

Effect of stimulation using flashcard media on language and speech development in pre-school age children (3-5 years)



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ABSTRACT

Introduction: Language ability is an indicator of a child's overall development. Language skills are sensitive to delay or damage to other systems because they involve cognitive abilities, sensory-motor, psychological, emotional, and the environment around the child. This study aimed to analyze the effect of stimulation using flashcard media on language and speech development in pre-school age children (3-5 years).

Methods: Quasi-experimental study with one group pre-test-post-test design. The sampling technique was simple random sampling involving 48 respondents, pre-school age children (3-5 years). The independent variable is stimulation through using flashcards for 3x30 minutes for 1 week, while the dependent variable is language and speech development. Instruments using KPSP questionnaires were adjusted to the age of the respondent. Data analysis used the Wilcoxon test with $\alpha = 0.05$.

Results: If the p-value is 0.16, then flashcards affect improving language and speech development in children, doubtful development increases to be appropriate after stimulation with flashcards.

Conclusion: Stimulation must be given regularly and continuously either by parents, teachers or health workers with affection and playing methods so that children's development will run optimally.

Keywords: Flashcard, Language and Speech Development, Stimulation.

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INTRODUCTION

The golden age for children occurs at the age of toddlers because, at this time, the development and intelligence of children are very rapid. Many studies say that at the age of 5 years, the child's intelligence capacity has reached 50%, so at this age, all children's development must be optimal and maximal.¹ Child development includes fine motor development, gross motoric, social and language or speech. Language ability is an indicator of a child's overall development. Language skills are sensitive to delay or damage to other systems because they involve cognitive abilities, sensory-motor, psychological, emotional, and the environment around the child.²

The Indonesian Pediatrician Association (IDAI) East Java 2014 examined 2,634 children from 0-72 months. From the results of the examination for the language development sector, it was found that there were deviations in

language development in 394 children (15.0%).³ According to Kurniasari et al., in a study entitled the basic characteristics of Children with speech delay at the Growth and development clinic of RSUD Dr. Soetomo Surabaya in the period January - December 2017 found 64 case data cases diagnosed with speech delay were influenced by parenting patterns and parents' occupations.⁴ The preschool stage itself is important before the child is finally ready to enter elementary school. With good speech and language development, the child will be more prepared to continue elementary school.⁵

Factors that can affect a child's language development include brain development and intelligence, gender, physical condition, family environment, economic condition, social setting/cultural environment, and bilingualism (2 languages). Parenting patterns also have an important role, where parents must be able to socialize, care for, and educate, as a process for child

development so that there are no delays and must stimulate properly. Language development is cognitive development, where cognitive development needs to be stimulated. Seeing how important this period is for children, proper stimulation is needed. The right stimulation will help these children grow, develop, and learn optimally, including through playing. The world of children is the world to play. All aspects of child development are grown through playing activities, so children learn many important things.⁶ Generally, the pattern of early childhood development is the same, but it should be realized that each child has its uniqueness, even if the children are twins. This uniqueness can come from genetic factors or environmental factors of children, such as developmental stimulation carried out in children.⁷

The use of flashcards or cheerful picture card media usually contains words, pictures, or a combination of

both to develop vocabulary. Using a cheerful picture calendar is very suitable to increase vocabulary because two sides turn back in a cheerful picture calendar. The site contains new foreign words, and the back is given a description containing information from the front side. Using images on a card face greatly impacts the learning process and the implantation of concepts in memory. The child will be more concentrated because the image seen is only 1 at a time and will change quickly. Based on those cases, this research aims to analyze the effect of stimulation using flashcard media on language and speech development in pre-school age children (3-5 years).

MATERIALS AND METHODS

Design and Sample

This study used a quasi-experimental study with one group pre-test-post-test design. The population in this study were all preschoolers (3-5 years). The population is 48 respondents, the sample was taken using simple random sampling. The independent variable is stimulation through education using flashcards, while the dependent variable is language and speech development. The intervention was carried out 3 times, each for 30 minutes. Data collection instruments used flashcards and KPSP questionnaires to measure language development. Data analysis used the Wilcoxon test with $\alpha=0.05$.

Data collection procedure

The instrument used in this research is a questionnaire flashcard and KPSP questionnaires to measure language development. Data analysis used the Wilcoxon test with $\alpha=0.05$. The research was conducted from May 2022 – September 2022 with the following stages: explaining the objectives and benefits of the research,

maintaining confidentiality, informing consent to participate in the research, distributing questionnaires, identifying factors, conducting data analysis, presenting results and conclusions, and publishing.

Ethical Considerations

This research was approved by the Ethics Committee of Chakra Brahmanda Lentera institution in August 2022.

Data analysis

All data analysis was performed using IBM SPSS Statistics. Sampling was done by *simple random sampling technique*. Analyzed using multivariate logistic regression test. The significance level was set at 0.05 for the test.

RESULTS

Table 1 shows that most of the respondents are girls. In accordance with the results of previous research, gender is related to language development. In utero, boys experience a surge in testosterone that can make their brains develop differently than girls' brains. Research has shown that the higher the testosterone level boys are exposed to in the womb, the more likely they are to be impulsive. The part of the brain that controls movement and coordination (the cerebellum) grows faster in baby boys. The part of the baby's brain that controls the five senses, such as sight and hearing, is more sensitive than that of boys.⁸

The same research found a relationship between gender and language development. Girls talk faster on average than boys, where girls have a significantly larger vocabulary than boys. This could be because the brains of newborn girls are more developed in the areas that regulate speech and language skills. Baby girls also prefer to see human faces rather than moving objects, so they learn to imitate what adults do or say more quickly. Children aged 3 to 5 years are toddlers with the development of multilevel language skills according to their respective ages. Measurements using KPSP must be carried out according to the child's age and the normal limits of their development.⁹

Table 2 shows that providing stimulation using flashcards effectively improves language and speech development in children. As evidenced by this, it can be seen that after stimulation for 3 times meetings with 30 minutes each with 2 sets of flashcards (80 cards), the number of respondents with KPSP development status increased compared to before stimulation, from 43.75% the corresponding development increased to 68.75%, on the other hand, children with KPSP development regarding language are in a dubious status, decreasing from 46.25% to 31.25%. The results of the statistical test with the Wilcoxon test, the value of $p=0.026$, means that stimulation using flashcards improves language and speech development in children.

Table 1. Characteristics of respondents based on gender and age

Characteristics	Category	Amount	%
Sex	Girl	30	62,5
	Boy	18	37,5
Age (years)	3	12	25,0
	4	25	52,1
	5	11	22,9

Table 2. Frequency distribution of sleep quality before and after the intervention

Variabel	Development Category	Frekuensi (n)	(%)	P value
Before Intervention	In accordance	21	43,75	0.016
	Doubtful	27	46,25	
	Deviate			
Total			100,0	
After Intervention	In accordance	33	68,75	0.016
	Doubtful	15	31,25	
	Deviate			
Total		48	100,0	

DISCUSSION

Stimulation using flashcards affects improving language and speech development in children. This effectiveness can be seen from the observations with the KPSP instrument in the section on language and speech abilities, which obtained significant changes before and after being stimulated. The effectiveness of this flashcard stimulation can also be seen in the enthusiasm of the children when they are given stimulation. Introducing words, objects, activities and so on, of course, can be given through various media such as books, and posters that contain many pictures with descriptions on each picture. Currently, many child development trained in daycare centers, including language and speech development using flashcards.⁹ What distinguishes flashcards from other media is the use of images on one side of the card, and each card consists of 1 image or 1 activity only. Thus the children are more focused on what they see because there are no other images around them. Hurlock, in 2016 asserts that stimulation greatly determines the development of the quality of human brain cells even when they are in the womb.¹¹ Indriati, in 2017 adds that stimulation (stimulation) plays an important role in child development.¹² According to Desmita's research in 2015, through the five senses, children obtain information about the physical condition and environment around them. Sensory information received will enter the brain through the eyes, ears, nose and the whole body. Children can achieve optimal vision, hearing, language development, social, cognitive, gross, fine movement, balance, coordination, and independence.¹³

Flashcards are also shown alternately one by one quickly so that children do not just see but will be stimulated to pay attention, remember and mention before the card changes to another image. Interestingly, this activity is carried out while playing so that children do not feel bored because they are learning but are happy because they are playing. According to Kupzyk's research in 2011, early childhood learning cannot be separated from playing activities. Early childhood learning activities are always done by playing. The fulfillment of play will indirectly affect the growth and

development of children. Play is a series of activities or activities for children to have fun.¹⁴ According to Hidayat in 2016 and Strauber et al. in 2020, through tactile, audio, visual and verbal stimuli from an early age, children can explore their natural surroundings and their sensory, motor and auditory development will quickly develop.^{15,16}

Besides being very useful, flashcards are easy, practical, and affordable. This flashcard improves language and speech development and other developmental aspects because, in principle children's development is interrelated with one another. Based on the results of research by Pace et al. in 2017 about the flashcard method to improve reading skills in kindergarten-age children, it was found that there was an increase in reading ability after being given a flashcard.^{17,18} Flashcards are effectively used as stimulation in children with appropriate development, doubtful even in children with deviations or delays, such as research conducted by Dinar et al. in 2017 that flashcards are also effectively used as stimulation therapy in children with autism or developmental delays.¹⁹

Stimulation is an activity to stimulate the basic abilities of children aged 0-6 years so that children grow and develop optimally. This stimulation can be done by health workers and families, both in daily activities at home and at school. The more routine the stimulation, the more optimal the results will be. Every child needs routine stimulation as early as possible and continuously at every opportunity.²⁰ This is also following the results of Hati's research in 2016, which found a relationship between the provision of stimulation and the development of children's language. The earlier the stimulation, the better the child's development will be. The more stimulation that is given, the knowledge of the child will be broad so that the child's development will be more optimal. It is also stated that the brain tissue of children who get a lot of stimulation will develop to 80% at less than 4 years old. Conversely, if the child is never given stimulation, the brain tissue will shrink, decreasing brain function.²¹ This is what causes children's development to be hampered. Soedjatmiko, in 2018 explained that one factor that influences children's

development is stimulation from parents because this is where parents interact for the first time with children to develop children's abilities according to their developmental age. The stimulation must be given regularly and continuously with love, playing methods, etc., so that the child's development will run optimally.²²

Fernando, in 2015 his research on 86 respondents showed that mothers who stimulate their children optimally and children's speech development are normal, so there is a relationship between stimulation and child development. Stimulation given at an early age (golden age period) and in accordance with the necessary aspects of growth and development will have an optimal impact on child development.²³ Pitaya's research in 2017 found that respondents received good stimulation and had an appropriate level of development, so there was a significant relationship between developmental stimulation and child development. In addition to language development, a language is a form of communication, whether spoken, written or sign, based on a system and symbols. Through language, children can express thoughts so that others understand them and create a social relationships. So, do not be surprised if language is one of the indicators of the success and success of a child. Children considered active in speaking are sometimes a reflection of intelligent children. Before children understand other knowledge, they need to use language to understand any new knowledge they receive.²⁴

All aspects of development are interrelated and, if not properly stimulated, can lead to developmental delays. Autism is a disorder that causes severe development in children. The symptoms appear before the child reaches the age of three. Development, they become disturbed, especially in communication, interaction, and behavior. Children show a delay prominent in cognitive development and language and display behavior as something odd, maybe scratching or waving their arms spontaneously, always repeating what someone else has said, or showing disinterest ordinary on certain objects. Autism shows distorted communication disorder.²⁴ The

communication breakdown can be seen in the form of speech delays, speaking in different languages cannot be understood, or talk imitation (echolalia), such as research conducted by Windiani et al. in 2016 that there were similarities due in part to the majority of respondents who have speech delay with Autism. Autistic disorder affects brain development disorders in children, resulting in an inability to communicate and express feelings and desires, so the relationship behavior distracts from other people.²⁵ The limitation of this research is the small number of samples. This research did not link much of the stimulation using flashcards with other aspects that can also influence language development. Future research should further assess children's language development through long-term interventions.

CONCLUSION

Factors influencing *self-efficacy* include self-experience, social modeling, verbal persuasion, and physical and emotional conditions. But based on research, verbal persuasion plays the most influential role in the mother's *self-efficacy* in preparing for a gentle birth. Therefore it is important to provide verbal persuasion in the form of affirmations and positive suggestions to mothers to increase Self Efficacy

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CONFLICT OF INTEREST

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AUTHOR CONTRIBUTION

SN developed the concept research. FA conducted the field with assistance from US, FN, and UD. All authors performed the data analysis, wrote, and revised the manuscript. All authors contributed equally of this work.

ETHICAL APPROVAL

This research was approved by the Ethics Committee of Chakra Brahmada Lentera institution in August 2022.

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