Multimedia-based Picture Story Design as an Effort to Develop Reading Ability in Early Grades of State Elementary Schools in Ternate City

Samsu Somadayo[1*], Selvi Wulandari [2 *]

{villasyamqu@yahoo.com[1],selviwulandari@yahoo.com[2]}

[1,2,]*Indonesian Language Education Department, Khairun University, Indonesia*

Abstract. This research aims to develop a multimedia-based picture story tool to help with the reading skills of early-grade students in State Elementary School at Ternate City. This is a developmental research with data collected from 35 students of State Elementary School in Ternate City. Based on the data collection and analysis techniques, the following findings were presented; (1) the product design needs to be applied to the initial reading learning, (2) students were able to pronounce letters, and spell/read words, at a very good category of 94, 34%, respectively and (3) 10 students were in an excellent category with a presentation of 89% during the field trial process. In conclusion, the overall reading skill of students in State Elementary School in Ternate before applying multimedia was 1.6% and less good. However, it increased to 3.9% in the good category after its implementation.

Keywords: Reading in Early Grades, Stories, Multimedia-Based Picture.

1. Introduction

The development of initial reading skills in students plays a significant role, as stated in the 2013 curriculum. Initial reading is defined as a language skill that needs to be developed in schools. Accordingly, [1] the main objective of the basic education curriculum in the 21st century is to develop students reading, writing, and counting skills due to its importance.

The ability to read is one of the factors associated with student learning success or failure. The development of students' reading skills at an early stage is their ability to pronounce letters, spell words, and read sentences. However, this process is often associated with problems, such as; students' slow reading process, poor teaching methods, and the teacher's inability to vary the learning media. Therefore, this research focuses on the difficulty of children to carry out initial reading because it is the main basis for human communication through text. Children with reading difficulty, also find it challenging to understand the concept or expression of feelings and thoughts [2], [3].

The low reading ability of PIRLS (Program in International Reading Literacy Study) under the coordination of the International Association for Evaluation Achievement in 2011 showed that Elementary School students have a relatively low reading comprehension below the average of other countries [4]. This means that Indonesian students are yet to achieve literacy in elementary schools. Initial reading is also a major tool in learning other subjects, which leads to difficulties

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in information processing. The teacher plays an essential role in guiding and directing students to study properly. However, student learning enthusiasm is improved by applying a variety of media, which increases their interest and minimizes boredom. Therefore, varieties of learning media are needed in elementary schools, for students with a concrete mindset and those that play a lot. Early grade teachers need to apply interactive and not monotonous media to make learning more meaningful and interactive, thereby facilitating and motivating students [4].

The application of pictorial story media facilitates their ideas into language. This is because it consists of pictures and sounds which inspire and motivates students during the learning process. Furthermore, the inability of teachers to provide adequate assistance makes it difficult for students to read and write [6]. The multimedia-based picture story design is one of the learning media developed to assist students. Therefore, [7], [8], and [9] stated that the use of learning media is part of the teacher's method used to optimize and achieve educational goals. Meanwhile, [10], [11], and [12] stated that it aims to properly convey the contents of learning material with tools such as picture books, tape recorders, films, slides, televisions, and computers.

Subsequently, [13] defined reading as a complex process consisting of physical and psychological aspects used to obtain information through text. Furthermore, initial reading is a process in the early grades that focuses on mastering the writing system and understanding the reading content [14]. Solchan [15] stated that initial reading is associated with mastering graphic symbols, which can be recited into meaningful sounds. In line with the above opinion, [16], [17], and [18], stated that the main purpose of initial reading is (1) understanding graphic symbols, (2) sentences, (3) having the ability to spell, and (4) re-expressing writings. Furthermore, [19], [20] reported that there are five levels in learning to read, namely (1) readiness, (2) initial reading, (3) speed (4) reading wide, and (5) refinement.

However, [20] stated that the main factor to be considered during the development of initial reading skills is the attention of the teacher in the class. This is because students tend to respond in accordance with the teachers' intentions. [21], [22] and [23] stated that there are two important characteristics in learning to read, namely mechanical and understanding. Initial reading falls into the mechanical category in accordance with the following recognition characteristics (a) syllable, (b) letter, (c) sentence, (d) word, and (e) reading speed. [24], [25] and [26] stated that initial reading acts as a visual representation of language in mastering the writing system.

Furthermore, [27] stated that it is important for students to learn how to read at grades I and II. Therefore, the initial reading activity is the process of introducing one and two words as well as sentences. Hence, [28], [29] stated that the main purpose of initial reading is to introduce letters of the alphabet as voice tags, and train students to speak. Teachers are required to educate students at an early age using multimedia-based picture stories. This helps to facilitate a topic as a story which presents facts and ideas [30]. Furthermore, [31] stated that multimedia is an affiliation of various form of text, images, sound graphics, animation, and video packaged into digital files, and used to convey messages to the public. The essential elements in multimedia are sound, writing, and image [32]. Correspondingly, multimedia is a more interactive and dynamic presentation tool used to connect various elements such as graphic text, video, animation, and audio [33], [34], [35]. The combination of two or more media in the form of input and output is also called multimedia.

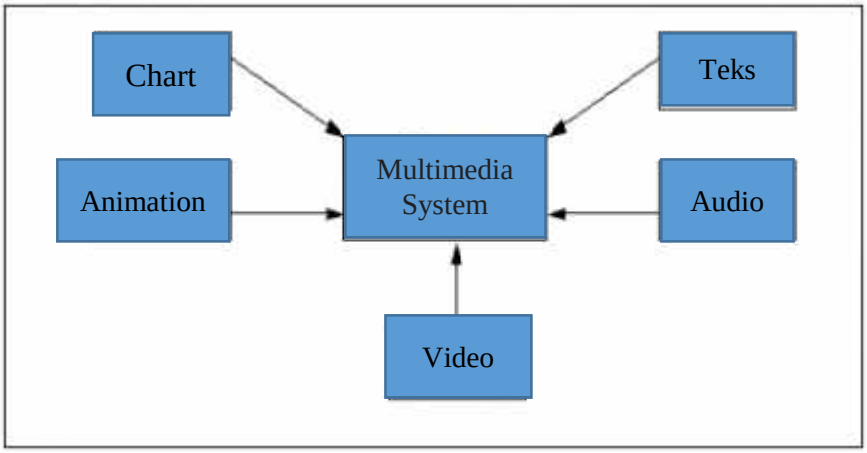

Figure 1. Multimedia system

The various types of multimedia generally used by teachers are (1) light-based; slideshows, transparency; (2) paper-based; books, magazines, brochures; (3) moving image-based; television, film VCR, digital-based computer samples; and (4) sound-based; CD players, tape recorders, radios. This study used an interactive multimedia method to develop initial reading skills in early grades.

2 Research Methods

The Research and Development (R&D) method was used to produce and test the effectiveness of certain products. The intended product is not always in the form of objects or hardware such as books, modules, learning aids in classrooms or laboratories; rather, it is also in the form of software such as computer programs for data processing, etc. Borg and Gall defined the research and development procedures as the process of collecting information, planning, development of initial product formats, initial trials, product revisions, field trials, product revisions, field trials, final product revisions, dissemination, and implementation as shown in figure 2.

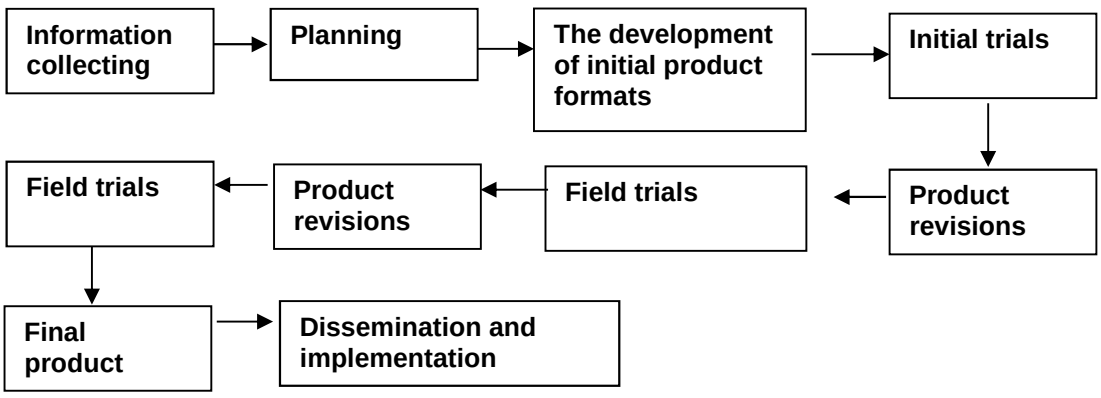

Figure 2. Research and Development Stages [36]

The research and development stages are as follows: (1) Collection of Initial Information, through interviews and observations. The data obtained showed that teachers only use the whiteboard and less attractive learning media, thereby making the process less enjoyable for students. Furthermore, the results of the preliminary study showed that (a) initial reading skills in the early grades of the Ternate City Elementary School were still poor with overall results of 40%, (b) teachers failed to develop appropriate learning multimedia, (c) students are not motivated to learn. (2) Planning, before conducting the multimedia development design, through the following steps: needs analysis, material identification, determining themes, developing picture stories, writing, audio, and multimedia programming. Furthermore, this study sets the type of development and determines set objectives; (3) Development of initial product formats, with multimedia used to validate material and media experts; (4) A small-scale trial was initially conducted on a small group of 10 students. During the initial product trial, the observation sheet was filled out by the researcher in accordance with the media response questionnaire; (5) Product revision of the trial results was carried out to test the initial product and obtain the input data; (6) Field trials were carried out with a total of 35 students, and (7) Product revisions were made based on the results of field trials by involving larger subject groups. Data were collected the initial reading materials in the early grades of the Ternate City Elementary School and picture story media.

Table 1: Grid on Material Questionnaire Instruments

Aspect	No	Indicator of Achievement	Items
Learning Aspects	1	The suitability of TPP indicators	2
	2	Material similarity with indicators	2
	3	Evaluation linkages with indicators	2
Content Aspects	1.	Completeness of material content presentation	2
	2.	The flow of the material content presentation	2
	3.	The relationship of images to the level of student development	2
	4.	The relationship between the image and the material contents	2
	5.	The suitability of the material and the level of difficulty	2
	6.	The attractiveness of material and student's interest in learning	2
	7.	The accuracy of grammar in the material	2
	8.	The suitability of the questions with the objectives	2
Total			22

Table 1 shows that the instruments used for material experts are classified into learning aspects with suitable TPP indicators and material evaluation. Meanwhile, the achieved indicators consist of the complete presentation of the material content, relationship of the images to student

development, suitability the difficulty level, grammar accuracy, and the link between the questions with the objectives.

3. Results and Discussion

3.1 Revised Material Expert Validation

Based on the development procedure, this study presents the data analyzed by experts on learning and content achievement. The expert material assessments was carried out by distributing assessment instruments containing learning and content aspects. The material validation is carried out as a reference for perfecting products designed for use in classes. The following is the presentation of material expert judgment on multimedia from the learning and content aspects for stage one.

Table 2: Material Expert Validation

Learning Aspect		Indicator of Achievement	Score	Category
Learning Aspects	1	The relatedness of Indicators and Materials	4	Appropriate
	2	The Suitability of Learning Materials	4	Appropriate
	3	The completeness of Material	4	Appropriate
Learning Content Aspects		The completeness of Material Content	4	Appropriate
		The Material Composition	5	Very appropriate
		The relatedness between Pictures and Student Characteristics	4	Appropriate
		The relatedness of Material and Images	5	Very appropriate
		The Conformity Level of Material	4	Appropriate
		The Student Interest in Material	4	Appropriate
		Grammar Clarity	5	Very appropriate
		The Conformity of Item Question	5	Very appropriate
Average		5	48	
Category		98%		Feasible to be used

3.2 The Results of Media Expert Validation

The assessment aspects carried out by media experts are display and programming, with the validation results used as the basis for improving product multimedia before learning activities in class.

Table 3: Media Expert Validation

Aspect	Number	Indicator	Score	Category
Display Aspects	1	Composition used	4	Appropriate
	2	Use of color	4	Appropriate
	3	Suitability in Image Use	4	Appropriate
	4	Clarity in Image Use	4	Appropriate
	5	Clarity in Music Use	4	Appropriate
	6	Suitability in music selection	5	Very appropriate
	7	Accuracy in the use of letters	5	Very appropriate
	8	Accuracy in the Use of Letters	4	Appropriate
	9	Use of Buttons	5	Very appropriate
	10	Ease of program use	5	Very appropriate
Programming Aspects	1	Clarity of media usage guidelines	5	Very appropriate
	2	Interaction with media users	4	Appropriate
	3	The accuracy of the button reaction	5	Very suitable
	4	Ease of using the menu	5	Very suitable
	5	Freedom of the menu use	4	Appropriate
	6	Student feedback and response	4	Appropriate
Total			71	
Average			4.43	Feasible to be used

Table 3 shows that the results of media expert assessment provided a total value of 71, which was divided by 16 to obtain 4.43. These results indicate that 87% is feasible and can be used. The details are as follows: 7 items obtained a score of 5 (very appropriate) and 9 items 4 (appropriate).

3.3 Field Trial Data

Before describing the data from the limited field trial results, researchers and teachers conducted the following: (1) limited trials, (2) used multimedia to obtain data in order

to improve students' initial reading skills, (3) used the revised media to pay attention to the extent to which the reading skills improved before and after using the learning media.

Table 4: Field Trial Media Assessment

No	Indicator	Score	
		Yes	No
1	Picture quality	5	-
2	Suitability of color	5	-
3	Clarity of writing/letters	4	-
4	Interesting voice	5	-
5	Easy to Operate	5	1
Total		24	4
Category		95	Feasible enough

The field trial media assessment results showed that a total score of 24 with a 95% in the very feasible category was obtained from the 5 indicators. Therefore, the multimedia design is directly used in classrooms for students in the early grades.

3.4. Data on Reading Skill Results in Early Grades

The assessment results of the students' reading skills are shown in the following table.

Table 5: Results of Reading Skills in Early Grades of Elementary Schools in Ternate City

Name	Pronunciation		Spelling		Understanding	
	Before	After	Before	After	Before	After
1	2	3	3	3	1	3
2	3	3	1	3	3	3
3	3	3	3	3	1	3
4	3	3	3	3	3	3
5	3	3	1	3	3	3
6	3	3	3	3	3	3
7	2	2	2	2	2	2
8	3	3	3	3	3	3
9	3	3	3	3	3	3
10	2	3	3	3	1	3
11	2	3	1	3	1	3
12	2	3	3	3	3	3

13	3	3	3	3	2	3
14	3	3	2	3	3	3
15	2	2	3	3	1	3
16	3	3	1	3	3	3
17	2	3	2	3	2	3
18	3	3	3	3	1	3
20	3	3	3	3	3	3
21	3	3	3	3	3	3
22	2	3	1	3	1	3
23	3	3	3	3	3	3
24	3	3	1	3	2	3
25	2	3	2	3	2	3
26	3	3	3	3	3	3
27	1	2	3	3	1	3
28	2	3	1	3	1	3
29	2	2	2	2	2	2
30	3	3	3	3	3	3
31	2	3	2	3	2	3
32	2	3	1	2	1	2
33	3	3	3	3	1	3
34	2	3	2	3	2	3
35	2	3	2	2	3	3
Total	85	98	76	97	71	97

The data in the table comprises of 35 students, shows that students have not used the learning multimedia tool. However, the use of the Multimedia-based picture story design has been proven to improve students' initial reading skills.

3. Conclusion

In conclusion, the use of the multimedia design to develop initial reading skills in the early grades of State Elementary Schools in Ternate City increased from 1.6% to 3.9%. This shows that this media tends to improve students' reading ability at an early stage. The contributions of this study are as follows: (1) provides appropriate multimedia tools l, (2) multimedia is a major contributing factor, (3) helps the government to improve the quality of learning in the early grades, (4) provides convenience to teachers and students in carrying out initial reading learning, and (5) acts as a means for supporting initial reading learning in elementary school.

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