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Designing a Secure Multimedia-Based Digital Learning Platform for Social Studies Instruction to Enhance Digital Literacy and Local Knowledge in Junior High School Students

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Abstract. In the era of digital transformation, societal safety related to digital competencies is increasingly challenged, particularly in the field of education. Educators encounter multiple obstacles in digital learning, including limited internet connectivity and inadequate access to personal devices, exposure to inappropriate content and risks to data security, difficulties in comprehending digital learning materials, and a lack of effective instructional media and resources. Consequently, there is a growing need for secure digital learning environments that integrate multimedia tools, such as animation, augmented reality, games, and audio-visual elements. This study aims to integrate multimedia tools into social studies instruction to enhance digital literacy and local knowledge in junior high school students in Purwakarta Regency. The research adopts a Research and Development (R&D) approach using the ADDIE model. Participants consisted of 145 students and six teachers from both public and private junior high schools. Data were collected through literature reviews, classroom observations, interviews, focus group discussions, surveys, and attitude assessments. The findings indicate that the developed multimedia resource platform effectively supports educators in designing and delivering instructional materials while simultaneously contributing to the enhancement of students' digital literacy and local knowledge. The platform facilitates meaningful engagement with culturally relevant content and promotes critical digital skills. However, further improvement is required, particularly in creating a more user-friendly interface and incorporating interactive features,

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such as discussion forums and incentive mechanisms, to increase student engagement and strengthen 21st-century competencies.

Keywords: Digital literacy; Multimedia integration; Social studies learning.

1. Introduction

The issues facing education in the twenty-first century are becoming increasingly complex due to transformations driven by the Fourth Industrial Revolution and Society 5.0, which require specific competencies for individuals to succeed (Sanjaya, 2022). Consequently, education systems must equip students with essential skills to function effectively in dynamic and complex environments (Naibaho, 2023). One of the primary challenges lies in improving students' competencies across diverse socio-cultural backgrounds, including differences in religion, ethnicity, and educational levels (Sulistiyosari et al., 2022; Alhafiz, 2022). In this context, educational practices must not only adapt to technological changes but also ensure the development of inclusive, adaptive, and future-oriented learning systems capable of fostering globally competitive human resources.

The development of twenty-first-century skills has become a central objective in education, encompassing four key domains: ways of thinking, ways of working, tools for working, and ways of living (Stehle & Peters-Burton, 2019; Bellanca and Brandt, 2010; Herwina, 2021). These competencies are closely linked to the achievement of the Sustainable Development Goals (SDGs), particularly in ensuring inclusive and quality education (UNESCO, 2021). Furthermore, the emergence of "digital natives" (Siska et al., 2026) reinforces the urgency of integrating digital literacy into education, not only as technical proficiency but also as a combination of critical thinking, ethical awareness, and social responsibility. However, while digital transformation has expanded learning opportunities through information and communication technology (ICT) (Ubogu and Orighofori, 2020; Peters-Richardson, 2023), its implementation remains uneven and raises critical concerns regarding effectiveness and safety.

Empirical evidence shows that Indonesia's digital literacy index is categorized as high (3.65), yet disparities persist across its dimensions, particularly in digital safety, which remains below the national average (Kementerian Komunikasi dan Informatika (Kominfo) & Katadata Insight Center (KIC), 2023). This indicates a significant gap between technological adoption and the ability to use technology safely and responsibly. Previous studies also highlight various risks in digital learning environments, including limited infrastructure, exposure to inappropriate content, data security threats, low comprehension of learning materials, inadequate instructional media, and reduced opportunities for fostering creativity and value transmission (Baeva, 2021). These challenges suggest that current digital learning practices have not fully addressed the balance between technological advancement, pedagogical effectiveness, and student safety.

Multimedia-based learning has been widely recognized as a potential solution to enhance engagement and cognitive learning outcomes (Alanoglu et al., 2025; Budiaman et al., 2021; Shi & Ma, 2025; Djosetro & Behagel, 2024). However, its implementation still faces several limitations, including low levels of teacher creativity, lack of interactivity and collaboration, large and inefficient file structures, and difficulties in aligning multimedia content with meaningful learning experiences. Moreover, existing multimedia approaches often operate as fragmented tools rather than integrated systems that support comprehensive learning processes. This indicates a critical research gap in the development of an integrated multimedia-based digital learning platform that is pedagogically grounded, interactive, safe, and aligned with twenty-first-century competencies.

From a theoretical perspective, effective multimedia learning should be rooted in constructivist principles, where students actively construct knowledge and teachers act as facilitators (Fenstermacher, 1986; Fletcher & Lowe, 1993). Therefore, the design of digital learning platforms must not only integrate multimedia elements but also support active learning, critical thinking, collaboration, and ethical digital practices. In the context of social studies education at the junior high school level, this becomes particularly important, as the subject inherently involves the development of civic competence, social awareness, and value-based learning.

Based on these considerations, this study is directed toward addressing the following research problem: how to design and develop an integrated multimedia-based digital learning platform that effectively supports twenty-first-century skills, enhances student engagement, and ensures digital safety in social studies learning. Specifically, this research aims to answer the following questions:

1. What are the essential components required in designing the Sociesmedia multimedia-based digital learning platform to support twenty-first-century competencies and digital literacy in social studies learning?
2. How can multimedia integration within the Sociesmedia platform be structured to enhance student engagement, critical thinking, and learning effectiveness in social studies?
3. How can digital safety and ethical considerations be embedded and implemented within the Sociesmedia platform to support safe, responsible, and sustainable digital learning practices?

By focusing on these questions, this study contributes to bridging the gap between technological advancement and pedagogical design, particularly in developing an integrated, safe, and competency-oriented multimedia learning platform in social studies education.

2. Literature Review

The integration of multimedia elements in Social Studies education represents a fundamental shift from conventional pedagogy toward a more interactive, multimodal, and experience-based learning environment. This transformation is not merely technical but also epistemological, as it reshapes how knowledge is

constructed, delivered, and interpreted by learners. Through the use of high-resolution images, dynamic videos, interactive animations, and adaptive digital navigation systems, the classroom evolves into a digital laboratory for social inquiry. Zheng (2024) emphasizes that such an immersive approach enhances deeper cognitive engagement, where students move beyond passive reception and become active participants in constructing knowledge. From an analytical perspective, multimedia functions not only as a supplementary instructional tool but also as a transformative agent that reconstructs the relationship between learners and knowledge, particularly in translating abstract historical and social concepts into more concrete and meaningful narratives.

Furthermore, the integration of multimedia in Social Studies holds strategic importance in addressing the demands of global digital literacy. Puspitasari and Resmalasari (2023) argue that digital literacy is a fundamental prerequisite for understanding complex contemporary social issues characterized by an overwhelming flow of information. In this context, multimedia serves as an epistemic medium that enables students to develop analytical frameworks for interpreting social realities through activities such as content creation, interactive simulations, and data-driven exploration. This perspective aligns with broader educational frameworks that emphasize the importance of twenty-first-century competencies.

The Partnership for 21st Century Skills identifies the 4Cs—critical thinking, communication, collaboration, and creativity—as essential foundations, while the Assessment and Teaching of 21st Century Skills framework categorizes these competencies into ways of thinking, tools for working, ways of working, and ways of living (Jeffcoat and Tang, 2025). Similarly, Trilling and Fadel (2009) highlight the integration of life and career skills, learning and innovation skills, and information, media, and technology skills. More comprehensive categorizations proposed by Barde and Sharma (2026) further reinforce that multimedia can act as a catalyst for integrating cognitive, collaborative, technological, and social dimensions into a holistic learning experience. These studies collectively demonstrate a shared consensus that multimedia integration plays a crucial role in enhancing engagement, supporting digital literacy, and fostering twenty-first-century competencies.

However, despite this consensus, existing studies reveal notable differences in focus and implementation. Some research primarily emphasizes cognitive engagement and conceptual understanding through multimedia, while others concentrate on digital literacy and information processing skills. In addition, many implementations of multimedia in education remain fragmented, functioning as isolated tools rather than as integrated learning systems. These approaches often lack alignment between pedagogical design, technological integration, and the development of broader competencies such as critical thinking, collaboration, and ethical digital behaviour. Moreover, limited attention has been given to the incorporation of contextual elements, such as local knowledge and cultural relevance, particularly within Social Studies education.

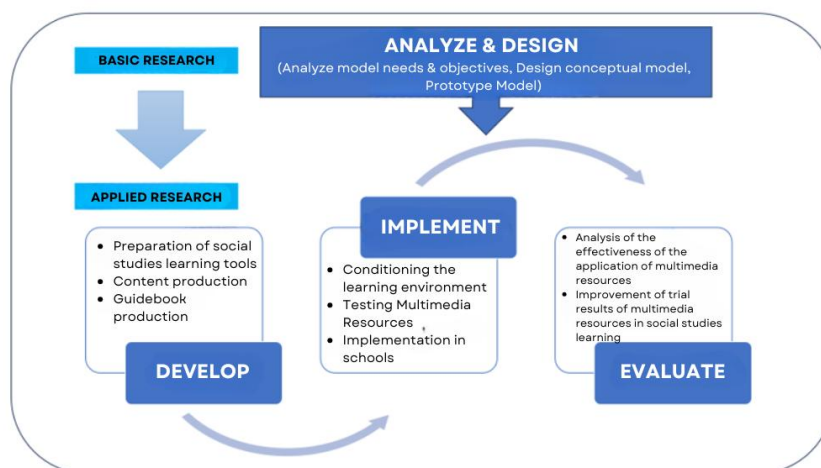
This condition indicates a significant research gap in the development of an integrated multimedia-based digital learning platform that not only enhances learning engagement and effectiveness but also embeds digital literacy, digital safety, and contextual relevance in a cohesive system. In line with global educational trends, this study positions multimedia as a central component in Social Studies learning that can create a more dynamic, meaningful, and engaging educational experience (Prayogi and Estetika, 2019).

Unlike previous studies that tend to focus on partial aspects, this research aims to develop and implement the Sociesmedia platform as an integrated multimedia resource that combines interactive learning features, supports digital literacy, incorporates local knowledge, and promotes safe and responsible digital practices. Conceptually, this approach offers a more comprehensive pedagogical strategy by bridging the gap between technological advancement, instructional design, and the competencies required in the twenty-first century, thereby preparing students to become adaptive, critical, and competent individuals in an increasingly complex global society.

3. Methodology

3.1 Design

Development research, defined as "a method for creating and validating educational resources" (Benaouda et al., 2025), is used in this study. The ADDIE framework is employed to carry out the research and development strategy. Researchers find the ADDIE model easier to use because it is considered simpler than other development models (Branch, 2009). Furthermore, the ADDIE paradigm works particularly well for developing student-centered, creative, authentic, and inspiring learning experiences (Pratiwi et al., 2025; Zhang et al., 2025). This framework facilitates the identification of educational needs, the development of resources and content, the evaluation and testing of instructional programs, and the implementation of such programs. The research process follows the five stages of Branch's (2009) ADDIE model namely analysis, design, development, implementation, and evaluation, as illustrated in Figure 1.



Source: Branch (2009)

Figure 1: The ADDIE model in research development

1. Analyze
This initial phase involves identifying the fundamental requirements for social studies learning. The activities focus on analyzing model needs to identify existing gaps and defining specific instructional objectives to ensure the multimedia resources effectively address the target learning outcomes.
2. Design
This phase involves translating the analysis results into a concrete framework. The steps include designing the conceptual model to outline the structure and flow of the content, as well as creating a prototype model which is a preliminary version of the product that serves as a blueprint for the development stage.
3. Develop
This phase involves creating social studies educational materials, organizing social studies instructional tools, and producing a handbook designed to support multimedia resources.
4. Implement
This phase covers putting the planned instruction into action. The steps in this phase consist of setting up the learning environment, evaluating multimedia resources, and applying the use of multimedia resources in social studies education at the selected schools.
5. Evaluate
This stage includes assessing the learning outcomes that have been carried out. The steps in this stage include testing the effectiveness and analyzing the results of the effectiveness of multimedia resource implementation, as well as making improvements based on the trial results of multimedia resources and finalizing the model.

Each stage can be revised if necessary, and the evaluation results of each stage can be used to make improvements to the previous stage.

3.2 Research Participants

The limited pilot test was conducted in public and private junior high schools in Purwakarta Regency, West Java Province, Indonesia. The research subjects were social studies students and teachers. Samples were collected using purposive sampling to represent 145 students and six teachers from public and private schools in urban and rural areas, as shown in Table 1.

Table 1: Research sample distribution

Research Location and Subject	Number of Students	Number of Teachers	Position in research
Junior High School 1 Purwakarta	37	1	Limited trial
Junior High School 3 Purwakarta	34	2	
Junior High School Islam Al Azhar	36	1	
Junior High School Ekologi Kahuripan	38	2	
Total	145	6	

The selection of participants in this study was carried out using the purposive sampling technique. This approach was chosen because the study required specific criteria to be met in order to obtain data that aligned with the research focus. The process of determining participants was guided by several considerations relevant to the research context.

First, this study was conducted in Purwakarta Regency, which enforces a specific regulation prohibiting students from bringing laptops to school. This policy directly affects students' readiness and access to devices needed for technology based learning activities. Therefore, the selected school was one with a distinctive characteristic, namely the presence of a special class focused on Information Technology (IT). The existence of an IT class was considered essential, as it ensured that despite the restriction on personal devices, the school could still provide facilities to support digital media based learning. Thus, the choice of school was made based on its alignment with the research needs.

Second, student participants were drawn from eighth grade classes. This decision was made because students at this grade level are generally at a relatively stable stage of cognitive development and skills compared to seventh graders, who are still adjusting to the school environment, and ninth graders, who are more focused on preparing for graduation. Additionally, eighth graders were assessed as having, on average, better skills in utilizing learning media, making them more representative subjects for evaluating the effectiveness of digital media use in the classroom.

Third, teachers participating in the study were selected from those teaching eighth grade classes, and the selection was conducted randomly. The random selection aimed to avoid bias toward particular teachers' abilities. In this regard, the teachers' competence in using instructional media was not considered a selection criterion. This decision was intentional, as the study sought to capture the actual variations in teachers' skills in the field, thereby ensuring that the findings would reflect a more objective picture of how media integration takes place in schools.

Considering these three factors, including school district guidelines regarding devices, the suitability of the selected grade level, and the random choice of teachers, the research aims to produce data that are reliable, representative, and closely aligned with the goals of the examination. This method of selecting participants also enhances the significance of the study's results, especially regarding the application of media driven education in middle schools that operate within specific policy limitations.

3.3 Research Instruments

To rigorously examine the implementation of multimedia resources in social studies learning, this study utilized two main research instruments: expert validation and student response questionnaires. The instruments used were the Expert Validation Sheet and the Student Response Questionnaire, designed to ensure comprehensive evaluation from both expert and user perspectives.

The expert validation involved nine evaluators, comprising three university lecturers specializing in educational technology, social studies pedagogy, and instructional media, along with six experienced social studies teachers. The validation instrument assessed the feasibility of the multimedia resource across eight dimensions: accessibility, content quality, design and navigation, interactivity, multimedia integration, support and assistance, impact on conceptual understanding in social studies, and overall usability satisfaction. The measure employed was a structured validation rating scale, used to determine the degree of feasibility for each evaluated dimension.

In addition, the Student Response Questionnaire was administered to 145 students using a five-point Likert scale (very good, good, fair, poor, and very poor). The instrument evaluated five key dimensions: multimedia website design and content, interactivity and student engagement, accessibility and affordability, relevance to social studies learning, and perceived learning impact. The measure used was a Likert-scale scoring system, enabling quantitative analysis of students' perceptions toward the effectiveness of the multimedia platform. Overall, the combination of expert validation and student perception data provided a comprehensive assessment of the multimedia resource in terms of pedagogical feasibility, usability, and learning effectiveness within social studies education.

3.4 Data Collection and Data Analysis

Surveys, document reviews, interviews, observations, and attitude evaluations were used as data collection techniques. The interactive analysis model was applied as the data analysis technique, which entails gathering data, condensing it, presenting it, and drawing inferences or validating the findings (Fraenkel, 2006). To assess the impact of multimedia tools on social studies learning, attitude assessments were utilized, while data analysis techniques such as N-gain score tests and t-tests were employed, following Shadish et al. (2002). To carry out expert validation, specialists were selected based on their relevant expertise in areas such as educational technology, strategies for teaching social studies, and instructional media. Moreover, collaborators may also participate in shaping curriculum and education related policies.

4. Results and Findings

4.1 Results

4.1.1 Development of the Sociesmedia Multimedia Resources Website in Social Studies Education

Sociesmedia, a digital platform accessible at <http://sociesmedia.id>, represents a further development of multimedia-based learning in Social Studies education. As an interactive platform, it contributes to the enhancement of junior high school instruction by fostering student engagement and facilitating more dynamic learning experiences through the integration of diverse media formats, including games, podcasts, videos, and visual posters.

A key distinction between Sociesmedia and other multimedia platforms lies in its strong contextual and pedagogical orientation toward Social Studies. While many general multimedia tools primarily focus on content delivery, Sociesmedia is intentionally designed to promote social inquiry, critical thinking, and a deeper

understanding of real-world phenomena. In addition, the platform emphasizes culturally relevant content and structured interactivity, enabling students to meaningfully connect theoretical concepts with their social environment while simultaneously developing higher-order thinking skills.

The development of this model is systematically organized into three main phases, namely pre-production, production, and post-production. These phases function integratively to ensure the creation of high-quality, learner-centered digital materials. Each phase is elaborated in detail as follows.

a. Pre-Production Stage

This phase emphasizes the necessity of an organized workflow to ensure the efficacy and efficiency of content creation. Concepts are transformed into user friendly, learner centered website designs during this phase. In order to facilitate more efficient production, the pre-production phase entails a methodical procedure with multiple crucial factors. These include readiness for the intricate use of different computing tools and the effective management of time and financial resources. A well-structured workflow acts as a guide for the production stage, accounting for time management, aesthetics, effective techniques, and even consideration of worker health. Furthermore, thorough financial planning is crucial at this point to ensure that cost estimates are reasonable and aligned with the available grant funds.

b. Production Stage

The Sociesmedia website incorporates a range of features, including learning material pages, discussion forums, and interactive media, all designed to enrich the learning experience. Its user friendly interface, combined with a smart search function, serves as a key strength, improving both accessibility and efficiency in navigating learning resources. From a technical perspective, the use of Laravel for back end processing ensures the website's stability, reliability, and security. To be more specific, the Sociesmedia website consists of several key elements as follows:

1. Overview of the Sociesmedia Website

Sociesmedia is an interactive multimedia learning platform that provides a wide range of educational content, including YouTube videos, posters, podcasts, and games. Equipped with a smart search feature, the platform enables students to easily locate social studies learning media that aligns with their learning needs, thereby supporting deeper conceptual understanding in a more engaging and effective manner.

2. Appearance of the Sociesmedia.id Website

The homepage presents a brief overview of the platform's purpose, accompanied by an invitation to explore the available content. It includes a category-based search feature and a Frequently Asked Questions (FAQ) section to assist users in navigating the website efficiently, as shown in Figure 2.

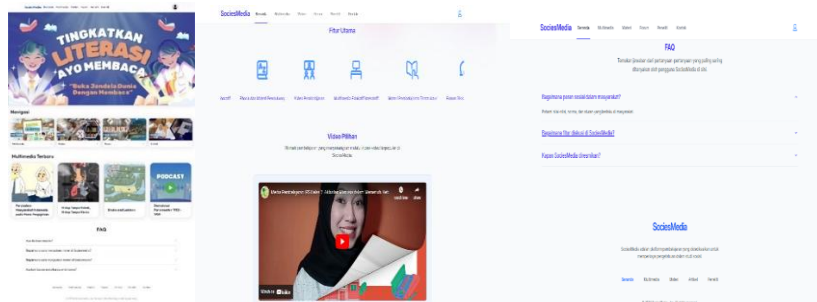


Figure 2: Hero section

3. Login Page

The login page functions as a secure gateway to access personalized and exclusive features of the platform. Users are required to enter their email address and password to log in. A “Forgot Password” feature is also provided to facilitate password recovery in case users forget their credentials, as shown in Figure 3.

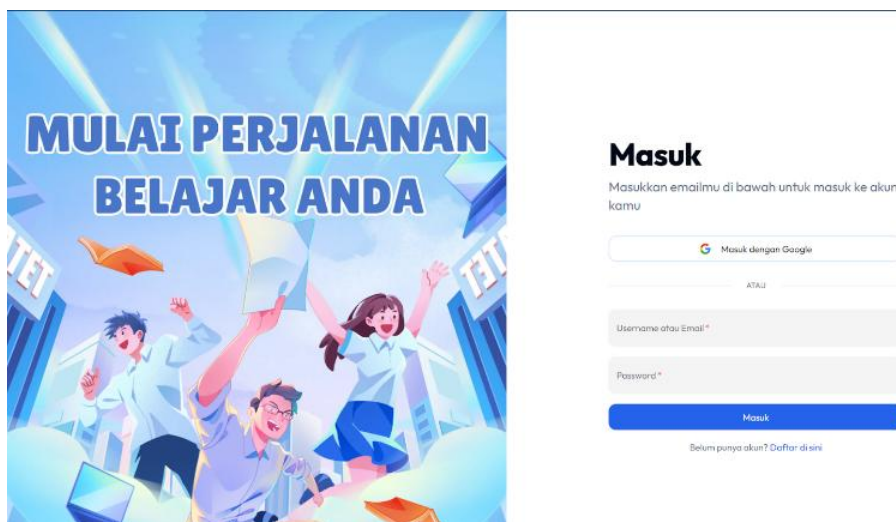


Figure 3: Login page

4. Learning Materials Page

The hero section introduces the page as a Learning Material Center, featuring visually engaging elements such as flag illustrations and instructional text that encourages users to search for various social studies learning materials. This section is integrated with a search feature that allows users to quickly locate specific materials. Below the hero section, the Material Selection area displays a range of available social studies learning resources. Users can filter and select materials based on grade levels, such as Grade VII, Grade VIII, or Grade IX, ensuring convenient and targeted access to relevant content, as shown in Figure 4.

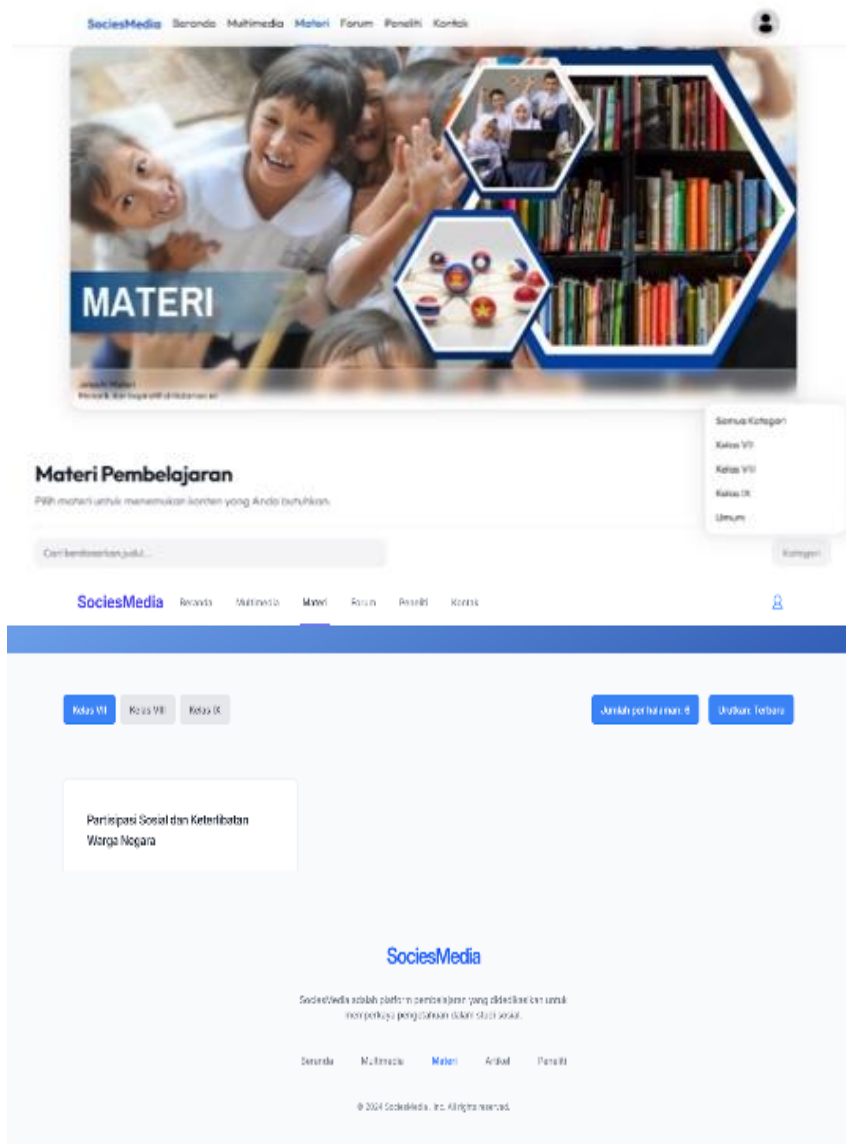


Figure 4: Material selection

5. Learning Media Page

The hero section on this page presents an educational theme illustrated through a diverse group of cartoon characters. A search bar is provided to enable users to efficiently find different types of learning media, including videos, podcasts, and posters.

The media category section displays a variety of educational resources in a grid format, complete with thumbnails, titles, and brief descriptions. Each media item includes a “View Details” button that allows users to access more comprehensive information about the selected content, as shown in Figure 5.

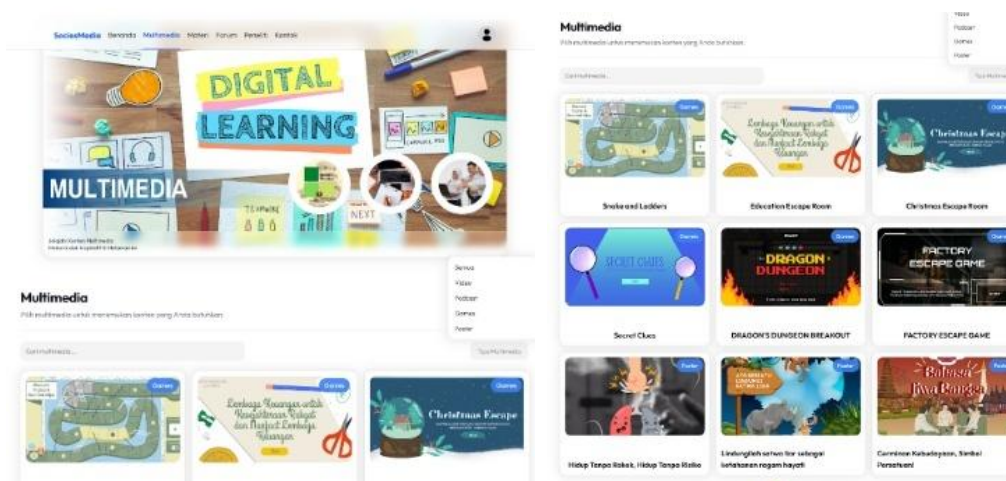


Figure 5: Learning media

6. Discussion Forum Page

The discussion forum provides a main interface where users can view a list of questions, explore discussion topics, submit responses, or initiate new questions. A search feature is available to help users locate specific discussions. Additionally, a Question Form is provided to allow users to submit new questions along with detailed descriptions, thereby facilitating the development of meaningful academic discussions, as shown in Figure 6.

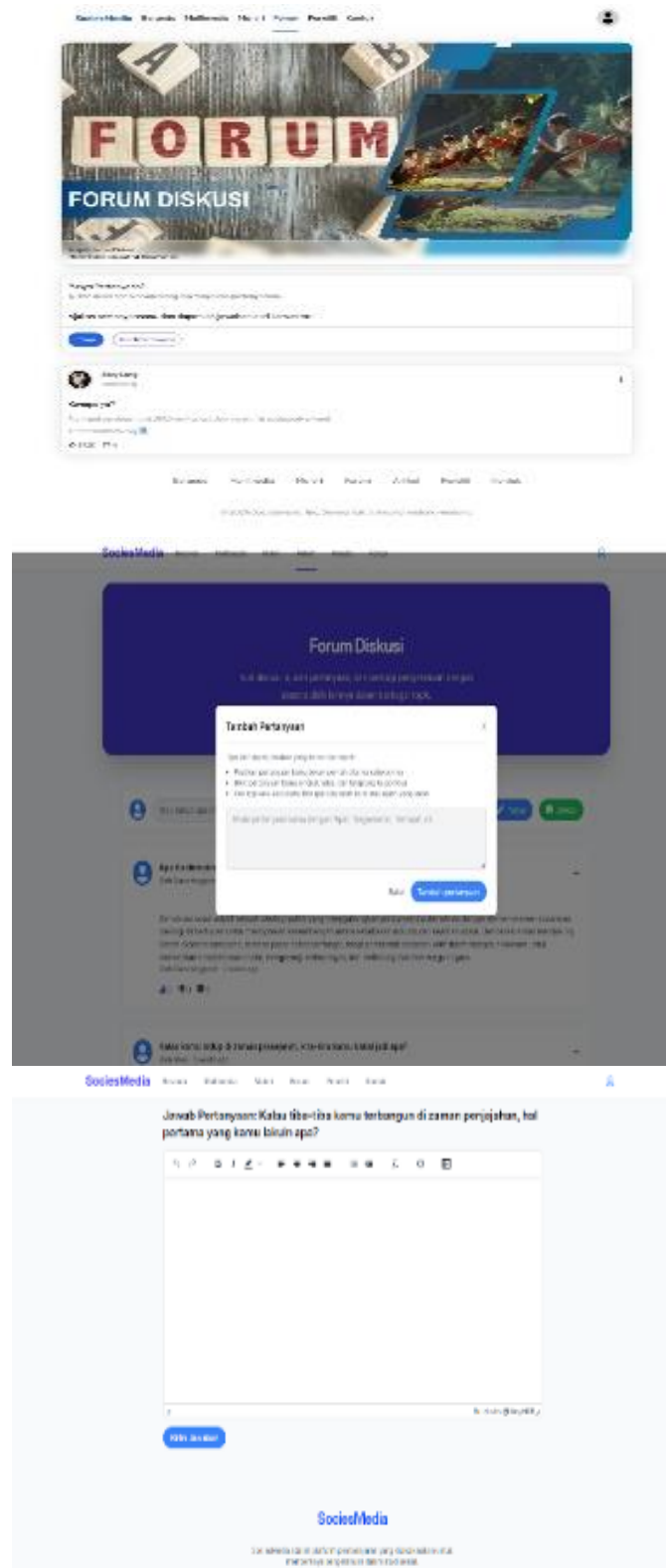


Figure 6: Discussion forum

7. Dashboard Page

The dashboard functions as a centralized interface for managing student, researcher, learning media, and learning material data, with a “Start

Managing” button to initiate activities. It allows users to view and manage student records such as name, email, status, and class, as well as add new entries. The learning media section provides access to media content including title, type, URL, and description, with options to add, edit, or delete items through an input form. In addition, the researcher management feature enables users to maintain researcher data such as name, email, contact number, biography, and institutional affiliation, ensuring accurate and up to date information through editable forms and save functionality.

c. Post-Production

Testing is conducted in the postproduction stage to identify any web flaws. In order to create guidelines for the use of online operating systems, a number of devices are examined during this procedure. The content arrangement of each scene is reviewed to ensure a favorable screen aspect ratio. Following extensive testing, software and content improvements are carried out once more. These changes are the final revisions made to all software and content.

4.1.2 Implementation of Multimedia Resources in Social Studies Learning

The Sociesmedia website was tested in a focus group discussion with social studies teachers from various junior high schools, who provided positive feedback. The website is considered helpful for teachers in preparing lessons through interactive teaching materials such as videos, posters, podcasts, and games, which are relevant to the curriculum and support various learning styles. Discussion forums facilitate communication between teachers and students, enhance engagement, and support student collaboration. Based on the implementation flow presented in Figure 7, the development and use of the platform follow an integrated process that emphasizes accessibility, interactivity, and pedagogical alignment.

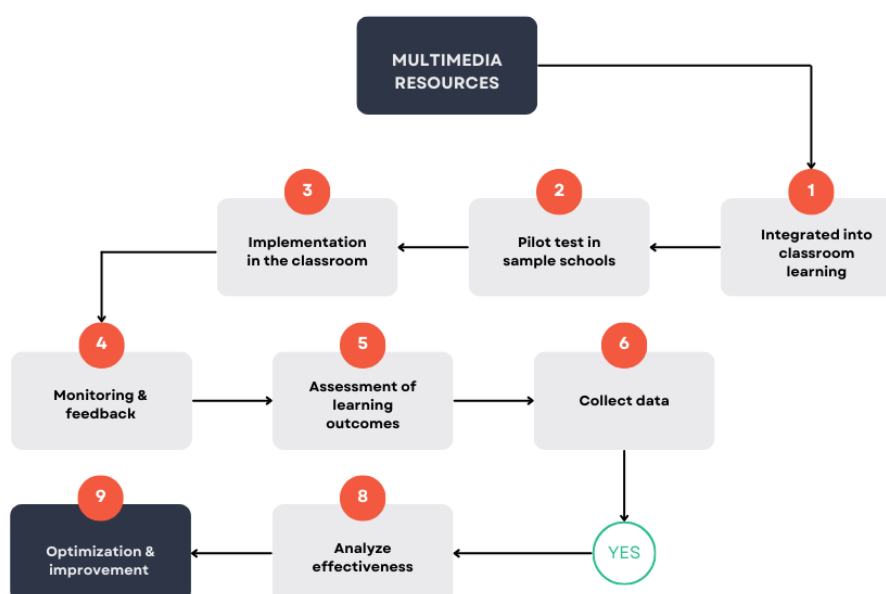


Figure 7: Flow of Multimedia Resources Implementation

Several suggestions were provided, including improving the design to make it more attractive, integrating the platform with social media, and adding features such as teaching modules, question banks, assessments, and a reward system to enhance student motivation. Teachers also requested ease of uploading materials, access to automatic notifications, and detailed guides for the game features. The discussion forum is proposed to include standard operating procedure settings to keep discussions focused and respectful. Development into an application is recommended to enhance accessibility, with features such as educational videos, discussion forums, and interactive games, allowing for more flexible learning. Collaboration among teachers through this platform can enrich teaching materials. Additionally, the integration of technology with a humanistic approach is recommended, combining technology-based learning with direct activities such as field visits in order to provide meaningful learning experiences.

4.1.3 Teachers' Validation of Multimedia Resources in Social Studies Learning

According to the findings from expert evaluation, consisting of three educators specializing in educational technology, strategies for social studies instruction, and learning media, as well as practitioners, namely six social studies educators, regarding the integration of multimedia resources in junior high school social studies, the outcomes are presented in Table 2.

Table 2: Teachers' validation of multimedia resources in social studies learning

Dimension	Indicator	Assessment Score (N=9)				
		Very Good	Good	Fair	Poor	Very Poor
Accessibility	Ease of access to multimedia websites	44,12	41,18	14,71	0,00	0,00
	Website loading speed when in us	52,94	23,53	17,65	2,94	2,94
	Website availability on various platforms (desktop, mobile)	32,35	23,53	38,24	5,88	0,00
Content Quality	Relevance of content to social studies learning materials	32,35	23,53	38,24	5,88	0,00
	Accuracy of information presented	17,65	32,35	17,65	32,35	0,00
	Content alignment with the applicable curriculum	14,71	35,29	23,53	23,53	2,94
Design and Navigation	Attractive layout and visual desig	14,71	32,35	26,47	26,47	0,00
	Ease of navigation within the website	29,41	47,1	23,53	5,88	0,00

	Consistency in the use of colors and fonts	23,53	55,9	29,41	0,00	0,00
Interactivity	Availability of interactive features such as quizzes, videos, and animations	35,29	41,2	11,76	2,94	0,00
	Ease of operating interactive feature	11,76	14,7	44,12	26,47	0,00
	Responsiveness of interactive features to user input	38,24	35,3	23,53	5,88	0,00
Multimedia and Learning Media	Quality of video and audio provide	55,88	32,4	17,65	0,00	0,00
	Variety of learning media offered (videos, podcasts, posters, etc.).	32,35	26,5	52,94	2,94	0,00
	Appropriateness of multimedia use for learning objectives	23,53	47,06	29,41	0,00	0,00
Support and Assistance	Availability of guides or tutorials for user	64,71	20,59	14,71	0,00	0,00
	Ease of obtaining technical assistance when needed	26,47	35,29	38,24	0,00	0,00
	Response from the support team to questions or problems	32,35	29,41	32,35	5,88	0,00
Impact on Social Studies Comprehension	Effectiveness of the website in improving students' understanding of social studies material	41,18	47,06	11,76	0,00	0,00
	Use of multimedia content in explaining social studies concepts	50,00	32,35	14,71	2,94	0,00
	Impact of the website on students' social	44,12	29,41	23,53	2,94	0,00

	studies learning outcome					
Overall Satisfaction	Your overall satisfaction with the multimedia website	47,06	44,12	5,88	2,94	0,00
	Desire to continue using the website in learnin	61,90	38,10	0,00	0,00	0,00
	Recommendation to use this website to fellow teachers	52,38	38,10	9,52	0,00	0,00
Average		34,2	23,1	6,2	0,1	34,2

The expert validation results involving nine teachers show that the multimedia resources were generally rated positively, with an average distribution of 34.2% "Very Good," 34.2% "Good," 23.1% "Fair," 6.2% "Poor," and 0.1% "Very Poor." The highest ratings were found in multimedia quality and accessibility, particularly in video and audio quality, user guides, and website performance, indicating that the platform is reliable, technically sound, and user friendly. However, some aspects still require improvement, especially in content relevance and alignment with the curriculum, as well as interface design and ease of navigation, which received more moderate to low ratings. Despite these limitations, most teachers expressed strong acceptance, showing a high intention to continue using and recommending the platform. Overall, the results confirm that the multimedia platform is effective and useful, although further refinement is needed to optimize its instructional impact in social studies learning.

4.1.4 Student Response to the Use of Multimedia Resources in Social Studies Learning

A five-point Likert scale (excellent, good, fair, poor, and extremely poor) was used to collect responses from 145 students. Using five dimensions, namely Multimedia Website Design and Content, Student Interactivity and Engagement, Accessibility and Affordability, Relevance and Suitability for Social Studies Learning, and the Impact of Multimedia Website Use, this survey sought to gauge students' perceptions of the use of multimedia resources in social studies classes.

Table 3: Student response to the application of multimedia resources in social studies learning

Indicator	Assessment Score (N=145)				
	Very Good	Good	Fair	Poor	Very Poor
Multimedia Website Design and Content	22,3	46,8	28,86	1,14	0,84
Interactivity and Student Engagement	28,86	43,74	24	2,56	0,86
Accessibility and Affordability	35,14	37,7	24,58	2,28	0,28
Relevance and Suitability for Social Studies Learning	26,28	46,6	24,84	1,14	0,58
Impact of Multimedia Website Use	25,66	43,14	25,74	1,72	0,28
Average	27,9	43,8	25,8	1,9	0,6

Based on Table 3, the results of student assessments (N = 145) demonstrate that the use of multimedia resources in social studies learning was generally well received. The highest scores were observed in the Accessibility and Affordability dimension, where a majority of students rated the resources as “Very Good” (35.14 percent) or “Good” (37.7 percent). This finding highlights that students considered the platform easy to access and cost efficient, which is critical for ensuring equitable learning opportunities. Similarly, Interactivity and Student Engagement received strong evaluations, with more than 72 percent of responses falling into the “Very Good” and “Good” categories, indicating that the multimedia design was successful in stimulating learner participation and sustaining interest throughout the learning process.

Other dimensions also reflected positive outcomes, though with slightly more variation. Multimedia Website Design and Content and Relevance and Suitability for Social Studies Learning both received favorable evaluations, with over 70 percent of students rating them positively, although around one quarter of responses still categorized these dimensions as “Fair.” The Impact of Multimedia Website Use was rated somewhat lower compared to other indicators, suggesting that while students found the resources accessible and engaging, their direct effect on learning outcomes was not perceived as strongly.

Overall, the average responses show that 71.7 percent of students rated the multimedia resources as either “Very Good” or “Good,” while only a very small percentage, 2.5 percent, rated them as “Poor” or “Very Poor.” These findings confirm that the multimedia resources are feasible, relevant, and beneficial for social studies learning, although further improvements in design and instructional impact remain necessary.

Table 4: Descriptive statistics

Variable	N	Minimum	Maximum	Mean	Standard Deviation
X	145	72	122	99.27	12.16
Valid N (listwise)	145				

Based on Table 3, the mean value for variable X, as shown in the table and histogram above, is 99.27. The following classification is produced by grouping the five response choices from the 25 statement items into categories.

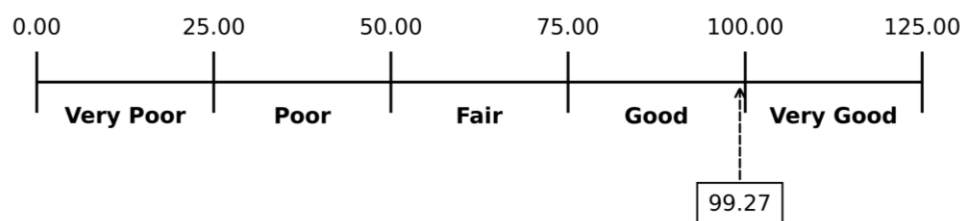


Figure 8: Continuum of student response categories regarding multimedia usage in social studies

As illustrated in Figure 8, the quantitative analysis yielded a score of 99.27 for Variable X. On the continuum scale ranging from 0 to 125, this value falls within the interval of 75.00 to 100.00, thereby classifying the student responses into the "Good" category. This empirical evidence suggests a positive reception toward the pedagogical integration of technology. Specifically, it indicates that students perceive multimedia tools not merely as supplementary aids, but as highly beneficial components of the learning ecosystem. Consequently, within the context of social studies instruction, the multimedia resources are effectively functioning both as an engaging learning medium and a comprehensive learning resource, successfully facilitating better understanding and student engagement.

5. Discussion

The responsibility of preparing children for life in the digital age falls on teachers, who must adapt to rapid changes in technology. This preparation can be achieved by combining pedagogical, technological, and subject matter expertise to provide creative learning opportunities that blend online and face to face instruction. Learning resources are therefore essential and valuable in both formal and informal learning settings. A genuine commitment to education is demonstrated through the creation of educational media, including concept maps, teaching resources, semester learning plans, classroom integration, evaluation tools, and model selection (Nasution et al., 2021; Nugroho et al., 2021; Bahri et al., 2023). Information and communication technology (ICT) has become a fundamental component of modern life, creating changes that integrate the digital, biological, and physical domains (Saripudin et al., 2022). ICT in education promotes more interactive and collaborative learning processes in addition to improving access to information (Temirkhanova et al., 2024; Saripudin et al., 2021).

Web based media, particularly web based multimedia resources, are now the most commonly used digital learning innovations (Saripudin et al., 2023). Multimedia plays a crucial role in the teaching learning process as a means to convey knowledge, skills, and attitudes. It influences students' motivation, focus, emotions, and mindset. The potential of multimedia learning to enhance academic outcomes is increasingly recognized (Lomonaco et al., 2023; Hasugian et al., 2025). In the context of social studies instruction, the effectiveness of multimedia becomes more evident when it is embedded within structured platforms such as the Sociesmedia website, which integrates interactive videos, infographics, topic-based navigation, and formative assessment tools. These features transform learning into an active and reflective process, enabling students not only to receive information but also to evaluate, interpret, and apply knowledge. As a result, students' digital literacy develops in measurable ways, particularly in their ability to navigate digital environments, critically assess information, and engage with multiple sources in a meaningful manner.

The continuous evolution of technology has made multimedia use in Social Studies instruction indispensable. Traditional tools such as textbooks and worksheets are no longer sufficient to maintain students' interest. By presenting abstract and complex concepts in a dynamic and participatory manner, multimedia enhances both understanding and engagement. Its use in social

studies is therefore not only effective in attracting attention but also in strengthening knowledge, skills, and attitudes, making learning more relevant and meaningful in the digital age. Within this framework, the Sociesmedia website demonstrates how multimedia features can be systematically aligned with learning outcomes. The integration of locally contextualized content, such as community based case studies and interactive maps, allows students to connect theoretical concepts with real social phenomena, thereby strengthening their local knowledge and contextual understanding. At the same time, interactive elements such as higher order thinking skill-based quizzes and discussion features promote the development of twenty first century competencies, including critical thinking, communication, collaboration, and problem solving.

Empirical findings further confirm the effectiveness of these features within the Sociesmedia website. A significant proportion of students rated the platform positively, with more than seventy percent of responses falling into the very good and good categories, and a mean score of 99.27 categorized as good. These results indicate that the platform is successful in enhancing student motivation, engagement, and overall comprehension of social studies material. However, a more critical examination reveals an important nuance. The relatively moderate perception of its direct impact on learning outcomes suggests a gap between engagement and measurable academic achievement. This finding aligns with the broader argument that while multimedia has strong potential to enhance learning outcomes, its effectiveness is highly dependent on how well its features are pedagogically aligned with learning objectives. In this sense, high engagement does not automatically translate into deep conceptual understanding unless multimedia elements are intentionally designed to support higher order thinking and knowledge construction.

From an analytical perspective, the effectiveness of the Sociesmedia website should therefore be interpreted beyond surface level indicators such as user satisfaction and engagement. It's true value lies in its capacity to systematically improve digital literacy, reinforce local knowledge, and foster twenty first century competencies. The platform's features, such as interactive navigation, embedded assessments, and contextualized content, provide opportunities for students to develop critical digital skills, including information evaluation, content interpretation, and responsible technology use. This reflects the growing role of web based multimedia as a dominant digital learning innovation, where students are no longer passive recipients of information but active participants in knowledge construction. At the same time, the integration of local contexts within multimedia content strengthens relevance and meaning, enabling students to connect abstract social studies concepts with real world social phenomena.

Learning often involves abstract concepts that are not directly observable in daily life, which makes multimedia particularly important in social studies instruction. Multimedia helps explain abstract ideas and clarify complex topics, thereby supporting students' comprehension of difficult content (Ramli et al., 2025). Interactive formats such as infographics, animations, and documentaries transform complex information into more accessible and relatable

representations. As a result, multimedia not only improves the learning environment but also enhances the overall effectiveness and satisfaction of the learning process. This supports the argument that multimedia plays a crucial role in conveying knowledge, skills, and attitudes, while also influencing students' motivation, focus, emotions, and mindset.

One of the major strengths of multimedia lies in its ability to increase student motivation and participation. Visual and audio elements make complex concepts more accessible and stimulate active involvement, which is essential in maintaining students' attention in the digital age. However, this benefit also highlights a critical requirement. The effectiveness of multimedia is not solely determined by its technological sophistication, but by the teacher's ability to integrate it meaningfully into instruction. Pala (2017) emphasizes that teachers must master multimedia technology in order to optimize its pedagogical potential. Without this competence, multimedia risks being reduced to a tool for presentation rather than a medium for deep learning.

Despite its advantages, the integration of multimedia in education continues to face significant challenges. Implementation is often constrained by limited resources and teachers' insufficient ability to design ICT based curricula. Developing effective multimedia learning materials requires not only subject matter expertise but also an understanding of multimedia design principles. Erlangga et al. (2022) support this argument by demonstrating that video based learning can be more effective than text based approaches, but only when it is properly designed and aligned with instructional goals. This reinforces the idea that technology alone does not guarantee improved learning outcomes.

Addressing these challenges requires sustained investment in both infrastructure and professional development. Enhancing teachers' capacity to design, implement, and evaluate multimedia based learning is essential for maximizing its impact. For example, in primary and secondary social studies classrooms, multimedia enables direct interaction and immediate feedback, which can significantly increase student interest in subjects that are often perceived as less engaging. Putra & Haryanti (2023) identify ineffective teaching strategies and unappealing content as key barriers to student engagement and argue that multimedia offers a practical solution to overcome these limitations by making learning more dynamic and relevant.

Furthermore, multimedia encourages students to take a more active role in the learning process. Through interactive platforms such as the Sociasmedia website, students can independently explore content, engage with digital resources, and participate in learning activities that promote critical thinking and problem solving. By integrating text, images, audio, video, and interactive elements into a cohesive system, multimedia provides a comprehensive learning experience that supports diverse learning styles.

In conclusion, multimedia is a highly valuable instructional tool in social studies education, particularly for addressing complex and abstract subject matter. It enhances motivation, engagement, and accessibility while also supporting the development of digital literacy and twenty first century competencies. However, its effectiveness depends on the quality of its pedagogical integration. Without careful alignment between multimedia features, instructional strategies, and learning objectives, its impact on measurable academic outcomes will remain limited. Therefore, the future of multimedia in education lies not only in technological advancement but also in the continuous development of teachers' professional competencies and instructional design practices.

6. Conclusion

Learning in social studies often involves abstract and complex concepts, making multimedia a crucial tool for transforming these ideas into more concrete and meaningful learning experiences. The integration of multimedia not only improves conceptual understanding but also increases student engagement, motivation, and participation through interactive and multimodal learning environments. At the same time, its effectiveness depends on the readiness of teachers and the availability of adequate technological support, indicating that pedagogy and technology must be aligned to achieve optimal outcomes.

The implementation of the *sociasmedia.id* platform demonstrates that an integrated multimedia system can support structured learning, strengthen digital literacy, and enhance students' understanding of local knowledge. This confirms that multimedia is most impactful when designed as a comprehensive platform rather than as isolated tools. However, to maximize its potential, improvements in interface design and interactive features are necessary to sustain student engagement over time.

Overall, this study affirms that multimedia-based platforms are not merely complementary tools but essential components in modern social studies education, capable of bridging abstract content with real-world relevance and fostering twenty-first century competencies. Nevertheless, the findings are limited by the focus on a specific regional context, and constraints related to technological access. Therefore, broader implementation and further research are required to strengthen the generalizability and long-term impact of multimedia-based learning innovations.

Conflict of Interest

Any The author declares no conflict of interest.

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