showed that the developed multimedia met the elementary school students' learning needs across content, language, and visual presentation, navigation, and interactivity. This supports the view that the quality of multimedia design is a crucial factor in creating a learning environment to foster student engagement (Cavanagh & Kiersch, 2023). According to the

CTML, learning is more effective if students receive content via complementary linguistic and pictorial representations, enabling more efficient information processing (R. Mayer, 2022).

6. Conclusion

In conclusion, this study successfully developed interactive multimedia for teaching Pancasila Education in elementary schools by integrating the PSP values into the curriculum, instructional tasks, reflective assignments, and assessments. The findings indicated that the resulting multimedia fulfilled the standards of being highly valid, highly practical, and effective, making it suitable for supporting active, engaging, and meaningful learning experiences. More than a mere learning medium, this multimedia served as a tool for integrating civic values through contextual, reflective, and participatory activities. Therefore, the values of Pancasila Education were not only presented as learning content but were also embedded in learning experiences that enabled students to understand and reflect on their relevance in daily life. These results confirmed educational technology could contribute to improvements in learning outcomes as well as to stronger value-oriented learning.

This study contributed to existing scholarship on civic education by showing that interactive multimedia could bridge cognitive objectives and the development of values in learning. Within elementary education, this method offered a pedagogical alternative for delivering more contextual, participatory, and student-centered civic education. Nevertheless, the study involved only one elementary school and a comparatively small sample and focused on learning outcomes. Therefore, studies were recommended to involve a more diverse group of participants and explore the impact of multimedia on other aspects of civic education, such as civic dispositions, student participation, responsible decision-making, and engagement in the digital environment.

Conflict of Interest

The authors declare no conflict of interest.

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8. References

- Albus, P., & Seufert, T. (2022). Signaling in 360° desktop virtual reality influences learning outcome and cognitive load. *Frontiers in Education*, 7, 916105. <https://doi.org/10.3389/feduc.2022.916105>
- Bennion, E. A., & Laughlin, X. E. (2018). Best Practices in Civic Education: Lessons from the Journal of Political Science Education. *Journal of Political Science Education*, 14(3), 287–330. <https://doi.org/10.1080/15512169.2017.1399798>
- Bernard, D. M. (2024). Understanding socioculturalism in early childhood education: Current perspectives and emerging trends. *Journal of Culture, Society and Development*, 73, 16–31. <https://doi.org/10.7176/JCSD/73-03>
- Betancur-Chicué, V., & García-Valcárcel Muñoz-Repiso, A. (2023). Applying the Principles of the Cognitive Theory of Multimedia Learning to the Design of Learning Situations and Training Scenarios: Systematic Literature Review. *Education in the Knowledge Society (EKS)*, 24, e30882. <https://doi.org/10.14201/eks.30882>
- Borg, W. R., & Gall, M. D. (1971). *Educational research: An introduction* (2nd ed.). David McKay Company.
- Branch, R. M. (2009). *Instructional design: The ADDIE approach*. Springer. <https://doi.org/10.1007/978-0-387-09506-6>
- Carstens, R., & Schulz, W. (2018). Overview of the IEA International Civic and Citizenship Education Study 2016. In W. Schulz, R. Carstens, B. Losito, & J. Fraillon (Eds.), *ICCS 2016 technical report* (pp. 1–8). International Association for the Evaluation of Educational Achievement (IEA). https://www.iea.nl/sites/default/files/2019-07/ICCS%202016_Technical%20Report_FINAL.pdf
- Cavanagh, T. M., & Kiersch, C. (2023). Using commonly-available technologies to create online multimedia lessons through the application of the Cognitive Theory of Multimedia Learning. *Educational Technology Research and Development*, 71(3), 1033–1053. <https://doi.org/10.1007/s11423-022-10181-1>
- Chapman, A. L. (2023). Introduction: Reclaiming Civic Education. In *Palgrave Studies in Educational Media* (pp. 1–16). Palgrave Macmillan. https://doi.org/10.1007/978-3-031-10865-5_1
- Connolly, R. (2022). Can Citizenship Education Benefit Computing? *Informatics*, 9(4). <https://doi.org/10.3390/informatics9040093>
- Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approach* (5th ed.). SAGE Publications.
- Mariki, B. E. (2024).
- Gebre, E. H., & Polman, J. L. (2020). From “context” to “active contextualization”: Fostering learner agency in contextualizing learning through science news reporting. *Learning, Culture and Social Interaction*, 24. <https://doi.org/10.1016/j.lcsi.2019.100374>
- Hajj-Hassan, M., Chaker, R., & Cederqvist, A. M. (2024). Environmental Education: A Systematic Review on the Use of Digital Tools for Fostering Sustainability Awareness. *Sustainability (Switzerland)*, 16(9), 1–25. <https://doi.org/10.3390/su16093733>
- Hake, R. R. (1998). Interactive-engagement versus traditional methods: A six-thousand-student survey of mechanics test data for introductory physics courses. *American Journal of Physics*, 66(1), 64–74. <https://doi.org/10.1119/1.18809>
- Harjanti, F. D., Suhartono, Ardiansyah, R., & Suryandari, S. (2026). Implementing the Pancasila Student Profile through the Merdeka Curriculum: A case study from Surabaya in advancing SDG 4. *Social Sciences and Humanities Open*, 13(February), 102728. <https://doi.org/10.1016/j.ssaho.2026.102728>
- Harverson, J., Zomer, C., Chu, C., Horwood, S., Horwood, M., Nicholas, M., & Paatsch, L.

- (2026). Children's engagement with digital technology in educational spaces: A scoping review. *Computers and Education*, 240, 105454. <https://doi.org/10.1016/j.compedu.2025.105454>
- Kassa, M. M., Azene, M. K., Mengstie, S. M., & Ferede, M. W. (2024). Effect of using multimedia and dynamic classroom integrated instruction on grade 11 students' biology academic achievement. *Heliyon*, 10(18), e37315. <https://doi.org/10.1016/j.heliyon.2024.e37315>
- Kawashima-Ginsberg, K. (2023). Towards civic learning for all. In *Who's Afraid of Political Education?: The Challenge to Teach Civic Competence and Democratic Participation* (pp. 195–211). Policy Press. <https://doi.org/10.51952/9781447366997.ch013>
- Komalasari, K., & Rahmat. (2019). Living values based interactive multimedia in Civic Education learning. *International Journal of Instruction*, 12(1), 113–126. <https://doi.org/10.29333/iji.2019.1218a>
- Komalasari, K. (2012). The effect of contextual learning in civic education on students' civic skill. *EDUCARE: International Journal for Educational Studies*, 4(2), 179–190. <https://doi.org/10.2121/edu-ijes.v4i2.255>
- Komalasari, K., & Rahmat. (2019). Living values based interactive multimedia in Civic Education learning. *International Journal of Instruction*, 12(1). <https://doi.org/10.29333/iji.2019.1218a>
- Sartono, E. K. E., Ambarsari, R., & Herwin, H. (2022).. Interactive multimedia based on Indonesian cultural diversity in Civics learning in elementary schools. *Cypriot Journal of Educational Sciences*, 17(4), 1192–1203. <https://doi.org/10.18844/cjes.v17i4.7136>
- Mayer, R. E. (2022). The future of multimedia learning. *The Journal of Applied Instructional Design*, 11(4), 69–77. <https://doi.org/10.59668/423.10349>
- Mayer, R. E. (2024). The Past, Present, and Future of the Cognitive Theory of Multimedia Learning. *Educational Psychology Review*, 36(1), 1–25. <https://doi.org/10.1007/s10648-023-09842-1>
- Meixner, B. (2018). Hypervideos and interactive multimedia presentations. *ACM Computing Surveys*, 50(1), 1–34. <https://doi.org/10.1145/3038925>
- Estrada Molina, O., Fuentes Cancell, D. R., & García Hernández, A. (2021). Engagement in virtual education: Experiences during the COVID-19 pandemic. *Texto Livre: Linguagem e Tecnologia*, 14(2), e33936. <https://doi.org/10.35699/1983-3652.2021.33936>
- Muhardis, M. (2023). Learning about independence from Kaba Si Buyuang Karuik. *Cogent Arts and Humanities*, 10(2). <https://doi.org/10.1080/23311983.2023.2270785>
- Olusola-Fadumiye, T. O., Harun, J. B., & Megat Zakaria, M. A. bin. (2023). The Efficacy of Authentic-based Multimedia Learning on Students' Performance, Cognitive and Behavioral Engagement Level in Nigerian Higher Institutions. *International Journal of Academic Research in Business and Social Sciences*, 13(2), 1421–1438. <https://doi.org/10.6007/ijarbss/v13-i2/16336>
- Pandita, A., & Kiran, R. (2023). The Technology Interface and Student Engagement Are Significant Stimuli in Sustainable Student Satisfaction. *Sustainability (Switzerland)*, 15(10). <https://doi.org/10.3390/su15107923>
- Patton, M. Q. (2002). *Qualitative research and evaluation methods* (3rd ed.). Sage Publications.
- Payne, K. A., Adair, J. K., Colegrove, K. S. S., Lee, S., Falkner, A., McManus, M., & Sachdeva, S. (2020). Reconceptualizing civic education for young children: Recognizing embodied civic action. *Education, Citizenship and Social Justice*, 15(1), 35–46. <https://doi.org/10.1177/1746197919858359>
- Pazmiño Constante, P. G., Romero Pacheco, D. E., Roldán Saltos, Y. del R., Ceballos Torres, C. C., & Alcívar Cedeño, R. A. (2024). Impacto del uso de tecnologías educativas

- en la motivación y el compromiso estudiantil durante el proceso de aprendizaje. *LATAM Revista Latinoamericana de Ciencias Sociales y Humanidades*, 5(4), 199–211. <https://doi.org/10.56712/latam.v5i4.2240>
- Peláez, C. A., & Solano, A. (2023). A Practice for the Design of Interactive Multimedia Experiences Based on Gamification: A Case Study in Elementary Education. *Sustainability (Switzerland)*, 15(3). <https://doi.org/10.3390/su15032385>
- Purwati, Japar, M., Qomariyah, L., & Tentama, F. (2024). Moral knowing, moral feeling, and moral action in reflecting moral development of students in junior high school. *International Journal of Evaluation and Research in Education*, 13(3), 1602–1609. <https://doi.org/10.11591/ijere.v13i3.25499>
- Rachman, A., Putro, H. Y. S., Rusandi, M. A., & Situmorang, D. D. B. (2024). The development and validation of the “Kuesioner Tema Proyek Penguatan Profil Pelajar Pancasila” (KT P5): A new tool for strengthening the Pancasila Student Profile in Indonesian pioneer schools. *Heliyon*, 10(16), e35912. <https://doi.org/10.1016/j.heliyon.2024.e35912>
- Risda, D., Syihabuddin, Nurdin, E. S., & Malihah, E. (2025). The Impact of Intercultural Japanese Language Teaching Based on Gen-AI and Multimedia on Intercultural Communication Adaptation, Learning Motivation (L2), and Japanese Language Proficiency. *International Journal of Learning, Teaching and Educational Research*, 24(7), 256–277. <https://doi.org/10.26803/ijlter.24.7.13>
- Sari, F. F. K., Sukarno, & Murwaningsih, T. (2023). The New Paradigm of Merdeka Curriculum: Implementation of Pancasila Education Subject in Elementary School. *International Journal of Elementary Education*, 7(1), 79–88. <https://doi.org/10.23887/ijee.v7i1.54092>
- Saripudin, D., Komalasari, K., Anggraini, D. N., Hasugian, A., & Permana, G. R. (2026). Designing a Secure Multimedia-Based Digital Learning Platform for Social Studies Instruction to Enhance Digital Literacy and Local Knowledge in Junior High School Students. *International Journal of Learning, Teaching and Educational Research*, 25(5), 642–667. <https://doi.org/10.26803/ijlter.25.5.28>
- Schulz, W., Ainley, J., Fraillon, J., Losito, B., Agrusti, G., Damiani, V., & Friedman, T. (2023). *Education for citizenship in times of global challenge: IEA International Civic and Citizenship Education Study 2022 international report*. International Association for the Evaluation of Educational Achievement (IEA).
- Sugden, N., Brunton, R., MacDonald, J. B., Yeo, M., & Hicks, B. (2021). Evaluating Student Engagement and Deep Learning in Interactive Online Psychology Learning Activities. *Australasian Journal of Educational Technology*, 37(2), 45–65. <https://doi.org/10.14742/AJET.6632>
- Taherdoost, H. (2016). Validity and reliability of the research instrument: How to test the validation of a questionnaire/survey in a research. *International Journal of Academic Research in Management*, 5(3), 28–36. <https://doi.org/10.2139/ssrn.3205040>
- Tang, H., Su, W., & Xing, Q. (2025). Exploring the associations among encouragement, character strengths in the values in action classification and subjective well-being among selected Chinese adolescents: A bifactor model and commonality analysis. *Acta Psychologica*, 260, 105638. <https://doi.org/10.1016/j.actpsy.2025.105638>
- Wulandari, U., Syarifuddin, S., Chotimah, U., Sumarni, S., & Yanzi, H. (2024). Exploring Pancasila Students Profile Character through Multiple Learning Objects in History Education. *International Journal of Multicultural and Multireligious Understanding*, 11(3), 262. <https://doi.org/10.18415/ijmmu.v11i3.5575>
- Yan, M. (2024). Informatization Construction of Civic Education in Colleges and Universities under the Integration of Big Data Technology. *Applied Mathematics and Nonlinear Sciences*, 9(1). <https://doi.org/10.2478/amns-2024-0084>

- Yusoff, M. S. B. (2019). ABC of Content Validation and Content Validity Index Calculation. *Education in Medicine Journal*, 11(2), 49–54. <https://doi.org/10.21315/eimj2019.11.2.6>
- Zakopoulos, V., Makri, A., Ntanos, S., & Tampakis, S. (2023). Drama/Theatre Performance in Education through the Use of Digital Technologies for Enhancing Students' Sustainability Awareness: A Literature Review. *Sustainability (Switzerland)*, 15(18). <https://doi.org/10.3390/su151813387>
- Zhumabayeva, A., Nurzhanova, S., Bazarbekova, R., Zhumabayeva, Z., & Stambekova, A. (2024). Using mobile learning to shape the national values of future teachers: An examination of practice. *Journal of Infrastructure, Policy and Development*, 8(14), 10119. <https://doi.org/10.24294/jipd10119>