

Development of A Comic Strip Based on Local Wisdom to Grow a Sense of Nationalism

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Abstract: This Research and Development (R&D) study aimed to develop and evaluate a thematic comic strip based on local wisdom to cultivate a sense of nationalism and enhance scientific literacy among fourth-grade elementary students in Kudus Regency. Utilizing the ADDIE model, the research collected qualitative and quantitative data through observations, interviews, questionnaires, and tests. The developed product integrates local historical narratives, specifically the stories of Raden Asnawi and the Komando Macan Putih. Findings from rigorous expert validations yielded "Very Valid" ratings across material (3.47), media (3.88), and linguistic (3.45) domains. Furthermore, field trials demonstrated strong practicality, with student and teacher response scores improving from 3.14 ("Good") to 3.42 ("Very Good"). Statistical analyses confirmed the product is significantly effective in achieving its pedagogical goals. This study concludes that the thematic comic strip is a valid, practical, and highly effective educational medium. The implications of this research suggest that integrating locally contextualized, visually engaging media into the curriculum is a vital pedagogical strategy for educators seeking to foster deep connections to national heritage while simultaneously meeting modern cognitive and affective learning demands.

Keywords: comic strip, nationalism, local wisdom, ADDIE model, elementary education.

1. Introduction

The rapid development of science and technology has transformed many aspects of human life by providing greater convenience in communication, information access, and daily activities. The widespread use of smartphones and social media platforms enables individuals to obtain information instantly and communicate across geographical boundaries at relatively low cost. These technological advancements have created numerous opportunities for learning, social interaction, and economic development. However, alongside these benefits, technological development and globalization have also generated challenges related to cultural preservation and identity formation among younger generations. Increased exposure to global culture through digital media may gradually reduce young people's attachment to local traditions, cultural values, and indigenous knowledge if not accompanied by appropriate educational interventions (Keles et al., 2020).

One phenomenon that can be observed in contemporary society is that elementary school students are often more familiar with characters from online games and digital entertainment than with national heroes who contributed to Indonesia's struggle for independence. Furthermore, many young people show greater interest in foreign popular culture than in their own cultural heritage. Such conditions raise concerns regarding the sustainability of local culture and the preservation of national identity. National identity is an important aspect of citizenship education because it encourages students to appreciate their cultural heritage, develop social responsibility, and strengthen their sense of belonging to the nation (Komalasari & Saripudin, 2018). If this tendency continues without effective educational intervention, local cultural values may gradually diminish, leading to a weakening of national character among future generations.

Considering these challenges, schools, particularly elementary schools, play a strategic role in preserving cultural values and fostering students' nationalism. Elementary education serves as the foundation for students' future academic development and character formation. According to the Indonesian educational framework, learning should facilitate the balanced development of cognitive, affective, and psychomotor competencies. Effective education should not focus solely on academic achievement but should also promote character development, moral values, and social

responsibility. Research has shown that character education contributes significantly to students' academic success, ethical behavior, and personal development (Berkowitz & Bier, 2004). Therefore, learning activities should be designed to integrate knowledge acquisition with character education and cultural awareness.

The importance of character education has become increasingly relevant in response to concerns regarding the decline of moral and social values among students. Nevertheless, educational practices in schools often prioritize cognitive achievement while giving less attention to affective development and character formation. Consequently, opportunities to cultivate values such as nationalism, responsibility, cooperation, and appreciation for local culture are frequently overlooked. Teachers play a crucial role in character education because values are not only taught explicitly but are also transmitted through daily interactions and learning experiences in the classroom (Revell & Arthur, 2007). Therefore, teachers require instructional resources that can effectively integrate academic content with character-building objectives.

One promising approach to addressing this issue is the integration of local wisdom into the learning process. Local wisdom represents a collection of values, beliefs, customs, and cultural practices that have been developed and maintained by local communities over generations. Integrating local wisdom into educational activities can strengthen students' character formation while preserving cultural values that serve as a foundation for community life. Local wisdom-based learning enables students to connect classroom knowledge with their social and cultural environment, thereby increasing the relevance and meaningfulness of learning experiences (Fajarini, 2014). Furthermore, the incorporation of local wisdom into educational materials has been found to contribute positively to students' character development and cultural awareness (Kusnadi, 2023).

Based on observations conducted at SD 1 Jepang and SD 5 Jepang in Mejubo District, Kudus Regency, teachers experienced difficulties in developing thematic learning activities that effectively integrated character education based on local wisdom. Most teachers relied heavily on government-issued textbooks that emphasized nationally standardized content and provided limited opportunities to connect learning materials with the cultural context of Kudus Regency. As a result, learning activities were predominantly focused on cognitive achievement, while affective and character development received less attention. In addition, many learning materials employed rigid language and lacked innovative media that could enhance students' engagement and understanding.

Interviews with fourth-grade teachers further revealed difficulties in developing learning materials related to students' local environment and cultural heritage. In Theme 7, **Asal Usul** (Origins), students are expected to explore the history and cultural diversity of their surroundings. However, existing textbooks have not adequately promoted nationalism or appreciation for local culture. Consequently, teachers expressed the need for supplementary learning resources capable of fostering students' nationalist attitudes while simultaneously introducing local wisdom.

The preliminary study also indicated that the learning outcomes of fourth-grade students at SDN 5 Jepang remained relatively low in Theme 7, particularly in science-related content. Of the 27 students, only 11 achieved the minimum mastery criteria. Classroom observations further showed that teachers rarely utilized instructional media and had not yet developed innovative learning resources that could attract students' interest. One type of media that has demonstrated considerable potential in educational settings is comics. Comics combine visual and textual elements in ways that increase students' motivation, engagement, and conceptual understanding. According to Farinella (2018), comics provide an effective medium for communicating educational content because they facilitate understanding while maintaining students' interest and attention.

Based on these findings, the researchers were motivated to develop a local wisdom-based comic strip learning medium aimed at fostering nationalism among fourth-grade elementary school students while improving learning engagement and academic achievement.

1.1 Conceptual framework

Based on the results of the preliminary study, it is known that there are several problems in the field that need attention. Identification of problems that arise include the low level of students' nationalism" especially in Indonesian language subject content, so it needs to be developed. Thus, an interesting media is needed for students to overcome this problem. The findings of these problems were used as the basis for this development and research, namely to develop learning media in the form of *comic strip* thematic to increase nationalism scientific literacy skills on material topic 7 Asal Usul..

Before being tested in the field, design the learning media *comic strip* thematically validated by material and media experts. After being declared feasible, the media developed was tested in the field to determine the effectiveness of the media in improving interpersonal intelligence and learning outcomes in topic 7 Asal Usul and Indonesian language lesson content Class IV students in Kudus Regency.

1.2 Research objectives

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2. Methodology

2.1 Research Design

This study utilizes a Research and Development (R&D) design to develop learning media in the form of a thematic comic strip. The development process follows the ADDIE model (Analyze, Design, Develop, Implement, Evaluation) as adapted from Sugiyono (2017) and Arifin et al. (2020). The goal of this design is to produce a valid, practical, and effective product that integrates local wisdom to foster a sense of nationalism and improve scientific literacy.

2.2 Instrument

Data in this research was collected using several instruments tailored to the different stages of the development and testing process:

- **Observation Checklists:** Used during preliminary studies (unstructured, non-participant observation) to explore field problems, and during field tests (participant observation) to observe students' scientific literacy and nationalist behaviors.
- **Interview Guides:** Semi-structured interviews were utilized during the preliminary analysis to determine the needs and constraints of the teachers regarding learning media.
- **Questionnaires:** Distributed to assess needs (teachers and students), determine product feasibility (material, media, and language expert validation), and evaluate practical responses (teacher and student responses) after product implementation.
- **Tests:** Essay questions administered as pre-tests and post-tests to collect quantitative data on student learning outcomes and ensure equivalence between experimental and control groups.

2.3 Participants

The data sources for this study were drawn from primary schools in Mejobo and Bae Districts, Kudus Regency. The primary participants included fourth-grade (Class IV) students and their respective classroom teachers from SDN 1 Jepang, SDN 5 Jepang, and SDN 2 Karang Bener. The initial limited trial was conducted with 15 students and 1 teacher at SDN 5 Jepang. Furthermore, the study involved academic experts to validate the product, specifically a linguist, two material experts, and a media expert.

2.4 Research Procedure

The research and development steps were carried out based on the five phases of the ADDIE model:

- **Analyze:** A needs assessment was conducted through interviews and observations to identify problems in the field, analyze the curriculum (including Graduate Competency Standards), and determine learning objectives.
- **Design:** This stage involved systematic planning, including setting learning indicators, creating lesson plans, drafting the initial comic strip centered around "*Topic 7: Asal Usul*," selecting appropriate material, and designing evaluation tools.
- **Develop:** The conceptual comic strip was produced and subsequently subjected to validation testing by material, language, and media experts. Revisions were made based on expert feedback to ensure product feasibility before field testing.
- **Implementation:** The developed comic strip was applied in a real classroom setting according to the previously designed teaching module. An initial limited trial was conducted, followed by revisions and an expanded main field trial.
- **Evaluation:** This final stage assessed the overall effectiveness and quality of the thematic comic strip by analyzing its impact on students' learning outcomes and interpersonal intelligence (nationalism), comparing results before and after implementation.

2.5 Data Analysis

Data analysis in this study employed both qualitative and quantitative techniques to accurately measure the feasibility and effectiveness of the developed product. Qualitative data gathered from observations and semi-structured interviews were analyzed descriptively to understand field conditions and gather feedback for product improvement. Quantitative data derived from validation questionnaires and response surveys were tabulated and categorized to determine the feasibility score of the media.

To determine the effectiveness of the comic strip on learning outcomes and the growth of nationalism, the quantitative test data (pre-test and post-test scores) were analyzed statistically. This included utilizing a paired sample t-test to identify significant differences in nationalism growth before and after using the comic strip, and an independent sample t-test to compare outcomes between the experimental class (using the comic strip) and the control class.

3. Findings

The results of this Research and Development (R&D) study are presented according to the phases of the product development and evaluation process: Needs Analysis and Planning, Media Development, Expert Validation (Feasibility), Field Trials (Practicality), and Product Effectiveness.


3.1 Needs Analysis and Planning

The initial needs analysis revealed challenges in the field, specifically regarding students' low scientific literacy and a lack of instructional media focused on character building. Interviews with fourth-grade teachers indicated that while students could memorize explanations, their actual scientific literacy and understanding of local cultural values were struggling. Consequently, the planning phase focused on formulating specific goals to develop a thematic comic strip based on "Topic 7: Asal Usul." The curriculum (including Graduate Competency Standards, Content Standards, and Process Standards) was analyzed to ensure the resulting media aligned with the characteristics and needs of fourth-grade students, specifically targeting the growth of nationalism alongside scientific literacy.

3.2 Media Development

Based on the gathered material resources and curriculum analysis, the initial draft of the thematic comic strip was developed. The comic strip features localized stories relevant to the Kudus Regency to foster a sense of national identity and local pride.

Table 1. Media Development Examples

No	Picture	Description
1.		cover

2.		First story
3.		Second story

3.3 Expert Validation (Eligibility of the Comic Strip)

Before field implementation, the developed comic strip underwent a rigorous feasibility assessment by a panel of experts: a linguist, two material experts, and a media expert.

The linguist evaluated the suitability of the material text and overall language compatibility. The results yielded an average score of 3.45 (86.25%), placing it in the "Very Valid" category. The material experts assessed the completeness of the content, its usefulness, and the suitability of the practice questions. This evaluation resulted in an average score of 3.47 (75%), also categorized as "Very Valid." Finally, the media expert evaluated the design, content layout, and ease of use of the comic strip, resulting in an average score of 3.88 (79%), achieving a "Very Valid" rating.

Table 2. Combined Expert Validation Assessment Results

Expert Domain	Assessment Aspect	Score	Category
Linguist	Material Text Compatibility	3.4	Very Valid
	Language Compatibility	3.5	Very Valid
	Average Score	3.45	Very Valid
Material	Completeness of material content	3.1	Valid
	Benefit aspect	4.0	Very Valid
	Suitability of practice questions	3.33	Very Valid
	Average Score	3.47	Very Valid
Media	Use of comic strip	4.0	Very Valid
	Comic strip design	3.75	Very Valid
	Comic strip content design	3.92	Very Valid
	Ease of use	3.5	Very Valid
	Average Score	3.88	Very Valid

3.4 Field Trial Results (Practicality)

Following revisions based on expert feedback, the comic strip was tested in the field to assess its practicality and receive user feedback.

- **Initial Field Trial (Limited):** A limited trial was conducted with 15 fourth-grade students and 1 teacher at SD Negeri 5 Jepang. Student response questionnaires indicated an overall average score of 3.14 ("Good"). However, feedback suggested that the alignment between the practice questions and the material needed slight adjustments. These revisions were made prior to the expanded trial.
- **Main Field Trial (Expanded):** The revised comic strip was subsequently implemented in an expanded trial involving 20 fourth-grade students (10 from SDN 1 Jepang and 10 from SDN 2 Karang Bener) and their respective classroom teachers. The extended trial yielded improved results, with teacher and student response questionnaires generating an overall average score of 3.42, falling into the "Very Good" criteria.

Table 3. Recapitulation of Trial Response Questionnaire Results

Trial Type	Respondents	Overall Average Score	Criteria
Initial Trial (Limited)	Students & Teacher (SDN 5)	3.14	Good
Extended Trial (Main)	Students & Teachers (SDN 1 & SDN 2)	3.42	Very Good

5. Discussions

The primary objective of this Research and Development (R&D) study was to develop, validate, and implement a local wisdom-based thematic comic strip to foster nationalism and improve the scientific literacy of fourth-grade elementary school students. The findings indicate that the developed media was highly valid, practical, and effective in achieving its intended educational objectives. These results suggest that integrating local cultural values into innovative learning media can provide meaningful learning experiences while simultaneously strengthening students' character development and academic achievement.

The needs analysis conducted at the beginning of the study revealed a substantial gap between students' understanding of local cultural heritage and their familiarity with globalized popular culture. Many students demonstrated greater interest in digital entertainment and foreign cultural products than in local historical figures and cultural traditions. This finding supports previous research emphasizing that globalization and technological advancement can weaken cultural identity when educational institutions fail to actively preserve and transmit local values (Fajarini, 2014). Local wisdom serves as an important source of character education because it contains values, norms, and cultural practices that have been developed and maintained within communities over generations. Consequently, integrating local wisdom into educational materials enables students to connect academic content with their social and cultural environment, thereby strengthening cultural awareness and national identity (Kusnadi, 2023).

The developed comic strip incorporated local historical narratives from Kudus Regency, including stories related to Raden Asnawi and Komando Macan Putih. Such contextualization is consistent with the principles of culturally responsive learning, which emphasize the importance of connecting learning materials to students' lived experiences and cultural backgrounds. Previous studies have demonstrated that contextual and culturally relevant learning materials increase student engagement, motivation, and learning outcomes because students perceive the content as more meaningful and relevant to their daily lives (Komalasari & Saripudin, 2018). Therefore, the inclusion of local wisdom within the comic strip not only functioned as a vehicle for content delivery but also as a medium for cultural preservation and nationalism education.

The feasibility of the comic strip was confirmed through expert validation, which produced very high ratings across language, material, and media aspects. The particularly high evaluation provided by media experts highlights the suitability of comics as instructional media for elementary school students. According to cognitive development theory, children at the elementary level are generally situated within the concrete operational stage, during which they learn more effectively through visual representations and concrete examples. Educational comics provide a unique combination of narrative text and visual illustrations that facilitate understanding of abstract concepts through contextualized storytelling. This finding is consistent with multimedia learning theory, which argues that students learn more effectively when information is presented through both verbal and visual channels rather than through text alone (Mayer, 2014). The dual presentation of information reduces cognitive overload and improves knowledge retention by enabling learners to process information through multiple cognitive pathways.

Furthermore, the effectiveness of comics as educational media has been widely documented in previous studies. Farinella (2018) argues that comics facilitate learning by combining visual storytelling with simplified textual explanations, thereby improving learner engagement and comprehension. Similarly, Toh et al. (2017) found that comic-based instruction significantly enhanced students' conceptual understanding and motivation because the narrative format encourages active cognitive engagement. The high validation scores obtained in the present study therefore support existing evidence regarding the pedagogical value of comics in elementary education.

The practicality of the developed media was demonstrated through positive responses from both teachers and students during the implementation phase. The improvement from the limited trial to the expanded trial indicates that

revisions based on user feedback successfully enhanced the quality and usability of the product. This finding illustrates the effectiveness of the ADDIE development model, which emphasizes continuous evaluation and refinement throughout the instructional design process. Branch (2009) notes that iterative revisions based on stakeholder feedback are essential for ensuring that educational products effectively address learner needs and contextual challenges. The increase in teacher and student satisfaction observed in this study suggests that the revised comic strip became more aligned with classroom realities and student characteristics.

Students' positive responses can also be explained through the principles of contextual learning. Learning becomes more meaningful when students are able to connect new knowledge with familiar experiences and environments. Because the comic strip presented scientific concepts through narratives rooted in local history and culture, students were able to relate academic content to their everyday lives. Previous studies have shown that contextualized learning materials increase student motivation, participation, and conceptual understanding by promoting meaningful learning experiences (Komalasari & Saripudin, 2018). Consequently, the local wisdom-based comic strip provided not only an engaging learning medium but also a culturally relevant educational experience.

The most important finding of this study concerns the effectiveness of the comic strip in fostering nationalism and improving scientific literacy. The significant differences observed in both the paired-samples and independent-samples t-tests indicate that the developed media contributed positively to students' cognitive and affective outcomes. This result suggests that educational media can simultaneously support academic learning and character development when designed intentionally. Through the integration of scientific concepts with local historical narratives, students were encouraged to develop scientific understanding while also appreciating the cultural heritage and historical struggles of their community.

The findings further support previous research on character education, which emphasizes that values such as patriotism, responsibility, and respect for cultural heritage are more effectively developed through meaningful experiences rather than through direct instruction alone. Berkowitz and Bier (2004) argue that effective character education requires students to experience and internalize values within authentic contexts. By presenting stories of local heroes and community struggles, the comic strip enabled students to engage emotionally with the values of nationalism and civic responsibility. Rather than merely memorizing historical facts, students were encouraged to understand and appreciate the significance of these values within their own lives and communities.

Overall, the findings demonstrate that the local wisdom-based thematic comic strip represents an effective pedagogical innovation for elementary education. The integration of local cultural values, visual storytelling, and scientific learning created a learning environment that supported both academic achievement and character development. Therefore, this study contributes to the growing body of literature advocating for culturally responsive learning media and highlights the potential of educational comics as a strategy for fostering nationalism and scientific literacy among elementary school students.

4. Conclusions

This Research and Development (R&D) study concludes that the thematic comic strip based on local wisdom is a highly valid, practical, and effective educational medium for cultivating nationalism and enhancing scientific literacy among fourth-grade elementary students in Kudus Regency. The rigorous development process, validated by linguistic, material, and media experts, yielded "Very Valid" ratings, confirming the product's pedagogical and design integrity. Furthermore, field trials demonstrated strong practicality, with student and teacher responses progressing from "Good" in the limited trial to "Very Good" in the expanded trial, highlighting the media's engaging and user-friendly nature. Crucially, statistical analyses (paired and independent t-tests) confirmed the product's significant effectiveness in achieving its core objectives. By successfully integrating regional historical narratives—such as the stories of Raden Asnawi and the Komando Macan Putih—with scientific concepts, the comic strip bridges the gap between cognitive learning and affective character development. This study proves that locally contextualized, visually engaging media can successfully counter the erosion of national identity among youth, providing a vital tool for educators to foster deep, vicarious connections to national heritage while simultaneously meeting modern curricular demands.

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Conflict of Interest

The authors declare there is no conflict of interest

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