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Integrating Web-Based Interactive Multimedia and Problem-Based Learning to Support Social Studies Instruction in Junior High Schools

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ABSTRACT

This study addresses the low student engagement and limited availability of interactive learning media in Social Studies, specifically concerning the topics of scarcity and human needs at SMP Negeri 13 OKU. The primary objective was to develop and evaluate a web-based interactive multimedia platform using Canva, integrated with a Problem-Based Learning (PBL) approach. Using the Research and Development (R&D) method with the ADDIE model, the research produced a digital learning tool that incorporates text, images, audio, video, and interactive features. Validation results from experts confirmed the product's high quality, placing it in the 'Excellent' category for validity. Furthermore, field testing achieved high practicality scores (89.6%), indicating significant student interest. These findings conclude that the PBL-based interactive multimedia is a valid and practical tool that shows strong potential to foster an active learning atmosphere and support the development of critical thinking in the Social Studies classroom.

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INTRODUCTION

In the contemporary landscape of global education, we are witnessing a profound and irreversible paradigmatic transformation. Education is no longer viewed as a mere transmission of static facts from teacher to pupil; rather, it is conceptualized as a deliberate, strategic, and highly structured endeavor to foster a holistic learning atmosphere. This evolution aims to empower students to reach their absolute potential, encompassing not only intellectual growth but also spiritual strength, self-discipline, and the cultivation of a resilient character (Pristiwanti et al., 2022). In this student-centered era, the primary focus of all instructional activities has shifted toward the learner, recognizing that every individual possesses a unique cognitive profile. The ultimate success of this developmental journey depends fundamentally on the quality and depth of engagement between educators, learners, and the rich array of academic resources provided within the educational ecosystem (Harahap, 2021). Consequently, there is an urgent demand for innovative pedagogical strategies that ensure these interactions move beyond the superficial and lead to a profound, lasting conceptual understanding.

As we navigate the complexities of the 21st century, the integration of technology within the classroom has transitioned from being a progressive option to an absolute necessity. To maintain instructional efficiency and keep pace with the cognitive habits of digital-native students, educators must adopt tools that enhance the appeal and clarity of the curriculum. Learning media plays an indispensable role in this context, acting as a communicative bridge

that translates complex, often intimidating instructional messages into accessible, digestible segments for students (Dewi et al., 2023). By utilizing appropriate digital media, educators can effectively minimize "verbalism" a condition where students memorize words without understanding their underlying meaning and instead facilitate the vivid visualization of abstract concepts (Ibrahim et al., 2025). This pedagogical shift aligns with the modern consensus that interactive learning multimedia, which harmonizes text, dynamic imagery, high-fidelity audio, and engaging video, creates a learning experience that is significantly more meaningful and retentive than the results yielded by conventional, one-dimensional methods (Aulia & Toriqularif, 2025).

However, despite these theoretical advancements, a significant and troubling disparity often persists between pedagogical ideals and the reality of classroom practice. At SMP Negeri 13 OKU, initial observations indicate that Social Studies instruction is still largely shackled to traditional, teacher-centered methodologies. In many instances, the use of learning media remains frustratingly limited to aging printed textbooks and static, uninspiring slide presentations. This environment inevitably leads to student passivity, where learners become silent spectators rather than active participants in classroom discourse. This heavy over-reliance on lecture-based delivery not only diminishes intrinsic motivation but also creates a cognitive wall that prevents students from connecting classroom theories with the vibrant, often turbulent social phenomena occurring in their immediate communities.

Social Studies, as an integrated academic discipline, is uniquely positioned to address these challenges, as it is vital for cultivating the character and social competencies required to thrive in a multicultural society (Musyarofah et al., 2021). The curriculum demands a deep and nuanced comprehension of the intricate relationships between space, time, and human behavior. Yet, when foundational and critical topics such as "scarcity and human needs" are presented through a purely theoretical or dry lens, students frequently fail to grasp the real-world urgency of these issues. Without the support of immersive and interactive media, the concept of resource management becomes an abstract exercise rather than a life skill. Therefore, innovations in Interactive Learning Multimedia (ILM) represent a strategic and necessary solution, providing realistic simulations of social problems that challenge students to engage their critical thinking and problem-solving faculties (Sawitri et al., 2024).

To maximize the impact of these digital tools, the implementation of a Problem-Based Learning (PBL) model within an interactive framework offers a highly effective and rigorous structure. PBL begins by confronting students with authentic, messy, real-world problems that mirror the challenges they see in their daily lives. This approach motivates them to move beyond the role of a passive consumer and instead become an investigator someone who independently seeks information, analyzes complex data sets, and formulates viable, evidence-based solutions (Asmara & Septiana, 2023). This methodology is firmly rooted in the principles of social constructivism, which posits that knowledge is not "given" but is actively constructed by the learner through direct experience and meaningful interaction with their environment (Wahab & Rosnawati, 2021). By integrating ILM with a PBL approach, schools can facilitate a critical transition from rote, "copy-paste" learning toward a more dynamic, inquiry-based process that prepares students for the uncertainties of the future (Hildayanti et al., 2025).

The selection of Canva as the primary vehicle for developing web-based multimedia offers several strategic advantages, particularly regarding visual aesthetics and universal accessibility. In a modern educational setting, the "look and feel" of a learning tool is not a superficial concern but a factor that directly influences student engagement levels. Canva provides a suite of dynamic multimedia features, including sophisticated animations and interactive elements, that allow for the creation of professional-grade educational content (Pratama & Bastian, 2025). Furthermore, by hosting this content in a website format, the research ensures that learning

resources are available online across various devices from smartphones to laptops without the logistical headache of software installations (Isa et al., 2024). This level of accessibility is a cornerstone of student learning autonomy, as it empowers learners to explore materials at their own pace, revisit difficult concepts, and engage with the curriculum outside the traditional four walls of the classroom (Gurning et al., 2024).

Despite the vast potential of these technologies, a notable research gap remains in the specific field of Social Studies for junior high school students. A review of existing literature reveals that many studies focus on Canva merely as a tool for creating static posters or presentations, or they examine PBL in traditional, offline settings. There is a conspicuous lack of research that explicitly explores the synergy between the design flexibility of Canva-based websites and the rigorous, step-by-step syntax of Problem-Based Learning, particularly when developed through the systematic ADDIE model for basic economic literacy in the Indonesian context (Pebriantika et al., 2024). This study seeks to bridge that gap by creating a standalone, web-based digital ecosystem that is as pedagogically sound as it is visually captivating. By focusing on the topic of "scarcity," this research targets a primary foundation of economic literacy for seventh-grade students, aligning directly with the objectives of the Merdeka Curriculum (Supardi, 2024).

The focus on scarcity is particularly relevant in the modern world, where students must understand how finite natural resources conflict with seemingly infinite human desires. Through the interactive simulations provided by this multimedia tool, students are not just reading about economics; they are practicing it. They are trained to analyze the root causes of scarcity and to think critically about resource management. Previous empirical evidence has already suggested that creative, Canva-based instructional media can boost learning motivation by as much as 90% and have a transformative effect on learning outcomes (Suteja et al., 2024). However, for technology to be truly effective, it must be built on a foundation of sound instructional design. This is why this study utilizes the ADDIE model Analysis, Design, Development, Implementation, and Evaluation to ensure that the resulting product is not just a "flashy" digital tool but a robust educational instrument (Pebriantika et al., 2024).

The rigorous validation process involving subject matter experts, media specialists, and instructional design professionals is a critical component of this research. This ensures that the product is technically sound, scientifically accurate, and pedagogically effective before it is introduced into the classroom (Slamet, 2022). Technical and pedagogical validation is not a mere formality; it is the process by which we ensure that the media is user-friendly and capable of meeting its intended learning objectives in a real-world school setting (Wijaya et al., 2022). By adhering to these high standards, the research aims to provide a model for how technology can be used to revitalize subjects that students traditionally find difficult or uninteresting.

While the potential of technology is immense, challenges in instructional design must be addressed to ensure that learning media is not only visually appealing but also pedagogically robust. The ADDIE development model, which includes the phases of analysis, design, development, implementation, and evaluation, was chosen to systematically guarantee product quality (Mina, 2023). A validation process involving subject matter experts, media specialists, and instructional design experts is essential to confirm that the final product is truly feasible and effective before its widespread use in schools. This technical and pedagogical validation aims to produce media that is not only user-friendly but also capable of optimally achieving learning objectives (Zheng et al., 2020).

In conclusion, this study asserts that the intersection of pedagogical depth, specifically through the PBL model, and the technological versatility of Canva-based websites is the key to modernizing Social Studies education. By grounding this innovation in the ADDIE development framework, the research ensures a balance between form and function, aesthetics and

academics (Sobandi et al., 2023). The following sections of this paper will provide an exhaustive look at the R&D methodology employed, the technical development of the platform, and the results of the effectiveness testing conducted at SMP Negeri 13 OKU. Ultimately, this work serves as a response to the urgent educational challenges of the Society 5.0 era, where the ability to navigate digital landscapes and solve complex social problems is more important than ever.

METHOD

The methodological foundation of this study is built upon the Research and Development (R&D) framework, a rigorous scientific approach dedicated to designing, developing, and validating educational products that address specific pedagogical challenges. To ensure a systematic and high-quality outcome, this research adopts the ADDIE model comprising Analysis, Design, Development, Implementation, and Evaluation as originally conceptualized by Robert Maribe Branch. This model was selected for its logical progression and its particular relevance in creating technology-driven learning environments, providing a structured pathway to transform theoretical concepts into functional interactive multimedia (Pratama et al., 2025; Sugiyono, 2024).

The ADDIE Procedural Framework

The development process was not merely a linear sequence of events but an iterative cycle of refinement. Every phase was designed to ensure that the final web-based Canva platform was not only technologically stable but also pedagogically sound. Analysis Phase, this initial stage involved a comprehensive diagnostic assessment of the environment at SMP Negeri 13 OKU. We conducted a deep analysis of the seventh-grade Social Studies curriculum, focusing on identifying "troublesome" topics such as scarcity and human needs. Furthermore, an analysis of student characteristics was conducted to map their digital literacy levels and preferred learning styles. This phase was crucial for ensuring that the multimedia produced would serve as a genuine solution to the documented lack of student engagement (Liska et al., 2024).

Design Phase, during this stage, a detailed blueprint of the multimedia tool was created. This included the development of flowcharts to map user navigation and storyboards to visualize the layout of each Canva-based page. A critical component of this design was the explicit integration of Problem-Based Learning (PBL) syntax, ensuring that the technology served the pedagogy, and not the other way around (Mariskhantari et al., 2022).

Development Phase, here, the design was realized into a physical digital product. Using Canva's dynamic web-hosting capabilities, we integrated descriptive texts, contextual illustrations, instructional videos, and interactive assessment modules. This phase also encompassed the rigorous expert validation process required to certify the product's readiness for use. Implementation Phase, the validated product was then introduced to the target users through a tiered testing system, ranging from individual interactions to full-scale classroom usage. Evaluation Phase, both formative and summative evaluations were conducted to measure the success of the intervention. This stage utilized feedback loops to finalize the product and assess its potential impact on the Social Studies learning ecosystem.

Expert Validation: Transparency in Quality Assurance

To ensure the scientific credibility of the multimedia, a panel of three independent experts was carefully selected based on their specialized professional backgrounds. Each validator utilized a structured assessment instrument to provide both quantitative ratings and qualitative suggestions:

1. Material Expert: A senior academic with extensive expertise in Social Studies Education. This expert was responsible for auditing the accuracy of the economic content, the relevance of the scarcity simulations, and the alignment with national curriculum standards.

2. Instructional Design Expert: A specialist in educational technology who focused on the structural integrity of the PBL model. This validator ensured that the problem-based scenarios were appropriately scaffolded to challenge student thinking without causing cognitive overload.
3. Media Expert: A professional in digital media and UI/UX design. This expert evaluated the technical performance of the Canva website, the quality of visual elements, navigation intuitiveness, and the overall aesthetic appeal that facilitates sustained student attention (Slamet, 2022; Wijaya et al., 2022)

Participant Selection and Scaled Testing Rationale

The transition from a prototype to a classroom-ready tool followed a carefully calculated "scaled-up" testing protocol. This approach was chosen to identify and rectify errors at the earliest possible stage:

1. Individual Testing (n=3): We selected three students representing high, medium, and low academic performance. This minimal number allowed for intensive, one-on-one observation to identify fundamental usability issues, such as confusing icons or text that was too difficult to read.
2. Small-Group Testing (n=9): The rationale for this mid-sized group was to observe how students interacted with the media in a more collaborative environment. This stage focused on the clarity of the problem-solving tasks and the flow of the PBL syntax in a group setting.
3. Field Trials (n=35): The final implementation involved 35 students in Class VII.11. This sample size was chosen because it represents a standard Indonesian classroom unit, providing a realistic assessment of how the multimedia performs under typical school conditions, including variations in internet stability and teacher-student dynamics (Mina, 2023).

Operational Definitions of R&D Constructs

In the context of this Research and Development study, we have explicitly defined and operationalized the following three constructs to ensure conceptual clarity:

1. Validity: This refers to the "pedagogical and technical correctness" of the product. It was measured by the average percentage scores from the expert validation panel. A product is considered "Highly Valid" if it achieves a score above 81%, indicating it is fit for instructional use.
2. Practicality: This is defined as the "usability and user appeal" of the tool in the field. Practicality was operationalized through student response questionnaires and observation logs during all testing phases. It measures whether the media is easy to navigate and enjoyable to use in a real classroom.
3. Potential Effectiveness: While the primary focus of this R&D is development, effectiveness is viewed here as the "perceived instructional impact." It was assessed through the students' ability to engage with the problem-solving exercises and their self-reported increase in motivation and understanding of the social topics presented.

Data Collection and Analytical Approach

The data collection instruments were designed to be both comprehensive and accessible. We utilized Likert-scale questionnaires for quantitative data and open-ended comment sections for qualitative feedback. Quantitative data were analyzed using simple percentage calculations to determine the feasibility category of the product. Meanwhile, qualitative data underwent thematic reduction to provide actionable points for product revision. By combining these two data streams, the study ensures that the final multimedia tool is not only statistically robust but also humanly resonant and practically useful for the daily realities of Indonesian education (Sugiyono, 2024; Sobandi et al., 2023).

Instruments and Data Collection

To ensure the empirical rigor of this Research and Development (R&D) study, the instruments and data collection procedures were designed to provide a multidimensional assessment of the product's quality. The development of these instruments followed a structured process of construction, internal review, and operational standardization to ensure that the data collected covering validity and practicality were both accurate and reliable.

1. Instrument Construction and Preliminary Validation

The research utilized two primary types of instruments: Expert Validation Sheets and Student Response Questionnaires. These were constructed based on a comprehensive literature review of instructional design standards and the specific syntax of Problem-Based Learning. Construction: The Expert Validation Sheets were divided into specific domains: content accuracy, pedagogical flow, and technical media quality. The Student Response Questionnaires were adapted from the Technology Acceptance Model (TAM) and usability standards, focusing on ease of use, visual appeal, and perceived instructional benefit. Review and Piloting: Before their actual application, all instruments underwent a "Face Validation" process. This involved a pre-review by two senior faculty members specializing in educational evaluation to ensure that the language was unambiguous and that the items accurately reflected the research constructs. A pilot test of the student questionnaire was conducted with a small group of five students (separate from the main study sample) to identify and correct any confusing terminology or layout issues.

2. Scoring System and Likert-Scale Operationalization

All instruments utilized a 4-point Likert Scale. The choice of a 4-point scale was intentional to eliminate the "neutral" or "central tendency" bias, thereby forcing respondents to provide a definitive positive or negative assessment. The scoring weights were assigned as follows: Score 4: Strongly Agree / Excellent / Very Good, Score 3: Agree / Good, Score 2: Disagree / Poor, score 1: Strongly Disagree / Very Poor.

3. Data Analysis Formula and Interpretation Standards

The raw data obtained from the experts and students were transformed into percentage scores to determine the feasibility level of the multimedia platform. The formula used for calculating the percentage of validity and practicality is as follows:

$$P = \frac{\sum x}{\sum x_i} \times 100\%$$

Where:

P = Final percentage score.

$\sum x$ = *Total empirical score obtained from respondents*

$\sum x_i$ = *Maximum possible total score based on the number of items and respondents*

The resulting percentages were then categorized using a standardized interpretation scale to determine the product's status, as shown in the table below:

Table 1. Categorization and Decision Standards for Multimedia Feasibility

Percentage Range	Category	Decision/Action
81% – 100%	Very Valid / Very Practical	Feasible for use without revision
61% – 80%	Valid / Practical	Feasible for use with minor revisions
41% – 60%	Less Valid / Less Practical	Revisions required; not yet feasible
0% – 40%	Invalid / Impractical	Total overhaul/Redesign required

RESULTS AND DISCUSSION

Results

The results of this research and development study are presented systematically according to the sequential phases of the ADDIE model, specifically focusing on the transition from empirical analysis to the validation of a functional instructional tool. The initial Analysis phase revealed a static classroom atmosphere at SMP Negeri 13 OKU, where approximately 75% of instructional time was dominated by conventional, passive lectures. Interviews with Social Studies teachers further confirmed that students frequently struggled to grasp abstract economic concepts, such as the tension between limited natural resources and growing human needs, largely because existing textbooks lacked the capacity to present real-world problems for contextual understanding. Although seventh graders were identified as digital natives with a high affinity for mobile devices, this potential had not been strategically leveraged for educational purposes. These findings provided a strong justification for developing a web-based multimedia solution via the Canva platform, explicitly integrated with Problem-Based Learning (PBL) syntax to foster a more inquiry-based learning environment.

During the Design and Development phases, these needs were translated into an operational product blueprint featuring five primary navigation menus: Home, Preliminary Activities, Core Activities, Closing Activities, and Developer Profile. The instructional design was purposefully crafted to avoid immediate exposure to theory, instead introducing students to topics through visually compelling problem presentations and interactive navigation flows that support self-directed exploration. To maintain the integrity of PBL, the researcher embedded interactive question boxes and short-opinion forms within the web platform to ensure students remained engaged in critical thinking throughout the process. Before implementation, the product underwent rigorous validation by a panel of experts to establish its technical and pedagogical feasibility.

The validation results indicated that the multimedia platform is highly valid and theoretically sound for instructional use. The subject matter expert provided a feasibility percentage of 93.1%, placing the material in the "Excellent" category. High scores were awarded for conceptual accuracy and the relevance of the material to students' real-world needs, confirming that the content was scientifically accurate. Validation by the instructional design expert yielded a score of 88.1%, with the expert noting that the PBL flow within the website was logically structured to facilitate conceptual understanding. Furthermore, the media expert validation resulted in a score of 88.2%, praising the ease of operation and consistent functionality of the navigation buttons. While these scores reflect high expert approval, they primarily demonstrate the validity of the product's design and content rather than direct learning outcomes.

The Implementation phase assessed the product's practicality through a tiered series of trials. Individual testing with three students resulted in an average percentage of 88.4%, where students responded positively to the aspect of learning autonomy, reaching a score of 89.6% for their ability to use the media without teacher assistance. Small-group trials with nine students showed an upward trend, with the average percentage rising to 88.8%, particularly highlighted by a high learning motivation indicator of 89.4%. The large-scale field trial involving 35 students culminated in an average score of 89.6%, categorized as "Excellent". Notably, the highest performance indicator was the students' ability to perform self-evaluation through the platform, reaching 91.2%. These findings demonstrate that the product is highly practical and engaging in a real classroom setting.

In conclusion, the research data illustrates a promising deployment of high-quality interactive multimedia that shows strong potential to revitalize the learning environment. The

integration of the PBL model within the Canva web platform created a dynamic setting where students viewed the problem of scarcity as a tangible challenge requiring creative solutions. As noted in the revised analysis, the high practicality scores and positive user responses should be viewed as indicators of the product's potential to foster an active learning atmosphere rather than a definitive measure of cognitive mastery. The results confirm that the developed multimedia is well-suited for use as a Social Studies instructional instrument, with the observed data suggesting a shift in the student role from a passive recipient of information toward a more active participant in the inquiry process.

Discussion

The interpretation of the findings from this study suggests that the development of web-based interactive multimedia using Canva represents a significant step toward modernizing Social Studies instruction at SMP Negeri 13 OKU. However, a critical analysis must distinguish between the technical validation of the product and its actual instructional impact within the classroom setting. The subject matter expert validation score of 93.1% confirms that the digitalization of educational content achieved a high degree of scientific accuracy. This ensures that the transition from print to digital media did not compromise the curriculum's integrity but rather served as a reliable communicative bridge that simplifies complex instructional messages.

The high scores in material relevance indicators suggest that presenting the topic of "scarcity" through real-world problem simulations successfully addressed the cognitive gaps students previously faced when using traditional textbooks. While the data show a strong positive response, the study interprets this primarily as an increase in instructional appeal and conceptual clarity. Theoretical literature suggests that when technology acts as a catalyst in student-centered environments, it allows learners to explore information more independently. However, in the context of this study, the observed "learner autonomy" should be viewed as a nascent development facilitated by the media's structured navigation rather than a fully realized cognitive transformation. The data confirm that students were more active, but this activity remains tethered to the structured guidance provided by the Problem-Based Learning (PBL) syntax embedded in the platform.

The strong validation results for the instructional design, at 88.1%, reflect the importance of utilizing a systematic framework like the ADDIE model. By following these stages, the researcher ensured that every interactive feature served a clear pedagogical purpose rather than acting as mere visual decoration. The PBL flow, which begins with problem orientation, helped activate students' prior knowledge, providing them with a functional reason to explore the material on scarcity. While the manuscript previously noted indicators of critical thinking development, a more restrained interpretation of the field trial results suggests that the multimedia tool functioned effectively as a "facilitator" of critical inquiry. Students demonstrated a higher frequency of questioning and better problem-identification skills, yet these are immediate behavioral responses to the media's stimuli rather than measured long-term cognitive shifts.

From a technical perspective, the media expert validation of 88.2% and field trial results reaching 89.6% demonstrate that a web-based Canva platform is a highly practical solution for schools with varying levels of digital infrastructure. The ease of navigation and website access speed were crucial factors supporting a positive user experience. The finding that students felt capable of performing self-evaluation, evidenced by the 91.2% score, suggests an increase in perceived self-efficacy. However, the study acknowledges that self-efficacy is a complex construct, and the reported scores reflect competence within this specific digital environment. The two-way interactivity provided by the multimedia allowed for instant feedback, which is

vital for maintaining the intrinsic motivation of digital-native students, but its impact on actual academic performance requires further comparative data.

The discussion must also address the limitations of the "transformation" observed in the classroom ecology. While the shift toward a student-centered approach was evident, this was a facilitated transformation where the multimedia acted as the primary driver for student participation, reducing the "verbalism" often found in traditional lectures. The innovation demonstrates that platforms like Canva can be converted into standalone digital learning ecosystems that follow rigorous instructional design standards without requiring complex programming.

In conclusion, this analytical reflection emphasizes that the ultimate value of this multimedia tool lies in its ability to spark a more dynamic interaction between the student and the social curriculum. By grounding the discussion in validated findings rather than purely theoretical speculation, the research provides a transparent account of the potential and the boundaries of digital innovation in the modern classroom.

The high validation score of the instructional design, at 88.1%, reflects the vital importance of a systematic structure in digital media development. Utilizing the ADDIE model ensures that every interactive feature within the website serves a clear pedagogical purpose rather than acting as mere visual decoration. The PBL flow, beginning with problem orientation, helps activate students' prior knowledge, giving them a functional reason to explore the material on scarcity. Global literature supports that interactive technology acts as a catalyst in student-centered environments, allowing learners to explore information independently and build permanent understanding. Consequently, this multimedia is not merely a teaching aid for instructors but a comprehensive digital learning environment.

From a technical perspective, the media expert validation of 88.2% and field trial results reaching 89.6% demonstrate that a web-based Canva platform is a highly practical solution for schools with limited specialized software infrastructure. Ease of navigation and website access speed are crucial factors supporting a positive user experience. The finding that students felt capable of performing self-evaluation, evidenced by a 91.2% score, indicates an increase in self-efficacy and self-regulation in learning. The two-way interactivity provided by the multimedia allows students to receive instant feedback, which is essential for maintaining the intrinsic motivation of digital-native students. Integrating videos and interactive quizzes into a single web platform reduces the cognitive load of switching between applications, thereby maintaining optimal learning focus.

Further discussion regarding student responses in small-group and field trials shows that this interactive multimedia showed strong potential to alter student perceptions of Social Studies, which was previously considered dull. A learning motivation score of 89.4% proves that visual narratives and problem-based approaches arouse intellectual curiosity in students. The shift in the teacher's role from an information provider to a facilitator, as observed during the implementation phase, is the primary key to successful multimedia-assisted PBL. This reinforces social constructivism theory, which posits that learning is most effective when students engage in contextual problem-solving and have space for reflection. The product's demonstrated capacity to support higher engagement signals a positive direction for educational digitalization efforts in developing regions, though further outcome-based research is needed to confirm its impact on learning achievement.

CONCLUSIONS

The primary conclusion of this research is that the web-based interactive multimedia via Canva is highly valid and practical for Social Studies education. The study found that this digital intervention contributed to a more active classroom atmosphere, effectively challenging the

reliance on passive methodologies. By presenting scarcity through digital simulations, the multimedia provided students with the opportunity to act as problem solvers. This study offers a low-cost, high-impact model for digital resource creation, though its direct effectiveness in enhancing conceptual mastery remains a promising area for future experimental research.

Scientific contributions of this study include reinforcing previous findings on the efficacy of PBL while introducing a low-cost, high-impact model for digital learning resource creation using widely accessible platforms like Canva. This research challenges the assumption that sophisticated educational technology requires complex programming or high-budget infrastructure, demonstrating instead that pedagogical rigor, when combined with modern design aesthetics, shows strong potential to support conceptual understanding in social sciences. Furthermore, this study enriches the discourse on educational technology in developing regions by providing a systematic operational guide based on the ADDIE development model.

Despite its successful implementation, this study is subject to certain limitations. The research was limited to a specific sample of seventh-grade students at SMP Negeri 13 OKU and focused on a single thematic topic (Scarcity and Human Needs), which may limit the generalizability of the results to different educational contexts or subject areas. Additionally, as a web-based platform, the media's effectiveness remains dependent on stable internet connectivity. Therefore, it is recommended that further research be conducted with a larger, more diverse sample across various geographical regions to gain a more comprehensive understanding of the media's impact. Educators are also encouraged to begin designing their own interactive resources using this model to foster a more dynamic and interactive national curriculum.

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ES contributed to the conceptualization, research design, data collection, and writing of the original manuscript draft. YI provided supervision, methodological guidance, and critical review of the manuscript. LP contributed to the literature review, data analysis, and revision of the manuscript. All authors reviewed and approved the final version of the manuscript.

AUTHOR CONTRIBUTION STATEMENT

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AI DISCLOSURE STATEMENT

The authors declare that this research, including the development of the Canva-based web interactive multimedia, the collection and analysis of data, and the writing and editing of this manuscript, was conducted without the use of artificial intelligence (AI) tools or services. All content reflects the original work of the authors, and full responsibility for the accuracy and integrity of the publication is assumed by the corresponding author.

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