Implementation of Information Communication Technology in Enhancing Early Childhood Language Development

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Abstrak— This study aims to determine the effect of using Information Communication and Technology in improving language development in early childhood. The research method used is true experimental research. The subjects of this study were children aged 4-6 years in grades B1 and B2, the number of group B1 was 17 children and the number of group B2 was 17 children. The data collection tool used is in the form of observation sheets for the language development of children aged 4-6 years after being treated with ICT-based learning media. The results of the t-test show that the asymp. Significant (2-tailed) of 0.012 with a significant value <0.06. The hypothesis is accepted, meaning that ICT-based learning media can improve the language development of children aged 4-6 years for the better. Therefore, researchers provide suggestions that educators can use internet media, computers and technology as an alternative in learning activities, especially in early childhood language development.

Keywords— *Internet Communicatioan and Technology, Language Development, Early Childhood*

I. INTRODUCTION

Early childhood education (PAUD) refers to the process of education and care aimed at children aged 0-6 years. This is a very important educational stage in a child's life because it is the period of the most rapid development in terms of cognitive, social, emotional, and physical. The main goal of early childhood education is to provide a fun and meaningful learning experience, and to prepare children to enter formal education at the next level. Following are some important aspects of early childhood education, one of which is language development. Children are taught to communicate well and use language effectively, (Dhulkifli, 2020; Tomtom, 2017; Trisnawati, Suarni, & Agung,

2014). They are introduced to new vocabulary, sentence structures, and listening skills. This includes developing speech, reading and writing skills. Early childhood education provides a solid foundation for further development and gives children the opportunity to grow and develop holistically.

Language is a communication system used by humans to convey thoughts, feelings, ideas and information to others. This involves the use of words, sentences, and grammatical rules set by a linguistic community. Language can take many forms, including spoken and written language, (Susanto, 2017). Spoken language involves the use of sounds and gestures to communicate, while written language uses written signs or symbols to convey messages. Based on the Regulation of the Minister of National Education of the Republic of Indonesia Number 58 of 2009 concerning Standard Sources of Early Childhood Education, it is stated that the level of attainment of the language aspects of group B Kindergarten children which is related to the child's early language development is that the child has vocabulary, the child understands commands verbally. Simultaneously, children can answer more complex questions, children are able to name groups of images that have the same sound, children know symbols, children have more words to express ideas to others, understand the relationship between sounds and letter shapes and children able to repeat the words that have been heard.

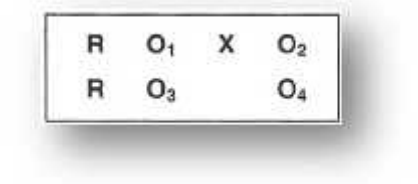
The use of learning media can play an important role in the language development of early childhood. The right learning media can facilitate learning that is interactive, fun, and supports holistic language development, (Sukmono, 2015). The following are some examples of the use of learning media for early childhood language development, one of which is educational applications and software: There are various educational applications and software specifically designed for early childhood. Some of them can help children learn letters, vocabulary and reading skills in an interactive and interesting way. Then Educational videos: Educational videos with early childhood appropriate content can help introduce new vocabulary, describe everyday life situations, and reinforce other language skills. Videos with engaging visuals and clear narratives can facilitate understanding and retention of information. And visual aids: Visual aids such as posters, flashcards, and blackboards can be used to visually introduce concepts, vocabulary, and grammar. This helps children visualize and associate pictures with

words, thereby strengthening their understanding of language. It is important to choose learning media that are appropriate for the age and interests of the child, and ensure that their use is in accordance with the learning objectives, (Alfiana & Kuntarto, 2020; Fauziah & Rahman, 2021). Learning media should be used as a supporting tool in learning that involves direct interaction with children and assistance from teachers or parents. The use of integrated learning media with interpersonal interactions can provide a more meaningful and effective learning experience for early childhood language development.

From the results of the initial observations of researchers at the Rumbai District PAUD, it was found that children are required to be able to develop expressive language but there are still many children who find it difficult to speak, so that children find it difficult to remember and have difficulty pronouncing sentences. Furthermore, the learning media used by the teacher are blackboard media and picture media so that there are still many children who find it difficult to say sentences and children tend to be boring if they only use blackboard and picture learning media. Based on the description above, the researcher is interested in conducting research on "The Influence of the Use of Information Communication Technology on Language Development in children aged 4-6 years"

II. METODE

This research is a true experimental research (true experiment) because in this design the researcher can control all external variables that affect the course of the experiment. Thus the internal validity (the quality of the implementation of the research design) can be high. The main characteristic of true experimental is that the sample used for experimentation or as a group (Sugiyono, 2017). The following is an overview of the Pretest Posttest Control Group Design Information :



O1 = experimental group pretest
O2 = posttest experimental group
X = treatment with internet, computer and technology media
O3 = control group pretest
O4 = posttest control group

According to the population or universe is the entire object under study, whether in the form of people, objects, events, values or things that happen. The population in this study were children in group B totaling 34 children, namely in class B1 which consisted of 17 children and class B2 group which consisted of 17 children. The sample is part of the number and characteristics possessed by the population (Sugiyono, 2006). Sampling in this study using Purposive Sampling technique. According to (Sugiyono, 2006) purposive sampling is a sampling technique with certain considerations. The sample used in this study were children in group B1 with an age range of 4-6 years, totaling 15 children. In a study, procedures were needed to collect data. The activities carried out by researchers are to make preparations in advance, namely to prepare research instruments, then carry out research and completion. This stage is useful so that when data collection takes place things do not occur that could hinder the research process. The activities in this stage are:

Preparation, namely the stage where the researcher prepares research instruments in the form of (pretest and posttest) in accordance with the formulation of the objectives. Implementation, namely by collecting data by giving a pretest first then giving treatment, and finally giving a posttest. Data processing, namely test data collected and then processed using statistical calculations using the SPSS ver. 22.0. There are several data collection techniques that the researcher uses, namely observation and documentation. The data analysis technique used is that the data is grouping data based on variables and types of respondents, presenting data for each variable studied, performing calculations to answer the problem formulation, and performing calculations. has been submitted. To test the hypothesis used statistical tests, testing the hypothesis used t test. Test the hypothesis using the t test at a confidence level of 95% or $\alpha = 0.05$ using SPSS ver.22.0 Before the t-test is carried out, assumption tests are first carried out in the form of a normality test, homogeneity test, and hypothesis testing as a condition for using t analysis. Based on the pretest results that have been tested with the normality test and homogeneity test, the data results are normal and homogeneous.

The pretest learning development of experimental class children has an average of 2.96 while the control class pretest has an average of 3.00. The results of hypothesis testing on the experimental class and control class pretest data were carried out using parametric statistics, namely 2 samples independent t-test. The pretest t-test results obtained Sig. (2-tailed) is 0.481> 0.05 decision to accept H0 means that there is no significant effect between the pretest scores of the experimental class and the control class. According to (Darmawan, 2013) suggests that initial ability is a bridge to get to final ability. Each learning process has its own starting point or stems from the child's initial abilities to be developed into new abilities, each of which is the goal in the learning process.

.III. RESULT AND DISCUSSION

Posttest results that have been tested with the normality test and homogeneity test, the data results obtained are normally distributed and homogeneous. The results of hypothesis testing on the posttest data of the experimental class and the control class were carried out using parametric statistics, namely 2 samples independent test. Posttest t-test results obtained Sig. (2-tailed) is 0.013, so the decision obtained is to reject Ho, which means it has a significant effect. This means that children in the experimental class and the control class have different learning outcomes in language material for children aged 4-6 years. This can be seen from the average posttest score of the experimental class of 3.29 and the average of the control class of 3.19. The posttest score in the control class was lower than the posttest score in the experimental class, this happened because in the control class the children were not active in class because they only listened to lectures/explanations of subject matter from the teacher during the lesson. While in the experimental class more active in class. The magnitude of the influence of internet, computer and technology media to develop early childhood language is 0.01, higher than the demonstration method. It can be seen from the average posttest scores of the two classes. This proves that the results of the statistical hypothesis analysis in this study can be concluded that H0 is rejected, while Ha is accepted. In other words, it means that the use of internet media, computers and technology has an influence on the language of children aged 4-6 years.

Based on the results that have been carried out by the researchers, it can be seen that there are differences in the results of the posttest scores in the two groups due to the different treatment given between each class so that the responses received are also different. Researchers gave treatment using internet media, computers and technology in the experimental group and using demonstration methods in the control group. The responses received and generated from the two groups were different. In the language of fruits and colors, the children in the control group received treatment in which the educator conducted a demonstration with media images. In the experimental group, children received treatment using ICT-based learning media. According to (Adhani, Khofifah, & Yuanita, 2016; Humaida & Suyadi, 2021; Nurlilawaty, Milfayetti, & Yus, n.d.; Rosmauli & Watini, 2022) language is an international language that is used in almost all fields of global life and language development in early childhood is only limited to introduction and basics, for example letters of the language alphabet, numbers, various kinds of fruits , various animals, various colors and a few simple conversations.

Mastery of language concepts that must be mastered by children, namely among others, namely mentioning, repeating and recognizing the meaning of words (Permendiknas No 58 of 2009). The level of mastery of the child's concept can explain especially this material, in the control class it is given treatment by the way the researcher demonstrates the material. Meanwhile, the experimental group was given treatment using internet media, computers and technology. Based on the results of observations during the learning process, in the control group there were several children who were engrossed in chatting with their friends. This is different from the experimental group where the atmosphere in the class looks fun because the children are enthusiastic and eager to follow the learning process.

It is this difference in the treatment and response that makes the difference in the learning process between the experimental class (internet, computer and technology media) and the control class (demonstration method). The learning outcomes in the experimental class using internet media, computers and technology appear to be superior when compared to the control class using the demonstration method, (Adhani et al., 2016; Humaida & Suyadi, 2021; Islam & Padang, 2022; Nurlilawaty et al., n.d.; Pangastuti & Hanum, 2017; Rosmauli & Watini, 2022). The results of this study are in accordance with the theories that have been previously studied by researchers, namely

internet media, computers and technology which are very effective and efficient to apply in kindergarten. The results of this study are in accordance with the theories that have been previously studied by researchers, namely ICT-based language learning media for early childhood is very effective and efficient to apply in kindergarten. Because with ICT-based media children are not easily bored when the learning process takes place, this is in accordance with what was stated by (Novitasari, Wahyuni, & Situmorang, 2021; Yulsyofriend, Anggraini, & Yeni, 2019a) ICT (information and communication technology) is a tool or access that can assist educators in implementing and presenting the learning process with the help of a computer /laptop, powerpoint, projector and speaker. By using internet media, computers and technology, the process of conveying and presenting early childhood language can be more interesting and fun. So it can be concluded that there is a very significant effect ($p < 0.013$) of learning using internet media, computers and technology on the language of children aged 4-6 years.

The use of Information and Communication Technology (ICT) can provide significant benefits in early childhood language development. The following are some examples of the use of ICT in early childhood language, namely educational applications: There are various educational applications specifically designed for early childhood, (Anggraini, Yulsyofriend, & Yeni, 2019; Yulsyofriend, Anggraini, & Yeni, 2019b). These apps can help children learn vocabulary, recognize letters, develop early reading skills, and play with language through interactive games and activities. Learning videos: Engaging and interactive learning videos can help children develop understanding of language, vocabulary and new vocabulary. Videos can show everyday situations, stories, and songs that enrich a child's language experience.

Computer programs and educational software: There is educational software designed to provide practice in letter recognition, reading, writing, and other language skills. This program can adjust the level of difficulty according to the child's individual abilities, (Amalia, 2019; Anggraini et al., 2019). Educational websites: There are also educational websites that offer resources, interactive games, and activities to support early childhood language learning. These websites often offer educational content that is interesting and developmentally appropriate for children. E-books and digital stories: E-books and digital stories provide an interactive reading experience with engaging sounds, animations and images. This can increase a child's interest in reading and help them

understand stories and develop language skills. Social media: In controlled use and under adult supervision, social media can be used to support language learning. For example, through a special platform for children, children can interact with their peers in the language they are learning, share stories, and participate in language activities.

It is important to choose the right resources and technology, which are appropriate for early childhood development and promote interpersonal interaction. It is also important to limit time spent using technology and ensure that children continue to get hands-on experience with language through interactions with adults and the physical environment. The use of ICT in early childhood language learning must be a tool that supports, not replaces the important role of parents and teachers in guiding and stimulating children's language development.

True, ICT media can be used as a tool to stimulate the development of expressive language in early childhood (Humaida & Suyadi, 2021; Zubaidah, 2004). Here are some ways to use ICT media to stimulate expressive language development in early childhood: Interactive apps or games: Interactive apps or games specifically designed for young children can help them develop expressive language skills. For example, applications that teach children to say words, build sentences, or express their feelings through visuals, sounds, and interactions. Vlogs or learning videos: Creating vlogs or short videos can be a fun way for children to express themselves in a language. Children can use technology such as cameras or cell phones to record themselves talking or sharing stories. This helps improve speaking skills and gain confidence in communicating. Digital presentations: Using ICT media such as PowerPoint or other presentation applications, children can make simple presentations on topics or stories that interest them. This enables them to plan and present information in an orderly manner, improve their public speaking skills, and use a richer vocabulary.

Digital stories or e-books: Children can use ICT media to create digital stories or e-books by combining text, pictures and sound. This gives them the opportunity to be creative, develop their imagination and express their ideas and stories in written and spoken language. Story-sharing apps: There are story-sharing apps or platforms that allow children to create, share and interact with the stories they create. This helps them practice their speaking, listening and giving feedback skills to one another. Multimedia activities: The use of multimedia such as music, songs, sound recordings and pictures

can stimulate children's creativity and help them express emotions, ideas and stories in their own language. It is important to monitor the use of ICT media and ensure that time spent with technology is balanced with social interaction and physical activity. In addition, it is still important to provide adult supervision and guidance in using ICT media so that children continue to have safe and useful experiences in developing their expressive language.

IV. CONCLUSION

Based on the results of the research and data analysis, it can be concluded that there is a very significant influence (p <0.013) on learning using internet, computer and technology media on the language of children aged 4-6 years. Based on the results of hypothesis calculations using the t-test (t-test) for the posttest data, the value of Sig. (2-tailed) 0.013 <0.05 so that H0 is rejected and Ha is accepted, which means that there is a very significant effect between the control class and the experimental class. The results of the hypothesis calculations show that classes with internet, computer and technology media, namely the experimental class, have a greater influence in developing early childhood language than classes that use demonstration methods, namely the control class. For educators to be able to make internet, computer and technology media as an alternative in learning activities, especially in children's early language development. For future researchers who want to use internet, computer and technology media so that they can be more effective in applying internet, computer and technology media.

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