



QR Code-Based Picture Story Book Media to Improve Analytical Thinking on Elemental Materials in Class 5 Literary Work at State 4 Purwodadi Primary School Malang District

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Abstract

A country needs to invest in its education. Without education, the people of the country will not understand what independence means. The public education system in this country will be run independently. Apart from that, the people will also have superior qualities that will be beneficial for the country. However, based on empirical data in this sector, there are limitations in the use and accessibility of learning media. Teachers will actually benefit from developing learning media because they will be better able to explain subject matter to students. Therefore, this research was conducted at SD Negeri 4 Purwodadi, Malang Regency. One type of research and development (R&D) is this research. The Borg and Gall research model was used in this research. The research findings are based on material expert scores which are considered "very valid" with a percentage of 87.5%. The material expert's assessment was assessed as "very valid" with a percentage of 95%. The linguist's assessment was considered "very valid" with a proportion of 90%. Validation of media suitability is rated "very valid" with a score of 90. Validation of test questions has a rating of 83% which means "quite valid". The proportion of media eligibility is 97%. Included in the "Very Appropriate, no need to revise" category when interpreted according to the validity criteria table. With a percentage of 73%, the feasibility of expert validation of linguists falls in the range of 70.01 – 85.00%. Enter under the title "Good, Appropriate, no need for revision" in the validity criteria table. The Ngain categorization that meets the "high" criteria is placed in the $0.70 < n < 1.00$ group. Thus, it can be said that grade 5 students at SD Negeri 04 Purwodadi can develop their analytical thinking skills by using picture story books that depict elements contained in literary works.

Keywords : development, picture story books, analytical thinking skills

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Introduction

A country needs to invest in its education. Without education, the people of the country will not understand what independence means. The public education system in this country will be run independently. Apart from that, the quality of the people will be superior and high so that it will be beneficial for the country.

Education is one of the main indicators of a person's quality in Indonesia. Many people are often underestimated because of the low quality of their education. even though in fact these people are smarter than educated people. The state of education in Indonesia is currently unstable due to several problems.

Based on field data, researchers found several problems at SD Negeri 04 Purwodadi. On December 10 2023, researchers used the observation method to conduct research at SD Negeri 04 Purwodadi involving grade 5 students and their class teachers. Researchers found that certain students continued to struggle with creativity when it came to literary material. Students with low levels of imagination show this by showing less interest and understanding when presented with literary works. This occurs as a result of the learning process not utilizing interesting and up-to-date learning resources. Teacher preparation in teaching will influence success in the learning process. Teachers must pay attention to each competency and ability to be achieved (Fatih, 2018). Teachers sometimes don't even use media, teaching literary works mostly through lectures and then giving assignments in the form of tests. The media used is limited to old media which is less interesting. In line with this statement (Fatih, 2020) explains that teachers as motivators, facilitators and learning organizers need to understand the models and media used in learning.

Apart from that, students do not yet have the ability to think analytically about the components of literary works. Students who still have difficulty categorizing the components of literary works are proof of this. This challenge

arises because the learning used does not encourage students to think critically. Rather than understanding the concepts behind aspects of literary works, students are expected to memorize material in these subjects.

The way problems are presented at SD Negeri 04 Purwodadi class 5 shows that this has a significant effect on students' skills and understanding of the Elements of Literary Work lesson material. Many young people who are not engaged in learning as intended by their teachers may be unable to think critically or use learning resources.

Creating new, innovative Picture Story Book learning media with QR Codes is one approach to using picture story media for analytical thinking. (Nuraeni et al., 2023). This QR Code Based Picture Story Book has charming fairy tales, colorful illustrations, original artwork, and description columns that will help children understand information about the components of literature for grade 5.

Barcodes that can be scanned by students' devices are found in QR code-based picture fairy tale books or commonly called 2D books. This innovation is also considered interesting for children as they learn. (Zamroni et al., 2024). This is demonstrated by the display of QR Code-based Picture Story Book media which displays the ability to compose a story line with visuals that are calm and easy for children to understand. (Soedarso, 2015). Technological advances such as two-dimensional visual QR Codes that mimic symbols and can store large amounts of data both horizontally and vertically, further support this. A QR code is a data container image that looks like a two-dimensional matrix. to arouse students' interest in the subjects taught in the Elements of Literary Works.

Picture books are narrative works whose text is combined with visuals or images (Soedarso, 2015). The target audience for these books is often lower elementary school students, and graphics are very important in the reading

and writing process. (Pratama et al., 2019). They are more motivated to learn from picture books. Well-chosen picture books can facilitate and enhance students' understanding of narrative. (Pratama et al., 2019).

Based on the background description above, to solve the problems that exist at SD Negeri 04 Purwodadi, researchers created an innovation with the title Media Development for Picture Story Books Based on QR Code Analytical Thinking Material Elements of Literary Work for Class 5 Students at SD Negeri Purwodadi 04, Malang Regency.

Method

The Borg and Gall research paradigm is the research and development process used by researchers in this research. In line with (Alfi, 2022) the use of this method is appropriate for developing learning strategies that are effective and efficient in their implementation. This consists of seven steps listed below: Potential issues and concerns, (2) Information gathering; (3) Product design; (4) Design validation; (5) Design revision; (6) Product testing; and (7) Product revision, (Soedarso, 2015).

Media development is the final product that will be produced by this research. For class V, developing student picture book media will increase students' critical thinking and imaginative thinking about the components of literary works.

Results and Discussion

The results of this research are as follows.

1. Potential and Problems

At this stage several analyzes are carried out which include needs analysis, student analysis, task analysis, concept or material analysis and formulation of indicators and learning objectives (Fatih, 2021). SD Negeri 04 Purwodadi, the elementary school used as the research site, the researcher observed and spoke to students. The fifth grade teacher at SDN 04 Purwodadi was interviewed. Interview findings show that students still do not study the components of literary works with a lot of analytical thinking. Furthermore, the problem identified through observations and interviews is that educators have not used teaching materials to facilitate students' analytical thinking when studying aspects of literature.

2. Data Collection

At this point, the researcher collects information related to observations and interviews conducted previously. The reference sources used by researchers to develop learning media are various journals, books and the internet which aim to make it easier for researchers in the process of creating media development. Furthermore, to improve the analytical thinking skills of grade 5 students at SD Negeri Purwodadi 04, Malang Regency regarding the elements of literary works, researchers looked for reference materials to encourage the creation of QR code-based picture story books.

3. Product Design

Product design and combining written and visual elements which will be used as the goal of future research on the media that has been produced are the stages involved in product design. The product design is as follows.



Figure 1. QR Code based Picture Story Book



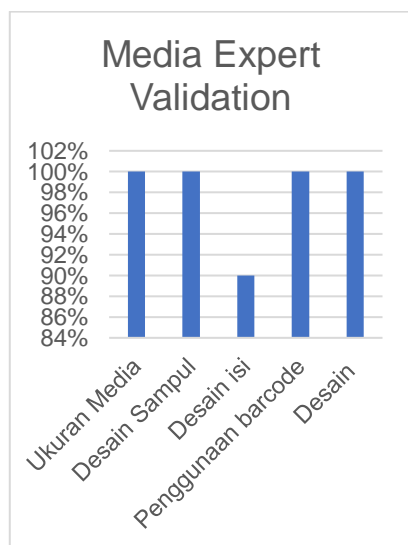
Figure 2. Book instructions



Figure 3, contents of a picture story book

4. Design Validation

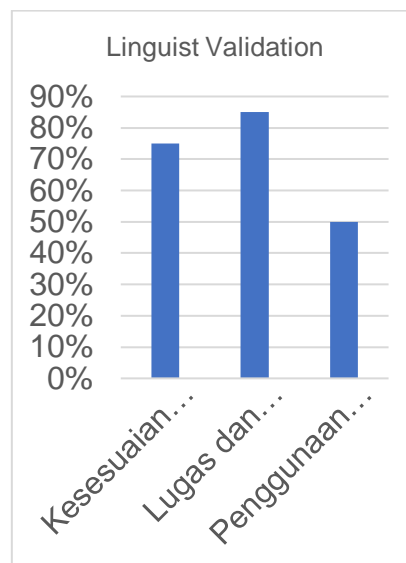
Media enters the design validation stage after it is designed. The process of determining whether a product design is more useful or not, or suitable for use is called design validation. Validity test to measure the validity of an instrument used to obtain data (Fatih, 2022). This design validation is carried out by media, language and material validation experts. The following are the results of media expert validation.



Graph 1. Media Expert Validation

If the algorithm is applied to the data above, then the category criteria produced by media expert validation is 85.01 – 100%, or 97% of the total. By applying the interpretation of the validity criteria table, it is included in the "Very Eligible, no need for revision" category.

A language specialist will then validate the questionnaire. The following are the results of validation by language experts.



Graph 2. Language Expert Validation

If this formula is used on the data above, then the category criteria produced by linguist validation will place it in the 70.01 – 85.00% category with a percentage of 73%. Categorized "Good, Appropriate, no need for revision" in the validity criteria table.

Apart from that, the suitability of the media is assessed by the class teacher through validation. The validation results for media suitability were ninety percent. The ten question statements in the questionnaire are considered "very valid" meaning they can be used without modification, if the percentage of findings is interpreted in accordance with the validity criteria table. Apart from that, the exam questions also undergo validation.

The validity test formula was then used to calculate validation findings from 15 respondents. If the count of an item is greater than or equal to the table, then the item is considered valid at the 95% confidence level ($\alpha = 0.05$). An incorrect question item is a question item whose r count is less than r table. Using SPSS, perform this calculation with Product Moment to obtain the following results.

Table 1. Validity results of test questions

No.	Rcalculat	problem	table	Description
Item 1	0.8460	.514	Valid	
Item 2	0.8770	.514	Valid	
Item 3	0.8730	.514	Valid	
Item 4	0.9590	.514	Valid	

Item 5 0.8360.514Valid

After the question item is validated, item. From the results of the data above, it can be concluded that from the 5 test items declared "Valid" the reliability of the questions is calculated to determine the consistency of the questions when used. The reliability results are as follows.

Cronbach's Alpha	N of Items
.904	5

Table 2. Reliability Statistics

Based on the Alpha-Cronbach formula calculation carried out using SPSS software, an instrument is said to be reliable if its reliability coefficient (r_{11}) is at least 0.6. Sugiyono entered (Fendry et al., 2024). The instrument reliability value $r(0.904) > 0.6$ is included in the "high reliability" requirement, according to the Alpha-Cronbach interpretation table. As a result, the tool was approved as a reliable tool for collecting research data.

5. Design Revision

After expert validation has been carried out which aims to identify deficiencies or inadequacies in the QR Code-based Picture Story Book media, the design revision stage has been completed. Following are the design modifications.



Figure 3. Design before revision



Figure 4. Design before revision

6. Product Trial

The purpose of testing the QR Code Based Picture Story Book product is to evaluate the researcher's Picture Story Book product. Pretest questions are given to students before instruction to assess their understanding of the lesson material. Students then use picture story books with QR codes to learn. Students are given a media interest questionnaire and posttest questions to find out their assessment after learning through media. The following are the findings of the students' Ngain pretest and posttest results.

Tabel 2. Descriptive Statistics

	N	Mini mum	Maxi mum	Mea n	Std. Devia tion
Ngain _skor	15	.50	1.00	.7417	.14258
Ngain _pers en Valid N (listwise)	15	50.00	100.00	74.1699	14.25792

Based on the Ngain classification category table, the Ngain score of 15 students determined based on the data above is 0.7417, thus placing them in the "high" category ($0.70 < n < 1.00$). and falls into the "moderately effective" category if the N-Gain value findings are evaluated in the form of % to assess the

effectiveness of treatment for decision making . Students were given an attractiveness questionnaire to answer after completing the posttest questions to measure how attractive the QR Code Based Picture Story Book media was. Literary works used for teaching provide elements of analytical thinking. The following are the findings from filling out the attractiveness questionnaire:

Table 3. Results of the attractiveness questionnaire

Code name	Total score	Percentage of yield value
1	9	100%
2	9	100%
3	9	100%
4	9	100%
5	9	100%
6	9	100%
7	9	100%
8	9	100%
9	9	100%
10	9	100%
11	9	100%
12	9	100%
13	9	100%
14	9	100%
15	9	100%

It can be seen from the graph above that fifteen students obtained a perfect score of 100%. Thus, this student is included in the "very attractive" category in table 13.16, category of attractiveness of student answers. Thus, it can be said that the use of QR Code-Based Picture Story Book Media, Analytical Thinking Material, Elements of Literary Works in the classroom is a very interesting experience.

7. Discussion

The validity of the student picture storybook media to improve analytical thinking in class 5. The results of the validity questionnaire were assessed by the material expert, namely Mrs. Cindya Alfi, M.Pd as a PGSD lecturer at Nahdlatul Ulama University Blitar. The results of the instrument validation obtained a percentage of 87.5%. The questionnaire stated " very valid" with the statement that it can be used without revision. The above statement is reinforced by research by (Alfi, 2024) stating that the results of the expert validation assessment of the traditional congklak game media material above obtained a score of 95% -100%, obtaining very valid criteria without revision.

The media validity results were then assessed by a media expert, namely Mrs. Cindya Alfi, M.Pd as a PGSD lecturer at Nahdlatul Ulama University, Blitar. The results of the instrument validation obtained a percentage of 95%, the questionnaire was declared "very valid" with the statement that it could be used without revision. The above statement is reinforced by research by (Alfi, 2024) stating that the results of expert validation of e-learning storymaps media assisted by crossword puzzles were 91% with very valid criteria.

As for the validation of the instrument, the language expert, namely Mohamad Fatih, M.Pd, as a PGSD lecturer at Nahdlatul Ulama University, Blitar. The results obtained were that the percentage of 90% of the questionnaire was declared "very valid" with the information that it could be used without revision. The above statement is reinforced by research by (Fatih, 2023) stating that the results of the validation of the Augmented Reality-based digital flipbook media linguist instrument obtained 90% of the criteria "very valid"

Furthermore, a validation test was also carried out on the student eligibility questionnaire. Validation of the media suitability instrument which was validated by Mr. Mohamad Fatih, M.Pd as a PGSD lecturer at Nahdlatul Ulama University, Blitar. The questionnaire was declared "very valid" with the statement that it can be used without revision. The above statement is reinforced by research by (Fatih, 2023) stating that the validation results of the Quizlet-based flashcard media feasibility

instrument can be determined through a total score of 93% with the criteria "very valid".

Next, measure the test questions to assess students' analytical thinking. The results of the assessment of student test questions validating the media suitability instrument which were validated by Mr. Mohamad Fatih, M.Pd as a PGSD lecturer at Nahdlatul Ulama University Blitar, obtained a percentage of 83%. The questionnaire was declared "fairly valid" with the statement that it could be used with minor revisions. The above statement is reinforced by research by (Alfi, 2023) stating that the diorama learning media obtained a score of 64, then calculated again to determine the media feasibility test percentage, namely 88% in the "Very Eligible" category.

Each question item is also validated. Measured using a formula using Product Moment using the SPSS program. The result is that the $r_{count} (0.846) > (0.514) r_{table}$ questions fall within the "high" validity criteria so there is no need for revision. In question number 2, the result of $r_{count} (0.877) > (0.514) r_{table}$ is included in the validity criteria of "very high" so there is no need for revision. In question number 3, the result of $r_{count} (0.873) > (0.514) r_{table}$ question falls within the "very high" validity criteria so there is no need for revision. In question number 4, the result of $r_{count} (0.959) > (0.514) r_{table}$ is within the "very high" validity criteria but no revision is necessary. In question number 2, the result of $r_{count} (0.836) > (0.514) r_{table}$ is included in the validity criteria of "very high" so there is no need for revision.

So it can be concluded that of the 5 questions in the test questions that were declared valid were 5 items and 0 items that were invalid.

The media eligibility gets a percentage of 97%. If interpreted in the validity criteria table, it falls into the category "Very feasible, no need for revision". The eligibility of the linguist validation expert entered the 70.01 – 85.00% category, getting a percentage of 73%. If interpreted in the validity criteria table, it falls into the "Good, Decent, no need for revision" category.

This interest questionnaire aims to determine students' level of interest in the media of students' picture books to improve analytical

thinking in grade 5 regarding the elements in literary works. The results of filling out the questionnaire showed that 15 students got a percentage score of 100% in the "very interesting" category. The above statement is reinforced by research by (Alfi, 2022) stating that the results of interactive power point media based on animation media were declared "very interesting".

So it can be concluded that the QR Code-Based Picture Story Book Media Analytical Thinking Material Elements of Literary Works is very interesting when used in learning.

Increasing the analytical thinking of grade 5 students regarding elements in literary works at SDN 04 Purwodadi. The results of the N-gain score for 15 students are 0.7417 if interpreted in the Ngain classification category table, falling into the category $0.70 < n < 1.00$ with the "high" criteria and if the N-Gain value results are interpreted in the form percent to determine the effectiveness of treatment with decision making is in the "quite effective" category.

So it can be concluded that the media of story books depicting elements in literary works can improve the analytical thinking skills of grade 5 students at SD Negeri 04 Purwodadi.

8. Product Revision

Because students and respondents have previously made these changes, there are currently no changes to the product revision process. Considering that the Picture Story Book product is made with QR Codes, the researcher's product is ready.

Conclusion

The use of QR Code-based picture story books and elemental material in literary works can improve the critical thinking skills of class V students at SDN 04 Purwodadi. This is shown by the Ngain score of 15 students which, if read in the Ngain classification category table, is 0.7417 and falls into the "high" category ($0.70 < n < 1.00$). and falls into the "sufficient" category if the N-Gain value findings are interpreted in % form to assess the effectiveness of treatment for decision making. **effective**".

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curriculum vitae

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