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Development of Multimedia-Based Learning Media for Recognizing Wild Animals for Early Childhood

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ABSTRACT

Technology is critical in everyday life today, and many people use it to do various things, including education, to absorb information quickly and efficiently. However, with technological advances, many teachers still use guidebooks as a learning medium, sometimes dull children. This research aims to create exciting learning media for young children about recognizing wild animals. This media is expected to make children active and happy to learn. In addition, this research will guide educators in using multimedia media to make learning more enjoyable for children. Analysis, design, development, implementation, and evaluation are the five steps in the development or R&D model. Validation questionnaires were given to the validators, teachers, and students of this study. Initial field trials of the product obtained an average of 65.54%, which is included in the feasible category. The second field trial of the product experienced a significant increase with an average of 95%, which was in the "Very feasible" category. The results of media trials have increased significantly because they are supported by learning media designed attractively and innovatively. The children were very enthusiastic about participating in teaching and learning activities. Thus, this multimedia-based learning media for recognizing wild animals is suitable for teaching early childhood. Kindergarten school teachers can use this media to introduce wild animals as a learning medium to support fun teaching and learning activities.

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1. INTRODUCTION

In this modern era, technological developments greatly influence how humans think (Pebriana, 2017). The role of technology is vital in everyday life because it can be accessed quickly and is profitable many people use technology to carry out activities, including education (Arnada & Putra, 2018; Singleton et al., 2018). Technology can help education by supporting learning through visual media (Shohel & Kirkwood, 2012). The current education process can utilize technology to improve educational services and quality (Jumiati et al., 2022). Increasingly advanced technology will support the education system in achieving satisfactory student learning achievements, technological sophistication can increase the knowledge and skills of the younger generation (Ayu et al., 2019). Technology can also act as a driver, and how this can impact their performance (Vonortas & Zirulia, 2015) so that they can absorb information quickly and efficiently. Technology can also be used as an opportunity for teachers to develop learning techniques and utilize media to get maximum learning results, especially for young children (Ningsih et al., 2022). This is supported by research Firmantoro et al. (2016) showing that learning methods based on information technology have many advantages in the world of education.

In their development, young children can master and develop their potential and broader knowledge. In line with current technological developments, many teachers still need to start using technology in the learning process and use manual learning systems or only use learning media with guidebooks (Ritonga et al., 2022). Children become bored quickly as a result, which stunts their cognitive growth. When the instructor explains the topic, the students are not paying attention to her because they are too busy playing with their buddies. This is evident when the teacher teaches the lesson. Consequently, employing instructional tools or media that foster children's creativity and concentration while studying is essential. This is supported by research (Zaini & Dewi, 2017).

Learning media plays a crucial role in education's teaching and learning process. Integrating diverse multimedia technologies and instruments for content delivery is called multimedia learning. Interactive programs, games, movies, smart boards, and e-books are examples of instructional technology (Preston & Mowbray, 2008; Wu, 2016). In education, the goal of using learning media is to help students learn more effectively. Learning materials are continuously developed by current technological advancements, beginning with computers, audiovisual devices, print media, or a combination of print and computer media (Saputro & Saputra, 2015). Learning media includes everything used to convey messages from sender to recipient to stimulate children's thoughts, feelings, attention, and interests. Makapedua et al. (2021) say that anything that can be used to direct messages from the sender to the recipient to arouse children's interests, ideas, feelings, and attention is considered learning media. This allows children to participate in and comprehend the learning process. This is supported by researcher Septanto & Dirgantara (2020) showing that multimedia-based animal recognition learning media is needed as a learning medium that can help teaching and learning activities become more interactive and fun and become an alternative learning medium to broaden children's insight into the world of animals.

The term "multimedia" refers to a combination of graphics, video, text, animation, and audio (Rajasimha, 2016). Multimedia was developed based on the assumption that the communication process in learning will attract more students' interest and make it easier to introduce technological devices to young children (Sudaryono et al., 2018). Multimedia is a combination of various elements that use computers, such as video, audio, images, animation, and text, delivered interactively to create innovative learning (Coring, 2019;

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Jones, 2016). Using multimedia, children can more easily understand the material presented. Multimedia-based learning media are needed to support and facilitate the learning process for children (Tresnawati & Hidayat, 2017). They are increasing the learning motivation of young children with new ways and methods that are very efficient and fun (Fitri, 2020). This is supported by researcher Ayu & Manuaba (2021) showing that using interactive multimedia can be a solution to problems in online learning; in particular, it can make the learning process more varied and innovative for children.

The development of learning multimedia is one example of the use of technology in learning (Hasana & Maharany, 2017). The current use of multimedia technology has created a new era in developing media used in the learning process, including early childhood education (Novitasari, 2019). Multimedia is very useful in education because it offers different ways of learning and teaching (Kumar et al., 2019). Learning media in early childhood do not yet use technology, 75% of teachers provide worksheet-oriented learning and 25% use a variety of games. Therefore, learning media that can be used as teaching material is exciting and innovative learning media to attract young children's attention to learning material (Munawaroh et al., 2021; Noviani & Komalasari, 2018). Without realizing it, children in their daily lives use technology, so teachers also carry out the learning process with technology, one of them using multimedia-based learning media, especially animal recognition material (Singleton et al., 2018).

Animal introduction material is delivered in a multimedia form consisting of text, images, and videos, which is very easy for children to understand (Kurniawan et al., 2020). One of the materials for introducing animals is most liked by children because animals are creatures created and live side by side with humans, including wild animals. Teachers usually only explain the system for introducing wild animals using books or posters because there is quite a long way to introduce wild animals in the school environment, so teachers have to take children to the zoo to deliver material on introducing wild animals. In introducing wild animals, teachers use learning methods such as the media used, and the learning models conveyed to children are less attractive. Thus, according to Ritonga et al. (2022) using appropriate learning media can attract children's attention to getting to know wild animals that were initially only imagined, now becoming more concrete. So, this multimedia-based learning medium is one of the media that teachers can use to introduce wild animals without going to go far to visit the zoo. Using multimedia-based learning media can occur independently, anytime, and anywhere (Mujahidah et al., 2021; Muntiani et al., 2021). Therefore, this media can be used to determine the effectiveness of learning using multimedia learning media.

This makes researchers interested in developing multimedia-based learning media for recognizing wild animals in early childhood. This research aims to make it easier for children to recognize wild animals, attract their attention, make them active, not get bored quickly, and enjoy learning. Hopefully, this research will educate teachers to provide more exciting learning for children by creating multimedia learning media.

2. METHODS

2.1. Material

This research is Research and Development (R&D). Research and development methods are used to create a new product and test its feasibility and effectiveness (Siregar, 2023). The ADDIE development model comprises analysis, design, development, implementation, and evaluation. This study develops multimedia learning resources for the introduction of animals to young children using the ADDIE development paradigm five steps of the ADDIE

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development model analysis, design, development, implementation, and evaluation are used to carry out the research process. **Figure 1** the following are the stages of ADDIE development:

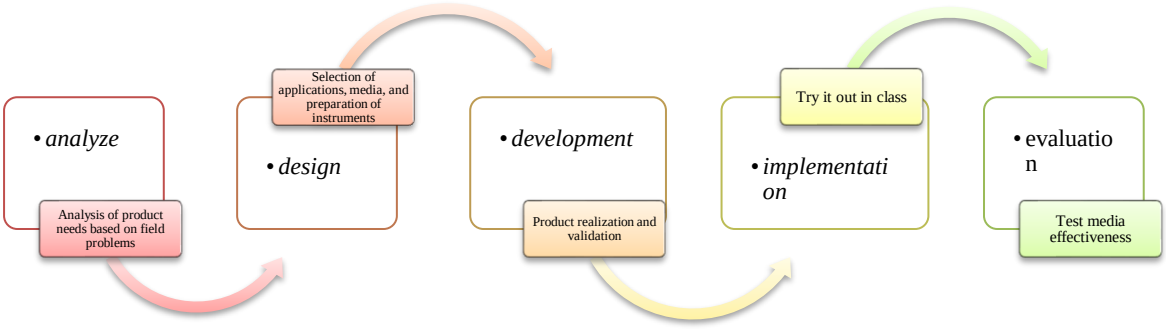

Figure 1. Stages of product development adaptation of the ADDIE model.

This research was conducted at Al-Wali Kindergarten, Sendangmulyo Village, Tembalang District, Semarang City, Central Java. The research subjects were kindergarten A teachers and children studying at Al-Wali Sendangmulyo Kindergarten. Developing multimedia learning media involves validation from media experts and users. The results of this research can help teachers create more interesting learning for young children.

2.2 Data collection procedures

Researchers collected data through questionnaires and observations. Questionnaires are used to obtain data regarding the feasibility of the products developed during expert validation. In addition, observations were made in this study before and after the product was developed, namely during the initial needs analysis and field trials. Media expert validation was tested on Faculty of Education lecturer Dr. Ir. Perdana Afif Luthfy, M.T, and this media was also tested on 11 children at Al-Wali Sendangmulyo Kindergarten. **Table 1** below shows the media tests carried out on children:

Table 1. List of names of Al-Wali Sendangmulyo Kindergarten children.

No	Name	No	Name	No	Name
1.	Alwis	6.	Athar	11.	Lira
2.	Aufa	7.	Shaky		
3.	Ceisya	8.	Kai		
4.	Aqila	9.	Lingga		
5.	Vanessa	10.	Akthar		

2.3 Data analysis procedures

The data analyzed includes media suitability from media experts and material from available questionnaires. The measuring instrument used in this research is a 1-4 Likert scale questionnaire. Assessment rules for media experts, material experts, and respondents in categories: SB (4), B (3), C (2), and K (1). To analyze observation data, researchers used a Likert scale with a score of 1-4. They are starting from Very Good, Good, Fair, Poor. With media suitability categories, the validation data recapitulation can be concluded based on the categories determined for each indicator.

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3. RESULTS AND DISCUSSION

The first step is analyzing students, learning resources, and a curriculum fit for the subject matter to be covered. The researcher is currently gathering information for preliminary data. Initial data will be processed to produce media and resources that meet children's needs.

In the second design stage, the researcher will create the first layout of multimedia learning media using photographs of the components and color schemes. During the first design phase, the researcher gathered the resources required to produce storyline media, which served as a guide for creating multimedia learning materials.

The development stage is the third stage. Currently, early childhood education lecturers at the Faculty of Education at PGRI University Semarang and media and material experts test the multimedia learning materials for validity. On October 10, 2023, the first phase of the media and material expert trial assessment was completed. **Table 2** below shows the results of the first stage of media expert and material expert trials, presented as follows:

Table 2. Result of the first phase of media expert and material expert trials.

No	Rated aspect	Score	Maximum Score	Percentage	Criteria
1.	Quality, and media appearance	2	4	50%	Enough
2.	Media characteristics	3	4	75%	Good
3.	Ease of use	4	4	100%	Very good
4.	Learning effectiveness and efficiency	3	4	100%	Good
5.	Video making techniques	3	4	75%	Good
Percentage = $\frac{Total\ Score}{Maximum\ Score} \times 100\%$ $= \frac{15}{20} \times 100\ \%$ $= 75\%$					Good

Table 2 presents the findings from the evaluation conducted by professionals in the fields of media and material. The analysis of the first round of media and material trials for multimedia-based learning media for introduction to wild animals yielded a percentage of 75%. Multimedia-based learning media for the Introduction of wild animals can be defined as having a proportion between 61 and 80% with the "Good" category included. The multimedia-based introduction to wild animals learning media product has to be improved in light of the media experts' and material experts' recommendations and remarks during the first validation stage. **Table 3** is a suggestions and comments on improvements to multimedia-based learning media for introduction to wild animals. **Table 4** is a revision of multimedia-based wild animal introduction media that must be carried out by media experts.

Table 3. Suggestions and comments on improvements to multimedia-based learning media for introduction to wild animals.

No	Suggestions and Comments on Improvements to Multimedia-Based Learning Media for Introduction to Wild Animals
1.	The media adds text according to the name of the animal.
2.	Media uses fonts that are more attractive and easy to read.
3.	The sound in the media is clarified or increased.

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Table 4. Revision of learning media for introduction to wild animals.

No	Before Revision	After Revision
1.		
	Before naming the animal	After naming the animal
2.		
	Before the font is changed	After changing the font
3.		
	Before the volume is increased	After the volume is increased

On November 1, 2023, the researcher conducted a second-stage assessment by media specialists and material experts based on the improvements achieved. **Table 5** is the result of the second stage of testing carried out by media experts and material experts, as follows:

Table 5. Result of the second phase of media expert and material expert trials.

No	Rated aspect	Score	Maximum Score	Percentage	Criteria
1.	Quality, and media appearance	4	4	100%	Very Good
2.	Media characteristics	4	4	100%	Very Good
3.	Ease of use	4	4	100%	Very Good
4.	Learning effectiveness and efficiency	4	4	100%	Very Good
5.	Video making techniques	4	4	100%	Very Good
Percentage = $\frac{Total\ Score}{Maximum\ Score} \times 100\%$ $= \frac{20}{20} \times 100\ \%$ $= 100\%$					Very Good

Table 5 and the evaluations conducted by material and media experts indicate that every part of the multimedia-based introduction to wild animals learning media's presentation scored 4. These findings indicate that media specialists and subject matter experts

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examined the outcomes of the second testing phase for the introduction to learning media. The percentage for multimedia-based wild animals was 100%. The achieved percentage falls into the "excellent" category of multimedia-based learning media for introducing wild animals, ranging from 81–100%. It can be applied in field trials.

The stage of implementation is the fourth. The multimedia learning materials that have been finished and tested will now be used with the pupils at Al-Wali Sendangmulyo Kindergarten. **Table 6** is the results of instruments that have been tested on students :

Table 6. Result of respondent instrument.

Indicator	Item	Percentage	Criteria
Design appearance	1. Children are interested when showing learning video media.	100%	Very Good
	2. The elements presented attract children's attention.	90%	Very Good
Media used	3. Media is accessible for children to use repeatedly.	100%	Very Good
	4. Children can hear sounds clearly, so they can imitate songs about animals and answer quiz material.	90%	Very Good
Easy to understand language	5. Children can understand the explanation of material about wild animals.	90%	Very Good
Easy-to-understand material	6. Children can name any wild animal.	100%	Very Good
	7. Children can name the characteristics of wild animals.	100%	Very Good
	8. Children can say where wild animals live.	100%	Very Good
	9. Children can name what wild animals eat.	100%	Very Good
	10. Children can count wild animals in the quiz presented.	100%	Very Good
Percentage $= \frac{Total\ Score}{Maximum\ Score} \times 100\%$ $= \frac{38}{40} \times 100\ \%$ $= 95\%$			Very Good

The purpose of the student respondent instrument sheet is to ascertain how well students adapt to multimedia-based learning materials when they are first exposed to wild animals. 95% of the 11 students at Al-Wali Sendangmulyo Kindergarten who completed the multimedia-based learning media for introduction to wild animals scored in the "Very Good" category.

The last step is evaluation, which is completed at this point in the media development process to see whether the multimedia learning materials are feasible. The category that is suitable for implementation at Al-Wali Sendangmulyo Kindergarten after being refined by validators in creating multimedia media has an overall average of 65.54%, which is based on research results from a feasibility study in the first stage of developing learning material experts to help children introduce wild animals. Class teachers can test the product and distribute it in kindergarten schools after the validator provides the validation findings.

In the second stage by the class teacher, the test results obtained a percentage score of 95%, a very high score. The class teacher assessed the application of learning materials for recognizing wild animals at the Al-Wali Sendangmulyo Kindergarten. Children enjoy getting

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to know animals when they see multimedia learning media directly via a PC. This means that children add positive value by attracting children's attention to focus on learning, be active, and not get bored in the learning process.

The results of the analysis on children by analyzing media and material trials obtained a percentage of 75%, which could be said to be in a good category. Next, another trial was carried out to develop the learning material and obtained a percentage of 100%, which is in the excellent category. This was implemented in learning at the Al Wali Sendangmulyo Kindergarten, and the results of the first phase of the feasibility study obtained an average of 65.54%. In the second phase, the results obtained an average of 95% with a very high score. This is supported by learning media for the introduction of wild animals that are attractively designed, such as: (1) the media is easy to use; (2) the media can be repeated anytime and anywhere; (3) the learning material is easier to understand and innovative; and (1) utilizing multimedia technology, learning is becoming more modern. (2) Media that usually only takes the form of books can now take the form of videos. So that children's enthusiasm for learning activities increases. So, based on the product above, kindergarten teachers can use it as a learning medium to support teaching and learning activities.

Developing this learning media is one of the most concrete problem solutions in the learning process through technology (Zulma & Hidayati, 2020). According to Susanti (2020), technology has not been optimally utilized by teachers, so this learning media can be a reference material for teachers in using. Technology for the teaching and learning process. The development of learning media through technology in the form of multimedia in introducing wild animals to children is used as a tool to help teachers in the teaching and learning process. Teachers who teach children in schools in the future it easier to explain and create a more interactive learning atmosphere, so that children will not feel bored while studying. In line with researcher Kartini et al. (2020) states that the interactive multimedia learning media "Animal World" is suitable for use as an interactive learning media in introducing various kinds of animals to children.

An evaluation of the appearance or attractiveness of the presented learning media means that the media and learning materials developed can attract the child's learning interest, attention, and learning motivation as well as active and happy in the learning process. In accordance with the research Maulida et al. (2018) that deserves to be a learning medium and has already met as the application criteria of Computer Assisted Instruction based multimedia shown for early childhood with age 5-6 in knowing animals with the concept of tutorials and games to attract children's learning interests.

In addition, this multimedia learning media is accessible for teachers to use at any time for classroom learning materials. According to research Zohri et al. (2023) that learning multimedia applications are identified valid for use as teaching material because children are more interested and easy to understand animal identification lessons because this multimedia uses images and sounds preferred by children. This media contains wild animals such as Tigers, Lions, Crocodiles, Serpents and Wolfs. In this media not only introduces children in the name of animals but also forms by mentioning the characteristics of wild animals, sounds, habitat and animal food. In line with researcher Putra & Ishartiwi (2015) that the learning media for early childhood is a medium that contains animation, images, sounds and music in enhancing motivation, strength and optimism so that it has the spirit to do a particular activity, for example learning.

The results of the researcher aimed at finding the ease of use of the product emphasize the advantages of learning media that are more interesting and innovative. Attractive media design, ease of use, and use of multimedia technology have created a more modern and

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exciting learning experience for children, and multimedia learning media are more effectively used to attract children's attention so that they focus on learning and are active and do not get bored during the learning process and make it easier. Introduce wild animals to children support from previous research also confirms the effectiveness of multimedia in increasing children's motivation and enthusiasm for learning. Thus, recent research shows a significant improvement in the quality and effectiveness of multimedia learning materials compared to previous research, strengthening the argument for their use in early childhood education settings. The above facts are supported by the usefulness of the product carried out at Al-Wali Sendangmulyo. So, this research product is an intelligent multimedia-based learning medium that teachers at kindergarten schools can use.

4. CONCLUSION

Based on the research and development results, this research can develop multimedia-based animal identification learning media for the early childhood learning process. The development of multimedia learning media aims to introduce animals to children. This product can be a reference for teachers using technology for teaching and learning. By using an attractive learning medium, children are expected to gain better knowledge and experience a more enjoyable and meaningful learning experience.

Some suggestions given among them are for researchers to improve the learning media further to make them more attractive, for teachers to be able to make multimedia learning media one of the media used in the learning process, and for schools to add multimedia-based learning media so it can increase interest in learning in early childhood, and for people to use the media as a pleasant learning means.

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6. AUTHORS' NOTE

The authors declare that there is no conflict of interest regarding the publication of this article. Authors confirmed that the paper was free of plagiarism.

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