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The Application Of Macrame Rope Activity For Improving Fine Motor Skills of Children Aged 5-6 Years in Semesta Kindergarten School

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Abstract: One aspect of development that must be well stimulated for early childhood is fine motor skills. Various kinds of activities can be carried out in Children Education to improve children's fine motor skills, for example with weaving activities. This study aims to determine the effect of macrame rope weaving activities in improving fine motor skills of children aged 5-6 years at Semesta Semarang Kindergarten. This study used a quantitative method with a one group pretest and post-test research design. The population and sample in this study were children aged 5-6 years at Semesta Semarang Kindergarten, totaling 40 children. Data collection was done through direct observation and question and answer with the teacher.

The data that has been collected are processed by normality test, homogeneity test, paired sample T-test hypothesis test, and finally N-gain test using the help of SPSS V.26 data processing application. The average result of pretest data was 59.95 and the average post-test value was 109.6. Then the paired sample t-test hypothesis test was carried out with a significance result of 0.000 <0.05, then H0 was rejected and H1 was accepted, that means there was a significant difference in children's fine motor skills before and after treatment. Then through the N-gain test produced a value of 82.8414 or 82.8%, it can be concluded that through makrame rope weaving activities, it has a high effective effect on increasing children's fine motor skills.

Keywords: *children aged 5-6 years, fine motor skills, weaving, knots, macrame rope.*

INTRODUCTION

Education in early childhood basically includes all efforts and actions taken by educators and parents in the process of caring for, nurturing, and educating children by creating an environment where children can explore experiences that provide opportunities for children to know and understand the material. experiences they get from the environment, through observing, imitating, and experimenting activities that are carried out repeatedly and involve all the potential and intelligence of children (Iftitah & Anawaty, 2020). Learning activities that are carried out children to combine their knowledge and skills from one experience to another to create meaningful learning for children (Utari & Yeni, 2020).

Meaningful learning for children through early childhood education is an educational forum to shape early childhood growth and development in addition to the family environment to prepare children for primary school education. Currently, the requirements to be able to enter the next level of education or in this case to enter primary school education, children must be able to perform further developmental skills, which are related to daily activities such as buttoning clothes, washing hands, cleaning the environment, and other activities that really require fine motor skills for children (Nazara & Tegeh, 2023).

According to Suriati (2019) fine motor is a movement that only involves certain parts of the body that are carried out only by small muscles. So that the movements in fine motor do not require too much energy but require careful and careful coordination between the eyes and hands. So it can be concluded that fine motor is a motion that occurs and does not require great energy because it only uses small muscles by the limbs of the eyes and hands but requires careful coordination, in this case, for example, the

ability to hold small objects with fingers, namely cutting, writing, and others (Akollo et al., 2023)

The definition of fine motor above is related to that described by Hurlock (1978: 151), namely motor development is the development of control of physical movement through the activities of nerve centers, nerve endings, and structured muscles. Children will be helpless before development occurs. This condition will change during the first 5-6 years of life after birth rapidly. The child can control movements that are not smooth. These movements involve body parts used for walking, running, jumping, tiptoeing, swimming, and so on. There is a big development in better coordination control involving smaller muscle parts used for grasping, throwing, catching the ball, writing, and so on after the child is 5 years (Fitriani, 2018).

Fine motor movements are movements that do not require too much energy, but require good eye and hand coordination. Children can be more creative with better fine motor movements. Not all children have the same ability to master this ability at the same stage and age because the development of one child is different from another, children from one region to another depending on the stimulation received (Nugraha, 2022).

Based on WHO (World Health Organization) data, it is reported that 5-25% of pre-school children suffer from minor brain dysfunction including fine motor development disorders. Data from UNICEF (United Nations Children's Fund) explains that children under five who experience fine motor and gross motor disorders are 1,375,000 per 5 million developmental delays (Sundayana et al., 2020). The incidence of delays in child growth and development has increased in recent years, the incidence rate in the United States ranges from 12-16%, Thailand 24%, and Argentina 22%, in Indonesia between 13%-18%. Based on Indonesian research journals taken from two hospitals in Jakarta, 11.3% of children have fine motor delays. In West Nusa Tenggara (NTB) according to Riskesdas (in Rusmini et al., 2023), 12.6% of children had fine motor delays.

Skills that can be developed to improve early children's fine motor skills by implementing activities using macrame rope. The activity to be carried out is weaving various knots using macrame rope. Weaving activities using macrame rope materials were chosen because they have a texture that is not easily torn, flexible, easy to shape, not fibrous and not sharp, so they are suitable as materials for weaving activities.

Sumanto (in Susanti, 2020) suggests that weaving is a skill activity that aims to produce various types of objects and train to improve children's fine motor skills, by inserting or overlapping parts of the woven rope which are carried out alternately. Weaving is the activity of joining ribbons or ropes arranged according to certain knots and directions.

Some of the factors behind the delay in the development of fine motor skills include lack of opportunities to learn motor skills, parenting patterns that are over protective and inconsistent in providing learning stimuli, not accustoming children to doing their own activities so that children are accustomed to always being helped to meet their needs, and there are also children who are always fed so that the flexibility of the hands and fingers is less honed (Pratiwi, 2017). As stated (Herlina & Amal, 2021) at the age of five to six years the perfection of children's fine motor coordination is characterized by hands, arms and bodies that move under eye coordination where children's activities are more varied and complex, for example project activities.

However, the reality in the field is that there are problems that occur related to children's fine motor skills based on research conducted for several months in one of the kindergartens in Semarang, namely TK Semesta, children aged 5-6 years in kindergarten class B experience delays in fine motor

development. Some of the factors behind the delay in children's fine motor development in Semesta Kindergarten are in accordance with the description above, namely kindergarten B children when at home are not accustomed to doing their own activities and are accustomed to being helped so that fine motor development and flexibility of children's hands and fingers are less honed. As well as the lack of class B activities related to coordination between eyes and hands

One solution to overcome the problems of children's fine motor skills is to stimulate children's fine motor skills through rigging activities. Based on research conducted, it is known that children rarely do activities using rigging media. Therefore, this study aims to determine whether or not there is an effect of makrame rope activities to improve children's fine motor skills in group B PG-TK Semesta Semarang

According to Law No. 20 of 2003 Article 13 Paragraph 1 states that the education path is organized in three paths, namely formal education, non-formal education, and informal education (Rizqiyyatunnisa & Mahdi, 2021). Formal education is education that is organized systematically, structured, sequential, tiered from primary to tertiary levels and its equivalents, including academic and general oriented activities, specialist programs, professional training that is carried out continuously. Non-formal education is education that is carried out in an organized and systematic manner outside the school system which is carried out independently or is an important part of broader activities that are deliberately carried out to provide certain services to students for the achievement of learning objectives. Meanwhile, informal education is an educational process that takes place throughout life so that everyone acquires values, attitudes, skills, and knowledge that come from daily life experiences, environmental influences including the influence of family life (Rizqiyyatunnisa & Mahdi, 2021).

In early childhood education itself the formal education pathway includes: 1) Kindergarten (TK), a form of early childhood education unit that organizes educational programs for children aged 4-6 years or pre-school age; 2) Raudhatul Athfal (RA) / Bustanul Athfal (BA), just like kindergarten, this RA / BA institution is an early childhood education institution that organizes education for children aged 4-6 years but within the scope of the Ministry of Religion; and other equivalent forms.

Early childhood education in non-formal channels includes: 1) Daycare Center (TPA), is one form of early childhood education service that organizes a welfare program that includes care, nurturing, and education for children aged 0-6 years; 2) Playgroup (KB), is an early childhood education service that organizes educational services for children aged 2-4 years and can serve children up to the age of 6 years if the surrounding environment has no TK/RA; 3) Unit Paud Sejenis (SPS), is a form of PAUD unit other than TK/RA, Playgroup, daycare park whose implementation can be integrated with other early childhood activities in the community such as Posyandu, Bina Keluarga Balita, Al-Qur'an education park, and other services; or other equivalent forms.

Early childhood education in informal channels includes family education or education organized by non-institutionalized environments. In accordance with the Law of the Republic of Indonesia No. 20 of 2003 concerning the national education system article 28 paragraph (5) states "Early childhood education in the informal education pathway is in the form of family education or education organized by the environment".

Based on (in Sulaeman et al., 2023) explains that fine motor is a movement that only involves certain body parts carried out by small muscles. Therefore, fine motor movements do not require too much energy but require careful coordination and accuracy. Meanwhile, according to Susanto (in Aguss et al., 2021) fine motor is a movement that involves finer movements performed by small

muscles. This fine movement requires careful coordination. Fine motor skills are abilities related to physical skills involving small muscles, eye and hand coordination (Pura & Asnawati, 2019) Therefore, fine motoric movements do not require a lot of energy, but these movements require careful hand and eye coordination. Usually fine motor movements are usually carried out such as buttoning clothes, cutting, writing, coloring, and other hand movements (Rohmah & Gading, 2021). To improve fine motor skills in children, teachers can do weaving activities.

According to Hajar Pamadhi (in Febriana & Kusumaningtyas, 2018) weaving is a traditional craft done by alternately inserting parts of the woven ribbon. Another definition states that weaving is an activity of stringing lungsi and weft by overlapping and overlapping various parts of the woven rope alternately (Purnamasari, 2021). Weaving is an ability activity that has the aim of producing various objects and training children to improve fine motor skills, carried out by inserting or overlapping parts of the woven rope alternately (Putri & Nurniyanti, 2022).. Weaving activity is a skill that is stimulated in early childhood by means of paper that has been cut out and woven patterns are made by inserting each other's woven parts to take turns so as to produce a work (Az-Zahra et al., 2022).

In the field of education, weaving is putting together slats or a sheet, for example, bamboo that has been sliced, torn leaves, animal skins, rattan, jute, cut paper or making woven patterns, patchwork pieces (Meriyati et al., 2020). According to Saputra and Rudyanto, weaving is one of the learning activities that can develop children's fine motor skills. In this activity, children are taught to be skillful and use their fingers. And can train children's patience and accuracy. Motor skills, especially finger movements, will stimulate skills in controlling movements involving small muscles.

METHODS

This research includes experimental research. The experimental research method is a method in quantitative kuantitatif (Aulia et al., 2022).. Quantitative research is research that emphasizes the aim of knowing the level of the variable under study with the principle that each variable can be observed and measured (Saifuddin, 2020). This experimental research is a research that involves giving treatment (treatment) to a group of research subjects with the aim of changing the habitual conditions and behavior of the subject being studied.

This research will use a pre-Experimental Desaign research design with the One Group Pretest-Postest Desaign type and a quasi-experimental research method (Quasi Experiment)) (Ulliyanti & Ruqqoyah, 2017). This study only used one institution to conduct experiments without a control class. Furthermore, the experimental group was given treatment or treatment using makrame rope media. The research design that will be used is as follows.

Table 1. *One Group Pretest Post-test Research Design*

o_1	X	o_2
Pre-test	*treatment*	*Post-test*

Description:

o_1: Pretest or initial observation of fine motor skills before being given treatment or treatment

X: The provision of treatment given with weaving activities using makrame ropes

o_2: Post-test or final observation of fine motor skills after being given treatment with weaving activities using makrame ropes.

The data that has been collected are processed by normality test, homogeneity test, paired sample T-test hypothesis test, and finally N-gain test using the help of SPSS V.26. The population and sample in this study were children aged 5-6 years at Semesta Semarang Kindergarten, totaling 40 children.

RESULT AND DISCUSSION

Before conducting a hypothesis test to determine whether makrame rope weaving activities are able to improve children's fine motor skills, first test the validity and reliability of the research instrument. After the research instrument is declared valid and reliable, the next test is the normality test of the data that has been obtained, namely the pretest and post-test data. To find out whether the results of the pretest and post-test data in this study are normally distributed, it can be seen from the table of normality test results through the SPSS V.26.0 kolmogorov-smirnov application, in the results the pretest significance value is 0.108> 0.05 and the post-test significance value is 0.200> 0.05 so it can be concluded that the pretest and post-test data are normally distributed. Then the next test is the homogeneity test to determine whether the data variants in this research are homogeneous (the same) or not. Based on the data processing above, it can be seen that the significance value based on mean is 0.078> 0.05, so it can be concluded that the data in this study are homogeneous (the same).

Table 2. *Normality Test Results*

Kolmogorov-Smirnova	*Pretest*	*Post-test*	*Kolmogorov-Smirnova*
Statistic	*.126*	*.100*	*Statistic*
df	*40*	*40*	*df*
Sig.	*.108*	*.200*	*Sig.*

After processing the paired sample t-test hypothesis test data, it can be seen that the significance value (2 tailed) is 0.000 where the basis for making hypothesis test decisions is if the significance value (2 tailed) <0.05 then the data can be said to be effective but if the significance value (2 tailed) >0.05 then the data is said to be ineffective. From the data above, the significance value (2 tailed) of 0.000 <0.05, therefore it can be concluded that H0 is rejected and H1 is accepted, meaning that there is a significant difference in the motor skills of children aged 5-6 years at TK Semesta Semarang.

Table 3. *Paired Sample T-test Results*

		Paired 1
		Pretest -Post-test
Mean	*.126*	*-49.650*
Std. Deviation	*40*	*5.284*
Std. Error Mean		*.836*
95% Confidence Interval of the Difference	*Lower*	*-51.340*
	Upper	*-47960*
T		*-59.422*
Df		*39*
Sig. (2 tailed)		*.000*

Then based on the results of the N-gain test data processing above, it is known that the percentage N-gain value is 82.8414 or 82.8%, then based on the table of effectiveness level criteria, it

shows that the macrame rope weaving activity has a very high effect on improving children's fine motor skills.

Table 3. *Normalize Gain Result*

	N	Min	Max	Mean	Std. Deviation
N-gain Persen	40	51.61	96.00	82.8414	9.07915
N-gain Score	40	.52	.96	.8284	.09079
Valid N (listwise)	40				

CONCLUSION

The application of makrame rope weaving activities is able to improve children's fine motor skills seen from the results of the pretest and post-test then the results of the data processing of the paired sample T-test hypothesis test significance value (2 tailed) of 0.000 <0.05, therefore it can be concluded that H0 is rejected and H1 is accepted, meaning that there is a significant difference in the motor skills of children aged 5-6 years at Semesta Semarang Kindergarten after treatment.

The success rate of weaving activities using makrame rope to improve children's fine motor skills is seen from the results of pretest and post-test data processing. Based on the results of the data obtained, the pretest post-test value with average pretest data was 59.95 and the average post-test data was 109.6. Based on this data, it is known that there was an increase in pretest and post-test results of 49.71. then the N-gain test was carried out and the results obtained the average value of the N-gain percentage of 82.8414 or 82% which shows that the macrame rope weaving activity has a high influence on improving the fine motor skills of children aged 5-6 years at Semesta Semarang Kindergarten.

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