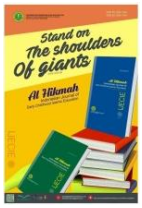
AL HIKMAH: INDONESIAN JOURNAL OF EARLY CHILDHOOD ISLAMIC EDUCATION
ISSN (P): 2550-2200, ISSN (E): 2550-1100,
VOL. 8 (2), 2024, PP. 429 – 436
https://journal.uaindonesia.ac.id/index.php/ijecie



The Influence of Gadget Use on Language Development in Children Aged 4-5 Years

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ARTICLE INFO

Article history:
Received October 05, 2024
Revised October 15, 2024
Accepted November 25, 2024
Available online December 31, 2024

Keywords:
Children, Gadgets, Children's Language.

ABSTRACT

The provision of gadgets to children at this age can affect language development; by frequently using gadgets, children will become accustomed to practicing speech or communication. The purpose of this research is to understand the development of children's language when using gadgets. with a research design that involves developing instruments and conducting observations in the classroom by checking items on the statement list Statistical data analysis was conducted by testing the instrument with four expert raters in their field, followed by a validity test using Aiken's V formula. Based on the results of the statistical test conducted, there is an influence of the gadget variable (X) on language development of 65.8%, while 34.2% can be influenced by additional variables that have not yet been studied. To test the significance of the regression line equation, the p-value in the General Model Test column can be used. A p-value less than (<) 0.05 indicates that the regression line equation is significant. This indicates that the regression line equation can be relied upon to estimate the variable of device usage in the language development of 4-5 year old children.

INTRODUCTION

Speaking ability is one of the important aspects of early childhood development, which serves as the foundation for successful communication in the future. In the current digital era, gadgets have become an inseparable part of daily life, including in children's interactions. Many young children are exposed to gadgets in various forms, such as smartphones, tablets, and televisions. This exposure, although offering certain benefits, also impacts language development, especially speaking skills. The use of gadgets among young children has become a concern for many due to their impact on speech development. excessive use of gadgets in children aged 4-5 years can cause speech delays (Al Hosani et al., 2023, p. 4). children who spend more than two hours a day with gadgets have a lower vocabulary compared to children who rarely use gadgets (Jing, Ye, Kirkorian, & Mares, 2023, p. 1403). In addition, direct interaction with parents plays an important role in

improving speaking skills, which are often replaced by the use of gadgets. (Conway et al., 2018, p. 1280).

The results of observations and experiences during teaching by the classroom teacher (YR), who is also a researcher, indicate that in the field, children still have difficulty pronouncing certain consonants, such as the letters r, x, z, and others. then the difficulties that arise also include distinguishing similar sounds such as pronouncing the letters b and p, difficulty pronouncing long words, difficulty interpreting and understanding the meaning of words, abstract concepts, and difficulty understanding simple stories and using conjunctions as well as question words With the presence of gadgets, early childhood language development has begun to progress in communication within their lives, such as daily expressions with parents and family. Language development consists of receptive language skills, which include listening and reading, and expressive language skills, which include speaking and writing. The aspects of language development in children consist of receptive and expressive language skills, which include listening, reading, speaking, and writing. Referring to the four aspects of language that have been mentioned, one of the abilities that develop during childhood for children aged 4-5 years is speaking. (Sri Marfu'ah, 2024).

In the use of gadgets for early childhood children aged 4-5 years, there will be effects in the use of gadgets in terms of positively developing children's language skills and vocabulary on one side, while the negative effects are emotional and behavioral disturbances in children. The negative effect of gadgets is Speech Delay. Research by (Anggrasari & Rahagia, 2020, p. 58) finding that excessive use of gadgets can cause delays in speech and language development in children aged 3-5 years. the use of gadgets without proper rules can have a negative impact on the language skills of young children (Suryaningsih & E, 2021, p. 1). Another fact shows that children who are too focused on using gadgets tend to interact less, which can hinder their speech development. (Santika & Sawitri, 2016, p. 231).

Furthermore, young children who have been excessively exposed to gadgets may develop Attention and Concentration Disorders. excessive use of gadgets can cause attention disorders, which affect a child's ability to learn languages (Rahayu, Elan, & Mulyadi, 2022, p. 46). children who are often exposed to screens have difficulty focusing on language learning (Yumarni, 2022, p. 113). Meanwhile Syifa et al., (2019, p. 541) stating the same thing that children who use gadgets more often have difficulty following verbal instructions Then children can also face problems such as limitations in emotional expression. Another fact shows that children who spend more time in front of screens tend to have difficulty expressing their emotions verbally. (Rahayu et al., 2022). gadgets can reduce children's opportunities to learn to express their feelings through direct interaction (Yumarni, 2022). finding that children who use gadgets more frequently have lower abilities in understanding facial expressions and tone of voice (Syifa et al., 2019).

The provision of gadgets to children should help them expand their vocabulary through educational apps and interactive videos (Anggrasari & Rahagia, 2020) children who use gadgets to learn languages show a significant increase in vocabulary compared to those who do not use gadgets. The use of gadgets allows children to learn independently (Rahayu et al., 2022) children can search for information and learn through educational videos available on the internet, which can enhance their knowledge. This also helps children develop critical

and analytical thinking skills. Educational applications available on gadgets can make learning more engaging. the use of interactive applications can help children understand difficult concepts in a fun way (Rahayu et al., 2022)

This research is important to conduct because the development of speaking skills in early childhood has a long-term impact on their academic and social abilities in the future. As expressed by (Nabira et al., 2023, p. 231), Good speaking skills in early childhood are closely related to their educational success. Delayed speech can lead to psychosocial problems later on (Beitchman & Brownlie, 2005, p. 5) By understanding the influence of gadgets on speaking abilities, the results of this research are expected to provide guidance to parents and educators in managing gadget usage more wisely. Previous research has extensively discussed the impact of gadgets on child development, but the focus on speaking skills is still limited. For example, research by (Hynhee Cho) highlights that the use of gadgets can reduce children's creative playtime, which is important for language development. Children exposed to educational content on gadgets have better language development compared to those exposed to non-educational content. However, there is still a gap in understanding how interaction patterns with gadgets specifically affect children's speaking abilities. (Chang & Hung, 2019, p. 5).

Although many studies discuss the influence of gadgets on child development in general, few specifically explore their impact on the speaking abilities of 4-5 year old children. Studi oleh Conway et al., (2018, p. 179) shows that there is a significant difference in the language development of children excessively exposed to gadgets, but the mechanisms behind this impact are not yet fully understood. This indicates the need for further research to explain the extent of the impact of gadget usage intensity on speaking abilities in the 4-5 year age group. This study aims to analyze the impact of gadget use on the speaking ability of children aged 4-5 years. In addition, this study also aims to identify other factors that may influence this relationship, such as the type of content accessed by children and the duration of its use. The results of this research are expected to make a significant contribution to the field of early childhood education. As expressed by Fuster et al., (2019, p. 88), insights into the impact of gadgets on children can help educators and policymakers design more effective strategies to support language development. In addition, this research also provides practical guidance for parents in managing gadget use at home.

METHODS

This type of research uses a quantitative approach; quantitative research is a research method oriented towards measuring and analyzing numerical data to find relationships between variables. (Sugiyono, 2018) with a research design, preparing instruments and conducting observations in the classroom by checking items on statements to determine the impact of gadget use on children. Before the instrument was tested, it was evaluated by experts. In this case, the subjects of the research are children aged 4-5 years in class A with 23 children, and class B with 18 children. Statistical data analysis was conducted by testing the instrument with four expert raters in their field, followed by a validity test using the formula. *Aiken's V*. The validity of the gadget usage instrument on children's language development is the result of an assessment by four experts, which will be analyzed using the

Aiken's V formula for calculation. *content validity coefficient*. Statistics *Aiken's V* formulated as follows:

$$V = \frac{\Sigma s}{n\,(c-1)}$$

Explanation:
S = r – lo
Lo = the lowest validity assessment score (in this case =1)
C = the highest validity assessment score (in this case = 4)
R = the number given by an evaluator
Source (Sahrul, Khumaedi, & Masrukan, 2022)
After obtaining the results or scores from the experts, a reliability test and simple linear regression will be conducted with the help of *software* (Application) *Jamovi version* 2.4.14. this research was conducted in TK KIW Boyo Lali - Jawa Tengah in the year 2024.

RESULT

The research results based on validity and reliability tests show that out of 15 statement items assessed by four experts, along with field instrument test results, have values greater than 0.3 (Valid), and the reliability results are 0.792 and 0.898 as seen in tables 2 and 4. The Linear Regression Model Fit Measures test shows an R value of 0.811, indicating a significant correlation between the use of the device and the child's language development. It can be seen that R Square can be used to determine the extent of the influence of variable X on Y. The result is that 65.8% of the influence on language development is attributed to the device variable (X), while 34.2% can be attributed to other variables that were not studied. To test the significance of the regression line equation, the p-value in the general model test column can be used, with a p-value <0.05 indicating that the regression line equation is significant. This indicates that the regression line equation can be relied upon to estimate the variable The use of gadgets in the language development of children aged 4 to 5 years can affect their language development.

Table 1. Rater (Expert) Validity Test Item Statistics	**Mean**	**Item-rest correlation**
Rater 1	4.73	0.615
Rater 2	4.67	0.600
Rater 3	4.67	0.468
Rater 4	4.47	0.765

The results of the statistical test using the jamovi software in Table 1 indicate that the item rest correlation descriptions show that the validity test results of the 4-rate instrument assessment are more than 0.3 for each item, so it can be said to be valid based on the assessment results by expert raters in their field with an average of more than 4.0. Instruments with more than 0.3 can be considered valid according to (Saifuddin Azwar, 2017)

Table 2. Expert Reliability Test (Expert)

	Mean	**Cronbach's α**
scale	4.63	0.792

Based on the validity test results assessed by four experts in their field, the instrument has a value greater than (>) 0.7 as seen in the Cronbach's α statement, indicating that the instrument is reliable (Sahrul et al, 2022) state that an instrument can be considered reliable if it has a value above 0.7.

Table 3. Field Subject Instrument Validity Test		If item dropped
	Item-rest correlation	Cronbach's α
Item 1	0.482	0.895
Item 2	0.419	0.897
Item 3	0.541	0.893
Item 4	0.521	0.893
Item 5	0.572	0.891
Item 6	0.653	0.888
Item 7	0.653	0.888
Item 8	0.661	0.888
Item 9	0.579	0.891
Item 10	0.729	0.885
Item 11	0.797	0.881
Item 12	0.354	0.899
Item 13	0.646	0.888

Table 3. Field Subject Instrument Validity Test

	Item-rest correlation	If item dropped Cronbach's α
Item 14	0.485	0.894
Item 15	0.541	0.893

Based on the validity test results on the instrument distributed to subjects in the field, items 1 to 15 have values above 0.3 as seen in the Item-rest correlation description, while the reliability test results in the Cronbach's α description show that each item has a value above 0.7, indicating that the instrument is reliable.

Table 4. Scale Reliability Statistics Field Test

	Cronbach's α
scale	0.898

Table 5. Linear Regresion Model Fit Measures

			Overall Model Test			
Model	**R**	**R^2**	**F**	**df1**	**df2**	**p**
1	**0.811**	**0.658**	75.2	1	39	< .001

The results of the Cronbach's α statistical test for all items of the instrument have a value of more than 0.7, which indicates that it is reliable.

Table 5 Model Coefficients shows that coefficients a and b for the regression line equation can be found because they meet the linearity prerequisite test, thus Y = a + bX = 4.233 + 0.876. The Estimation column shows coefficients a and b. seen from the p-value <0.001, thus the p-value less than (<) 0.005 indicates that variable x has an effect on variable y, meaning that gadget use affects the language development of children aged 4-5 years

DISCUSSION

Based on the assessment results from four raters who are experts in their field using the Aiken's V formula, and then verified again with statistical tests (Jamovi), the gadget usage

instrument for language development in children aged 4-5 years, consisting of 15 items, has a value greater than (>) 0.3, making the instrument valid. If the instrument exceeds 0.3, it is considered valid. (Fathonah, Kusbiantari, Wirahno, Marfu'ah, & Sahrul, 2024). Based on the validity and reliability tests, out of the 15 statement items assessed by four experts, along with the field instrument test results, have a value greater than 0.3 (Valid), and the reliability results show 0.792 and 0.898 as seen in table 2 and table 4. The Linear Regression Model Fit Measures test shows an R value of 0.811, indicating a significant correlation between device usage and children's language development. It can be seen that R Square can be used to determine the extent of the influence of variable X on Y. The result is that 65.8% of the influence of the device variable (X) on language development, while 34.2% p-value < 0.05this indicates that the regression line equation can be relied upon to estimate the variable The use of gadgets in the language development of children aged 4 to 5 years, it can be said that variable x has an influence on variable y, meaning that the use of gadgets affects the language development of children aged 4-5 years.

CONCLUSION

The instrument for gadget usage in the language development of children aged 4-5 years, consisting of 15 items, has a value greater than (>) 0.3, making the instrument valid and reliable. Based on the statistical test results, the 15 statement items distributed to subjects in the field have values above 0.3, and in the Cronbach's α reliability test, there is a value above 0.7, indicating reliability with an average above 0.4. The results of the regression test R=0.811, which indicates that there is a significant correlation between device usage and children's language development. It can be seen in R Square to determine the extent of the influence of variable X on Y. The result is that 65.8% of the influence of the device variable (X) on the language development of children aged 4-5 years is significant with a p-value < 0.05.

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