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Application-Based Assembled Edu Media to Stimulate Early Childhood Alphabet Recognition Abilities

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ABSTRAK

*Saat ini media pembelajaran yang ada hanya berupa buku dan poster huruf yang digunakan untuk belajar mengenal huruf, sehingga dalam mengembangkan aspek perkembangan bahasa salah satunya adalah literasi bahasa anak yang kurang optimal. Penelitian dan pengembangan media assembler edu dalam menstimulasi kemampuan pengenalan alfabet pada anak usia dini. Tujuan penelitian ini adalah untuk mengetahui apakah perancangan dan pengembangan media edukasi perakitan sudah tepat untuk menstimulasi kemampuan mengenal huruf di Taman Kanak-Kanak. Penelitian ini merangsang kemampuan mengenal huruf pada anak usia dini dengan media digital yang menarik. Model yang digunakan adalah ADDIE. Instrumen yang digunakan untuk mengumpulkan data adalah kuesioner. Uji validitas instrumen penilaian ini dilakukan melalui uji validitas isi (uji ahli/*expert*). Instrumen yang dikembangkan akan diuji oleh dua orang ahli media, dua orang ahli materi, dan sepuluh respon siswa. Berdasarkan uji validitas yang dilakukan oleh dua orang ahli diperoleh nilai validitas instrumen = 1 yang menyatakan bahwa validitas instrumen media ini mempunyai kriteria sangat tinggi dan layak digunakan. Sedangkan Berdasarkan hasil analisis validitas ahli media diperoleh skor sebesar 93,18%, hasil validitas ahli materi memperoleh skor 100 dan uji coba respon anak memperoleh skor 97,5%. Sehingga penelitian ini "Valid" dengan kualifikasi sangat baik dan layak untuk merangsang kemampuan mengenal huruf pada anak usia dini.*

ABSTRACT

Currently, the only learning media available are books and letter posters which are used to learn to recognize letters, so that in developing aspects of language development, one of them is that children's language literacy is less than optimal. Research and development of assemblr edu media in stimulating alphabet recognition ability for early childhood children. The purpose of this study was to determine whether the design and development of the educational media assembly was appropriate for stimulating the ability to recognize letters in kindergarten. This study stimulate the ability to recognize letters in early childhood children with attractive digital media. The model used was ADDIE. The instrument used to collect data was a questionnaire. The validity test of this assessment instrument was carried out through content validity testing (expert/expert test). The developed instrument will be tested by two media experts, two material experts, and ten student responses. Based on the validity test by two experts, the instrument validity value = 1 was obtained, which stated that the validity of this media instrument has a very high criterion and is worthy of use. Whereas Based on the results of the media expert validity analysis, a score of 93.18% was obtained, the material expert validity result obtained a score of 100 and the child response trial obtained a score of 97.5%. So that this research is "Valid" with a very good qualification and is worthy of stimulating the ability to recognize letters in early childhood children.

1. INTRODUCTION

Early Childhood Education (PAUD) is a level of education for children aged 0-6 years which is carried out through providing educational stimuli to help physical and spiritual growth and development so that children are ready to enter further education (Dopo & Ismaniati, 2016; Jaya, 2018; Nirwana et al., 2018). One aspect of development that needs to be stimulated in early childhood is language development. Language development in early childhood includes the ability to listen, speak, read and write. In stimulating language development, it is necessary to design learning that is fun for children.The most intensive period

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of speech and language development in humans is in early childhood, to be precise in the three years of life, namely a period when the human brain develops in the process of reaching maturity (Desai & Nomlomo, 2014; Taufan, 2022). Recognizing letters is part of a child's language development aspect, which needs to be developed by providing optimal stimulation from an early age (Hashim & Yunus, 2018; Supeni et al., 2019). Previous study statedthat knowing letters is the most important thing for young children who hear from their environment, both Latin letters, Arabic letters and others (Larsen et al., 2020; Virinkoski et al., 2018). The various letters that children know foster the ability to select and sort various types of letters. Tadkiroatun Musfiroh said that stimulating letter recognition is stimulating children to recognize, understand and use written symbols to communicate. Recognizing and understanding letters is not just memorizing a number of ABCD alphabets. However, what needs to be instilled in children is that letters are symbols that represent one language sound, if these symbols are arranged they will form words that have meaning. For example, the child's name, the name of the fruit and the name of the object the child owns. There needs to be a medium to introduce various letter symbols to children (Bintaleb & Al Saaed, 2020; Harahap, 2020).

Media is anything that is used to convey messages (learning materials) so that it can attract the attention, interest, thoughts and feelings of students in learning activities in order to achieve certain learning goals. So that it attracts students' interest in further learning. Learning media has an important role in supporting success in the teaching and learning process, media can also make learning more interesting and enjoyable. The learning media used in PAUD are in the form of print media (magazines, educational books), educational game tools (APE), audio visuals, posters and flannel boards (Khotimah et al., 2023; Suhendro, 2020). The use of learning media in schools in general should be fun, meaningful, attracts children's attention, and is not boring. This is considered. so that children are enthusiastic during learning activities, especially learning to recognize letters as a basis for understanding in reading for young children. Previous study said that one of the causes of the success of the teaching and learning process is due to the use of media or intermediaries in the teaching and learning process, because the presence of media has a very important meaning in the learning process (Anhusadar, 2016; Gupta et al., 2022). So, it can be concluded that media is a tool used to make it easier for teachers to convey knowledge to students through audio or audio visuals that can be seen and heard by children. One of the learning media that can be used to introduce letters to young children is Assembled Edu media. Edu assembly media is media that contains letters of the alphabet and also pictures to introduce letters to young children (Chen et al., 2020; Nardo et al., 2022).

Previous study states Assembler Edu is an application that allows teachers and students to create and share interactive teaching materials based on augmented reality (AR) (Alkhattabi, 2017). The three-dimensional features that become one unit make Assembler Edu the choice for teachers and students to use. Assembler Edu makes it possible to make complex and abstract concepts feel more real by bringing them right into the classroom. Assembler Edu already provides educational content that can be used for free. Be it models, diagrams, or simulations, you can also find most of the material needed from the subjects taught at school. By explaining it from every angle using 3D technology, you can bring any material to life and make it easier for students to grasp the lesson more quickly.

Based on the results of observations that the author carried out on the only available learning media are books and letter posters which are used to learn to recognize letters, so that in developing aspects of language development, one of which is children's language literacy is less than optimal. When the teacher asked each child about the letters on the poster, only a few children could name the correct letters according to the shape and sound of the letters, while some other children still felt confused and were unable to answer correctly, there were also children who could only say or memorize the letters AZ but don't understand how the letters that have been mentioned look like, and children also still have difficulty distinguishing sounds and shapes between the letters b, d, f, p, m, n, v, w, s, and z.

In previous research showed that student learning outcomes had increased, so it can be concluded that educational educational media can improve student learning outcomes (Riananda, 2016; Suniasih, 2021). The second research was conducted show that students who take part in learning using Assembled EDU media have better learning outcomes than students who study using conventional methods (Markauskaite et al., 2022). The third research was conducted was concluded that students who were financially literate using augmented reality media had better ability to recognize financial literacy using conventional methods (Fürstenau & Hommel, 2019). The fourth research states that students feel satisfied in participating in learning that uses Assembl EDU media in the learning process, so the conclusion in this research is that teachers can use Assembl EDU as a media reference in the learning process (Gavish et al., 2015). The fifth research, concluded that learning using educational assembly media can significantly increase students' interest in learning compared to learning using conventional methods (Ghosh et al., 2018).

This research was conducted because of a problem, namely that out of 10 students, 75% of the children still had difficulty remembering and recognizing letters. Where in learning there is still a lack of students in recognizing the letters of the alphabet in practice questions and they still need guidance from the teacher. On this occasion the author is interested in taking this topic into research on the Assembl Edu application in improving the ability to recognize alphabet letters for young children. The novelty of this study is assembl Edu as new application in teaching reading for eraly age students.

2. METHOD

This research is research and development that aims to create and provide a change and provide a new touch in the form of products to be developed in order to achieve progress and effectiveness in the learning process in the classroom. The development model that will be used in this research is the ADDIE (Analysis, Design, Development, Implementation, Evaluation) development model (Kurt, 2017). The ADDIE model is an interactive learning process with basic stages of effective, dynamic and efficient learning. Data collection techniques are carried out using validation techniques, validation is used to assess the suitability of the smart letter board media that has been developed (Barranger et al., 2009). In this research, the data collection method used was a questionnaire. A questionnaire is an effective data collection technique when the researcher knows quickly what variables will be measured that have received validation from the source. A questionnaire is a data collection technique that is carried out by giving a set of questions or written statements to the respondent for them to answer. Apart from that, questionnaires are also very suitable for use if the number of respondents is quite large and spread over the same large area. In this research, only a formative evaluation was carried out which aims to validate the development product and carry out revisions according toinput or suggestions given from reviews by media experts, material experts, teachers and children. In accordance with the ADDIE model development procedure, formative evaluation has been carried out step by step at each step of the ADDIE model.

In this research, to produce accurate data, a Likert scale was used. The Likert scale is used to measure attitudes, opinions and perceptions of a person or group of people about a social phenomenon where each answer has a gradation of very positive to very negative (Sugiyono, 2014). This research provides answers to each instrument measured using a Likert scale which has levels ranging from very inappropriate to very suitable. There are seven questions that can be used as questions on the letter recognition ability assessment sheet using seven questions, which are outlined in the grid in Table 1, Table 2, and Table 3.

Table1. Grid Table of Media Expert Validation Instruments

No	Aspect	Indicator	Item No	Amount
1	Display Quality	The quality of Assembler Edu media is in accordance with the AUD media category	1	4
		Attractive qualities of Assembler Edudesign interesting	2	
		The type, size and color correspond to the characteristics of early childhood	10	
		Harmony of media size, color of writing and images for young children	11	
2	Suitability	Suitability of Assembler Edu media with learning objectives	3	5
		Suitability of Assembler Edu media to children's characteristics	4	
		Suitability of Assembler Edu media with learning resources	5	
		Media Assembler Edu is appropriate to children's abilities and age stages	6	
		Assembler Edu learning media according to media function	7	
3	Benefit	Materials for making Assembler Edumedia safe and not dangerous for children	8	2
		The Assembler Edu board media can be used for a relatively long time	9	
Amount			**11**	

Table 2. Grid Table of Material Expert Validation Instruments

No	Aspect	Indicator	Item No	Amount
1	Contents	The quality of the images used in Assembler Edu media is appropriate to the age level	6	3
		The material is presented with an attractive appearance	3	
		The letters of the alphabet are clear	7	
2	Learning	The quality of the images used in Assembler Edu media is appropriate to the age level	1	4
		The material presented in Assembler Edu media is in accordance with the learning objectives (introducing alphabet letters to children aged 4-5 years)	2	
		Material on Assembler Edu mediarelated to everyday life	4	
		Suitability of images and materials	5	
Amount				**7**

Table3. Student Assessment Instrument Grid Table

No	Aspect	Indicator	Item No	Amount
1	Media Get to know the symbols	Children are able to recognize the symbols of the letters contained in the AssemblerEdu media	1	1
2	Make meaningful doodles	Children are able to match letters according to the images contained in the AssemblerEdu media	2	1
3	Imitate pronouncing the letters AZ	Children are able to recognize the differences in letter sounds that are almost the same (B, D, F, P, M, N, V) on Assembler Edu media	3	2
		Children are able to pronounce the letters ofthe alphabet on Assembler Edu media	5	
4	Children are able to distinguish the letters B,D, F, P, M, N, V, W, S, and Z.	Children are able to recognize the different shapes of letters that are almost the same (B, D, M, W, S, Z) found in Assembler Edu	4	1
Amount				**7**

3. RESULTS AND DISCUSSION

Results

The media developed area learning media that can help achieve learning goals and the media developed must comply with the criteria for good media, including being consistent and attractive. The Assemblel Edu media developed is an alphabet recognition learning media for early childhood students.Assemblel Edu media is a technology-based teaching media that cantechnology that carries messages or information that is instructional in nature and can be seen, read, heard. Learning begins with introducing the alphabet by displaying the letters accompanied by pictures of animals corresponding to the initial letter to be taught accompanied by the sound of the pronunciation. Media development is carried out in several steps. The first step is to carry out initial observations in the B2 class at Mutiara Kindergarten, Buleleng District in November 2022 to analyze literacy problems regarding alphabet recognition. The author used the results of these observations as the bas is for developing the Assembll Edu media. To

determine the level of feasibility and quality of Assembl edu media. To determine the level of feasibility and quality of the media being developed, the author uses an instrument in the form of a questionnaire. There were three questionnaires, namely, a questionnaire for material expert lecturers, a questionnaire for media expert lecturers and a questionnaire for students. From this questionnaire, qualitative and quantitative data were obtained. Qualitative data is a research criterion of very good, good, fair, quite good, poor and very poor. Quantitative is obtained by calculating the average score for each criterion. From this data management, it can be seen the level of validity of Assmbr Edu media based on the assessment of media experts, material experts and student assessments.

The data in this research was obtained through a feasibility test. This media trial was carried out by media expert lecturer who reviewed the design an d appearance of the media that had been developed. The media expert's assessment using a questionnaire can be seen in Table 4.

Table 4. Table of Material Test Results

No	Criteria	Respondent
1	The quality of Assembler Edu media is in accordance with the AUD media category	4
2	The attractive qualities of Assembler Edu's design are attractive	4
3	Suitability of educational assembly media with learning objectives	4
4	Harmony of media size, color of writing and images for young children	4
5	Suitability of Assembler Edu media with learning objectives	4
6	Assembled EDU media is appropriate to children's abilities and age stages	4
7	Assembled EDU learning media is in accordance with the function of themedia	3
8	The materials used for Assembler Edu media are safe and not dangerous for children	4
9	Assembler Edu learning media can be used for a relatively long period of time	4
10	Type, size and color according to the characteristics of early childhood	3
11	Harmonization of media size, color and written images in accordance with the characteristics of early childhood	3
12	The quality of Assembler Edu media is in accordance with the AUD media category	4
	Total score	**41**
	Percentage %	**93.18 %**

Base on Table 4, it is show that the percentage is 93.18 %. This percentage belongs to very good category. The trial of this material was carried out by material expert lecturer who fully understands the material presented and is suitable for early childhood. The material expert assessment using a questionnaire can be seen in Table 5.

Table 5. Table of Media Test Results

No	Criteria	Respondent
1	The material presented in Assemble Edu media is in accordance with the learning objectives (recognizing the alphabet for children aged 5 -6 years)	4
2	Compatibility of Assmbler Edu media materials with 5 early childhood development level (5-6 years)	4
3	The material is presented interestingly	4
4	The material in Assembl Edu media is related to everyday life	4
5	Suitability of image to material	4
6	The image quality used in Assembl Edu media is in accordance with 5 age level	4
7	The alphabet is clear	4
	Total score	**28**
	Percentage %	**100%**

Base on Table 5, it is show that the percentage is 100%. This percentage belongs to very good category. In the field trials/children's responses, ten children in class B2 at Mutiara Kindergarten were carried out. The assessment of children's responses using a questionnaire can be seen in Table 6.

Table 6. Table of Children's Responses

No	Student Name	Respondent
1	Revan	7
2	Anita	8
3	Navia	8
4	Aditya	8
5	Enan	8
6	Mila	8
7	Vishnu	7
8	Naya	8
9	Devandra	8
10	Divas	8
Total score		**80**
Percentage %		**97.5%**

Base on Table 6, it is show that the percentage is 97.5%. This percentage belongs to very good category. Then the results of the media developed can be seen in Figure 1.

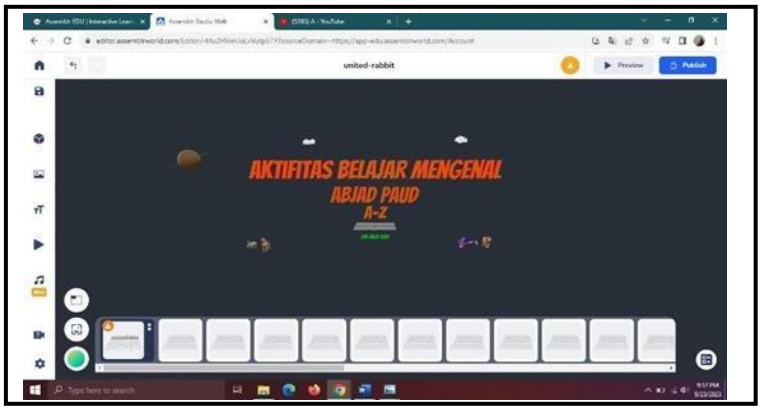

Figure 1. Assemble Edu Media Cover Page

Discussion

The results of the Assemblel Edu media design were obtained through several procedures such as analysis, design and development. There it is explained starting from analyzing the existing needs in the school then continuing with designing what solutions are needed and also developing the media needed in the school. Development is a process of change in cognitive, affective, psychomotor, psychological and social aspects in children (Bagon et al., 2018; Bulqini et al., 2021; Fitriyani et al., 2019). Therefore, development during a child's growth period will be very meaningful. Good growth and development will produce superior generations in the future. One of the important stimulations carried out during a child's golden development period at the age of 5 -6 years is to stimulate the introduction of the alphabet in order to prepare the process of learning to read at the next stage of development. Providing this educational stimulus can help physically and spiritually so that children are ready to enter further education (Bagon et al., 2018; Fitriyani et al., 2019).

The process of recognizing letters is in line with the physical and psychological process of language skills. A physical process in the form of the activity of observing writing visually. With the visual sense, children recognize and differentiate sound images and their combinations. Through the recoding process, children associate sound images and their combinations with the sounds (Moats, 2019; Puspitasari et al., 2021). The process of a series of known writings becomes a series of language sounds in a combination of letters into meaningful words. Psychological processes in the form of thinking activities in processing information. Through the decoding process, sound images and their combinations are identified, described and then given meaning. This process involves knowledge of the world in schemata

in the form of categorization of a number of knowledge and experiences stored in the memory warehouse. According to Glenn Doman quoted by previous study that children under five need to be taught to read because, a) children under five easily absorb large amounts of information, b) children under five can grasp information at extraordinary speed, c) the more they absorb, the more they remember, d) children under five have extraordinary energy, e) children under five can learn the language completely and learn almost as much as they are taught (Sember et al., 2020).

The results of the Assemble Edu media feasibility test for stimulating the introduction of alphabets in group B2 students at Mutiara kindergarten, Buleleng sub-district were obtained based on calculated assessments from experts and children. This feasibility test uses a questionnaire which uses a Likert scale to produce accurate data. The Likert scale is used to measure attitudes, opinions and perceptions of a person or group of people about a social phenomenon where each answer has a gradation of very positive to very negative. Previous study states that this data management method can obtain general conclusions (Potter & Thai, 2019). The results of the development of the Assemblel Edu media in stimulating the introduction of alphabets in B2 group students at Mutiara kindergarten, Buleleng sub -district can be seen in Table 4.5, namely: the results from media experts obtained a score of 93.18%, the results from the validity of material experts obtained a score of 100%, and the results of the student response trial obtained a score of 97.5%. So the research on the development of educational assembly media on stimulating the introduction of alphabets in students in the B2 group at Mutiara kindergarten, Buleleng sub-district is "Valid" with very good and feasible qualifications.

The development of Assemblel Edu media to stimulate alphabet recognition for Kelompiok B2 students in Mutiara kindergarten, Buleleng sub-district has met the feasibility for use in the learning process. This media was developed according to the needs found in the field, so that this media can overcome the problems found. According to previous study learning media is anything that is used to convey messages and can stimulate the thoughts, feelings, attention and will of the learner so that it can encourage a learning process that is deliberate, purposeful and controlled (Dopo & Ismaniati, 2016; Oktaviane et al., 2021). With the Assembll technology-based alphabet media, it is a learning media that can be used to improve the ability to recognize the a -z alphabet by providing examples of the use of letters on objects around our environment. According to other study explained that media is a very useful tool for children and educators in the learning and teaching process (Apriyanti et al., 2020). In this media, teaching media is developed which c ontains sound, images and writing. Media that contains sound, images and writing can help improve the reading skills of young children (Riddell, 2015; Yulianti et al., 2019). Early childhood education prioritizes an integrated learning process because children have various potentials that must be developed optimally.

Based on this presentation, it shows that the Assemblel Edu media for stimulating the introduction of the alphabet in Group B2 students in kindergarten is suitable for use in the learning process and has received a positive response from teachers and children because it can help stimulate the introduction of the a lphabet in early childhood. The advantage of Assembled Edu media compared to previous research is that the research that the author made is more interesting because in appearance there are more images displayed and also the images are more realistic compared to previous research (Hilaliyah et al., 2019; Rukayah et al., 2022). This application was created to stimulate the ability to recognize the alphabet in group B2 students in kindergarten, namely: 1). This media was designed using Augmented Reality technology which teachers can access for free. 2). This media is made with colors and images that children like 3). Students can see the image display in 3D mode so that the image looks more realistic. 4) many elements that can be reused, as well as a faster animation process.

Meanwhile, the shortcomings of this media are in terms of technology and connectivity requires a compatible device. Assemble Edu requires a device with certain specifications to run the application optimally. This may be an obstacle for schools or individuals who have limited devices. Internet dependency: Using the Augmented Reality (AR) feature in Assemblr Edu requires a stable internet connection. Lack of a good internet connection can hinder the learning experience. In terms of content and learning, Content and Learning makes it diffic ult for teachers to monitor individual student development. Limited ready-to-use content. Although Assemblr Edu has some ready-to-use content, the amount is still limited. This requires teachers to create their own content, which requires time and skill. Lack of focus on mastering concepts. Assemble Edu focuses more on interactive experiences than mastery of concepts. Teachers need to complement learning with other methods to ensure students' deep understanding. Lack of learning differentiation where Assemble Edu does not optimally support different learning needs. Teachers need to adapt materials and activities to accommodate students with varying levels of ability. From the aspect of cost and accessibility, the weakness of this media is that the subscription fee for Assemble Edu is quite expensive, which may be a barrier for some schools or individual users. There is advice for other researchers and for users who want to develop media and

want to use Assemble Edu, namely that they must have a device with high specifications. and to run the application you must use a strong internet network so that the media does not provide a fast and stable response.

4. CONCLUSION

Based on the results of the research that has been carried out, it can be concluded that the development carried out in this research took the form of research into the development of augmented reality-based alphabet recognition media using the Assemble Edu application to stimulate alphabet recognition in group B2 students. The media development process consists of analysis, design and development. At this stage the author explains starting from analyzing the needs that exist in the school then continuing with designing what solutions are needed and also developing the media needed in the school. This section explains the stimulation of the ability to recognize the alphabet in B2 TK Mutiara children by displaying letters accompanied by pictures that match the first letter of the noun displayed. Based on validity tests by two experts (judges), the validity of instrument 1 was obtained, which states that the validity of this media instrument has very high criteria and is suitable for use. Meanwhile, based on the results of the validity analysis from media experts, material experts and responses from stud ents and teachers, it is stated that this application-based media has very good criteria, where the score from each expert hasa very high score. So this research is valid with very good qualifications. good and suitable for use to stimulate alphabet recognition in early childhood.

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