

EFFECT OF DEVELOPMENT STIMULATING MEDIA ON THE DEVELOPMENTAL ABILITY OF PRESCHOOL CHILDREN

Santun Setiawati^{1*}, Titi Sulastri², Yuliastati³, Agus Citra Dermawan⁴

^{1,2} Health Polytechnic of Jakarta III

³ Health Polytechnic of Bandung

⁴ Akper Bina Insan Jakarta

*santun2312@gmail.com

ABSTRACT

Efforts to improve children's health that are carried out early and continuously can achieve optimal growth and development of children's health. One of the efforts to improve health is to carry out developmental stimulation. Implementation of developmental stimulation requires media to stimulate child development. The media used is an android-based media designed by the researcher, which includes gross, fine, speech, and language motor stimulation, as well as socialization and independence. The purpose of this study was to determine the effect of developmental stimulation media on the developmental abilities of preschool children. The method used is a quasi-experimental design. Test analysis using univariate and bivariate analysis. The number of respondents was 70 (intervention group 35 children and control group 35 children). In the intervention group, developmental stimulation was carried out using android-based developmental stimulation media, while the control group did not use the media. The results showed that there was a significant difference between the mean abilities: of gross movement, fine motion, speech and language, and socialization and independence of children in the intervention group and the control group after treatment (p -value < 0.005). Conclusion: IT-based stimulation media (android) can be used as an alternative in stimulating development in preschool-aged children.

Keywords: *children; developmental stimulation media; preschool*

INTRODUCTION

Health development as part of efforts to develop the whole human being, among others, is carried out through efforts to improve children's health which is carried out as early as possible since the child is still in the womb (Kemenkes RI, 2022). A child is someone who is not yet 18 years old, including children who are still in the womb (Presiden RI, 2014). Children have a distinctive feature that is always growing and developing from conception to the end of adolescence. Children are not small adults. Children show the characteristics of growth and development according to their age (Kemenkes RI, 2022).

The results of the 2020-2023 Interim Population Projection show that the number of children (0-17 years old) in Indonesia in 2021 will be 79,486,424 people or 29.15% of the total population. Number of boys (51.31%) and girls (48.69%) (KemenPPPA, 2022). According to the World Health Organization (WHO) in 2018, child development problems are increasing, the incidence rate in the United States ranges from 12-16%, Argentina 20%, Thailand 37.1%, and Indonesia between 13-18%. UNICEF data for 2018 shows that as many as 165 million children worldwide have stunted growth (Suhariati, 2021).

Optimal growth and development of children will produce generations that are healthy and can develop themselves well. Children who grow up free from poverty, have healthy bodies, are educated, feel safe and happy, and can be sure they will grow into adults who can contribute actively to development (KemenPPPA, 2022). Efforts to improve children's health that are carried out early and continuously can achieve optimal growth and development of children's health. One of the health efforts made in children to improve children's health is: developmental stimulation (Hockenbery, 2017).

Stimulation is an activity to stimulate the basic abilities of children aged 0-6 years so that children grow and develop optimally. Every child needs to get routine stimulation as early as possible and continuously at every opportunity. Stimulation of child growth and development is carried out by parents, caregivers, other family members, teachers, and community groups in their respective households and everyday life. Lack of stimulation can cause deviations in child development and even permanent disturbances (Kemenkes RI, 2022).

Several studies have been conducted related to growth and development in children. The stimulation involved teachers and parents. The results of the study explained that there was a relationship between the stimulation of play by parents and the development of preschool children during the Covid-19 pandemic (p -value = 0.001) (Suhariati, 2021). Other research explains that the majority of parents of preschool-aged children can involve children in helping their mother/father with homework. Parents motivate children to help with simple work at home (tidy up toys, put toys in their places), stimulate children's creativity by letting children play with kitchen utensils and other household items, motivate children to play with peers with games according to gender, involve children helping mother/father with housework, involving children eating with family at home, stimulating selling role play using artificial money as sellers and buyers (Lestari & Livana, 2019). Parents' knowledge of children (p -value = 0.000) and parenting style (p -value = 0.000) are related to the development of preschool (Defera et al., 2019). The

results showed that there were significant differences in the developmental status of children before and after the developmental stimulation intervention ($p=0.000$). Stimulation is carried out routinely for 3-4 hours every day for 2 weeks involving teachers at kindergarten schools and parents at home (Setiawati et al., 2020). Implementation of developmental stimulation requires media or tools to determine child development. The results of the study explained that there was an effect of health education on knowledge ($p=0.002$), attitude ($p=0.004$), and action ($p=0.006$) about stimulating development in the intervention group. The media used is in the form of a booklet about stimulation in children (Saputri et al., 2021).

Other studies explain that there is an influence on child development before and after health education interventions are carried out using leaflet media. Developmental stimulation can improve the development of children who experience delays or doubtful developmental status (Aisyiah et al., 2019).

The results of the study explain that it is important to use the KIA handbook in detecting growth and development in improving growth and development status (Dardjito et al., 2014). The results of research related to the use of the Android application have sensitivity and specificity as well as a positive predictive value and a very high negative predictive value and the closeness between manual calculations and applications is also very high for monitoring the development of children aged 0-6 years (Inggriani et al., 2019).

Based on the research that has been done, there are no Android application-based development stimulation media. This application can support the implementation of developmental stimulation in children which can be carried out anywhere, both at school and at home. Researchers developed development stimulation media based on Android applications. This android application can be used to support the implementation of development stimulation even though it is carried out during a pandemic (pandemic periods are still happening). The application developed is development stimulation covering 4 aspects: gross motor, fine motor, speech, and language, as well as socialization and independence. Teachers can carry out developmental stimulation at school and parents can carry it out when children are at home.

METHOD

The research design was quasi-experimental. In the intervention group, developmental stimulation was carried out using development stimulation media based on technology (android) and in the control group, developmental stimulation ppt were given. The sample is part of the

population selected in a certain way so that it can represent the population. The sample in this study were parents, with inclusion criteria: having children aged 5-6 years, having an Android cellphone, children, and parents willing to be respondents. The exclusion criteria were: preschool children with special needs. Sampling in this study used a random technique, consecutive sampling type, namely all subjects who came could become respondents by fulfilling the selection criteria until the number of subjects was met. Calculation of the number of samples using unpaired numerical analysis which is determined by the mean value and standard deviation in previous studies. Based on the calculation of the minimum number in each group is 32 and anticipating a dropout of 10-20%, the number of samples in each group is 35 children. So the total sample is 70 children.

The independent variables (independent) in this study were the characteristics of the parents (age, education, occupation, and number of children) and the characteristics of the children (age, sex, and how many children). The dependent variable (dependent) is the child's developmental ability. The time for the research started from January to December 2021. The research was conducted in kindergartens in the Cipayung District Health Center, East Jakarta (Attawun Kindergarten), and Bogor (Nurul Ichsan Kindergarten). A letter of ethics was issued from the Health Research Ethics Committee of the Poltekkes Kemenkes Jakarta III No. KEPK-PKJ3/069/IX/2021.

The data collection tool used in this study was a questionnaire sheet to determine the characteristics of children and parents and the media to determine children's developmental abilities. The preparation made researcher was to prepare android-based development stimulation media and questionnaires. Android-based development stimulation media includes 4 aspects (gross motor, fine motor, speech, and language, as well as socialization and independence. Researchers prepared questionnaires: KPSP and development stimulation questionnaires (Kemenkes RI, 2022).

The data collection techniques used were: carrying out informed consent to parents and carrying out a pretest examining children's developmental abilities in both the control group and the intervention group. Intervention in the intervention group. The interventions carried out were parents stimulating development in children with an Android-based development stimulation application. Parents provide the results of developmental stimulation carried out in children through videos/screen shoot results to the homeroom teacher every day. Developmental stimulation time for 2 weeks. The control group was given developmental stimulation ppt. Doing a posttest examining children's developmental abilities in both the control group and the

intervention group. After data collection, the stages carried out by the researcher processed the existing data with data processing techniques. Furthermore, researchers make reports and publications.

The data analysis used included: univariate analysis (frequency distribution) with child characteristic variables and parental characteristics as well as bivariate analysis (t-dependent and independent tests) to determine the effect of developmental stimulation media on children's developmental abilities.

RESULTS AND DISCUSSION

Characteristic Parents and Children

1. Age

Table 1. Characteristics of Parent and Children Based on Age in Regional Kindergartens Jakarta Timur and Bogor September-November Year 2021 (n=70)

Variable	Intervention Group		Control Group	
	Mean	SD	Mean	SD
Mothers' Age	36.34	5.269	33.71	7.442
Father's Age	38.51	6.085	38.91	7.838
Child Age (in months)	69.71	3.618	69.66	3.686

The results of the analysis showed that the highest average age of parents in the intervention group was the age of the mother at 36 years and the father at 38 years, while in the control group, the age of the mother was 34 years and the father was 39 years. The average age of children in the intervention group and the control group was 70 months or 6 years.

Most of the children in the intervention and control groups were 70 months (6 years) old. Children aged 6 years belong to the preschool age group. Preschool age is a child aged 3-6 years (Kemenkes RI, 2022). The more mature, the level of maturity and strength the person will be more mature in thinking and acting (Maslakah & Setiyaningrum, 2017). Age influence on one's comprehension and mindset. The older you get, the more your comprehension and mindset will develop. Age 0-6 years is a very decisive age in the formation of good character attitudes, behavior, and personality of a child in the future. At this stage, children learn about various things including developing their motor, cognitive, language, and socio-emotional abilities (Mayar, 2013).

The highest average age of parents in the intervention group was the age of the mother 36 years and the father 39 years, while in the control group, the age of the mother was 34 years and the father was 39 years. The more mature, the level of maturity and strength a person will be more mature in thinking and working (Maslakah & Setiyaningrum, 2017).

2. Education

Table 2. Characteristics of Parent Based on Education in Regional Kindergartens Jakarta Timur and Bogor September-November Year 2021 (n=70)

Variable	Intervention Group		Control Group	
	n	%	n	%
Mothers' education				
-Elementary school	3	8.6	9	86.7
-Junior high school	-	-	15	42.9
-Senior high school	15	42.9	8	22.9
-College	17	48.6	3	8.6
Father's education				
- Elementary school	3	8.6	8	22.9
- Junior high school	-	-	9	25.7
- Senior high school	14	40	12	34.3
- College	18	51.4	6	17.1

The results of the analysis showed that the highest proportion of respondents was in the intervention group with college: mother's education (48.6%); father's education (51.4%) and the control group was secondary school: mother's education (42.9%); father's education (34.3%).

In Parental education in the intervention group, most of the mothers and fathers had college. Parents' education in the control group, most of the mothers had junior high school education (SMP) and fathers had high school education (SMA). The education of parents in the intervention group in the research conducted was university-level education. This is by analysis (Fitriahadi & Priskila, 2020) which explains that education influences the knowledge possessed by parents in providing developmental stimulation to children.

Supportive knowledge and attitudes from parents can receive information from outside that can affect children's development. The knowledge received is related to good parenting and how to stimulate children's development. Parents can receive all information from outside on how to maintain children's health, education, and so on so that children can grow and develop normally (Santri et al., 2014).

3. Work

Table 3. Characteristics of Parent Based on Work in Regional Kindergarten Jakarta Timur and Bogor September-November Year 2021 (n=70)

Variable	Intervention Group		Control Group	
	n	%	n	%
Mother's job				
-Civil servant	3	8.6	-	-
-Private sector	8	22.9	2	5.7
-Housewife	24	68.6	33	94.3
Father's job				
-Civil servant	1	2.9	2	5.7
-Private sector	26	74.3	18	51.4
-Not work	3	8.6	4	11.4
-Laborer	2	5.7	10	28.6
-Self-employed	3	8.6	1	2.9

The results of the analysis showed that the highest proportion of respondents in the intervention group were housewives (68.6%); fathers work in the private sector (74.3%) and the control group is housewives (94.3%); father works in the private sector (51.4%). Most of the mothers' jobs in the intervention and control groups were housewives and the fathers worked in the private sector. Housewives have more time to meet face-to-face with children and accompany children in the learning process. Mothers who work part-time can train children to be more independent. The influence of parents' work on early childhood independence, parental work can contribute as much as 66% (strong enough) to influence early childhood independence. Working parents are not an inhibiting factor in the growth and development of children (Handayani et al., 2017).

4. Number of Children and Sequence of Children

Table 4. Characteristics of Parent and Children Based on Number of Children and Sequence of Children in Regional Kindergarten Jakarta Timur and Bogor September-November Year 2021 (n=70)

Variable	Intervention Group		Control Group	
	n	%	n	%
Number of children				
-1 person	5	14.3	6	17.1
-2 person	19	54.3	20	57.1
-3 person	10	28.6	7	20
-> 3 person	1	2.9	2	5.7
Sequence of children				
-First	13	37.1	11	31.4
-Second	14	40	16	45.7
-Third	8	22.9	6	17.1
-Fourth	-	-	2	5.7
Total	35	100	35	100

The results of the analysis show that the highest proportion of the number of children the respondent has is 2 children; in the intervention group (54.3%) and in the control group (57.1%). The highest proportion of respondents in both groups was the second child (40%) in the intervention group and (45.7%) in the control group.

Most of the children in the intervention group were the first children, while those in the control group were mostly the second children. First children tend to follow directions from their parents. Parents take them seriously so that children's self-confidence tends to increase. Respondents whose status as an only child was dominant in the leadership aspect. The middle child is dominant in the aspect of leadership. The youngest child is dominant in the friendship aspect. The eldest child is dominant in the leadership aspect. Meanwhile, the social behavior profile of children shows that the child who gets the percentage that often appears from all aspects is the respondent's status as the only child and the one who gets the percentage that has not yet appeared is the respondent's child whose status is the eldest child. Of course, this cannot be separated from other influencing factors (Fauziyyah et al., 2018). The number of children owned by parents, in the intervention group and the control group mostly had 2 children.

5. Gender

Table 5. Characteristics of Children Based on Gender in Regional Kindergarten Jakarta Timur and Bogor September-November Year 2021 (n=70)

Variable	Intervention Group		Control Group	
	n	%	n	%
-Male	16	45.7	18	51.4
-Female	19	54.3	17	48.6
Total	35	100	35	100

The results of the analysis showed that the highest proportion of respondents in the intervention group were women (54.3%) and in the control group were men (51.4%).

The sex of the children in the intervention group was mostly female; while the sex of the children in the control group was mostly male. The principle of providing developmental stimulation does not compare between the male and female sexes. Poernomo & Paskarinda (2015) explained that factors that influence language development include: health factors, intelligence factors that have not been reached, and male gender factors. The male gender factor is influenced by various games that are less stimulating in language formation.

6. Gross Motor Skills

Table 6. Characteristics of Children Based on Gross Motor Skills in Regional Kindergarten Jakarta Timur and Bogor September-November Year 2021 (n=70)

Variable	Intervention Group		Control Group	
	n	%	n	%
Before intervention				
-Not good	7	20	18	51.4
-Good	28	80	17	48.6
After intervention				
-Not good	17	48.6	12	34.3
-Good	18	51.4	17	48.6
Total	35	100	35	100

The results of the analysis showed that the gross motor skills of children in the intervention group before treatment were mostly good (80%) and after treatment most were good (51.4%); the control group had mostly good gross motor skills before treatment (51.4%) and after treatment mostly good (48.6%).

Gross motion simulation carried out in the intervention group included 9 items: playing ball together, running, jumping on one leg, long jumping, roller skating, cycling, standing on one leg without holding on for 6 seconds or more, jumping on one leg several times without holding on, and catch a small ball the size of a tennis ball/baseball using both hands. According to the parents, the stimulation can be carried out easily, but for those who don't have roller skates, some parents borrow skates belonging to their friends so that the child can try playing roller skates.

Research conducted in line with research related to gross motor stimulation is research (Magfiroh1 et al., 2019) explains that cheerful jumping games improve children's gross motor physical abilities. The implementation of gross motor stimulation is carried out by playing so that it makes children more happy and more comfortable.

7. Fine Motor Skills

Table 7. Characteristics of Children Based on Fine Motor Skills in Regional Kindergarten Jakarta Timur and Bogor September-November Year 2021 (n=70)

Variable	Intervention Group		Control Group	
	n	%	n	%
Before intervention				
-Not good	10	28.6	12	34.3
-Good	25	71.4	23	65.7
After intervention				
-Not good	8	22.9	16	45.7
-Good	27	77.1	19	54.3
Total	35	100	35	100

The results of the analysis showed that the fine motor skills of children in the intervention the group before treatment was mostly good (71.4%) and after treatment were better (77.1%); the control group's fine motor skills before treatment were mostly good (65.7%) and after treatment most were good (54.3%).

Fine motor stimulation carried out in the intervention group included 24 items, namely: writing names, writing short words, writing numbers, counting, drawing, choosing something, grouping things, cutting, playing with puzzles/assembly toys, and washing hands. , point to numbers, make something out of candles, play sales and sales, learn to build, collect objects, learn to cook, know the month/week/day, know the morning/afternoon/afternoon/night time, learn to measure with a ruler or tape measure, learn to determine which is the longer and shorter, draw (+), draw people (3 body parts), draw people (6 body parts), and draw squares.

According to parents, fine motor stimulation can be done in stages because it includes many items. Research Darwati et al. (2019) explained that fun cooking activities can improve children's fine motor skills hand and eye coordination, holding tools and ingredients correctly, processing ingredients properly, and improving fine motor skills properly.

8. Speech and Language Skills

Table 8. Characteristics of Children Based on Speech and Language Skills in Regional Kindergarten Jakarta Timur and Bogor September-November Year 2021 (n=70)

Variable	Intervention Group		Control Group	
	n	%	n	%
Before intervention				
-Not good	14	40	13	37.1
-Good	21	60	22	62.9
After intervention				
-Not good	11	31.4	16	45.7
-Good	24	68.6	19	54.3
Total	35	100	35	100

The results of the analysis showed that the speech and language skills of the children in the intervention group before treatment were mostly good (60%) and after treatment were getting better (68.6%); the control group's speech and language skills before treatment were mostly good (62.9%) and after treatment most were good (54.3%).

Speech and language stimulation in the intervention group included 17 items, namely: children's magazine subscriptions, borrowing books from the reading garden/library, children often viewing and reading books, children discussing with parents after reading books, knowing the differences, for radio and television; spoon and fork, knowing the equation examples: bicycle and tricycle; ships and airplanes, playing guessing games, practicing remembering the names of objects, practicing answering questions: why do we brush our teeth? parking is prohibited/stopping is prohibited, know money: mention the nominal coins/paper money, practice answering: how many lights are there in the house? pets? Or other questions, practice answering: what do you do if you get cold; what to do if hungry; if tired of what to do, the child points or says a red/yellow/green/blue rectangle, trains to answer if the horse is big then it's a rat; if the fire is hot then ice, practice: put the paper on the floor, under the chair, in front of you, behind you, practice answering: what is the spoon made of? what are the shoes made of? what is the door made of?

Parents say speech and language stimulation can be done. Previously, parents said they often spoke briefly to children and rarely spoke at length to stimulate children's abilities in speaking and language, but after teaching speech and language stimulation they became more understanding. Parents said that there was no borrowing of books from the reading garden in their home environment, usually borrowing books was done at school because the school had a library. This research is in line with research (Krobo, 2021) which explains that the role of parents in accompanying children's activities at home and at school has an important role. Giving children an understanding of their language development, giving knowledge to children, getting used to talking positive things, motivating children, and filtering shows that are worth watching for children has a good impact on children's speaking and reading development.

9. Socialization Skills and Independence

Table 9. Characteristics of Children Based on Socialization Skills and Independence in Regional Kindergarten Jakarta Timur and Bogor September-November Year 2021 (n=70)

Variable	Intervention Group		Control Group	
	n	%	n	%
Before intervention				
-Not good	20	57.1	17	48.6
-Good	15	42.9	18	51.4

After intervention				
-Not good	6	17.1	20	57.1
-Good	29	82.9	15	42.9
Total	35	100	35	100

The results of the analysis showed that the socialization skills and independence of children in the intervention group before treatment were mostly good (42.9%) and after treatment were getting better (82.9%); the control group's speech and language skills before treatment were mostly good (51.4%) and after treatment most were good (42.9%).

Stimulation of socialization and independence skills carried out in the intervention group included 12 items: children could dress themselves without assistance, children cleaned up their toys after playing, children liked helping clean the bed at home, children liked helping cook at home, children liked helping clean the house, children like to eat together at home, children like to tell stories about school at home, restrictions on watching TV, children are allowed to play with their friends, parents often communicate with children, children, and parents agree on the rules applied, children are calm and not fussy when left.

Parents said that children are often involved in cleaning the house and are allowed to play with their friends. However, it is still rare to help cook with parents. After this stimulating activity, many new activities were started to be carried out together with the children at home. This research is in line with research (Pangestu et al., 2017) which explains children's independence in learning social-emotional development in group B2 PAUD Assalam Muara Bangkahulu Bengkulu City, the average classification is good, the child's confidence in learning social-emotional development is in the moderate classification, average - average independent children are responsible, good at getting along, sharing, controlling emotions in learning.

Table 10. Differences in the Developmental Abilities of Children Before and After Treatment in the Intervention Group and the Control Group in Regional Kindergarten Jakarta Timur and Bogor September-November Year 2021 (n=70)

Variable	n	Mean	P Value	95% CI
Gross Motor Skills				
Intervention Group	35			
Before		7.91		
After		8.34	0.005	-0.721-(-0.137)

Control Group	35			
Before		7		
After		6.97	0.895	-0.408-0.465
Fine Motor Skills				
Intervention Group	35			
Before		21.97		
After		22.83	0.041	-1.678-(-0.36)
Control Group	35			
Before		19.74		
After		20.20	0.265	-1.262-0.348
Speech and Language Skills				
Intervention Group	35			
Before		14.57		
After		16.31	0.000	-2.432-(-1.054)
Control Group	35			
Before		12.66		
After		13.20	0.076	0.297-(-0.060)
Socialization Skills and Independence				
Intervention Group	35			
Before		11.09		
After		11.71	0.001	-0.993-(-0.265)
Control Group	35			
Before		9.51		
Sesudah		10.14	0.012	-1.108-(-0.149)

The results of the analysis showed: there was a significant difference between the average gross motor skills of children in the intervention group before and after treatment (p-value 0.005 and $\alpha=0.05$); there was a significant difference between the average fine motor skills of children in the intervention group before and after treatment (p-value 0.041 and $\alpha=0.05$); there was a significant difference between the mean speech and language skills in the intervention group before and after treatment (p-value 0.000 and $\alpha=0.05$); there was a significant difference between the average socialization ability and independence of children in the intervention group before and after treatment (p -0.001 and $\alpha=0.05$). The results of the analysis also showed: there was a significant difference between the average socialization ability and independence of children in the control group before and after treatment (p-value 0.012 and $\alpha=0.05$).

The developmental stimulation media used is an application of stimulation of development in Android cellphones which includes 4 aspects, namely gross movement stimulation, fine movement, speech, and language, as well as socialization and

independence. This media can be easily installed and used by parents in stimulating development. Stimulation of development can be done at any time and anywhere, so that the process can be carried out routinely and continuously. This media is a choice used in conducting research during a pandemic.

Based on the results of interviews with parents and teachers, the application is easy to use and can remind you of what needs to be done when stimulating children's development. According to parents, the application is equipped with the sound of music, so that it makes children happy to hear it while stimulating development. Based on developmental stimulation guidelines, parents are stimulated for 14 days. According to parents, the time allotted was quite effective for the implementation of developmental stimulation, but the obstacles encountered when the child was not healthy so that the implementation of developmental stimulation adjusted to the child's condition.

The process of monitoring the implementation is carried out by teachers and researchers. Parents carry out stimulation using the application provided and write down the results in the stimulation guide provided by the researcher. Every day parents carry out stimulation at home and the results of the stimulation are given to the teacher via the Google Drive link. Researchers monitored the implementation of stimulation through Google Drive and monitor activities through the teacher. The teachers involved in the process were 4 teachers.

Table 11. Differences in the Developmental Abilities of Children between the Intervention Group and the Control Group after Treatment in Regional Kindergarten Jakarta Timur and Bogor September-November Year 2021 (n=70)

Variable	n	Mean	P Value	95% CI
Gross Motor Skills				
Intervention Group	35	8.34	0.000	0.725-2.018
Control Group	35	6.97		
Fine Motor Skills				
Intervention Group	35	22.83	0.000	1.462-3.796
Control Group	35	20.20		
Speech and Language Skills				
Intervention Group	35	16.31	0.000	2.371-3.858
Control Group	35	13.20		
Socialization Skills and Independence				
Intervention Group	35	11.71	0.000	1.053-2.090
Control Group	35	10.14		

The results of the analysis showed: there was a significant difference between the average gross motor skills of children in the intervention group and the control group after treatment (p-value 0.000 and $\alpha=0.05$); there was a significant difference between the average fine motor skills of children in the intervention group and the control group after treatment (p- 0.000 and $\alpha=0.05$); there was a significant difference between the mean speech and language skills in the intervention group and the control group before and after treatment (p-value 0.000 and $\alpha=0.05$); there was a significant difference between the average socialization ability and independence of children in the intervention group and the control group after treatment (p-value 0.000 and $\alpha=0.05$).

This research is in line with other studies that have developed media to be used in developmental stimulation activities in early childhood. Media is a tool that can be used as an intermediary in stimulating all aspects of development in early childhood, both aspects of moral and religious values, physical-motor aspects, language aspects, social-emotional aspects, cognitive aspects, and artistic aspects. Learning media that can be used are real media, audio media, visual media, environmental media, and audio-visual media so that learning activities in early childhood run effectively. Research by Fazriah et al. (2021) explained three aspects of child development (language, social and emotional development, and cognitive development in a fun and unique way through the use of animated films.

CONCLUSION

There was a significant difference between the average gross motor skills of children in the intervention group and the control group after treatment. There was a significant difference between the average fine motor skills of children in the intervention group and the control group after treatment. There was a significant difference between the average speech and language skills in the intervention group and the control group before and after treatment. There was a significant difference between the average socialization ability and independence of children in the intervention group and the control group after treatment.

ACKNOWLEDGEMENT

1. Civitas Poltekkes Jakarta III who have provided funds and facilitated research activities.
2. Leaders and teachers of East Jakarta Attawun Kindergarten and Nurul Ichsan Bogor Kindergarten have facilitated and played an active role in research activities.
3. Respondents of Attawun Kindergarten and Nurul Ichsan Kindergarten and their parents who have actively participated in research activities.

REFERENCES

- Aisyiah, Wowor, T., & Mustika, I. (2019). Pengaruh Stimulasi Tumbuh Kembang Terhadap Perkembangan Anak Usia Prasekolah di Raudhatul Athfal An-Nur Jagakarsa, Jakarta Selatan. *Journal Educational of Nursing (JEN)*, 2(1), 62–68.
- Dardjito, E., Sistiarani, C., Nurhayati, S., Kesehatan, J., Fakultas, M., Dan, K., & Kesehatan, I.-I. (2014). *Deteksi Pertumbuhan dan Perkembangan Balita melalui Penggunaan Buku KIA*, Vol. 6, Issue 3.
- Darwati, Wijayanti, A., & Azizah, E. (2019). Peningkatan Kemampuan Motorik Anak Usia 3-4 Tahun melalui Kegiatan Fun Cooking. *Jurnal Ilmiah Pendidikan Citra Bakti*, 157–166. <https://doi.org/10.5281/zenodo.3551669>.
- Defera, W., Ponda, A., & Merry, Y. (2019). Hubungan Tingkat Pengetahuan dan Pola Asuh Orang Tua dengan Perkembangan Anak Prasekolah di Kelurahan Lubuk Buaya Padang Tahun 2019. *Jurnal Sehat Mandiri*, 16(2), 33–45.
- Fauziyyah, N., Rachmawati, Y., & Kurniati, E. (2018). Analisis Perilaku Sosial Anak Ditinjau dari Urutan Kelahiran. *Edukids*, 15(1), 42–56.
- Fitriahadi, E., & Priskila, Y. (2020). Faktor Yang Mempengaruhi Perkembangan Anak Usia 3-6 Tahun Di Posyandu Wilayah Kerja Puskesmas Tinggede, Kecamatan Marawola Kabupaten Sigi Sulawesi Tengah Indonesia. *Jurnal Kesehatan*, 13(2), 183–191.
- Handayani, D. S., Sulastri, A., Mariha, T., & Nurhaeni, N. (2017). Penyimpangan Tumbuh Kembang Anak dengan Orang Tua Bekerja. *Jurnal Keperawatan Indonesia*, 20(1), 48–55. <https://doi.org/10.7454/jki.v20i1.439>.
- Inggriani, D. M., Rinjani, M., & Adila, S. (2019). Deteksi Dini Tumbuh Kembang Anak Usia 0-6 Tahun berbasis Aplikasi Android. *Wellness and Healthy*, 1(1), 115. <https://wellness.journalpress.id/wellness>.
- Kemendes RI. (2022). *Buku Bagan Stimulasi, Deteksi, dan Intervensi Dini Tumbuh Kembang Anak di Pelayanan Kesehatan Dasar*.
- KemenPPPA. (2022). *Profil Anak Indonesia Tahun 2022*.

- Krobo, A. (2021). Kesulitan Berbicara dan Membaca pada Anak Usia 5-6 Tahun Ajaran 2019-2020. In *PERNIK Jurnal PAUD*, Issue 2.
- Fazriah, S., Hafshah, T., & Maranatha, J. (2021). *Penggunaan Media Film Animasi Bisu Untuk Stimulasi Perkembangan Anak Usia Dini TK Kemala Bhayangkari 10 Purwakarta*. <http://ejournal.upi.edu/index.php/IJOCSEE/>.
- Lestari, S., & Livana, P. (2019). Kemampuan Orangtua dalam Melakukan Stimulasi Perkembangan Psikososial Anak Usia Prasekolah. In *Jurnal Ilmu Keperawatan Jiwa*, Vol. 2, Issue 3.
- Magfiroh, L., Wulandari, R. T., & Maningtyas, R. T. (2019). Penerapan Permainan Lompat Ceria untuk Meningkatkan Kemampuan Fisik Motorik Kasar Anak Usia 5-6 tahun. *Jurnal Pendidikan Anak Usia Dini*, 2(1), 1–10. <http://journal2.um.ac.id/index.php/jpaud>.
- Maslakah, N., & Setiyaningrum, Z. (2017). *Pengaruh Pendidikan Media Flashcard terhadap Pengetahuan Anak Tentang Pedoman Umum Gizi Seimbang di SD Muhammadiyah 21 Baluwarti Surakarta*, Vol. 10, Issue 1.
- Mayar, F. (2013). *Perkembangan Sosial Anak Usia Dini sebagai Bibit untuk Masa Depan Bangsa*.
- Pangestu, S., Saparahayuningsih, S., & Delrefi. (2017). Kemandirian Anak dalam Pembelajaran Pengembangan Sosial Emosional. In *Jurnal Ilmiah Potensia*, Vol. 2, Issue 2.
- Poernomo, D., & Paskarinda, E. (2015). Faktor Kesehatan, Intelegensi, dan Jenis Kelamin Mempengaruhi Gangguan Perkembangan Bahasa Anak Prasekolah. *Jurnal STIKES Vol. 8, No.1, Juli 2015*, 8(1), 23–33.
- Presiden RI. (2014). *UU Perlindungan Anak Nomor 35 Tahun 2014*.
- Santri, A., Idriansari, A., & Girsang, B. M. (2014). *Faktor-Faktor yang Mempengaruhi Pertumbuhan dan Perkembangan Anak Usia Toddler (1-3 Tahun) dengan Riwayat Bayi Berat Lahir Rendah*.
- Saputri, M., Chundrayetti, E., & Deswita, D. (2021). Pengaruh Pendidikan Kesehatan dengan Media Booklet Terhadap Pengetahuan, Sikap dan Tindakan Ibu Tentang Stimulasi Perkembangan Anak Usia Pra Sekolah di Wilayah Kerja Puskesmas Lubuk Buaya Kota Padang. *Jurnal Ilmiah Universitas Batanghari Jambi*, 21(3), 1361. <https://doi.org/10.33087/jiubj.v21i3.1747>.
- Setiawati, S., Citra Dermawan, A., & Maryam, R.S. (2020). Peningkatan Status Perkembangan Anak Prasekolah dengan Stimulasi Perkembangan. *JKEP*, 5(2).
- Suhariati, H. I. (2021). Hubungan Peran Orang Tua dalam Stimulasi Bermain dengan Perkembangan Anak Prasekolah di Masa Pandemi Covid-19. In *HOSPITAL MAJAPAHIT*, Vol. 13.