

Illustrated Storybooks for Critical Thinking Development: Designing Innovative Teaching Materials for Contemporary Classrooms

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Abstract: This study aimed to develop an illustrated storybook based on Indonesian local wisdom to support critical-thinking-oriented learning for fourth-grade elementary school students. The study was motivated by the limited availability of contextual teaching materials that integrate local wisdom while promoting students' reasoning, reflection, and problem-solving skills. A Design and Development Research approach with a product-oriented procedure was employed, consisting of needs analysis, product design, product development, expert review, and product revision. The developed teaching materials were evaluated by experts in subject matter, educational media, elementary education, and local culture. The review focused on content accuracy, visual presentation, language appropriateness, representation of local wisdom, and the alignment of learning activities with critical thinking indicators. The illustrated storybook integrates local history, cultural heritage, community traditions, and everyday life into engaging stories complemented by reflection activities, student worksheets, educational games, and evaluation tasks. The findings indicate that the developed teaching materials are contextually relevant and suitable as supplementary resources for elementary school learning. By connecting curriculum content with students' sociocultural environments, the storybook provides meaningful learning experiences while fostering critical thinking. This study contributes to the development of culturally responsive teaching materials that promote contextual learning and strengthen the integration of Indonesian local wisdom into elementary education.

Keywords: critical thinking; elementary education; illustrated storybook; local wisdom; teaching materials

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Introduction

The development of 21st-century education requires instructional practices that move beyond teacher-centered knowledge transmission toward more student-centered learning experiences that actively engage learners in the knowledge construction process (Aryana et al., 2026; Bakan & Bircan., 2026). At the primary school level, learning should not only deliver content but also create opportunities for students to communicate, collaborate, think critically, and develop solutions to contextual problems encountered in their daily lives. Such learning experiences enable students to become active participants who are capable of applying their knowledge meaningfully rather than merely memorizing concepts. These competencies are often discussed through the 4C framework, which includes communication, collaboration, critical thinking, and creativity (Barus & Sahrul, 2024; Sundari et al., 2023). The integration of these four competencies has become an essential component of contemporary elementary education because they support students in responding effectively to increasingly complex academic and real-world challenges. Therefore, elementary learning needs to be designed as an active, contextual, and meaningful process that helps students use knowledge in real learning situations. Learning activities should encourage students to explore authentic problems, exchange ideas with peers, construct knowledge through collaboration, and reflect on their learning experiences. Through such instructional practices, students are expected to develop not only conceptual understanding but also the higher-order thinking skills and social competencies required to succeed in the rapidly changing demands of the 21st century.

Critical thinking is one of the key skills that elementary students need to develop gradually. This skill helps students analyze information, evaluate evidence, make reasoned judgments, and explain solutions with clear arguments. It does not develop through exposure to content alone. Students need learning activities that train them to ask questions, examine information, compare ideas, draw conclusions, and reflect on their reasoning (Aiman et al., 2020; Pursitasari et al., 2020). Classroom conversations can also support this process when students are guided to consider different perspectives and evaluate ideas through reasons and evidence (Reffhaug et al., 2024). The development of critical thinking remains a challenge in Indonesian education. Although PISA assesses 15-year-old students, the 2022 results still indicate a broader national challenge in tasks that require higher-order reasoning, interpretation, and problem solving (Solihin et al., 2024; OECD, 2023). Preliminary observations in the target schools showed similar learning problems at the elementary level. Some students had difficulty expressing opinions, explaining reasons, evaluating information, and proposing solutions. These conditions are consistent with previous findings that teacher-centered instruction and limited investigative activities can restrict opportunities for students to practice critical thinking (Aiman et al., 2020; Pursitasari et al., 2020).

Illustrated storybooks can be used as one instructional response to this problem. Illustrated stories combine verbal and visual information in a structured narrative, so students can observe situations, recognize characters, identify problems, and connect events in a story. Picturebooks have been discussed as learning resources that can support inquiry, interpretation, and classroom discussion (Oberman, 2023). In the Indonesian context, illustrated story-based modules and educational comics have also been developed as visual narrative media for elementary learning (Murti et al., 2020; Rahmanita, 2023). Illustrated storybooks may support critical thinking when the stories are designed with problems, guiding questions, interactive activities, and reflective tasks. Story-based learning can guide students to identify problems faced by characters, analyze causes and consequences, compare possible actions, evaluate decisions, and explain the reasons behind their answers. Problem-based illustrated storybooks have been reported to support elementary students' critical thinking when the story content is connected to learning tasks (Susilowati et al., 2022). Interactive elements, such as games, can also be useful when they are aligned with learning objectives and encourage student engagement in learning processes (Li et al., 2024; Reffhaug et al., 2024).

Illustrated storybooks become more contextual when they are connected to local wisdom, allowing students to relate the learning content to the realities of their everyday lives and cultural experiences. Local wisdom refers to values, knowledge, traditions, and social practices that develop within a community and shape how people understand their environment and social life. These cultural elements represent valuable educational resources that can be integrated into classroom learning to create more authentic and meaningful learning experiences. In elementary education, local wisdom-based learning can help connect school knowledge with students' cultural environment and support the development of knowledge and social attitudes (Uge et al., 2019). By incorporating familiar cultural contexts into instructional materials, students are encouraged to understand academic concepts through experiences that are closely related to their own surroundings. Local wisdom-based learning materials can also make learning more relevant to students' environment and cultural context (Ramdiah et al., 2020; Tohri et al., 2022). Such contextualization not only increases students' engagement and motivation during the learning process but also strengthens their appreciation of local culture while fostering meaningful connections between school learning and real-life experiences. As a result, illustrated storybooks that integrate local wisdom have the potential to support both academic learning and the development of students' cultural awareness and social values.

Majalengka local wisdom in this study refers to selected historical stories, cultural sites, traditional values, local figures, social life, and community traditions that represent the identity of Majalengka society. Majalengka was selected because the students live in this cultural environment, so the learning content can be connected with places, values, and social experiences that are familiar to them. This local focus is important because previous research has identified Majalengka local wisdom as a source of character values for elementary students (Yonanda & Sofiasyari, 2022). Local content is expected to make learning more concrete and meaningful without separating students from their cultural surroundings, as local wisdom-based teaching materials have been shown to support contextual learning in elementary education (Vioresa et al., 2022; Yonanda et al., 2022).

Previous studies have examined related areas, but they still leave a specific gap. Problem-based illustrated storybooks have been studied in relation to elementary students' critical thinking, while local wisdom-based teaching materials have been developed to support critical thinking, ecoliteracy, knowledge, and attitudes in different regions and subject areas (Azura et al., 2023; Susilowati et al., 2022). Within the literature reviewed in this study, limited attention has been given to full-color illustrated story-based teaching materials that integrate Majalengka local wisdom, games, and student worksheets as one instructional product designed to support elementary students' critical thinking. Based on this gap, this study aims to develop and validate

illustrated story-based teaching materials grounded in Majalengka local wisdom to support elementary students' critical thinking skills. This study offers a contextual teaching material model that connects critical thinking practice with students' cultural environment and provides teachers with a practical alternative for meaningful elementary learning.

Methods

This study employed a Design and Development Research (D&D) approach (Richey & Klein, 2007). This approach was selected because the study focused on designing, developing, formatively evaluating, and revising an instructional product. D&D is understood as a systematic study of design, development, and evaluation processes to produce instructional products or tools that can be used in educational contexts (Richey & Klein, 2007). In educational research, design and development approaches are also used to generate learning solutions that respond to practical problems in real learning settings (McKenney & Reeves, 2012). The product developed in this study was illustrated story-based teaching materials grounded in Majalengka local wisdom. The product was intended for fourth-grade elementary school students under the "Cerita Daerahku" theme in the Merdeka Curriculum. The teaching materials were developed as supplementary learning materials consisting of illustrated stories, visual illustrations, student activity sheets, reflection tasks, games, a glossary, and comprehension evaluation tasks. The development focused on providing contextual teaching materials that were closely related to students' cultural environment and oriented toward critical thinking activities.

The research procedure consisted of three main stages: design, development, and evaluation. These stages were used as a simple framework for developing the teaching materials in a systematic and iterative manner to ensure that the final product met the intended learning objectives and user needs. During the design stage, the researchers identified instructional needs and planned the structure and content of the teaching materials. The development stage focused on producing the prototype and refining its components based on the established design specifications. Subsequently, the evaluation stage was conducted to examine the quality, feasibility, and effectiveness of the developed product while identifying aspects that required further improvement. This procedure is consistent with educational design research principles, which emphasize initial analysis, development or prototyping, formative evaluation, and product revision (Johnson & Christensen, 2024; Plomp & Nieveen, 2013). The iterative nature of these stages enables continuous refinement throughout the development process, ensuring that revisions are informed by systematic evaluation. Consequently, the procedure provides a structured and evidence-based framework for producing teaching materials that are pedagogically appropriate, practically applicable, and responsive to the needs of elementary school learning.

The design stage was conducted to establish the foundation of the teaching material development by identifying instructional needs and determining the essential components required for the product. At this stage, the researchers carried out needs analysis, literature review, curriculum document review, and identification of Majalengka local wisdom elements relevant to the learning theme. The needs analysis and curriculum review were conducted to ensure that the teaching materials aligned with the learning objectives and characteristics of elementary school students, while the literature review provided theoretical support for the instructional design. The local wisdom elements integrated into the product included local historical stories, cultural sites, local figures, social values, community life, and Majalengka community traditions. These elements were selected because they were familiar to students' environment and could be used as story contexts to encourage students to identify problems, provide reasons, evaluate characters' actions, draw conclusions, and propose solutions. By incorporating authentic cultural contexts into the learning materials, the illustrated storybook was expected to promote meaningful learning experiences that connected classroom concepts with students' daily lives. This design process also ensured that both the instructional content and cultural elements were systematically integrated to support the development of students' critical thinking skills while maintaining the relevance of the learning materials to the local context.

The development stage was conducted by transforming the product design into illustrated story-based teaching materials. At this stage, the researchers wrote the story script, organized the storyline, developed illustrations, designed the layout, prepared student activity sheets, created reflection tasks, designed games, added a glossary, and prepared comprehension evaluation tasks. The development of local wisdom-based teaching materials is relevant to previous studies showing that local wisdom can serve as a basis for developing learning that is connected to elementary students' social and cultural lives. The activities in the teaching materials were designed based on the concept of critical thinking as reasonable and reflective thinking focused on deciding what to believe or do (Dong & Wei, 2026; Elder & Paul, 2020; Ennis, 1989). In this study, critical thinking indicators were used as the basis for designing activities in the stories, reflection tasks, games, and student worksheets. The indicators included identifying problems, analyzing information, providing reasons,

evaluating choices, drawing conclusions, and proposing solutions. Therefore, critical thinking was positioned as a product design orientation reflected in the learning activities.

The evaluation stage was conducted through qualitative expert review. This stage aimed to obtain comments, corrections, and suggestions for improving the product before producing the final version of the teaching materials. Formative evaluation is used to identify the strengths and weaknesses of a developing product so that it can be revised before broader use (Dong et al., 2026; Tessmer, 1993). Thus, evaluation in this study was positioned as qualitative expert review to improve the quality of the instructional product. The product reviewers were selected purposively based on their expertise and relevance to the product being developed. The review involved individuals representing expertise in subject matter, instructional media or design, language, elementary school teaching practice, and Majalengka local culture. An expert review form was used to help reviewers provide focused comments on the aspects being reviewed. Yusoff (2019) explains that expert content review requires a clear form so that the expert panel understands the domains, aspects, and review tasks. In this study, the form was used to collect open-ended feedback as the basis for product improvement.

The research instruments consisted of a needs analysis guide, document review guide, product development notes, and an open-ended expert review form. The needs analysis guide was used to explore the availability of teaching materials, teachers' needs, students' characteristics, the relevance of Majalengka local wisdom, and the need for critical thinking-oriented activities in learning. The expert review form contained open-ended questions related to content relevance to the theme in learning, language clarity for fourth-grade students, quality of illustrations and layout, accuracy of Majalengka local wisdom representation, alignment of activities with critical thinking orientation, and coherence among stories, activity sheets, reflection tasks, games, glossary, and comprehension evaluation tasks. Each reviewer provided written comments on product components that needed to be maintained, revised, or adjusted.

The data in this study were qualitative data obtained from needs analysis, document review, literature review, product development notes, and expert comments during the review stage. The data were analyzed descriptively by grouping comments and suggestions into several revision categories, namely content revision, language revision, visual revision, local wisdom revision, critical thinking activity revision, and teaching material completeness revision. The analysis results were used as the basis for improving the teaching materials and producing the final product. Before data collection, the researchers obtained permission from the schools and informed the involved parties about the purpose of the study. The identities of those who provided feedback were kept confidential, and all data were used only for research and product development purposes.

Result and Discussion

Needs Analysis as the Basis for Product Development

The needs analysis showed that supplementary teaching materials for the "*Cerita Daerahku*" theme needed to be developed in a more contextual, visual, and culturally relevant form. The existing materials used in schools had generally supported the expected learning outcomes, but they had not specifically presented Majalengka local wisdom as the main context in a systematic illustrated story format. Teachers needed supplementary materials that could help students learn about their local region through stories, illustrations, activities, reflection tasks, and comprehension questions. The product was developed as supplementary teaching material that not only presents information about Majalengka but also guides students to understand values, events, and issues related to their everyday lives.

Table 1. Summary of Needs Analysis as the Basis for Product Development

Aspect analyzed	Main finding	Product implication
Supplementary teaching materials	Teaching materials related to local regional stories were still limited and mostly depended on general textbooks.	The product was developed as supplementary teaching material for the " <i>Cerita Daerahku</i> " theme.
Local wisdom content	Existing materials had not specifically presented Majalengka local wisdom in a systematic and illustrated form.	The product integrated Majalengka local history, historical heritage, local figures, natural wealth, cultural wealth, and community life.
Student characteristics	Fourth-grade students needed concrete, visual, engaging, and easy-to-understand teaching materials.	The product was designed as an illustrated storybook with characters, dialogue, colorful illustrations, and contextual stories.

Aspect analyzed	Main finding	Product implication
Learning activities	Students needed activities that encouraged discussion, reasoning, and simple problem solving.	The product included reflection tasks, student worksheets, games, and comprehension questions.
Critical thinking orientation	Learning activities needed to guide students to identify problems, provide reasons, evaluate situations, draw conclusions, and propose solutions.	The product embedded critical-thinking-oriented activities in the stories, reflection tasks, student worksheets, games, and comprehension tasks.

These findings indicate that teaching material development needs to be directed toward more contextual learning. Teaching materials that connect learning concepts with everyday phenomena or experiences can help students understand the material more meaningfully (Fatkhiani & Dewi, 2020). Local-context-based learning is important because it links school materials with students' culture, environment, and social life (Rahman et al., 2025; Udiyana et al., 2022). Local wisdom-based learning media are also relevant because they can strengthen the relationship between learning, cultural values, and students' character development (Yusuf, 2023). The need for an illustrated story format emerged because elementary school students still require concrete, engaging, and easy-to-understand media. Visual media can help students understand learning materials, attract their attention, and make learning more communicative (Aulia & Wuryandani, 2019). Visual stories can simplify complex social materials and make them more suitable for elementary school students' characteristics (Anggito & Sartono, 2022; Rindengan, 2023). Students' interest in reading materials is also important because reading motivation is related to reading achievement among K–12 students (Toste et al., 2020).

The product was developed as an illustrated story-based teaching material grounded in Majalengka local wisdom by considering the needs analysis and relevant previous studies. The product was designed to introduce local history, local figures, historical heritage, natural wealth, cultural wealth, and community life in Majalengka through stories and learning activities. Teaching materials need to include activities that facilitate students to read, discuss, provide reasons, compare information, and solve simple problems because appropriate learning media can support students' engagement and thinking skills (Gunawan et al., 2023). Problem-based teaching materials can also help students become more active in understanding the material and gradually develop critical thinking activities (Triwahyuningtyas et al., 2020). The development of a local wisdom-based picture storybook is relevant for supporting contextual, engaging, and critical-thinking-oriented learning in elementary schools (Lestari et al., 2026; Fitriasti & Wuryandani, 2025).

Integration of Local Wisdom in the Teaching Materials

The development results indicate that Majalengka local wisdom was integrated as the main context in the illustrated story-based teaching materials. This integration was not only presented as additional information but also served as the foundation for organizing story content, illustrations, activities, reflections, student worksheets, games, and comprehension evaluation. The local wisdom elements incorporated include the origin of Majalengka, historical heritage, cultural wealth, and community life. These elements aim to help students not only acquire factual knowledge about their region but also understand local values, identity, and social norms embedded in their daily lives.

Table 2. Examples of Majalengka Local Wisdom Integration in the Teaching Materials

Visual evidence	Local wisdom element	Representation in the teaching materials	Learning function
	Local historical narrative	The material presents the origin of Majalengka through stories about Talaga, Ratu Simbarkencana, Sunan Perung, Ratu Sunyalarang, and the introduction of Islam	Helping students recognize local history and regional identity

Visual evidence	Local wisdom element	Representation in the teaching materials	Learning function
	Historical heritage	The material introduces Museum Talaga Manggung as one of Majalengka's historical heritage sites	Encouraging students to value and preserve local historical heritage
	Cultural wealth	The material presents Majalengka cultural traditions and arts, such as Bongkar Bumi, Mapag Sri, Marak Situ Janawi, Sampyong, Wayang Golek, Jaipong, Sintren, Kuda Renggong, and Goong Renteng	Introducing local traditions and strengthening students' cultural awareness
	Community life	The material describes the social life of Majalengka people, including gotong royong, religious activities, helping neighbors, and maintaining social relations	Helping students understand social values and community practices

The table demonstrates that Majalengka local wisdom was integrated across multiple dimensions: historical narrative, historical heritage, cultural wealth, and community life. These four dimensions were selected to represent the local identity comprehensively and align with the theme in learning, ensuring that the teaching materials reflect various aspects of students' cultural environment. Presenting them through illustrated stories allows students to understand the region using narratives and visuals, while learning activities guide them to read, comprehend, and reflect on the content. This approach enables students to connect information presented in the stories with their own experiences and encourages them to construct meaningful understanding through contextual learning. The origin stories and Museum Talaga Manggung sections show that historical and heritage elements can serve as an entry point for students to understand regional identity. Folktales, local narratives, and illustrations help students grasp moral, cultural, and character values in an engaging and accessible way (Ari & Nuriarta, 2023). Story-based materials with embedded local wisdom increase students' motivation to engage with culturally relevant content (Vaziria et al., 2022). Consequently, integrating multiple dimensions of local wisdom into illustrated storybooks not only enriches students' understanding of their regional heritage but also creates meaningful learning experiences that strengthen cultural awareness, engagement, and appreciation of local identity.

The cultural wealth and community life sections illustrate that local wisdom is not only represented as historical knowledge but also embedded in traditions, arts, social values, and daily practices. Incorporating local topics such as traditions, social norms, folktales, and arts into the teaching materials makes learning more contextual and relevant to students' experiences (Tandikombong et al., 2024). Integrating local wisdom in social studies allows students to understand and appreciate cultural values from an early age (Trimansyah, 2025). Learning that is connected to real-life contexts also enhances students' engagement and critical thinking abilities (Faridah et al., 2025). The compilation of the illustrated storybook demonstrates that local wisdom can be integrated through text, illustrations, stories, activities, and reflection tasks. Using local wisdom-based media increases student engagement because the content becomes more relevant to their social and cultural experiences (Yuliantoro et al., 2025). Integrating local wisdom in learning also instills cultural appreciation, preserves traditions, and shapes student character (Bonney et al, 2026; Nurramadhani et al., 2025; Widiarini et

al., 2025). A culturally responsive teaching approach shows that local cultural elements can form the basis for instructional media that connects culture, technology, and student thinking skills (Purnama et al., 2025). The developed product is relevant because it presents Majalengka as a learning context, allowing students to read, understand, reflect, and discuss aspects of their regional life.

Critical Thinking Orientation in the Teaching Materials

The development results indicate that the Majalengka local wisdom-based illustrated storybook teaching materials do not only present regional information but also contain activities designed to foster critical thinking. Critical thinking activities are embedded in reflection sections, student worksheets, games, and comprehension evaluation tasks. These activities guide students to identify information, understand problems, provide reasons, evaluate situations, draw conclusions, and propose solutions based on stories or presented phenomena.

Table 3. Critical Thinking Orientation in the Teaching Materials

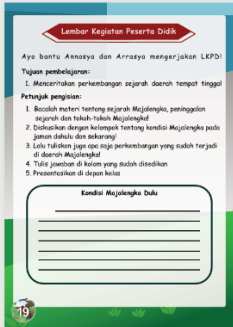
Visual evidence	Product section	Critical thinking activity	Critical thinking indicator
	Reflection	Students evaluate the preservation of historical heritage and explain how it can be maintained.	Evaluating situations and proposing solutions
	Student worksheet	Students read the material, discuss, compare Majalengka in the past and present, write about regional developments, and draw conclusions.	Analyzing, comparing, and drawing conclusions
	Historical and heritage evaluation	Students answer questions about Islamic influence, local figures, historical heritage, and low student interest in history.	Identifying information, providing reasons, and evaluating phenomena
	Community life and social change evaluation	Students analyze the relationship between geographical conditions and occupations, compare cooperative and individualistic societies, and read a social conflict case to understand social diversity and change.	Analyzing social change, evaluating impacts, and proposing solutions

Table 3 demonstrates that critical thinking orientation is distributed across several components, including reflection, worksheets, and phenomenon-based evaluation. This distribution is important because critical thinking cannot be developed solely through end-of-lesson questions; it must be present in activities that involve reading, discussion, analysis, reasoning, and drawing conclusions. By embedding critical thinking across multiple learning components, students are provided with continuous opportunities to practice higher-order thinking skills throughout the learning process rather than only during assessment activities. Reflection activities encourage students to evaluate their understanding and learning experiences, while worksheets guide them to analyze information, organize ideas, and develop logical reasoning based on the presented contexts. In addition, phenomenon-based evaluation challenges students to apply their knowledge in authentic situations and justify their conclusions using evidence. Learning strategies that include reflection, argumentation, source analysis, case studies, and problem solving are considered effective for developing critical thinking skills (Bezanilla et al., 2019). Activities such as debates, project-based learning, hands-on practice in real contexts, cooperative learning, and case studies also support the development of critical thinking (Eshun et al., 2026; Campo et al., 2023). Therefore, integrating critical thinking orientation into various instructional components creates a more comprehensive learning experience that systematically supports students in developing analytical, reflective, and evidence-based reasoning skills throughout elementary school learning.

The use of reflective questions, worksheets, and phenomenon-based evaluations allows students to connect Majalengka local stories with concrete social and cultural contexts. These learning components provide opportunities for students to engage actively with the content by examining situations, identifying important information, and relating the stories to their own experiences and surrounding environment. Such activities encourage students to interpret information, consider reasons, assess consequences, and develop meaningful responses based on the contexts presented in the illustrated storybook. Rather than simply recalling factual information, students are guided to analyze issues from different perspectives and construct logical conclusions supported by evidence from the learning materials. Critical thinking is closely related to reflective and creative abilities because students must review information, link experiences, and generate meaningful responses (Akpur, 2020). Culture-based learning media are also relevant for fourth-grade students because they help students understand cultural diversity while training interpretation, analysis, evaluation, and inference skills through more concrete activities (Hajeni et al., 2026; Sukiana et al., 2024). Consequently, integrating reflective tasks with local wisdom contexts creates meaningful learning experiences that not only strengthen students' understanding of Majalengka culture but also systematically foster the development of critical thinking through authentic and culturally relevant learning activities.

Expert Review, Product Revision, and Learning Implications

The development results show that the Majalengka local wisdom-based illustrated storybook teaching materials went through an expert review stage to ensure the appropriateness of content, language, visuals, local wisdom representation, and learning activities. Expert feedback was used to improve the story flow, clarify Majalengka historical and cultural content, align illustrations with the story content, and refine reflection tasks, student worksheets, games, and evaluation questions so that they were more suitable for fourth-grade elementary school students.

Table 4. Summary of Expert Review and Product Revision

Reviewed aspect	Expert feedback	Product revision
Content accuracy	Some explanations of local history and culture needed to be arranged more coherently and contextually.	The story flow was revised, and Majalengka local wisdom content was clarified to make it easier for students to understand.
Language clarity	Some sentences were too long and less suitable for fourth-grade students.	Sentences were simplified using shorter, clearer, and more communicative structures.
Visual presentation	Some illustrations needed to be more closely aligned with the story content and learning activities.	Illustrations of characters, cultural objects, historical heritage, and community life were revised to better support student understanding.
Local wisdom integration	Local wisdom needed to appear not only as information but also in student activities.	Majalengka local wisdom was integrated into stories, reflection tasks, worksheets, games, and evaluation questions.
Critical thinking activities	Some reflection and evaluation questions needed to guide students more clearly toward reasoning and problem solving.	Questions were revised to encourage students to identify information, provide reasons, evaluate situations, draw conclusions, and propose solutions.

The product revisions indicate that expert review plays an important role in improving the quality of the developed teaching materials. Through the validation process, experts provide constructive feedback to identify weaknesses, improve instructional design, and ensure that every component of the product functions effectively in supporting learning. Expert validation helps ensure that product components, including objectives, content, activities, and supporting materials, are aligned with the learning needs of elementary school students. This process also contributes to improving the clarity, coherence, and consistency of the teaching materials before they are implemented in classroom settings. The development of culture-based learning models or teaching materials requires expert assessment so that the resulting product has appropriate content, structure, and instructional function (Hafina et al., 2022). Local wisdom-based teaching materials also need to be organized contextually so that students can connect learning content with cultural heritage, environment, and social experiences close to their daily lives (Malihah et al., 2024). Therefore, expert review not only strengthens the academic and pedagogical quality of the product but also ensures that cultural elements are integrated appropriately to create meaningful, relevant, and contextually rich learning experiences for elementary school students.

The revised product has implications for elementary school learning because it provides supplementary teaching materials that combine local stories, illustrations, reflection tasks, student worksheets, games, and evaluation activities into an integrated learning resource. These components are designed to support meaningful learning experiences by encouraging students to actively participate throughout the learning process rather than passively receiving information. They also give students opportunities to understand Majalengka local wisdom while practicing analysis, comparison, reasoning, evaluation, and simple problem solving. The integration of cultural contexts with structured learning activities enables students to connect classroom concepts with authentic situations that are familiar to their daily lives. Student-centered and problem-based learning activities are relevant for supporting critical thinking because students are guided to understand problems actively and meaningfully (Aristanti & Fatayan, 2024). Interactive learning media supported by visual presentation can also promote student engagement and make the learning process more interesting and easier to understand (Saputra et al., 2025). Furthermore, the combination of contextual content, attractive illustrations, and interactive learning activities creates opportunities for students to develop both cognitive and reflective skills while increasing their motivation to learn. Therefore, the revised teaching material has the potential to support elementary school learning by integrating local wisdom with student-centered instructional practices that foster critical thinking and meaningful learning experiences.

Conclusion

This study produced illustrated storybook teaching materials based on Majalengka local wisdom as supplementary teaching materials in fourth-grade elementary school. The developed product integrates local history, historical heritage, cultural richness, and community life in Majalengka through illustrated stories, reflection tasks, student worksheets, games, and learning evaluations. The development results show that these teaching materials can serve as contextual learning resources that connect learning content with students' social and cultural experiences, while also embedding critical-thinking-oriented activities through tasks that guide students to identify information, provide reasons, analyze situations, draw conclusions, and propose simple solutions. The educational contribution of this study lies in providing local wisdom-based teaching materials that support curriculum implementation, strengthen students' understanding of regional identity, and assist teachers in presenting more contextual learning. This study is limited to product development and expert-based review; therefore, it has not yet provided quantitative evidence regarding the effectiveness of the product in improving students' critical thinking skills. Future research is recommended to implement the teaching materials in classroom learning, examine their effectiveness through broader empirical testing, adapt them to other local wisdom contexts, and develop a digital version to improve interactivity and accessibility for students.

Author Contributions

IS, RA, and GMP conceptualized the study. IS and GMP developed the methodology, while RA and TES conducted the formal analysis. The investigation was carried out by IS, RA, GMP, and TES. IS wrote the original draft, and RA, GMP, and TES contributed to the writing, review, and editing of the manuscript.

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Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Use of Artificial Intelligence

Generative AI (ChatGPT 5.6 and Gemini 3.5) was used to create illustrative figures in this manuscript. All figures were reviewed and approved by the authors, and their use is fully disclosed.

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