

Development and validation of a picture storybook based on local wisdom to strengthen 'gotong royong' and critical thinking among elementary students

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KEYWORDS

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ABSTRACT

This study aims to: 1) produce a picture storybook based on local wisdom that is feasible for strengthening the character of 'gotong royong' and critical thinking skills, 2) test the effectiveness of the picture storybook based on local wisdom in strengthening the character of 'gotong royong' and critical thinking skills, and 3) test the practicality of the picture storybook based on local wisdom for strengthening the character of 'gotong royong' and critical thinking skills. This research uses the Borg & Gall research method, which consists of 10 steps: (1) preliminary research and information collection, (2) planning, (3) product development, (4) preliminary field testing, (5) main product revision, (6) main field testing, (7) operational product revision, (8) operational field testing, (9) final product revision, and (10) dissemination and implementation. The results of the study show that: 1) the developed picture storybook based on local wisdom is feasible to be used for strengthening the character of 'gotong royong' and critical thinking skills, 2) the developed picture storybook based on local wisdom is effective in strengthening the character of 'gotong royong' and critical thinking skills. Validation instrument by experts judgment. The results of the operational test showed a significance level of $0.00 < 0.05$, indicating a significant difference in the strengthening of 'gotong royong' character and critical thinking skills between the experimental classes with 21 students and 23 students in control classes, 3) the developed picture storybook based on local wisdom is practical to use for strengthening students' character of 'gotong royong' and critical thinking skills based on teacher and student responses.

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Introduction

Education in schools must be planned and continuous. Individuals with physical and mental freedom can fully realize their potential. The purpose of education is to cultivate intellect and encourage the physical and spiritual development of individuals, thereby creating a complete human being (Sujarwo et al., 2021). To achieve this goal, education is needed to equip students with 21st-century competencies, emphasizing character development and excellence in science and technology.

Wuryandani & Rahmanto (2018) state that the goal of character education is to foster, strengthen, and promote positive behavior while reducing negative behavior in students. 'Gotong royong', a value and belief system, can foster a character that reduces individualism. Placing the 'gotong royong' slogan strategically in easily accessible areas for students and providing reading materials that contain the values of this character are expected to enhance student comprehension.

This understanding is intended to serve as a foundation for their daily behavior, enabling students to think critically and differentiate between necessary and unnecessary actions when facing daily challenges.

The development of media to foster collaborative principles is crucial for students to more effectively grasp the importance of cooperative efforts. Picture storybooks are well-known educational resources for children; when used effectively by educators through engaging presentations, they can increase motivation. This is in line with Yuliani's (2022) findings, which show that storybook media is highly suitable for elementary school students, boosting their reading interest and facilitating the delivery of lessons, particularly in promoting cooperative values.

Research by Mulyani et al. (2020) indicates that collaborative teamwork is a fundamental basis for reducing individualistic and apathetic attitudes. Utomo (2018) also suggests that internalizing 'gotong royong' is essential for students to integrate it into their mindset, behavior patterns, and ultimately manifest it in daily life. Furthermore, the proactive involvement of educators is vital in nurturing a culture of collaboration among students during both classroom and extracurricular activities, accustoming them to apply this principle in their daily interactions within their environment (Hardianti et al., 2021). Students are encouraged to communicate and collaborate with their peers through 'gotong royong', which aligns with the requirements of 21st-century education. In this era of globalization, every citizen needs to possess skills that can serve as a foundation for addressing contemporary demands (Septikasari & Frasandy, 2018). In addition to communication and collaboration, students must also have additional 21st-century competencies, such as critical reasoning skills.

Based on observations of fourth-grade learning at five elementary schools (SDN Giripurno 1, SDN Giripurno 2, SDN Ngadiharjo 1, SDN Ngadiharjo 2, and SDN Karangrejo) in October 2022, it was found that individualistic attitudes still predominated among students. Evidence from a student needs survey conducted at these five elementary schools on October 27 and 28, 2022, corroborated these observational findings, with 92 students participating as respondents. Only 14% of students had used local wisdom books, while 45% were excited about illustrated books. According to the 'gotong royong' indicators, 40% of students were aware of their role in a group, 42% collected information from various sources, and 45% understood the responses of others. For critical thinking skills, 47% of students asked questions about a problem, and 39% explained their reasons and thoughts. The teachers at these elementary schools reported that they had not yet identified any media or reference materials capable of enhancing both 'gotong royong' character and critical thinking skills. Additionally, the teachers admitted that there were currently no media or reference books that presented the local wisdom of Magelang Regency.

The utilization of learning books is regulated in Minister of Education, Culture, Research, and Technology Regulation No. 56/M/2022, which stipulates that primary and supplementary text books must be flexible and contextual, available in both print and digital formats, and can be arranged in a modular structure. Supplementary reading materials should be engaging, relevant, and beneficial for students, considering their individual characteristics. Picture books are particularly popular among elementary school children. According to Kholifah & Kristin (2021), picture books have the power to captivate children, spark their curiosity, and foster a love for reading. Reading books aloud to children has a positive effect on their emotional and cognitive development. One approach is to incorporate local wisdom values into picture books. Existing local expertise can be used to cultivate a tendency to explore students' emotional domains (Muliana et al., 2016). By developing teaching materials based on local values, it is hoped that students' understanding of cultural diversity concepts can be enhanced while also encouraging efforts to preserve local cultural values among the younger generation (Santoso & Wuryandani, 2020).

Given the various challenges and opportunities outlined above, a proposal was formulated to create a picture storybook based on local wisdom. The goal is to improve the Pancasila Student Profile by fostering 'gotong royong' and critical thinking skills, tailored to the characteristics of children, and containing important educational content for fourth-grade elementary school students. This book will serve as a supporting or supplementary resource for the IPAS (Science and

Social Studies) subject, especially in Chapter 5, "Stories About My Region." The developed teaching material is a tangible manifestation of an effort to facilitate the strengthening of the Pancasila Student Profile, enriching students with knowledge about local wisdom in their own environment and encouraging them to think critically about the story's content, thereby raising student awareness that is reflected in the character of 'gotong royong'.

Method

This study is a research and development project. The product development used the Borg & Gall development model. The subjects of this study were fourth-grade students from SDN Giripurno 1, with 23 students in the experimental class, and 21 students from SDN Giripurno 2, who served as the control class. The research was conducted from June 10 to September 10, 2024.

The development procedure followed the ten stages of the Borg & Gall development model: (1) preliminary research and information collection, (2) planning, (3) developing a preliminary form of the product, (4) preliminary field testing, (5) main product revision, (6) main field testing, (7) operational product revision, (8) operational field testing, (9) final product revision, and (10) dissemination and implementation. The product trial design in this development research included: (1) expert validation by a content expert and a media expert, (2) preliminary field testing, (3) main field testing, and (4) operational field testing.

The data collection techniques used in this study were interviews, observation, product assessments by experts, questionnaires, and tests. The instruments used to assess gotong royong and critical thinking and the validation techniques by expert judgment. Accordingly, the data collection instruments were interview guides for teachers and students, a product assessment questionnaire, a product response questionnaire for teachers and students, observation sheets, and written test questions.

The data in this study consisted of both qualitative and quantitative data. Qualitative data were obtained from the results of observations and interviews with teachers and students. Meanwhile, quantitative data were obtained from the scores of student responses to the product, scores from the 'gotong royong' questionnaire, and the scores from the students' critical thinking tests. The data analysis technique used was adjusted to the type of data obtained. The quantitative data, which consisted of the scores from the student response questionnaire, the student 'gotong royong' questionnaire, and the post-test results, were tabulated and averaged, then converted into qualitative data as shown in Table 1 and Table 2.

Table 1. Product Feasibility Categories

Criteria	Level of Practicality
85.01% - 100%	Very Practical
75.01% - 85.00%	Practical
60.01% - 75.00%	Fairly Practical
50.01% - 60.00%	Less Practical
< 50.00%	Very Less Practical

Table 2. Practicality Scale Table

Number	Score in Percent	Eligibility Category
1	< 21%	Very Not Eligible
2	21-40%	Not Eligible
3	41-60%	Fairly Eligible
4	61-80%	Eligible
5	81-100%	Very Eligible

The analysis of product effectiveness was conducted to compare students' critical reasoning and mutual cooperation character before and after using a local wisdom-based picture storybook. Using a four-point scale like in Table 3, the scores obtained before and after the use of the local wisdom-based picture storybook were converted into qualitative data.

Table 3. Critical Reasoning Ability Test Score Category

Score Interval	Value	Category
$70 < X \leq 100$	A	Very Good
$50 < X \leq 70$	B	Good
$30 < X \leq 50$	C	Poor
$X \leq 30$	D	Very Poor

The qualitative data obtained were used to describe the data in the form of descriptive statistical displays or graphs. The product's effectiveness was evaluated by conducting prerequisite tests, including normality tests, homogeneity tests, independent t-tests, and a Manova hypothesis test.

Result

This research and development study aims to develop a feasible picture storybook product based on local wisdom for fourth-grade elementary school students. A literature review involved analyzing various sources, such as books, research papers, journal articles, and picture storybooks, to investigate the characteristics of fourth-grade elementary students, critical reasoning, and local wisdom. A needs analysis conducted at the Anggrek cluster elementary schools in Borobudur District, Magelang Regency, showed that a picture storybook based on local wisdom was a suitable solution to the highlighted problems. This product is intended to enhance critical reasoning skills and foster a culture of 'gotong royong' among students. The next step was curriculum testing at the Anggrek cluster elementary schools in Borobudur District. Based on the analysis of the Learning Objective Flow (ATP) for the fourth grade, the most appropriate subject for a picture storybook that reflects local wisdom is the topic of natural resources around my home. This is because the accompanying text does not yet discuss the students' local environment. Additionally, the picture storybook can serve as a co-curricular educational resource to improve the attributes of the Pancasila student, particularly in critical reasoning and 'gotong royong'. Concerning the feasibility and effectiveness assessment of the developed picture storybook based on local wisdom, here are some of the findings.

First, the initial product development was done through several considerations, including: (1) referring to the Merdeka curriculum for fourth grade, specifically the "Stories about My Region" topic in Chapter 5 of the IPAS subject; (2) the chosen material was then designed in a narrative form relevant to the students' home environment, with added illustrations; (3) the illustration and layout creation process was assisted by an illustrator to match the storyline; and (4) the draft of the picture storybook based on local wisdom was printed in A5 format on 80-gram Glossy HVS paper. The initial product includes page sheets, author information, and a front section with learning outcomes, learning objectives, and usage instructions. The story content highlights social studies topics that promote the values of the Pancasila character, especially the dimensions of 'gotong royong' and critical reasoning skills.

Second, the validation stage for the picture storybook media based on local wisdom was carried out after the finalization of the product draft. Verification was performed by experts qualified in their respective fields. The research instrument experts are proficient in research instruments and have expertise in educational technology. During the first validation, the validator advised against using compound sentences. Following this first validation, the researcher made

revisions as directed by the expert. In the second validation, the instrument validator assessed that the instrument had been revised according to the suggestions and was deemed fit for use.

Next, the material expert, who is competent in Pancasila Education, Civics Education, and Character Education, conducted a validation. The material expert's validation aimed to obtain input on the picture storybook rooted in local wisdom so that adjustments could be made to the product draft according to the expert's recommendations. The material expert's review provided several recommendations and inputs to be considered in creating the picture storybook. The expert highlighted the need for better connectivity between paragraphs to avoid reader confusion. The material expert also suggested clarifying the text explaining the character's change of location, specifically whether they were still outside of Java, which would make the term "nderek langkung" unfamiliar. Language selection also needed attention to be suitable for children. Additionally, a more detailed explanation of Indonesia's richness was needed. The material expert found an instance where one idea was spread across two paragraphs. Implementing the revisions based on the material expert's recommendations would enhance the quality and efficacy of the local wisdom-inspired picture storybook. While the picture storybook was deemed "feasible for revision," the feedback from the material specialist was a significant recommendation to improve the publication. Language modifications aligned with the attributes of fourth-grade children will result in a superior and more successful picture storybook based on local wisdom, thus meeting the anticipated educational goals.

The third product validation was conducted by a media expert who is skilled in media literacy and pedagogical devices for teaching and learning. The media expert's evaluation yielded various insights and recommendations for refining the existing items. The media expert recommended that the pictures of the Karanganyar area should be more realistic, as the Borobudur Temple appeared too close to the mountain. The expert suggested choosing more relevant and contextual images that align with Indonesian culture. Revising the local culture-inspired picture storybook based on the media expert's recommendations will improve its understanding, relevance, and appeal to students. This review technique will enhance the authenticity and quality of the local wisdom-based picture storybook, making it more successful in achieving learning objectives. The participation of the media specialist in this validation was crucial to ensure the effectiveness of the picture storybook in enhancing learning and achieving the targeted outcomes. After receiving feasibility from the experts, the next steps were product trials in the preliminary, main, and operational fields.

In the preliminary field trial, the educators and students involved focused on the narrative related to using the created picture storybook based on local wisdom. In addition, both students and educators completed response scales based on their respective experiences. The data obtained from these response scales were collected to get recommendations from the educators and students. The data from the teacher response questionnaire from the preliminary field trial showed a "Very Practical" category with a total score of 95 for the display of the picture storybook. The content of the local wisdom-based picture storybook received a "Very Practical" classification, with a total score of 50. An average score of 4.5 was achieved in the "Very Practical" category.

Table 4. Teacher Response Scale Results from Preliminary Trial

No	Indicator	Total Score	Category
1	Picture Storybook Display	95	Very Practical
2	Content of Local Wisdom-Based Picture Storybook	50	Very Practical
	Total Score	145	
	Maximum Score	160	
	Average	4.5	
	Category		Very Practical

The data showed that the local wisdom-based picture storybook was suitable for the next stage, specifically the main field trial. The fourth-grade teachers recommended that the back page

of the book include the author's profile and a glossary of challenging vocabulary. Teacher feedback was used to refine the local wisdom-based picture storybook. The researcher also considered the student questionnaire data to improve the book regarding my region and its natural resources. All students participated in completing the student response scale. The results provided quantitative data, which were then converted into qualitative data and served as input for the creation of the local wisdom-based picture storybook. The table below presents the results of the student response scale data during the preliminary field trial stage.

Table 5. Student Response Scale Results from Preliminary Trial

No	Indicator	Total Score All Students	Average	Category
1	The attractiveness of the presentation of the local wisdom-based picture storybook media	44	3.38	Practical
2	The content coverage of the local wisdom-based picture storybook	43	3.30	Practical
	Total	87	3.34	Practical

The presentation of the local wisdom-based picture storybook scored 44, with an average of 3.38, which indicates a "Practical" classification. The content of the local wisdom-based picture storybook was also in the "Practical" range, with an average score of 3.30. In the preliminary field trial, children showed significant excitement when looking at the local wisdom-based picture storybook. All children observed the story and pictures on each page. Classroom learning was structured and engaging; however, some students asked the teacher about unfamiliar terms in the text. During this preliminary trial, the children showed enthusiasm and a desire to engage with the picture book, as it made their understanding of the environment easier through narratives and illustrations. This motivated students to achieve the expected learning outcomes.

Next, the trial was expanded to the main field. The main field trial consisted of a teacher response scale and a student response scale. The responses from teachers in the main field trial were used to evaluate their reactions to the local wisdom-based picture storybook, after modifications were made based on the recommendations from the preliminary field trial. The instructor response scale consisted of two indicators with thirty-two questions. The results of the teacher responses are shown in the table below.

Table 6. Teacher Response Scale Results from Main Field Trial

No	Indicator	Total Score	Category
1	Picture Storybook Display	98	Very Practical
2	Content of Local Wisdom-Based Picture Storybook	51	Very Practical
	Total Score	149	
	Maximum Score	160	
	Average	4.65	
	Category		Very Practical

The teacher response scale achieved an average score of 149 in the "Very Practical" category, as seen in the table above. The analysis of response data from the main field trial was used to assess teacher reactions to the local wisdom-based picture storybook. Compared to the preliminary field trial, which resulted in an average score of 4.5, teacher responses improved in the main field trial, reaching an average of 4.65. The improvements made to the product received a positive reaction from the educators.

The main field trial was conducted with all fourth-grade students from SDN Karangrejo to evaluate their reactions to the local wisdom-based picture storybook. All students who completed the student response scale provided quantitative data, which were then converted into qualitative

data for developing the visual narrative. The table below presents the data for the student response scale.

Table 7. Student Response Scale Results from Main Field Trial

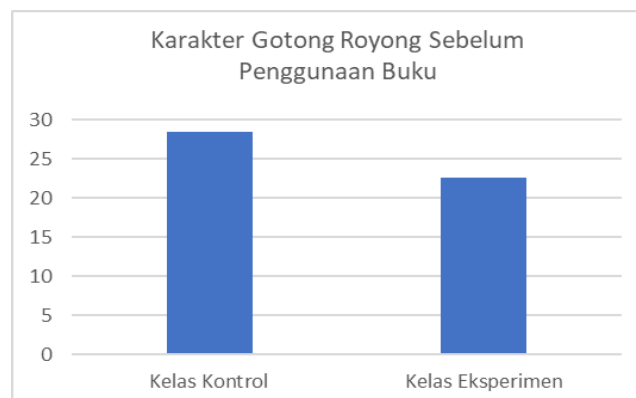
No	Indicator	Total Score All Students	Average	Category
1	The attractiveness of the presentation of the local wisdom-based picture storybook media	93	3.72	Very Practical
2	The content coverage of the local wisdom-based picture storybook	93	3.72	Very Practical
Total		166	3.72	Very Practical

The table above shows that each indicator falls into the "Very Practical" category. The analysis of the student response scale data was used to assess student reactions to the local wisdom-based picture storybook after the adjustments made during the preliminary field trial. The main field trial was conducted with all 25 fourth-grade students from SDN Karangrejo. All students were instructed to examine the local wisdom-based picture storybook under the guidance of their teacher. Subsequently, the students completed a response scale to provide an objective evaluation. The appeal factor for the presentation of the local wisdom-based picture storybook media had an average score of 3.7, categorizing it as "very good." The same score was achieved for the indicator assessing the content of the local wisdom-based picture storybook, which was also categorized as "very good."

The results of the operational field experiment were obtained from the collaborative nature and analytical reasoning abilities of students, as evidenced by teacher and student observation sheets and field notes. The operational field trial was conducted with 23 fourth-grade students from SDN Giripurno 1 as the experimental group and 21 fourth-grade students from SDN Giripurno 2 as the control group. Students were given a pretest to assess their critical reasoning skills before participating in the control and experimental groups. The posttest phase aimed to collect data on the students' collaborative involvement and critical thinking skills after instruction in both groups. The data generated during the operational field experiment consisted of the results from the mutual cooperation character questionnaire and the critical reasoning skills assessment conducted before and after learning.

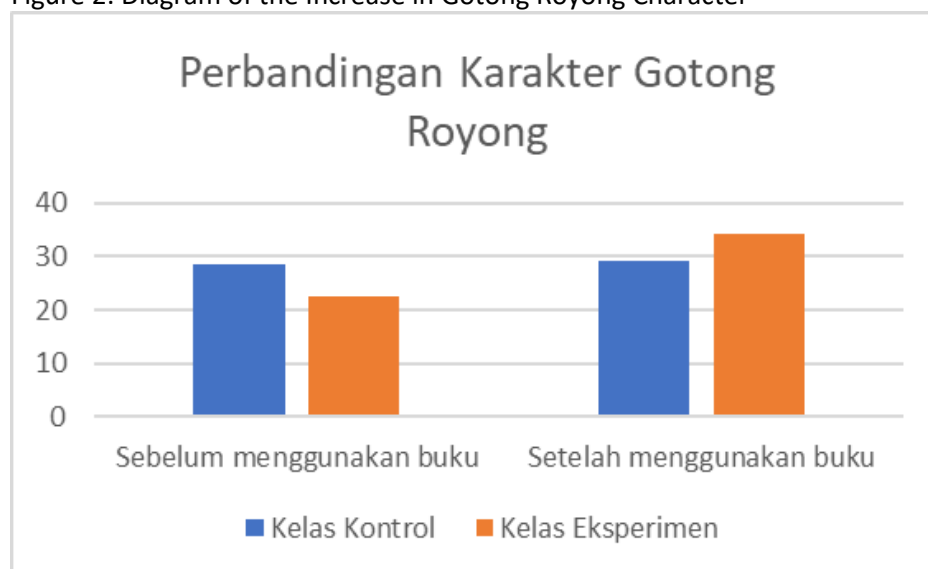
The quality of 'gotong royong' emphasizes the importance of living in harmony, helping each other, and sharing with others. The ideal of 'gotong royong' can be more easily imitated or applied by students in their daily lives by providing simple and relatable examples from their local environment or by telling short stories that are fundamental enough for them to grasp. Through the use of the local wisdom-based picture storybook, teachers can assess the level of cooperation students show to one another based on observation sheets filled out during learning activities.

Figure 1. Diagram of Gotong Royong Character at the Beginning



The diagram above shows that the average level of mutual collaboration was 28.48 in the control group and 22.61 in the experimental group. Before using the local wisdom-based picture storybook, the children showed commendable traits of mutual cooperation; however, some students only showed a moderate level of cooperation. This indicates the potential to improve collaboration among certain students. The use of the local wisdom-based picture storybook has the potential to enhance this collaborative character. The analysis of mutual cooperation can be observed by comparing the questionnaire findings obtained before using the book with those obtained after its use. The questionnaire results show that utilizing the local wisdom-based picture storybook significantly increased the spirit of cooperation.

Figure 2. Diagram of the Increase in Gotong Royong Character



The diagram above shows an increase in 'gotong royong' traits, as evidenced by the post-implementation questionnaire results. The score in the control class increased from 28.48 to 29.14, while the experimental class saw an increase from 22.61 to 34.35. The experimental class experienced a significant increase of 11.74. The utilization of the local wisdom-based picture storybook significantly enhanced the students' 'gotong royong' character. This success is a commendable achievement that demonstrates the positive influence of the local wisdom-based picture storybook, which significantly contributes to the development of students' cooperative character.

The pretest questions given to students before learning aimed to gather information about their initial abilities. Both the control and experimental groups received the same pretest questions. The initial skills of the experimental and control classes in the operational field trial are detailed in the table below.

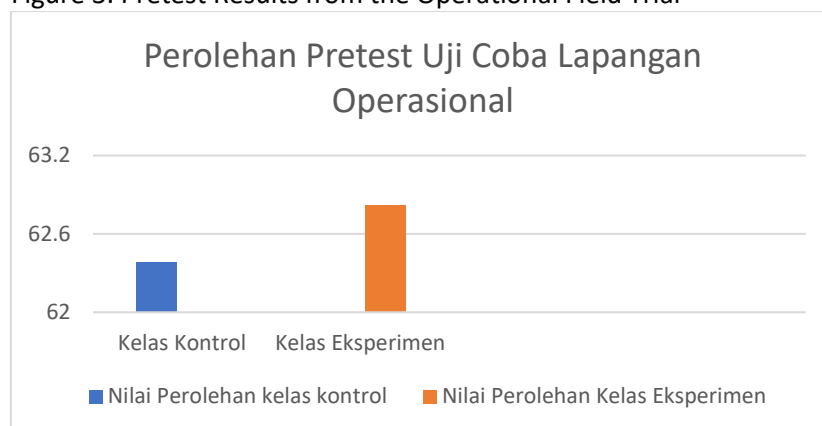
Table 8. Average Pretest Results for Critical Thinking Skills

No	Class	Average pretest score
1.	Control	61.90
2.	Experimental	62.82

The pretest results show that the control class obtained an average score of 61.90, while the experimental class obtained an average score of 62.82. The average difference between the control

and experimental groups was very small, at 0.92. The following figure explains the students' initial skill levels based on this data.

Figure 3. Pretest Results from the Operational Field Trial



The results indicate that the experimental and control classes showed nearly identical test scores. Students answered questions after learning to assess the effectiveness of the local wisdom-based picture storybook on their abilities. The questions consisted of 10 items, all of which had the same level of difficulty. The effectiveness of the picture storybook on the fourth-grade students' critical thinking skills is proven by the results of the pretest and posttest scores.

Figure 4. Increase in Critical Thinking Skills Results



The graph shows an increase in critical thinking skills among students in both the control and experimental groups. The increase in the average score of the control group was not as striking as that of the experimental group. The findings indicate that the critical reasoning skills of students in the experimental class surpassed those of the control class. This suggests that the local wisdom-based picture storybook, with a reasonable level of efficacy, can enhance the critical reasoning abilities of fourth-grade students.

Discussion

A picture storybook based on local wisdom with the theme "My Region and Its Natural Resources" is composed of a seamless blend of story and images that draws students in. As stated by Aulia & Wuryandani (2019), "the attention of elementary school pupils is piqued by engaging learning materials that incorporate images. The more illustrations there are, the more engaging and comprehensible the material is for students." A similar opinion was expressed by Suwandi & Masruri (2016), who stated that picture books can increase learning interest, help develop comprehension, improve vocabulary, aid in the transition to reading, and enhance learning outcomes for value-based education. A picture storybook is a book with interconnected images and text (Mitchell et al., 2002). It combines written learning material with visual images (Parwati et al., 2021). A picture book can convey messages in two ways: through illustrations and through text (Huck et al., 2003).

Students' interest in the narrative and illustrations presented in the local wisdom-based picture storybook aligns with the characteristics of fourth-grade elementary students. The book

includes a cover, author identity, learning outcomes and objectives, usage instructions, character introductions, narrative content related to local wisdom, a glossary, and the profiles of the author and illustrator.

Before delving into the book's content, students are encouraged to read the learning outcomes and objectives first. This is intended to help students understand the desired final outcome after reading the story. Afterward, students can read the usage instructions to better comprehend the contents of the local wisdom-based picture storybook. Students are invited to immerse themselves in the story of Laras's journey in her new village, which is rich in local wisdom. Complemented by colorful images, students become engrossed in following the storyline. This interest will encourage students to finish the reading, thereby improving their critical reasoning skills.

The book's cover features a series of bright colors that are attractive to students. The pages, which were previously dominated by brown, are now adorned with blue, red, and green highlights that are appropriate for elementary school students. The resulting product, a picture storybook based on local wisdom, has undergone various processes, including validation by subject matter experts, validation by media specialists, and feedback evaluation from teachers and students. The final product is a suitable educational resource for fourth-grade elementary students.

An engaging picture storybook rooted in local wisdom can offer students a memorable experience that influences their character in relation to their environment. This is consistent with the constructivist theory of development, which characterizes cognitive development as the construction of meaning systems and understanding of reality through children's interactions with their environment, events, and experiences (Apriani & Wangid, 2015).

Children's enthusiasm and interest in reading can be stimulated through innovative book design, which, in turn, enhances their literacy. An interactive and engaging book can lead to a memorable and enjoyable reading experience for children by incorporating technology and creativity in its design (Septyaningsih, 2024). Children will begin reading the book with this positive perception. The book's design, starting with an attractive cover and varied images, will generate interest in the child even before they read the book.

The images or illustrations in the picture storybook will make it easier for students to grasp the message being conveyed. The child's subconscious mind will be influenced by books with appropriate contexts and adequate illustrations, enabling a subtle form of character education that is easily absorbed by their minds (Gilang et al., 2017). This highlights the importance of matching illustrations to the events in the story.

The created picture storybook is adorned with vibrant images and captivating animated scenes. A key element of a picture book is the relationship between the images and the message conveyed through the text (Yulistia, 2019). Visual expressions create emotional engagement, compelling the reader to follow the storyline to the end (Anggito & Sartono, 2022). Striking colors can enhance a child's reading ability, motivate them to read, and spark their curiosity (Utomo, 2018). A book with appealing colors and images will help students have a pleasant reading experience.

The final product is a feasible and validated product within a specific category. The subject matter expert initially gave a "not feasible" category for the picture storybook about my region and its natural resources. During the material validation process, it was recommended that the language be modified to suit the characteristics of fourth-grade students. The picture storybook was then categorized as "feasible" to proceed to the media expert validation stage after revisions were made.

The initial results of the media validation yielded a "not feasible" category and required improvements. Two modifications were applied during the media expert approval process. In the initial draft, suggestions were made to enhance the authenticity of the chosen images and the representation of typical Javanese characters, as well as to increase the font size to improve clarity and facilitate student engagement with the text. After reviewing all feedback from the media validator, the process continued with resubmission for media validation. The validation technique aims to improve the quality of the product intended for use as a learning medium. The efficacy of

educational media does not depend on cost, frequency of use, or expense; instead, it is determined by the alignment of the media's attributes with the content and the child's developmental phase (Saputro & Soeharto, 2015). To prevent the learning process from becoming monotonous and boring, educators should use varied media that are appropriate for the students' characteristics and chosen alternately according to the nature of the learning content (Fitriyadi & Wuryandani, 2021). In the fields of literature and culture, picture storybooks serve as a communication medium for young people (Nikolajeva & Scott, 2000). Following the validation stage, the resulting product underwent three phases of field trials: preliminary, main, and operational. All three field trials were conducted by using segmented response scales for students and teachers to assess the feasibility of the local wisdom-based picture storybook in a classroom environment. The media feasibility criteria are met when the student and teacher response scales yield findings within the "feasible" range.

Research was conducted on 44 students in the control and experimental classes. The experimental class was given the validated picture storybook that was categorized as feasible, while the control class was given a mass-produced book from the government for two weeks. In the experimental class, the average teacher response was 4.96, and the average student response was 7.65, resulting in an average score of 6.305 or 63%. According to the feasibility category table, this score indicates that the picture storybook is in the "feasible" category for use. Students in the experimental class showed a significant increase in reading comprehension compared to the control class, who read the student handbook. This illustrated learning medium can stimulate students' motivation, curiosity, and learning spirit (Siburan et al., 2019). Based on these results, it can be seen that a quality book that is suitable for students' characteristics can attract their interest and provide good benefits.

The results of the product's practicality evaluation were determined by teacher and student responses. Teacher responses were categorized as responses during the preliminary field trial or responses during the main field trial. An improvement in teacher responses was observed in both field evaluations. The average teacher response score in the preliminary field trial at SDN Ngadiharjo 2 was 4.5, which received a "good" or "B" grade in the "practical" category, along with suggestions to add an author's profile and a glossary. Since the score was not perfect and there were still suggestions, the local wisdom-based picture storybook needed to be updated and retested to obtain teacher responses at the next stage.

The next stage was the main field experiment at SDN Karangrejo. The average teacher response score was 4.65, which corresponds to an "A" grade in the "very practical" category. The analysis of the two sets of teacher response data shows that the picture storybook centered on the local wisdom of my region and its natural resources is feasible for use. Many instructor reactions, recommendations, and praises reflect their interest in the picture storybook, which aligns with the views expressed by other scholars. Utami et al. (2018) identified several aspects that increase reading interest, including children's awareness, teaching materials, pedagogical approaches, a conducive atmosphere, and assistance from the surrounding environment. In contrast, inhibiting variables were insufficient instructor support and an inadequate understanding of the necessary methods for students.

The factors of student desire and interest in reading activities determine the extent of a teacher's influence in instilling these values in their students, along with factors such as the absence of a school library and the environmental factor. Furthermore, the community and students' parents are busy working, making it very difficult to find other activities, habits, or stimuli that can help teachers increase students' reading interest (Salim, 2022). The picture storybook is feasible for use, as evidenced by the validation results that passed the test. The teacher's response to the picture storybook media was that students enjoy reading because the book is colorful with images that match their characteristics. The students' response to the local wisdom-based picture

storybook media was that they were happy because the book's colorful design and attractive images were not boring.

The picture storybook based on the local wisdom of my region and its natural resources was created to enhance the collaborative teamwork character and critical thinking skills. This is evident from the significant increase in students' pretest and posttest results. A picture storybook is a visual medium that combines visuals and narrative to attract students' interest in reading.

Descriptive data analysis shows that the implementation of the local wisdom-based picture storybook in the experimental group caused a disparity in the average scores for 'gotong royong' character and critical thinking skills. The disparity in 'gotong royong' characteristics before and after the introduction of the picture storybook was 11.74, while the average difference in critical reasoning skills was 34.80. The analysis shows that the critical thinking skills of students who used the local wisdom-based picture storybook on the topic of their region and its natural resources improved more noticeably compared to students who did not use the book. Critical thinking skills improve elementary school students' understanding and retention of learned content (Ulger, 2018). This increase in critical reasoning ability is in line with recent research showing that the effective use of picture storybook learning media fosters critical and creative thinking skills in fifth-grade elementary school children (Gunawan et al., 2023). Other research shows a significant difference in the critical and creative thinking abilities of students who used picture storybook learning media compared to those who did not (Rindengan, 2023). Thinking skills are cognitive processes used in problem-solving (Nganga, 2019). If critical thinking ability is developed at an early age, children will respond to the development of their critical thinking skills by becoming more effective critical thinkers, making them consistent and more meaningful thinkers in their future lives (Ingwarni, 2018).

The critical reasoning skills of fourth-grade elementary students significantly increased through the local wisdom-based picture storybook. This is because these books can enhance the meaning of learning. Meaningful learning is the process by which an individual acquires the ability to integrate new phenomena into their existing knowledge structure, according to Ausubel (Rahmah, 2013). Learning is aimed at acquiring information and identifying and analyzing the information obtained (Seman et al., 2017). With meaningful learning, knowledge is better stored in students' memory (Perwitasari & Djukri, 2018). Learning objectives will be well realized if the process and learning outcomes are achieved to the maximum extent (Wuryandani & Herwin, 2021).

Additionally, students can develop character that is in line with their home environment by reading a local wisdom-based picture storybook. This is consistent with Wahyuni's statement that local wisdom-based education can help with the formation of student character by providing a familiar environment, specifically the family and school environment (Wahyuni & Hasanah, 2016). A child will interact with a broader environment, namely the family environment, so that environmental influences can easily penetrate and affect their behavior (Murdiono, 2008). The local wisdom-based picture storybook has story elements, materials, and images that contain the spirit of 'gotong royong' for elementary school students. These traits are embodied by the characters in the book, thereby becoming part of the story's plot.

Conclusion

Based on the development results, the following conclusions can be drawn: (1) Feasibility of the Product: The local wisdom-based picture storybook was deemed appropriate by both media and material experts for enhancing 'gotong royong' character and critical thinking skills in fourth-grade elementary students. (2) Practicality of the Product: The book was considered practical for strengthening these skills, as confirmed by teacher responses. The average practicality score from the initial field trial was 4.5, reported by instructors at SDN Ngadiharjo 2, with a "practical" criterion. In the main field trial at SDN Karangrejo, the average score was 4.65, meeting the "very practical" criterion. This high practicality was consistently reported across all four elementary schools. (3) Effectiveness of the Product: The book produced a significant increase in students' collaborative traits and critical reasoning skills. *Gotong Royong*: An independent t-test showed a significant value

of 0.015 for the difference in students' mutual cooperation before and after using the book. Critical Thinking: A second independent t-test revealed a substantial difference in critical reasoning skills. The t-test value of 0.00 was less than the significance level of 0.05. Combined Effect: The MANOVA test results, with a significance value of 0.000 (less than 0.05), indicated that students in the experimental group showed superior results in both critical reasoning skills and collaborative traits compared to the control group. This demonstrates a significant difference in these skills between students who used the local wisdom-based picture storybook and those who did not.

Based on the discussion and the use of this local wisdom-based picture storybook on the topic of "My Region and Its Natural Resources," the following recommendations are suggested: For Educators: Since the book has been evaluated and proven to be both feasible and effective, educators are encouraged to use this picture storybook as an alternative teaching medium to improve fourth-grade students' critical thinking and collaborative skills. For Students: It is recommended that fourth-grade students utilize this product as a learning tool. The book should be disseminated and used in both co-curricular and intra-curricular science lessons on the topic of "My Region and Its Natural Resources" to enhance 'gotong royong' character and critical thinking skills. For Future Research: Subsequent researchers can develop a similar local wisdom-based picture storybook with a different theme. For Dissemination: Further product development and dissemination are encouraged by sharing the book with other schools in need.

References

- Anggito, A., & Sartono, E. K. E. (2022). The Development of Multicultural Education Comics to Embed Tolerance Character for 4th Grade of Elementary School. *Jurnal Prima Edukasia*, 10(1), 66–81.
- Apriani, A.-N., & Wangid, M. N. (2015). Pengaruh SSP Tematik-Integratif Terhadap Karakter Disiplin Dan Tanggung Jawab Siswa Kelas III SD. *Jurnal Prima Edukasia*, 3(1), 12–25.
- Aulia, N., & Wuryandani, W. (2019). Multicultural Strip Comic as A Learning Media to Improve the Caring Character in Primary School. *Journal of Education and Learning (EduLearn)*, 13(4), 527–533.
- Fitriyadi, N., & Wuryandani, W. (2021). Is Educational Game Effective In Improving Critical Thinking Skills. *Jurnal Prima Edukasia*, 9(1), 107–117.
- Gilang, L., Sihombing, R. M., & Sari, N. (2017). Kesesuaian Konteks Dan Ilustrasi Pada Buku Bergambar Untuk Mendidik Karakter Anak Usia Dini. *Jurnal Pendidikan Karakter*, 8(2), 158–169.
- Gunawan, D., Soekamto, H., Sahrina, A., & Suharto, Y. (2023). Pengaruh Model Discovery Learning Berbantuan Video Terhadap Keterampilan Berpikir Kritis Siswa. *Jurnal Integrasi Dan Harmoni Inovatif Ilmu-Ilmu Sosial*, 3(6), 626–635.
- Hardianti, D., Martati, B., & Afiani, K. D. A. (2021). Analisis Kegiatan Ekstrakurikuler Pramuka Dan Nilai Gotong Royong Siswa Sd Pacar Keling I Surabaya. *Inventa: Jurnal Pendidikan Guru Sekolah Dasar*, 5(1), 59–70.
- Huck, C. S., Hepler, S. I., & Hickman, J. (2003). *Children's Literature in the Elementary School* (8th ed.). Columbus : McGraw-Hill.
- Ingwarni, S. (2018). Developing The Socioculture-Based Thematic-Integrative Learning Module for Improving the Learning Motivation and The Critical Thinking. *Jurnal Prima Edukasia*, 6(2), 157–165.
- Kholifah, W. T., & Kristin, F. (2021). Pengembangan Bahan Ajar Cerita Bergambar Tematik untuk Meningkatkan Minat Baca Siswa Sekolah Dasar. *Jurnal Basicedu*, 5(5), 3061–3072.
- Mitchell, D., Waterbury, P., & Casement, R. (2002). *Children's Literature: An Invitation to the World*. Boston : Allyn and Bacon, Inc.
- Muliana, M., Ahmad, A., & Yuhasriati, Y. (2016). Perkembangan Sosial Emosional Anak dari Keluarga yang Bercerai di Kecamatan Ulim Kabupaten Pidie Jaya. *Jurnal Ilmiah Mahasiswa Pendidikan Anak Usia Dini*, 1(1), 46–51.
- Mulyani, D., Ghufro, S., Akhwani, A., & Kasiyun, S. (2020). Peningkatan Karakter Gotong Royong

- Di Sekolah Dasar. *Lectura: Jurnal Pendidikan*, 11(2), 225–238.
- Murdiono, M. (2008). Metode Penanaman Nilai Moral Untuk Anak Usia Dini. *Jurnal Kependidikan Penelitian Inovasi Pembelajaran*, 38(2), 167–186.
- Nganga, L. (2019). Preservice Teachers Perceptions of Teaching for Global Mindedness and Social Justice: Using The 4Cs (Collaboration, Critical Thinking, Creativity and Communication) in Teacher Education. *Journal of Social Studies Education Research*, 10(4), 26–57.
- Nikolajeva, M., & Scott, C. (2000). The Dynamics of Picturebook Communication. *Children's Literature in Education*, 31(4), 225–239.
- Parwati, L. A., Putrayasa, I. B., & Suastra, I. W. (2021). Pengembangan Buku Bergambar Pada Tema Diriku Untuk Meningkatkan Keterampilan Berbicara Siswa Kelas I SD Gugus 2 Kecamatan Penebeltabanan. *PENDASI Jurnal Pendidikan Dasar Indonesia*, 5(2), 236–245.
- Perwitasari, N., & Djukri, D. (2018). Developing Thematic-Integrated Module Based on Guided Discovery to Improve Critical Thinking and Student Science Attitude. *Jurnal Prima Edukasia*, 6(1), 44–55.
- Rahmah, N. (2013). Belajar Bermakna Ausubel. *Al-Khwarizmi: Jurnal Pendidikan Matematika Dan Ilmu Pengetahuan Alam*, 1(1), 43–48.
- Rindengan, M. (2023). Penerapan Model Pembelajaran Project Based Learning untuk Meningkatkan Hasil Belajar Bahasa Indonesia Siswa Sekolah Dasar. *Didaktika: Jurnal Kependidikan*, 12(4), 857–866.
- Salim, A. (2022). Peran Pendidik Dalam Membangkitkan Ketertarikan Membaca Di Kalangan Siswa Sebagai Pencipta Lingkungan Belajar Yang Kondusif. *AL GHAZALI: Jurnal Pendidikan Dan Pemikiran Islam*, 2(1), 78–91.
- Santoso, R., & Wuryandani, W. (2020). Pengembangan Bahan Ajar Ppkn Berbasis Kearifan Lokal Guna Meningkatkan Ketahanan Budaya Melalui Pemahaman Konsep Keberagaman. *Jurnal Ketahanan Nasional*, 26(2), 229–248.
- Saputro, H. B., & Soeharto, S. (2015). Pengembangan Media Komik Berbasis Pendidikan Karakter Pada Pembelajaran Tematik-Integratif Kelas IV SD. *Jurnal Prima Edukasia*, 3(1), 61–72.
- Seman, S. C., Yusoff, W. M. W., & Embong, R. (2017). Teachers Challenges in Teaching and Learning for Higher Order Thinking Skills (HOTS) in Primary School. *International Journal of Asian Social Science*, 7(7), 534–545.
- Septikasari, R., & Frasandy, R. N. (2018). Keterampilan 4C Abad 21 Dalam Pembelajaran Pendidikan Dasar. *Tarbiyah Al-Awlad: Jurnal Kependidikan Islam Tingkat Dasar*, 8(2), 107–117.
- Septyaningsih, W. (2024). Meningkatkan Minat Baca Anak Melalui Desain Buku yang Interaktif dan Menarik. *Arunika*, 1(1), 27–32.
- Siburian, J., Corebima, A. D., & Saptasari, M. (2019). The Correlation Between Critical and Creative Thinking Skills on Cognitive Learning Results. *Eurasian Journal of Educational Research*, 19(81), 99–114.
- Sujarwo, S., Kusumawardani, E., Prasetyo, I., & Herwin, H. (2021). Parent Involvement in Adolescents' Education: A Case Study of Partnership Models. *Cypriot Journal of Educational Sciences*, 16(4), 1563–1581.
- Suwandi, I. K., & Masruri, M. S. (2016). Pengembangan Picture Book Sejarah Nasional Dengan Pendekatan Tematik Terpadu Untuk Kelas IV Sekolah Dasar. *Jurnal Prima Edukasia*, 4(1), 79–92.
- Ulger, K. (2018). The Effect of Problem-Based Learning on The Creative Thinking and Critical Thinking Disposition of Students in Visual Arts Education. *Interdisciplinary Journal of Problem-Based Learning*, 12(1), 1–21.
- Utami, R. D., Wibowo, D. C., & Susanti, Y. (2018). Analisis Minat Membaca Siswa Pada Kelas Tinggi Di Sekolah Dasar Negeri 01 Belitang. *Jurnal Pendidikan Dasar Perkhasa*, 4(1), 179–188.
- Utomo, E. P. (2018). Internalisasi Nilai Karakter Gotong Royong Dalam Pembelajaran IPS Untuk Membangun Modal Sosial Peserta Didik. *Jurnal Teori Dan Praksis Pembelajaran IPS*, 3(2), 95–102.
- Wahyuni, D. E., & Hasanah, S. A. (2016). Pendidikan Karakter Berbasis Kearifan Lokal Pembentuk

- Karakter Bangsa. *FKIP E-Proceeding*, 19–24.
- Wuryandani, W., & Herwin. (2021). The Effect of the Think-Pair-Share Model on Learning Outcomes of Civics in Elementary School Students. *Cypriot Journal of Educational Sciences*, 16(2), 627–640.
- Wuryandani, W., & Rahmanto, A. (2018). *Pendidikan Karakter Di Sekolah Dasar*. Yogyakarta : UNY Press.
- Yuliani, W. (2022). Pengembangan Buku Cerita Bergambar Sebagai Media Pembelajaran. *JURNAL PAJAR (Pendidikan Dan Pengajaran)*, 6(1), 76–81. <https://doi.org/10.33578/pjr.v6i1.8276>
- Yulistia, A. (2019). Scientific-Based Approach Pictorial Storybook for Eliciting Creative Thinking and Collaborative Skills. *Jurnal Prima Edukasia*, 7(2), 172–181.