

Interactive Multimedia Based on Contextual Children's Stories: Improving the Skills of Writing Fairy Tales for Elementary School Students

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Abstract: The purpose of this research is to (1) produce interactive multimedia based on contextual children's stories that are valid for students; (2) produce interactive multimedia based on contextual children's stories that are practical for students; and (3) produce interactive multimedia based on contextual children's stories that are effective for students. The research conducted is included in Development and Research. In this research, learning media using Adobe Flash will be developed. This research was conducted at Peureulak 2 Public Elementary School, East Aceh District, Aceh Province. The subjects of this research were class III A students at Peureulak 2 Elementary School, and the object of this research was contextual children's story-based learning media. research and development model, or R&D. Development research is a research process that has the aim of developing new products or updating old ones. With Thiagarajan's 4D development model. The results of research and development show that: (1) the results of contextual-based multimedia validity tests were obtained from 3 experts, namely 82% material experts, 78% multimedia experts, and 90% language experts, so that the average is valid; (2) the results of the practicality test were obtained from the results of the student response test and the teacher response test. In the results of the small-scale student response trial, the percentage score was 79%, and in the results of the large-scale student response trial, it was 76%. teacher response test (87%). Average trial: 87% Practical category; and (3) the results of the effectiveness test obtained Gain-Score, or improvement in students' writing skills, was seen from the pretest and protest. There was an increase in the classical average score of 0.56, and there was a "medium" increase in learning outcomes. The results of the gain score analysis were 0.60 in the medium category. It can be concluded that using multimedia learning can improve student learning outcomes and fulfill the criteria for effectiveness.

Keywords: multimedia media; contextual; children's stories; fairy tale writing skills

1. INTRODUCTION

One aspect that can influence students learning success is language skills. Even though many students and educators think this skill is easy, the fact is that our language skills are still behind those of several other countries. 13.11% of the Indonesian population aged over 10 years read newspapers or magazines; the remainder prefer watching television [1]. The lack of knowledge and language skills will have an impact on the lack of reading activities. Additionally, Indonesia's publication expansion, which continues to lag behind that of Malaysia, Thailand, and Egypt, points to the need to increase the country's writing productivity. Therefore, efforts need to be made to develop language skills aimed at school-aged children.

Some language skills that are important for elementary school students to master are writing and speaking skills [2]. Learning to write and speak is a big concern in the world of education. Because the instillation of concepts in writing and speaking will continue to be used continuously, from childhood to the end of life, Therefore, it requires persistence and accuracy in learning to write and speak for children, especially school-aged children.

Various aspects of student performance can be improved through their writing and speaking skills. But keep in mind that writing practice requires children who are mentally, physically, and emotionally ready. Children are better at speaking than writing. Therefore, don't be surprised if talking affects a child's writing ability [3].

The development of children's story media has the special ability to help students hone their writing skills. This is

intended so that elementary school students can enjoy children's stories that have a unique appeal and are very similar in their features. As a result, students will be more motivated to learn.

Teachers must be able to innovate in their teaching, and one of the innovations in learning is the development of learning media. The number of teachers who have not been able to present a learning medium that is in accordance with the needs and periods of students [4] In addition, many educational practitioners realize that the use of interactive multimedia in learning actually helps learning activities both inside and outside the classroom. The use of interactive multimedia in Indonesian language learning, if developed and used well, can improve the quality and process of student learning, thereby enabling the teaching and learning process to be carried out in the classroom, anywhere, at any time. As expressed by Sriadhi [5]. Multimedia as a teaching aid as well as a learning resource will be more effective if the teaching material is built according to the rules. The learning sequence is carried out in a structured manner according to the objectives to be achieved. The selection of the order of materials is not a complete list, but it is the most necessary materials according to the curriculum.

To facilitate learning, teachers in the field of education are required to use and even create technological goods. Implementation of multimedia as a form of integration between media and technology where using various technical items, such as laptops or devices, allows students to access knowledge So that the use of technology in the field of education is a necessity for both teachers and students. Multimedia-assisted learning such as Adobe Flash makes students more involved

and active in learning, makes communication more effective, facilitates forums, and adds interest and motivation to learn [6]. Therefore, technological progress is very important for learning.

1.1 The Nature of Interactive Multimedia

Widodo & Wahyudin [7] stated that "learning media is a tool that can be used to convey the message to the students for the purpose of learning. This means that learning media is a tool that has been designed in such a way that it can be used to convey material in learning activities.

Indriana [8] argues that all real tools and resources that can be used to carry out learning and assist students in achieving learning goals or objectives are called learning media. Media is often associated with the actual tool or object. This is due to the role of the media as a facilitator of educational activities, which provides media in a physical form that students can see or use to assist learning.

Learning media offers variations so that learning does not take place in a monotonous manner. This also requires the participation of innovative teachers who are willing to provide meaningful learning for their students. Media is an alternative and effective step in providing effective learning for students through the main role of a teacher in designing learning [9].

Schramm [10] classifies media on the basis of their complexity. On that basis, Schramm divides the media into two groups, namely: large media (expensive and complex media) and small media (simple and cheap media). This includes large media, for example, film, television, and NCD video, while those that include small media, for example, slides, audio, transparencies, and text. Apart from that, Schramm also differentiates the media on the basis of their reach, namely mass media (whose coverage is broad and simultaneous), group media (whose coverage covers a certain room), and individual media (for individuals). Mass media include radio and television. Included in group media are audio tapes, videos, OHPs, and slides. Meanwhile, individual media included textbooks, telephones, and learning computer programs (CAI).

Meanwhile, of the many types of media that can be utilized in learning, Heinich, Molenda, and Russell [11] make a simpler media classification as follows: (1) non-projected media, (2) projected media, (3) media audio, (4) video media, (5) computer-based media, and (6) multimedia kits

Adobe Flash is software used to create animations, videos, and interactive multimedia. Adobe Flash is a product or software from Adobe (formerly known as Macromedia before being purchased by the Adobe company), which is used for the process of creating and managing animations or images that use vectors for small scale sizes. Adobe Flash is computer software used to create animations, videos, vector and bitmap images, and interactive multimedia. Animations or applications produced by Flash have the extension *.swf, which can be run using Adobe Flash Player.

1.2 Learning Media for Lower

Grade Elementary School Children. Elementary school-age children in the lower classes have experienced quite mature physical growth throughout their development. This is demonstrated by their ability to maintain and control their body balance. In addition, the ability of early elementary students to

share with friends, be independent, have friends, and compete with each other is a sign of their social development.

In more detail, the developmental characteristics of elementary school students with an age range of 7–11 years are described by Santrock [12] in terms of physical, cognitive, language, and social-emotional development, which are described as follows: The physical development of children at this time is marked by their physical maturity; physical growth is quite stable and takes place slower than growth in the previous period. During this period, children's motor skills and growth are increasingly developing. Children become better able to control their bodies, so they can sit and be calm enough to focus for long periods of time.

The language development that children are going through at this time involves their ability to use language that is increasingly analytical and logical. The use of children's grammar and vocabulary is also increasingly complex, so it's not surprising that at this time children will have the ability to make up stories to share with others around them. It is important to pay attention to the social-emotional development of children at this stage because children will start school, so they will get a new environment, learn to adapt with friends, and start socializing with other people. It is not surprising that at this time children experience changes in their social and emotional abilities

1.3 Learning Multimedia

Interactive multimedia is a medium that can transmit information through presentations that can convey and distribute messages from various sources. The definition of media is anything that can be felt and used to plan how messages from sources are channeled to attract students' interests, ideas, and feelings and make learning more successful and efficient [13].

Interactive multimedia that is printed or in a form or model that is only inactive and cannot interact with its users Here, students can participate in two-way interactions through interactive multimedia.

According to Iswara [14], Adobe Flash is a product or software from Adobe (formerly known as Macromedia before it was purchased by the Adobe company), which is used for the process of creating and processing animations or images that use vectors for small scale sizes.

The tutorial model positions the computer as a teacher so that all interactions occur between the computer and students, while the teacher is only a facilitator and monitor. Learning in this model is presented through text or graphics displayed on a computer screen. Then the computer displays questions according to the material.

1.4 Fairy Tale Writing Skills

According to Raena [15], there are six pre-language skills of students, or what are known as the Six Early Literacy Skills, namely: print motivation, vocabulary, print awareness, narrative skills, letter knowledge, phonological awareness, and also learning Indonesian, which cannot be separated from the four language skills, namely: listening, speaking, reading, and writing. The four aspects of skills are interrelated [16]. However, language acquisition in the early grades places more emphasis on the early reading and writing sections [17].

The more often we write, the more vocabulary we will use, and that will also require us to read more. Reading a lot will add insight into literacy and vocabulary. And more writing will help someone convey what is on his mind. However, the fact is that there are still many students who think writing is difficult [18].

According to Langan [19], writing is the activity of expressing ideas offered to the reader, where each thought has a certain justification so that the idea can be accepted by the reader. This definition is in accordance with the opinion above. An article is broken up into paragraphs, each of which has one main idea and a number of supporting sentences. Therefore, an article includes a number of arguments that support the author's point of view, which the reader can then understand.

Tina Kogh states that a fairy tale is a story that has been used for centuries as a means of communication, in which there is an

incident or events, the characters of the story, and messages taken from the characters in the story [20]. According to Anwar [21], simple essays are obtained from a process where existing ideas are involved in a word, and the words that are formed are then arranged into a sentence. Sentences are arranged to form an essay, and finally, the essays form a simple essay.

Fairy tales are a form of literary work whose stories do not actually happen or are fictional, are entertaining, and contain moral teachings. Based on these definitions, it can be concluded that fairy tales are fictional stories that aim to entertain and contain moral values [22]. Fables are children's stories whose characters are animals, but they carry out their roles like humans (personification). Basically, in the fable, the character values are included in the intrinsic elements. An intrinsic element is the building block of a work, which includes the plot, setting, and message contained in the story.



Figure 1. Interactive multimedia flash display of children's stories for elementary school students

The research problem is formulated as follows: (1) can interactive multimedia based on contextual children's stories be valid for use in learning; (2) whether interactive multimedia based on practical contextual children's stories can be used in learning; and (3) whether interactive multimedia based on contextual children's stories can effectively improve the learning outcomes of elementary school students.

2. METHOD

This type of research is a type of development research, commonly called development (research and development). In this research, learning media using Adobe Flash will be developed. The final product will be evaluated based on the specified product quality aspects. Thus, the product of this research is a medium that is valid, practical, and effective. This research was conducted at Peureulak 2 Public Elementary School, East Aceh District, Aceh Province. The subjects of this research were class III A students at Peureulak 2 Elementary School, and the object of this research was contextual children's story-based learning media.

Development research is a research process that has the goal of developing new products as well as updating old ones. With the 4D development model (Four D Models) from Thiagarajan. In developing interactive multimedia, the author carried out several procedures that refer to the development model proposed by Thiagarajan et al., namely 4D, where there are 4 stages: the definition stage, the design stage, the development stage, and the deployment stage (disseminate). There are two types of data used in this research and development: qualitative data and quantitative data.

Learning Outcome Test Data collection is carried out to determine improvements in student learning outcomes, namely by giving questions and students answering them, or student learning outcomes tests. The test was carried out before the learning treatment using interactive multimedia in the form of multiple choice questions consisting of 25 questions, and then the test results were used to analyze how much cognitive aspects of student learning outcomes improved after implementing contextually based interactive multimedia.

Table 1. Learning achievement test grid

No	Indicator	Level of Cognitive Ability			
		C1	C2	C3	C4
1	Answer questions about the content of fairy tales, legends, experiences, and impressive events.	5			
2	Rewrite the contents of fairy tales, legends, experiences, and impressive events in a few sentences.		6		
3	Identify the characters in children's fairy tales or poetry.	1		1	1
4	Answer questions about the content of fairy tales or children's poems.			6	
5	Play the characters in fairy tales or children's poetry according to their characteristics.				5
Total		6	6	7	6
The total number of questions is		25			

After being validated, the learning outcomes test was tested on students who were not part of the sample in the study. Test trials aim to obtain valid and reliable tests.

Further explanation regarding the writing test assessment format is as follows:

Table 2. Writing Test Assessment Guidelines

No	Rated aspect	Criteria	Score	Maximum Score
1	Obedience to orders given	<ol style="list-style-type: none"> 1. The essay is very appropriate for the theme. 2. The essay is in accordance with the theme, even though there are things that are not appropriate, but they have no effect. 3. The essay is quite appropriate for the theme. 4. The essay does not match the theme. 5. The essay does not match the title or theme. 	<p style="text-align: center;">2 1,4 1 0,5 0</p>	2
2	Organizational essay	<ol style="list-style-type: none"> 1. Everything is related to content and sentences. 2. One error that is not related to the content or sentence 3. Two or three unrelated errors between content and sentence 4. Four or more unrelated errors between content and sentences 5. There is nothing related to content or sentences.. 	<p style="text-align: center;">2 1,5 1 0,5 0</p>	2
3	<i>Pertinence des informations données (accuracy of the information provided)</i>	<ol style="list-style-type: none"> 1. The narrative of the object is detailed and clear; the reader can experience the same experience as the author. 2. If the description of the object is unclear and lacking in detail, the reader may experience the same experience as the writer. 3. The description of the object is unclear and lacking in detail; the reader does not have the same experience as the writer. 4. The description of the object is not clear and not detailed; the reader does not feel the same experience as the writer. 5. The narrative of the object is unclear and not detailed; the reader cannot experience the same experience as the writer. 	<p style="text-align: center;">2 1,5 1 0,5 0</p>	2
4	<i>Structures simples correctes, présences des temps du passé (use of correct simple sentence structures)</i>	<ol style="list-style-type: none"> 1. There is not a single incorrect sentence structure. 2. There is a slight error in sentence structure, which occurs because you are not careful. 3. There are some mistakes in sentence structure, but it is still considered good. 4. There is a slight error in sentence structure, which indicates a lack of vocabulary mastery. 5. There are quite a number of sentence structure errors, which indicate a lack of vocabulary mastery. 6. There are many mistakes in sentence structure that indicate a lack of vocabulary mastery. 7. There are a lot of mistakes in sentence structure, either due to not mastering sentence structure (grammar) or not being careful. 	<p style="text-align: center;">3 2,5 2 1,5 1 0,5 0</p>	3

No	Rated aspect	Criteria	Score	Maximum Score
5	<i>Léxique approprié (décrire) (vocabulary appropriateness)</i>	1. The choice of words or terms is very precise and varied. 2. The use of appropriate and varied words or terms 3. The use of words or terms is very precise but not diverse. 4. Several uses of words or terms are appropriate but not diverse. 5. Some use of words or terms is inappropriate but does not interfere with understanding. 6. Some words or terms are used incorrectly but do not interfere with understanding. 7. Some use of words or terms is inappropriate and interferes with understanding. 8. The use of words or terms is inappropriate and interferes with understanding. 9. The author has a small vocabulary and does not use the terms that should be used; besides that, there is inappropriate vocabulary.	4 3,5 3 2,5 2 1,5 1 0,5 0	4
6	Présence d'articulateurs très simple, comme (et), (mais), (parce que), etc. (use of simple conjunctions such as (et), (mais), (parce que), etc.)	1. There are no errors in the use of conjunctions, and the conjunctions used are varied. 2. There is a slight error in the use of conjunctions, and the conjunctions used vary. 3. There is a slight error in the use of conjunctions, and the conjunctions used vary. 4. There are many mistakes in the use of conjunctions. 5. Use of conjunctions incorrectly	2 1,5 1 0,5 0	3

Data analysis technique The aim of the data analysis carried out in this research is to determine the level of validity, practicality, and effectiveness of the interactive multimedia being developed.

Media Due Diligence To determine the feasibility category of this comic using a Likert scale measurement scale. The Likert scale is a psychometric scale commonly used in questionnaires [23]. In order to obtain respondents' responses in choosing answers on the questionnaire sheet, four answer scales were used as codes in the assessment. Determine the V_a value, or the total average value of the average value for all aspects, with the formula.

$$V_a = \frac{X_v}{n} \times 100\%$$

with :
 V_a = is the total average value for all aspects
 X_v = is the average value for the i-th aspect
 n = is the number of aspects.

The results obtained are then written in the appropriate column of the table.

Furthermore, the value of V_a , or the total mean value, is referred to in the interval for determining the validity level of interactive multimedia, as shown in the following Table 3:

Table.3. Validity criteria

Score	Validity Criteria
80,01% - 100%	Very valid
50,01% - 80%	Valid
40,01% - 60,00%	Valid enough
20,01% -40,00%	Invalid
0-20%	Very Inadequate

Practicality Test. The student response questionnaire was given after the learning media trial. The questionnaire consists of positive and negative statements, each with a choice of answers: strongly disagree, disagree, agree, and strongly agree. According to Sukardjo, quoted by Maryono [24], the technique

of analyzing student response questionnaires carried out in this study is as follows:

- 1) Make changes to the results of the response questionnaire assessment which are still in the form of letters converted into numbers with the scoring rules.
- 2) Calculating the practicality score percentage from the teacher's response questionnaire and each student with the formula: Likert scale formula:

$$V_a = \frac{X_v}{n} \times 100\%$$

with :
 V_a = is the total average value for all aspects
 X_v = is the average value for the ith aspect
 n = is the number of aspects..

- 3) Make changes from the average score obtained to qualitative data that is adjusted to the following learning media practicality scale criteri.

Table 4. Practicality criteria

Score	Practicality Criteria
80,01% - 100%	Very Practical
50,01% - 80%	Practical
40,01% - 60,00%	Quite Practical
20,01% -40,00%	Less Practical
0-20%	Tid Impractical

The practicality of interactive multimedia can be measured through a teacher response questionnaire, where the data obtained is analyzed based on the percentage of teachers who gave answers on the questionnaire sheet for each category asked. Then analyzed using Susanto's formula above.

Effectiveness Test. To find out the effectiveness of interactive multimedia that researchers have developed, N-Gain analysis can be used. N-Gain is the normalization of the gain obtained from the pretest and posttest results. The calculation of the

average N-Gain value is carried out to see the increase in student learning outcomes. From the N-Gain value, we will see an increase in the use of interactive multimedia with the following formula:

$$N\text{ Gain} = \frac{S_{\text{posttest}} - S_{\text{pretest}}}{S_{\text{maksimum}} - S_{\text{pretest}}}$$

For the interpretation of the Gain value according to Sudjiono, you can refer to the table below:

Table 5. Interpretation of Gain Score

Big Percentage	Interpretation
Gain > 0,7	Height Gain
0,3 < Gain < 0,7	Increase is Moderate
Gain < 0,3	Increase is Low

Test validity and reliability Before the pretest is carried out, the test used must go through a validity and reliability test by being tested on students outside the research sample.

Validity of Multiple Choice Tests Validity concerns the accuracy of the measuring instrument in mastering the concept being measured so that it actually measures what it should measure. The formula used to calculate validity is the product-moment correlation formula. Test the validity of multiple choice items using point biserial correlation as follows:

$$r_{pbis} = \frac{M_p - M_t}{S_t} \sqrt{\frac{p}{q}}$$

Information:

- r_{pbis} : Point biserial correlation coefficient
- M_p : Average total score for those who answered correctly on a question item
- M_t : Average total score
- S_t : Standard definition of total score
- p : Proportion of students who answered correctly on each question item
- q : Proportion of students who answered incorrectly on each question item

After calculating r , it is compared with the r table (r -point biserial) with a significance level of 5%. If r calculated > r table, then the question is said to be valid.

Reliability of multiple-choice tests. After the test in the form of multiple-choice questions is tested, its reliability is tested again.

Table 7. Material Expert Validation Results

No	Assessment Components	Indicator	Descriptor	Score
Content Domain/Multimedia Material				
1	Guide and Information		Description of multimedia products	4
2			Guide to using multimedia software	3
3			Statement of objectives	5
4			Competency/learning achievement formulation (CP)	4
5	Accuracy of Material		Compatibility of objectives with the curriculum	4
6			Suitability of material to objectives (CP)	5
7			Material updates.	4
8			Description of concepts or theories.	3
9			Order (syntax) of presentation of material.	5

The reliability of the test instrument is calculated to determine the reliability of the test results. The reliability of a measuring instrument is meant to be a tool that provides the same results. A measuring instrument is said to have high reliability if it has reliable consistency, even if it is carried out by anyone at the same level. To calculate the reliability coefficient for essay questions, the Alpha formula is used as follows:

$$r_{11} = \left(\frac{k}{k-1} \right) \left(1 - \frac{\sum \sigma_h^2}{\sigma_c^2} \right)$$

Information:

- r_{11} : The reliability coefficient of the test
- k : Number of questions
- $\sum \sigma_h^2$: Total variance in scores for each test item
- σ_c^2 : Total variance

Se Meanwhile, to calculate the variance of each item, the formula is used:

$$\sigma^2 = \frac{\sum X^2 - \frac{(\sum X)^2}{n}}{n}$$

Information:

- σ^2 : Variance of each item
- X : Value of each question item
- n : The number of students taking the test

To interpret the reliability coefficient of an evaluation tool (Arikunto, 2009) provides criteria such as table 6.

Table 6. Interpretation of Test Instrument Reliability

No	Interpretation of Reliability test	Interpretation of Reliability test
1	0,00 < r_{xy} ≤ 0,20	Very low reliability
2	0,20 < r_{xy} ≤ 0,40	Low reliability
3	0,40 < r_{xy} ≤ 0,60	Medium reliability
4	0,60 < r_{xy} ≤ 0,80	High reliability
5	0,80 < r_{xy} ≤ 1,00	Very high reliability

3. RESULTS AND DISCUSSION

3.1 RESULTS

Material expert validation includes aspects of the suitability of the material and the quality of the material used. There are three components of assessment indicators: guidance and information, accuracy of material, and evaluation. This aspect aims to determine the suitability of the material on the learning resources used and the material on the learning media that has been made.

No	Assessment Components	Indicator	Descriptor	Score
10		Evaluation	Appropriateness of material coverage with objectives (CP)	4
11			Appropriateness of material coverage with objectives (CP)	5
12			Ease of understanding terms and formulations	4
13			Conformity of examples or illustrations with the material.	3
14			Giving a summary.	4
15			Appropriateness of time duration with presentation material	5
16			Use of spelling and presentation grammar	3
17			Practice/exam instructions..	4
18			Conformity of question coverage to objectives (CP)	5
19			Suitability of the question domain to the objectives (CP)	4
20			Suitability of the question domain to the objectives (CP)	4
21			Distribution of items based on the domain of the question	5
22			The suitability of the difficulty level of the questions for the objectives (CP)	4
23			Appropriateness of exam questions with the time provided.	3
24			Feedback (review) on the results of practice or exams	4
Score at Get				98
Maximum Score				120
Percentage				82%
Category				Very Good

The results of the material expert validation gave a score of 82%. This percentage result can be said to indicate that the Adobe Flash-based multimedia learning product is in a very valid category and can be applied directly to students. Multimedia validation for Adobe Flash learning media products includes the accuracy of the material, evaluation, and

so on. In validation, media experts did not receive revisions from the validator, but the validator gave suggestions that further efforts should be made to use the media to make it bigger and more visible. The validation percentage value of 82% is categorized as a very valid product.

Table 8. Multimedia Expert Validation

No	Assessment Components	Indicator	Descriptor	Evaluation
Domain Konstruksi Multimedia				
1	Guide and Information		Description of multimedia products	3
2			Guidelines for using multimedia software	4
3			Assistance facilities	3
4	Performance and Programs		Ease of installation and configuration	5
5			Accurate use of media navigation symbols	4
6			Ease of use of navigation buttons (usability)	4
7			Search accuracy and material links (hyperlinks)	4
8			Interface quality	4
9			Consistency of program operational quality	4
10			Reliability of program operations from error free	4
11			Operating system (software) support is required	5
12			Required hardware support	5
13			User stimulus-responsive interactivity with the system	3
14	Systematics, Aesthetics and Design Principles		Media display (screen) layout	4
15			Menu facilities in media	4
16			Acceleration of letters, numbers and symbols	3
17			Visual quality (resolution) of graphics or images	4
18			Color composition and resolution	4
19			Compatibility of text color with background	4
20			Acceleration of text, visuals, audio and animation	3
21			Quality of narration and audio	4
22			Use of language in narrative	4

No	Assessment Components	Indicator	Descriptor	Evaluation
23			Noise-free narration quality	4
24			Communicative nature of narrative	3
25			Suitability of background sound to material	4
26			Background settings	4
27			Interlaced and progressive scan quality	4
28			Use of video/animation resolution (pixels)	4
29			Suitability of objects/videos/animations with the material	5
30			Visualization of objects based on concepts/abstract material	3
31			Reducing misperceptions of media objects	4
32			Application of spatial principles	4
33			Use of temporal principles	4
34			Use of clues and signaling	4
35			Reduction of redundancy effects	4
36			Application of the principle of coherence	4
37			Use of modality principles	4
38			Reducing cognitive load for users	4
Total Score				149
Average Score				190
Percentage				78%
Category				Good

The results of the validation by multimedia experts gave a value of 78%; from the results of this percentage, it can be said that the Adobe Flash-based learning multimedia product is in the very valid category and can be applied directly to students.

Multimedia validation for Adobe Flash learning media products includes button application program performance, audio sound, video running, systematics, aesthetics, and design principles.

Table 9. Language Validation Results

No	Component Rating Indicator	Descriptor	Assessment
Language Eligibility			
1	Accuracy	Accuracy of sentence structure	4
2		Effectiveness of sentences	5
3	Communicative	Understanding of the message	5
4	Conformity to language rules	Grammatical accuracy	5
5		Spelling accuracy	5
6	Suitability of student development	Suitability of students' intellectual development level	4
7		Appropriate level of social emotional development	4
8		Learning achievement test enrichment material	4
The score obtained was			36
Maximum Score			40
Percentage			90%
Category			Very Good

The validation results of linguists gave a value of 90%; based on the results of this percentage, it can be said that the Adobe Flash-based multimedia learning product is in a very valid category and can be applied directly to students. Multimedia validation for Adobe Flash learning media products includes accuracy, communication, appropriateness of language rules, and appropriateness of student development.

From the results of the practical analysis in the table above, 16 students got the good category and 14 students got the very good category. If seen from the score obtained as a whole, it gets a score of 415 out of a maximum score of 480. This result, if it is percentaged at 86%, is in a very good category.

From the results of the pretest and posttest scores carried out above, a gain score analysis is then carried out to determine the level of improvement in learning outcomes through students' storytelling skills. Following are the results of the gainscore analysis:

$$N \text{ Gain} = \frac{S \text{ posttest} - S \text{ pretest}}{S \text{ maximum} - S \text{ postets}}$$

$$N \text{ Gain} = \frac{415 - 332}{480 - 415}$$

$$N \text{ Gain} = 0,56$$

Validity of contextual-based learning materials

From the results of the first material expert validation analysis, the total score obtained was 79, with a maximum score of 120 from 24 items. Material expert validation gave the first Adobe Flash-based learning medium a score of 66%. Obtaining a score of 66% requires a second stage of validation testing. For validation from the second material expert, a value of 82% was obtained. From the results of the validation of multimedia experts, 38 items were assessed; the score obtained was 110 with a maximum score of 190, and if it was percentaged, it obtained a value of 58%. These results need to be re-tested in the second stage, where the pretentiousness obtained from multimedia experts gives a value of 78%. From the validation results of linguists for the 8 items assessed, the score obtained

is 23, with a maximum score of 40. and if the percentage is calculated, it gets a value of 58%. These results require a second stage of language validation testing, where the results of the validity test from the second linguist give a value of 90%.

The practicality of contextual-based learning multimedia
There were 9 respondents who took part in the small-scale trial, and the overall score was 212 out of the maximum score that could be achieved of 270. If it is percentaged, the result is 79%. After the small-scale test was carried out, it was then entered into a large-scale test where 30 total respondents took part in the small-scale trial. Out of 6 indicators, the score was measured with a maximum score of 5 per indicator, and the results that were processed as a whole were 686 of the maximum score that could be achieved, amounting to 900. If calculated as a percentage, the result is 79%. The results of the practicality test were obtained by filling out the questionnaire given to the teacher or respondent. Of the six statement items with a maximum score of 30, the score obtained is only 14, and the percentage is only 47%. For the results of the practicality test of stage II, of the six aspects tested, the score obtained was 26 out of a maximum score of 30. If the percentage of the results above is 87%

Effectiveness of Contextual-Based Learning Multimedia
The results of student assignments are given through student worksheets. Of the 30 students who worked on the questions, there were 8 who got the fair category, and 28 other students got the good category. If the average score obtained by students as a whole is 332 out of a maximum score of 480, Or if the percentage is 69%. From the results of the practical analysis in the table above, 16 students got the good category and 14 students got the very good category. If you look at the score obtained as a whole, you get a score of 415 out of a maximum score of 480. The results are percentaged at 86%. And from the results of the gain score analysis above, the gain score can be obtained.

3.2 DISCUSSION

Based on the stages of developing the 4D model previously mentioned, the first stage in this development research is the stage of defining or analyzing problems related to the use of multimedia in research schools. Where student analysis finds problems that occur, such as in students in class III of SD Negeri 2 Peureulak, the average age is in the range of 9–10 years, where at that age they are at the concrete operational stage in accepting the learning process.

The concrete operational stage is in the range of 7 to 12 years, according to several theories of Piaget's cognitive development, which state that children are mature enough to use logical or operational thinking, but only for physical objects that currently exist.

In Piaget's theory, the third stage of mental development is the concrete operations stage. This stage is intended for children aged 7–12 years, when the transitional stage begins, where children can already be taught to think using logic but still with the help of concrete objects. While the learning process was carried out, there was no media that could be accessed at school to help early grade students with story writing and storytelling training, which was also confirmed by the class instructor during the interview. Various types of storybooks that lack training in writing and storytelling content are currently offered in schools. Apart from the problems that occur, students need media that can teach them how to tell stories both for fun and for practical purposes.

Based on the description of the problem and the analysis of meeting the needs of students, it is necessary to have learning media that are in accordance with the expectations of elementary school students and also in accordance with the capacity possessed by researchers as students, so that the findings of multimedia development are obtained. Interactive multimedia simulation models are part of the application of technology in an effort to solve problems in learning. The simulation model is basically one of the learning strategies that aims to provide a more concrete learning experience through the creation of imitations of experiences that are close to the real situation [25].

These practical criteria indicate that the developed multimedia can assist teachers and students in adjusting learning time according to their abilities. According to Jannah [26], the practicality of multimedia can be seen from two things: when experts and practitioners state that the media developed in reality can really be applied in the field. In addition to the student response test, the researcher also conducted an analysis of the teacher's response to determine the level of readiness of the product being developed. The results of the practicality test of the teacher's response obtained the results of the second phase of the practicality test, where out of the six aspects tested, the score obtained was 26 out of a maximum score of 30. If percentaged The results above are 87% in the very good category and have met practical criteria. These practical criteria indicate that the developed multimedia can assist teachers and students in adjusting learning time according to their abilities.

4. CONCLUSION

From the results of the research and data analysis obtained from the process of developing contextual-based multimedia products to improve story writing skills using the 4D model from Thiagarajan and Semmel, it can be concluded as follows:

1. From the results of the contextual-based multimedia validity test, obtained from 3 experts, namely material experts, multimedia experts, and linguists, obtained from the results of the analysis of material experts, the results of the analysis of multimedia experts, and the results of the analysis of linguists in the very good or decent category,
2. From the practicality test, it is obtained from the results of student response tests and teacher response tests. The results of small-scale student response trials, the results of large-scale student response trials, teacher response tests, student response tests, and teacher response tests indicate that the contextual-based multimedia developed has met the practical criteria.
3. From the results of the effectiveness test, it was obtained a gain score, or an increase in students' writing skills. As seen from the pretest and protest, there was an increase in the classical average score of 0.56. Referring to the gain score interpretation table, these results indicate an increase that is "moderate" in learning outcomes. And from the results of the gain score analysis above, the gain score obtained is 0.60, and if it is converted to the gain score category table, then it is already in the medium category. It can be concluded that using multimedia learning can improve

student learning outcomes and fulfill the criteria for effectiveness.

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