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The Influence of Hockey Table Games on Children's Physical Motor Skills Age 5-6 Years at Paud Rukun Bengkulu City

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Abstract

The problem at PAUD Rukun Bengkulu city is that children's physical motor skills are less developed, children are still not strong in holding toys, still not neat in arranging puzzles, children have not hit small tennis balls, children are still slow in moving, walking and jumping. The purpose of this study was to determine the effect of hockey table games on the physical motor skills of children aged 5-6 years at PAUD Rukun, Bengkulu city. The type of research used by the author is quasi-experimental design research, with data collection of observation sheets, anecdotal records and documentation. The results of the research that has been done, it can be concluded that there is an effect of hockey table games on the physical motor skills of children aged 5-6 years at PAUD Rukun Bengkulu city, this is evidenced by the increase in the average value of children who at the beginning of the study (pre-treatment) amounted to 39.71 to 44.92 after learning using hockey table games. The results of data analysis obtained the tcount value is 4.149 which is compared with the ttable (dk = 26 with the error rate set at 5%, which is 2.056), then tcount> ttable (4.149> 2.056).

Keywords: *Hockey Table Game, Physical Motor Skills of Children.*

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INTRODUCTION

Early childhood is a child who has just been born until the age of 6 years, which is a very decisive age in the formation of the character and personality of the child, where the child experiences rapid growth and development, as a golden age. (Khadijah, 2016) Early childhood education is a process of fostering the growth and development of children aged 0-6 years as a whole, which includes physical and non-physical aspects by providing stimulation for proper physical, spiritual, moral, motor, intellectual, emotional and social development so that children can grow and develop optimally.(M. Fadhillah, 2014)

Physical motor skills are the development of control of physical movement through coordinated activities of nerve centers, nerves, and muscles. Physical motor skills must be stimulated and developed from an early age, because if they are not developed early children will experience many obstacles in controlling activities that involve their motor abilities. Dangers in physical motor development that threaten children include delayed motor development. A child's motor development is below normal, as a result at a certain age the child does not master the developmental tasks expected by their social group. Due to late motor

development, the child becomes less able to complete the tasks or activities given to him, eventually the child feels embarrassed, lacks confidence, thus making him a child who is reluctant to do activities with his friends.

The teacher's strategy in learning for early childhood is more goal-oriented which leads to developmental tasks in each child's age range, the material provided must refer to and be in accordance with the characteristics adapted to child development. The method chosen should be oriented towards the purpose of learning activities that are able to involve children actively and creatively and fun, the media and play environment must be safe.(Wardani, 2013)

To improve education, the role of a teacher is needed as a medium for educators to provide their knowledge according to their abilities. (Suryoboto, 2014) The role of the teacher is to provide assistance and encouragement, and strive so that the lessons provided are always sufficient to attract children's interest, which cannot be replaced by machines, robots, TV, radio, or computers, because education is not only filling the brains of students with millions of knowledge, but more than that, students must be smart in attitude, emotional, and spiritual and have skills that can sustain their lives.(Ramayulis, 2015)

Kurnia Dewi explained that 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 aspects of motor, language aspects, social emotional aspects, cognitive aspects and aspects of art. In stimulating aspects of early childhood development, it must be adjusted to the age and stage of development because each child, although of the same age, sometimes has a different stage of development. To stimulate all aspects of early childhood development cannot be separated from learning media because for early childhood learning is done through playing by using learning media.(Kurnia et al., 2017)

Sinta Agusmiati has proven that gross motor learning in schools is learning physical movements that require balance and cooperation of limbs, using large muscles, such as running, walking, jumping, hitting, kicking, running, and others. Meanwhile, fine motor learning in schools is learning related to physical skills involving small muscles and coordination between eyes and hands, which can be trained and developed with activities and stimuli that are carried out regularly and continuously, including: playing puzzles, arranging blocks, putting objects into holes according to their shape, making lines, folding paper; and writing with the correct letters and writing shapes.(Sinta Agusmiati, 2019) In the research of Rina Syafrida Dkk, it is explained that there are various ways that can be done to stimulate the fine motor skills of early childhood, one of which is by creating interesting learning media and in accordance with the age and stage of development of early childhood. Early childhood learning media is an intermediary tool specifically designed in accordance with learning objectives in order to convey messages from the sender (teacher) to the receiver (child) so that it can stimulate certain aspects of development in accordance with the learning objectives to be achieved. (Rina Syafrida Dkk, 2022)

Play is beneficial for children's physical or motor development, cognitive development, affective development, and social-emotional development.(Mulyani Novi, 2016) The NAEYC asserts that the role of play is not only to contract cognitive development but is a vital link in promoting the growth of all aspects.

Play for children is the vehicle of choice and an indicator of their mental growth. Play allows children to go through the developmental process in order. Starting from sensory motor development in infancy, pre operational for pre-school age, concrete operational thinking for elementary school. All are cognitive developments so play has an important function in physical, emotional and social development. Therefore, children's initiative, involvement, and teacher encouragement in play are important components of play and learning.

Games that involve children's physicality can develop early childhood motor skills, also evidenced in Uswatun Hasanah's research journal entitled "Development of Physical Motor Skills through Traditional Games for Early Childhood" which states that traditional games can directly contribute to children in the form of: 1) Physical formation that is healthy, fit, resilient, superior and competitive; 2) Mental formation includes: sportsmanship, tolerance, discipline and democracy; 3) Mental formation includes: sportsmanship, tolerance, discipline and democracy. Mental formation includes: sportsmanship, tolerance, discipline and democracy; 3) Moral formation to be more responsive, sensitive, honest and sincere; 4) Formation of social skills, namely being able to compete, cooperate, discipline, friendship, and nationality.(Uswatun Hasanah, 2019)

Hockey games have been proven to improve physical motor skills, as in the research journal Rafika Firdani Auliya and Heryanto Nur Muhammad entitled "The Role of the Level of Physical Condition and Hockey Playing Skills in Achieving Achievement" which explains that the game of hockey is a game whose victory is calculated from the number of balls into the opponent's goal, each player requires complete physical condition and good playing skills in order to develop and improve achievement. Physical condition components include strength, endurance, muscle explosiveness, speed, coordination, flexibility, agility, balance, accuracy, and reaction.(Rafika Firdani Auliya dan Heryanto Nur Muhammad, 2020)

In general, motor is divided into two, namely gross motor and fine motor, gross motor is the ability to move the body using large muscles, most or all of the limbs, gross motor is needed so that children can sit, kick, run, up and down stairs, and so on.(Sunaryo Sunardi, 2020) While fine motor is that which uses fine muscles or parts of certain limbs (hands and fingers) and is used to manipulate the environment. As it is known that hand control starts from the shoulder which results in rough arm movements to good elbow movements and finally wrist and finger movements. Fine motor skills are limited movements of parts including small muscles, especially in the fingers of the hand, for example writing, cutting, drawing, and holding something with the thumb and forefinger.(Hasnida, 2016)

Jhon W. Santrock explains that gross motor skills are skills that involve large muscle activity, such as moving arms and walking, while fine motor skills involve finely regulated movements, such as buttoning clothes, grasping toys, or hand skills.(John W. Santrock, 2012.) Gross motor physical ability describes body movements that use large muscles or most or all of the limbs that are influenced by the maturity of the child himself. In gross motor skills, early childhood can perform gross or hard body movements such as crawling, walking, running, jumping, throwing, and squatting. Fine motor physical abilities describe movements that use fine muscles or certain parts of the body that are influenced

by the opportunity to learn to practice. In fine motor skills, early childhood can coordinate body movements that involve the eyes and hands to be able to do activities related to hand movements. These fine motor skills include grasping, holding, tearing, cutting, folding, coloring, drawing, writing, stacking toys, and more.(Novan Ardy Wiyani, 2016)

The game of hockey is a game whose victory is calculated from the number of balls into the opponent's goal, each player requires a complete physical condition and good playing skills in order to develop and improve achievement. The components of physical condition, among others: strength, endurance, muscle explosiveness, speed, coordination, flexibility, agility, balance, accuracy, and reaction.raf (Rafika Firdani Auliya dan Heryanto Nur Muhammad, 2020) Activities develop children's motor skills by doing various physical activities in the form of games, such as hide-and-seek games, gymnastic sports, swimming, and hockey games.(Desmita, 2015)

One of the educational game tools in learning that the author will use is a hockey table, which is an educational game tool made to train the physical motor development of early childhood. This hockey table is made of wood which has 2 grips and 1 slab. This game is done by passing the slab in the opposite way. The slab placed on a rectangular table is passed towards the opponent until it enters the goal on the left and right. If the slab enters one of the opponent's goals, the opponent's score increases by one, and so on. The game continues until a winner is found with a predetermined score.

Learning activities in PAUD are mostly done through play. Basically, the PAUD situation is designed as a playground. Everything is always related to play. This can be seen from the arrangement of objects, colors, pictures and equipment. So when we enter the PAUD environment, we will be greeted with noisy voices and diverse children's activities. Emphasizing that play for children aged four to seven years is a condition sine qua non, if they are to grow healthily and mentally.

METHOD

The type of research used by the author is quasi-experimental design research, which is a form of experimental design that is not a real experiment because there are still external variables that influence the formation of the dependent variable.(Sugiyono, 2015). When done well, experimental research produces reliable evidence regarding hypothesized causal relationships .(Suharsimi Arikunto, 2014) This design begins with a subject that is pre-treated then given treatment using a hockey table game, then assessed post-treatment to measure the child's physical motor development again.

The sample of this study, namely class B aged 5-6 years as many as 14 children from PAUD Rukun Bengkulu city as a class that received learning actions using the hockey table game, on the grounds that this game is used in accordance with the indicators of the ability of children aged 5-6 years.

RESULTS AND DISCUSSION

A. Description of Research Data

Tabel 1.

Results of Pre-treatment and Post-treatment Scores of Class B Children

No.	Nama	Nilai *Pre-treatment*	Nilai *Post-treatment*
1.	Adhoora Salsabilla	30	36
2.	Alikha A.	34	43
3.	Alvino P.	35	38
4.	Aminullah S.	30	33
5.	Aqilla E.	34	41
6.	Arka H.	43	48
7.	Belva F.	34	42
8.	Clarisa M.	34	40
9.	Gibran A.H	38	41
10.	M. Farhan	42	52
11.	M. Ikram	46	53
12.	Nancy K.	50	53
13.	Shalom A.	53	55
14.	Zaskia S.	53	54
	Jumlah Skor	**556**	**629**

1. Calculation of Standard Deviation of Pre-treatment Score of Class B Children

This pre-treatment is carried out when children play games using plastic tennis rackets and puzzles in developing children's physical motor skills in the experimental class. From the data above, the score is entered into the frequency tabulation, with a mean of 39.71, then the calculation of the standard deviation is:

Standard Deviation: SD = $\sqrt{\frac{\sum x^2}{N}} = \sqrt{\frac{858,857}{14}} = \sqrt{61,34} =$ 7,83

Next, determine the upper, middle, and lower groups by entering into the following formula:

$\longrightarrow$ high

M + 1.SD = 39,71 + 7,83 = 47,5

$\longrightarrow$ Medium

M – 1.SD = 39,71 – 7,83 = 31,8

$\longrightarrow$ Low

From the above analysis, it can be concluded that from the pre-treatment scores, there were 3 children in the upper/high group (21.4%), 9 children in the middle/medium group (64.3%), and 2 children in the lower/low group (14.3%).

2. Calculation of Post-Treatment Score Results for Class B Children

Post-treatment is done when children play hokey table for physical motor development.

From the data above, the score is entered into the frequency tabulation, with a mean of 44.92, then the calculation of the standard deviation is:

Standard Deviation: $SD = \sqrt{\frac{\sum x^2}{N}} = \sqrt{\frac{710,93}{14}} = \sqrt{50,78} = 7,13$

→ High

M + 1.SD = 44,92 + 7,127 = 52,47

→ Medium

M – 1.SD = 44,92-7,127 = 37,79

→ Low

From the above analysis, it can be concluded that from the results of the post-treatmeant score, there are 4 children in the high group (28.6%), 8 children in the medium group (57.1%), and 2 children in the low group (14.3%).

B. Data Analisis

The following is the hypothesis of the study, which is as follows:

Ha: There is an effect of hockey table games on the physical motor skills of children aged 5-6 years at PAUD Rukun, Bengkulu city.

Ho: There is no effect of hockey table games on the physical motor skills of children aged 5-6 years at PAUD Rukun Bengkulu city.

The results of the research that the authors have conducted in class B PAUD Rukun Bengkulu city, where X is the Pre-treatment value and Y is the Post-treatment value.

Calculation of data analysis based on the table above, then the next is to find the results of the t-test formula with the following steps:

1. Mean X and Y

Mean *Pre-treatment*: $\bar{X} = \frac{\sum Skor}{N} = \frac{556}{14} = 39,71$

Mean *Pre-treatment*: $\bar{X} = \frac{\sum Skor}{N} = \frac{629}{14} = 44,92$

2. Varian variabel $S1^2$ and $S2^2$

a. Find the variance S12 which is the standard deviation of the Pre-treatment score:

$S1^2$ = S1 x S1
= 7,83 x 7,83
= 61,31

b. Find the variance S22 which is the standard deviation of the Post-treatment score:

$S2^2$ = S2 x S2
= 7,13 x 7,13
= 50,84

3. Test Homogenitas

Testing the homogeneity of variance used the F test, as follows:

$S1^2$ = 61,31
$S2^2$ = 50,84
F= Largest Variance / Smallest Variance

= 61,31 / 50,84

= 1,206

The Fcount price needs to be compared with Ftable, with dk numerator (14-1) and dk denominator (14-1). Based on dk numerator 13 and dk denominator 13, with an error rate of 5%, the Ftable price is 2.575 (the price between numerators 12 and 14). Because Fhitung is smaller than Ftabel (1.206 < 2.575), the variance is homogeneous.

4. Finding Interpretation of "r"

$$r_{xy} = \frac{N\sum XY-(\sum X).(\sum Y)}{\sqrt{\{N.\sum X^2-(\sum X)^2\}.\{N.\sum Y^2-(\sum Y)^2\}}}$$

$$= \frac{14.25715-(556).(629)}{\sqrt{\{14.22940-(556)^2\}.\{14.28971-(629)^2\}}}$$

$$= \frac{360010-349724}{\sqrt{\{321160-309136\}.\{405594-395641\}}}$$

$$= \frac{10286}{\sqrt{(12024).(9953)}} = \frac{10286}{\sqrt{119674872}}$$

$$= \frac{10286}{10939,6}$$

= 0,94

5. Seeking Interpretation of "t"

$$t = \frac{\bar{X}_1-\bar{X}_2}{\sqrt{\frac{S1^2}{n1}+\frac{S2^2}{n2}-2r(\frac{S1}{\sqrt{N1}})(\frac{S2}{\sqrt{N2}})}}$$

$$= \frac{39,71-44,92}{\sqrt{\frac{61,31}{14}+\frac{50,83}{14}-2.0,94(\frac{7,83}{\sqrt{14}})(\frac{7,13}{\sqrt{14}})}}$$

$$= \frac{-5,21}{\sqrt{4,38+3,91}-1,88\,(2,09).(1,91)}$$

$$= \frac{-5,21}{\sqrt{8,29}-1,88.(3,99)}$$

$$= \frac{-5,21}{2,88-7,5}$$

$$= \frac{-19,17}{-4,62}$$

$$= 4,149$$

The t value above is then compared with dk = N1 + N2 - 2 = 14 + 14 - 2 = 26. With dk = 26, and if the error rate is set at 5%, then t table = 2.056. Thus, tcount > ttable (4.149 > 2.056) which means that the working hypothesis (Ha) in this study is accepted, namely that there is an effect of hockey table games on the physical motor skills of children aged 5-6 years at PAUD Rukun Bengkulu City.

DISCUSSION

This study aims to determine the effect of hockey table games on physical motor skills of children aged 5-6 years at PAUD Rukun Bengkulu city. This is because during initial observations, researchers interviewed teachers and principals at PAUD Rukun Bengkulu city, then found problems, namely the limited number of teachers who teach, children are less controlled when learning, there are children who always control the class, the learning model used has not been varied, educational game tools are only used when children rest, learning media are only limited to books for drawing and school magazines. Mrs. Jumaliyah Agustini, SE explained that children's physical motor skills at this school are less developed, children are still not strong in holding toys, still not neat in arranging puzzles, children are also not precise in putting small balls in toy baskets. For children's gross motor skills, children are still slow in moving, walking and jumping, also children's activities in learning have not used much media that can develop children's physical motor skills, teachers only use media such as rolling tires, playing mini badminton, and throwing balls. However, she has never used a hockey table game made by a teacher who had an internship at the school as a medium in learning to improve the physical motor skills of early childhood in this PAUD.

Hockey games have been proven to improve physical motor skills, as in the research journal Rafika Firdani Auliya and Heryanto Nur Muhammad entitled "The Role of the Level of Physical Condition and Hockey Playing Skills in Achieving Achievement" which explains that the game of hockey is a game whose victory is calculated from the number of balls into the opponent's goal, each player requires complete physical condition and good playing skills in order to develop and improve achievement. Physical condition components include: strength, endurance, muscle explosiveness, speed, coordination, flexibility, agility, balance, accuracy, and reaction..(Rafika Firdani Auliya dan Heryanto Nur Muhammad, 2020)

Physical development is also characterized by the development of motor development, both gross motor and fine motor. Motoric is the skill of controlling body movements through coordinated activities between the nervous system, muscles, and brain. The development of the ability to coordinate body movements or physical motor consists of the following three dimensions: (1) Posture, which is

the ability to coordinate visual perception and motor perception appropriately so that individuals can position their bodies among the objects around them. For example, a child can step correctly without stepping on a stone or into a hole because his eyes see what is around him safe, the child can also button his shirt because his eyes give clues where the buttons and buttonholes are. (2) Laterality, which is the ability to move gross and fine muscles in accordance with the intended direction, such as the ability to walk, the ability to hold small objects and so on. (3) The combination of posture and laterality is a prerequisite for coordinating body and muscle movements or motor skills, both body movements involving gross muscles, such as walking, jumping, running, pulling, pushing and others, as well as hand and finger movements involving fine muscle coordination, such as writing, assembling, sculpting, painting, and others.

The effects of the hockey table game on children's physical motor skills in this study are: (1) children want to line up regularly according to their turn to play; (2) children can move their right hand well; (3) children can move their left hand well; (4) children can move their feet well; (5) children can step well; (6) children can hit hockey slabs; (7) children can pick up hockey slabs that fall out of the table; (8) the child can hold the hockey grip correctly; (9) the child is excited when learning by playing; (10) the child encourages by clapping when his/her teammates play; (11) the child can play with sportsmanship; (12) the child can move his/her head following the direction of the slab hockey; (13) the child can deflect the slab hockey hit by the opponent; (14) the child correctly puts the slab hockey in the goal hole.

The results stated that the value of tcount> ttable (4.149> 2.056) which means that the working hypothesis (Ha) in this study is accepted, namely that there is an effect of hockey table games on the physical motor skills of children aged 5-6 years at PAUD Rukun Bengkulu City. The increase in the average score of children at the beginning of the study (pre-treatment) of 39.71 to 44.92 after learning to use the hockey table game, because it is in accordance with the benefits of the game for early childhood, namely: improve children's concentration, improve children's body coordination and balance, train communication skills; develop children's physical motor skills; help children recognize the potential that exists within themselves, provide opportunities for children to socialize to enrich and gain knowledge. The benefits of the hockey table game that the author uses in this study are that it can develop the physical motor skills of children aged 5-6 years, in accordance with the benefits of the game in general.

CONCLUSIONS

The type of research used by the author is quasi-experimental design research, starting with subjects who are pre-treated then given treatment using hockey table games, then assessed post-treatment to measure the physical motor development of children again. The sample of this study, namely class B aged 5-6 years as many as 14 children from PAUD Rukun Bengkulu city as a class that received learning actions using the hockey table game, on the grounds that this game is used in accordance with the indicators of the ability of children aged 5-6 years.

Based on the results of the research that has been done, it can be concluded that: there is an effect of hockey table games on the physical motor skills of children aged 5-6 years at PAUD Rukun Bengkulu city, this is evidenced by the increase in the average value of children who at the beginning of the study (pre-treatment) amounted to 39.71 to 44.92 after learning to use hockey table games. The results of data analysis obtained the tcount value is 11.6 which is compared with the ttable (dk = 26 with the error rate set at 5%, which is 2.056), then the tcount> ttable (4.149> 2.056), which means the working hypothesis (Ha) in this study is accepted, namely there is an effect of hockey table games on the physical motor skills of children aged 5-6 years at PAUD Rukun Bengkulu City.

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