

Conference Paper

## Development of Interactive Reading Multimedia Based on Educational Games for Grade I Students of Inpres Malakaya Elementary School, Gowa District

Aliem Bahri<sup>1</sup>, Febrianti<sup>2</sup>, Encik Savira Isnah<sup>2\*</sup>, M. Kharis<sup>3</sup>

<sup>1</sup>Universitas Muhammadiyah Makassar, Indonesia

<sup>2</sup>Universitas Muhammadiyah Surabaya, Indonesia

<sup>3</sup>Universitas Negeri Malang, Indonesia

\*Corresponding author:

E-mail:

[enciksavira@um-surabaya.ac.id](mailto:enciksavira@um-surabaya.ac.id)

### ABSTRACT

The development of interactive reading multimedia based on educational games for grade I students of SD Inpres Malakaya is motivated by students' issues, such as difficulty distinguishing similar letters and challenges in reading fluency and word formation. Teachers still rely on thematic books for teaching reading, which may lack student interest. This issue is exacerbated by the COVID-19 pandemic, preventing teachers from conducting direct guidance. This research is a Research and Development (R&D) study using the modified 4D model, encompassing three stages: define, design, and develop. The instruments include questionnaires for media and subject matter experts to assess product validity, and for students and teachers to evaluate product feasibility. Validation results by media experts yielded an overall score of 66, with a percentage of 88%, categorized as "highly Valid". Validation by subject matter experts resulted in an overall score of 65, with a percentage of 86.6%, also categorized as "highly Valid". Evaluation by grade I students of SD Inpres Malakaya yielded an overall score of 70, with a percentage of 93.3%, categorized as "Very Feasible". Meanwhile, the evaluation by the class teacher produced an overall score of 69, with a percentage of 89.3%, categorized as "Very Feasible". This demonstrates that interactive learning multimedia can be used as a teaching medium in the school and can be developed for use in various schools.

*Keywords: Multimedia, interactive, reading*

### Introduction

The Indonesian language is one of the subjects that shape the identity of the Indonesian nation. According to Tarigan (2018), "There are four language skills competencies in the school curriculum: listening, conveying, speaking, and writing". Essentially, conveying plays a crucial role in human life because any knowledge is inseparable from reading. Reading skills are the basic foundation of human knowledge that shapes human science, knowledge, and civilization (Muhsyanur, 2019). Without reading skills, students will face significant challenges in advancing their knowledge or proceeding to the next level of education.

Learning is a process of teaching students using learning doctrines, role models, and learning theories that serve as benchmarks for educational success. Learning is a two-way interactive process. Teaching is carried out by the teacher as an educator, while learning is done by the students. In this learning process, students undergo a process of transformation from not understanding to understanding. Before this definition is presented, it is stated that a student can examine the deformations that occur within them. The written concept is theoretical, and the problem faced by students is that they find it difficult to read because they struggle to read something with sincerity and a strong desire to understand, not just to know or memorize. The solution to how to use images that contain parts of the body in the learning process is a game that

*How to cite:*

Bahri, A., Febrianti, Isnah, E. S., & Kharis, M. (2024). Development of interactive reading multimedia based on educational games for grade i students of inpres Malakaya Elementary school, Gowa District. *The 14<sup>th</sup> Annual International Symposium of Foreign Language Learning*. NST Proceedings. pages 203-209. doi: 10.11594/nstp.2024.3816

---

is combined with what will be given to students. Later, students can read well, thanks to the interesting learning objects and the names of body parts.

Reading is a process used by readers to extract messages conveyed by the writer through written language. Dalman (2014) states, "Reading is a cognitive activity or process that attempts to find various information contained in writing. This means that reading is a thinking process to understand the content of the text being read". Furthermore, Somadayo (2011) states, "reading is an interactive activity to extract and understand the meaning contained in written material". In addition, reading is a process used by readers to obtain the message conveyed by the author through written words/text.

According to Mudlofir and Rusydiyah (2019), conveying messages from the sender to the receiver in the form of print or non-print so that the recipient has the motivation to learn to achieve satisfactory learning outcomes. The function of instructional media is as a teaching aid, supporting the application of teaching methods by teachers. The use of instructional media should be a part that needs attention from educators as facilitators in every student learning activity. One interesting learning medium that can help children in the reading process is educational games or educational games.

Educational games are one of the information technologies that can be used as a means of learning where the process can be carried out with the concept of learning while playing (Noviyanti, 2017). Ali and Patombongi (2016) state, "Educational games are chosen because they have a more attractive and enjoyable appearance that will encourage children to learn to read according to the characteristics of preschool-age children who tend to prefer playing over learning and make it easier for children to review learning at home when it is still difficult to capture learning". Meanwhile, Afriyanti and Ardisal (2019) state that "educational games are chosen in the reading process because they can make learning more interesting for students and the learning process will be interactive".

The daily activities of Inpres Malakaya Elementary School students are more inclined to play games than studying or reading books. Because at the elementary school age, students still like to play. Learning resources greatly influence student learning. Instructional media brings information from the source (teacher) to the recipient (student) using a specific method to achieve learning goals (Daryanto, 2010). The use of instructional media can facilitate the process of conveying messages/materials to be conveyed in the learning process. In that learning process, the role of the teacher can help with the use of educational game media.

According to Suyati (1992), the characteristics of elementary school students are that they prefer to play. This characteristic is used by teachers to create learning activities that have game elements in the learning process. One interesting learning medium that can be used is games (playing). Games allow active participation from students in the learning process. Games have the ability to engage students actively in the learning process. In learning activities that use games, the interaction between students becomes more active and enthusiastic for learning, emphasizing Sadiman et al. (2007). Therefore, the selection of appropriate and enjoyable learning media needs to be developed so that teachers can deliver material well and be understood by students so that learning goals can be achieved as expected. Student interest in learning is a tendency that directs students toward fields they like and pursue without coercion from anyone to improve their quality in terms of knowledge, skills, values, attitudes, interests, thinking patterns, and creativity. Generating student interest is related to the role of a teacher as the key to the teaching and learning process. Teachers must be able to position themselves in front of students, where teachers act as facilitators who provide the situations and conditions needed by students, as guides who provide guidance to students in learning interactions, as motivators who provide encouragement, and as sources of information (Roestiyah, 1982). Teacher readiness, coupled with instructional media, is a solution to improve the quality of learning and teaching.

Based on interviews with teachers at SD Inpres Malakaya, it is known that 13 out of 33 students are still not fluent in reading, unable to combine several letters into one word, and other

---

students still need practice to get used to reading. In addition, the teacher's story results indicate that they still rely on textbooks to teach students to read, which is less attractive to students.

### **Material and Methods**

This research is a Research and Development (R&D) study. In this case, the development of the use of Macromedia Flash is carried out to enhance early childhood reading skills. According to Sugiyono (2017), "research and development or research and development is a research method used to produce a specific product and test the effectiveness of the product". Based on the above definition of research and development methods, this research will produce an educational game to improve reading development that is valid and can be tested for practicality. This development research uses the model from Thiagarajan that has been modified, where the modified research model consists of 3 stages: defining, designing. The instruments used in this study are questionnaires using Likert scales and also include columns for criticisms and suggestions given to students, teachers, and validation experts (media experts and subject matter experts). The research instrument is used to identify the validity and feasibility of the educational game to be developed. The instruments used to obtain the validity data of the educational game are questionnaires assessing the material by subject matter experts and questionnaires assessing the media by media experts. To obtain data on the feasibility of the educational game, questionnaires are used to collect responses from students and teachers. After obtaining the data, the next step is to analyze the data. The data obtained in this study include qualitative data and quantitative data. Qualitative data consist of validation sheets from experts, students, and teachers containing responses, suggestions, and inputs.

### **Results and Discussion**

The research activity with the title "Development of Interactive Reading Multimedia Based on Educational Games for Grade I Students of SD Inpres Malakaya" was carried out from February to April 2021 with research subjects selected from grade I of SD Inpres Malakaya. The type of research conducted is development research using a modified model from Thiagarajan, which originally consisted of 4 stages but has been modified into 3 stages. The results of each step in the development of educational games using the modified 4D (Four-D) model are explained below.

In the initial stage of this research, an analysis was carried out on two aspects: theme analysis, indicator analysis, and analysis of student characteristics. Researchers observed the school and conducted interviews with the class teacher of grade 1. The second stage, which is the design stage, involves designing educational games through several stages: creating a flowchart, creating graphics, creating storyboards, creating audio and video, and creating the application. The purpose of developing the educational game product is to make the reading learning process enjoyable, provide enthusiasm for learning, motivate students to focus on learning, and facilitate students in learning to read. After reviewing the Competency Standards (SK) and Basic Competencies (KD), one learning theme was selected, which is theme 1 "myself," sub-theme 3 "I take care of my body," and the 5th learning session. References about early reading material were collected from theme books, journals, or other learning sources.

The developed product is interactive learning multimedia for the Indonesian language subject, specifically in early reading. The objective of this research is to produce a product and determine its validity obtained from media experts and subject matter experts, as well as its feasibility obtained from the responses of teachers and students. The development of the reading educational game product is carried out in 3 stages:

#### ***Analysis of define (Definition) phase***

The researcher initially conducted an analysis of two aspects: theme analysis, indicator analysis, and analysis of students' characteristics at SD Inpres Malakaya. Interviews were conducted to gather information about problems faced by students and the utilization of learning

media. The interview revealed that 13 students from grade 1 were not fluent in reading, struggled to differentiate similar letters like "b" and "d," and "m" and "n". Other students needed more practice to become accustomed to reading. Additionally, teachers relied on theme books for reading instruction, which lacked student engagement. The COVID-19 pandemic further hindered direct guidance from teachers, and parents' limited involvement in guiding their children's reading skills due to work commitments exacerbated the issue. Regarding learning tools, Grade 1 students already possessed and could operate smartphones or laptops. The researcher discussed these issues with teachers and proposed the development of interactive reading education to address the challenges.

### ***Analysis of the design phase***

This phase involved creating the product, with steps including creating flowcharts, graphics, storyboards, audio, and video, and developing the application using Articulate Storyline 3 software. The objective was to make reading enjoyable, boost learning enthusiasm, motivate students to focus, and facilitate the learning process.

### ***Analysis of the develop (Development) phase***

Validation of the developed reading education game was conducted by media and content experts. The media expert evaluation yielded percentages for various aspects, resulting in an overall score of 88%, indicating the product's high validity. The content expert evaluation resulted in an 86.6% overall score, signifying strong validity. These findings demonstrate that the product was well-received by both media and content experts.

### ***Trial results***

The product was tested with 33 randomly selected Grade 1 students from SD Inpres Malakaya. Their assessments revealed high practicality, with an overall score of 93.3%. The Kirkpatrick evaluation model, spanning levels 1 to 3, indicated high satisfaction, improved knowledge, and demonstrated behavior in reading skills application. Level 4 assessment, measuring long-term achievement, requires prolonged evaluation.

### ***Validation***

Media expert validation by Junaid, S.Pd., M.Pd., can be seen in Table 1:

Table 1. Media expert validation results

Aspect	Percentage	Description
Display	85%	highly Valid
Navigation	86,6%	highly Valid
Audio	100%	highly Valid
Text	86,6%	highly Valid
Media Presentation	86,6%	Valid
Total	88%	

Subject matter expert validation was conducted by Prof. Dr. Abd. Rahman Rahim, M. Hum., as shown in Table 2.

Table 2. Subject matter expert validation results

Aspect	Percentage	Description
Content	85%	highly Valid
Display	93.3%	highly Valid
Total	86.6%	

### **Product trial results**

The feasibility trial of the educational game was conducted on 33 grade I students of SD Inpres Malakaya selected randomly. The results of the feasibility trial can be seen in Table 3.

Table 3. Student assessment/student response

Aspect	Percentage	Description
Use of Educational Game	92%	highly Valid
Material Content	100%	highly Valid
Evaluation/Questions	90%	highly Valid
Display	92%	highly Valid
Total	94%	

The feasibility trial of the educational game was also assessed for feasibility by the grade I teacher of SD Inpres Malakaya, Suhartini, S.Pd. The results of the educational game feasibility assessment can be seen in Table 4.

Table 5. Teacher assessment/teacher response

Aspect	Percentage	Description
Use of Educational Game	85%	highly Valid
Material Content	86.6%	highly Valid
Evaluation/Questions	85%	highly Valid
Display	100%	highly Valid
Total	89.3	

### **Development of interactive reading education game**

Following the positive results from the development phase, the researcher proceeded to detail the process of developing the interactive reading education game. These steps included designing game levels, formulating questions and challenges appropriate to students' difficulty levels, and ensuring interactive engagement through audio-visual elements. The choice of Articulate Storyline 3 as the development software was made due to its excellent ability to create dynamic and responsive learning experiences.

At this stage, game design involved the creation of an engaging storyline, visually appealing graphics, and the development of audio-visual elements to support learning objectives. The creation of a flowchart served as the foundation for detailing each game step, ensuring that users would go through a structured and engaging learning experience. After detailing the storyline, the development team focused on creating graphics and storyboards. Game graphics were designed to visualize learning content, while storyboards served as a visual guide for user interface design. This process involved color selection, visual style, and the arrangement of graphic elements to suit the target audience, namely Grade 1 students.

The next step was the development of audio-visual elements, including voice recordings, background music, and animations. Engaging and learning-supportive audio would enhance the user experience and help maintain students' interest. Animations could also be used to explain complex concepts in a way that is easily understandable for students. This process involved close collaboration between graphic designers, audio experts, and animators to create coherent and effective elements.

### **Expert media and content evaluation results**

Before entering the testing phase, the interactive reading education game was evaluated by media and content experts. Media expert evaluation focused on technical aspects such as graphic quality, interactivity, and game performance. Meanwhile, content expert evaluation assessed the

alignment of learning content with the curriculum and the effectiveness of educational messages conveyed.

Media expert evaluation resulted in high percentages for various technical aspects. Graphic quality received a high score due to attractive design and color selection suitable for the child audience. The interactivity of the game was considered one of its main strengths, with the ability to provide real-time feedback being highlighted. The game's performance, including loading times and responsiveness, also received positive feedback from media experts.

Content expert evaluation focused on ensuring that the game content aligns with educational objectives and effectively conveys key concepts. The alignment with the curriculum was deemed strong, with the game addressing specific learning goals for Grade 1 students. The educational messages conveyed through the game were found to be clear, concise, and suitable for the target age group.

### ***Testing and assessment with grade 1 students***

Following the expert evaluations, the interactive reading education game underwent testing with 33 randomly selected Grade 1 students from SD Inpres Malakaya. The goal of this testing phase was to assess the practicality, user experience, and educational impact of the game in a real-world setting. The assessments revealed high practicality, with an overall score of 93.3%. Practicality encompassed factors such as ease of use, accessibility, and integration into the existing curriculum. The high score indicated that the game was well-received by students and could be seamlessly incorporated into their learning environment. The Kirkpatrick evaluation model, spanning levels 1 to 3, was applied to measure the impact of the game on students. Level 1 assessed satisfaction, and the results indicated a high level of satisfaction among students. The engaging storyline, attractive graphics, and interactive features contributed to the positive user experience.

Level 2 assessed knowledge improvement, and the game demonstrated significant positive impacts on students' reading skills. Students showed improvement in letter recognition, differentiation between similar letters, and overall reading fluency. The interactive nature of the game facilitated a more active and engaged learning process.

Level 3 assessed behavior, and the results indicated that students applied their improved reading skills in practical scenarios. The game's design encouraged the transfer of knowledge from the virtual environment to real-life reading situations. Students demonstrated increased confidence and willingness to engage with reading activities.

### ***Future steps and continuous improvement***

Based on the positive results from the testing phase, the researchers are planning to implement the interactive reading education game on a broader scale. This may involve collaboration with educational institutions, school districts, or educational technology platforms to reach a larger audience of Grade 1 students.

Continuous improvement remains a priority, and feedback from students, teachers, and other stakeholders will be collected and analyzed. Iterative updates to the game can address any identified issues, enhance user experience, and ensure alignment with evolving educational standards. In conclusion, the journey from defining the challenges in reading skills among Grade 1 students to developing and testing an interactive reading education game has demonstrated the potential for technology to address educational gaps. The collaborative effort of researchers, educators, and experts in media and content has resulted in a product that not only meets technical standards but also shows promise in enhancing students' reading abilities. The ongoing commitment to improvement and the integration of technology into education underscore the potential for innovative solutions to contribute positively to the learning experiences of students.

---

## Conclusion

The developed reading education game is an engaging learning tool, enhancing students' reading skills and making the learning process enjoyable. Despite some limitations, such as compatibility issues with iPhones and delays in certain application buttons, the product allows independent learning, making learning more efficient. The product, packaged as an Android application for offline use, features vibrant design elements, including images, videos, and animations. The research concludes that the reading education game is a valid and practical learning medium, positively impacting students' reading skills.

## References

- Afriyanti, D., & Ardisal. (2019). Meningkatkan kemampuan membaca kata melalui media game edukasi untuk anak Tunagrahita di LB Perwari Padang. *Journal of Multidisciplinary Research and Development*, 2(1), 154– 161.
- Ali, J. T., & Patombongi, A. (2016). Perancangan game edukasi pembelajaran membaca berbasis android. *Simtek : Jurnal Sistem Informasi Dan Teknik Komputer*, 1(1), 1–8. <https://doi.org/10.51876/simtek.v1i1.1>
- Dalman. (2014). *Keterampilan membaca*. Raja Grafindo Persada.
- Daryanto, 2010. *Media pembelajaran*. Yogyakarta: Gava Media
- Mudlofir, A., & Rusydiyah, E. F. (2019). *Desain pembelajaran inovatif*. Depok: PT RajaGrafindo
- Muhsyanur. (2019). *Pengembangan keterampilan membaca (Suatu keterampilan berbahasa reseptif)*. Uniprima Press.
- Noviyanti, S. (2017). Perancangan aplikasi game edukasi untuk pembelajaran bahasa ternate pada anak-anak. *Indonesian Journal on Information System*, 2, 57–68.
- Roestiyah. (1982). *Didaktik metodik*. Yogyakarta: Bina Aksara.
- Sadiman, A., Rahardjo, R., & Haryono, A. (2007). *Media pendidikan: Pengertian, pengembangan, dan pemanfaatannya*. Jakarta: Rajawali Pers
- Somadayo, S. (2011). *Strategi dan teknik pembelajaran membaca*. Yogyakarta: Graha Ilmu.
- Sugiyono. (2017). *Metode penelitian kuantitatif, kualitatif, dan R&D*. Bandung: Alfabeta, CV.
- Suyati. (1992). *Pelajaran senam*. Jakarta: Alpha Beta, 14-16.
- Tarigan, H. G. (2008). *Membaca sebagai suatu keterampilan berbahasa*. Bandung: Angkasa.