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The Throwing Modification Sports Game in Improving Mild Mental Disabled Student Gross Motoric Skills

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***Abstract*---**This study aims to improve gross motor skills by modifying the sport of throwing. Children of intellectual disability (ID) were given treatment with a modification of the game of throwing with the population of this study is mild mentally disabled students in special needs children school 01 South Jakarta, with sample selection using total sampling, where the sample was 14 boys of students and 6 girls of students. The method that is used in this research is quantitative descriptive with experiment and One Group Pretest–Posttest Design. The research was occurred by giving the preliminary test and continued with the treatment as the final test. The form of the initial test (pre-test) was a shooting test which was conducted with five times of shooting in 2 meters of distance expecting there is an increase of throwing from the pretest to the posttest. The data analysis technique used is by using the T-test. The data average result before the game modification or pretest is 2.35 and the results of the posttest obtained an average value of 3.30.

***Keywords*---**game modification, gross motoric, mental disabled, motoric skills, sports game.

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Introduction

Mental retardation is intellectual function below the average, namely IQ 70 and below based on standard intelligence tests, deficiencies in adaptive behavior and occurs during the developmental period between conception and age 18 years (The Japanese League for the Mentally Retardation, 1992). Special needs children are the children who significantly have bellow intelligence compared to the average children's intelligence in general and they have the obstacle in adjusting themselves to the surroundings (Apriyanto, 2012). Intellectual Disability children themselves are special needs children or (SNC) who have the IQ bellow 70. other than that, there is one child among them are having motor, cognitive, sensory, emotional, and social problems. Utari (2015), stated that mental disability children are one of the children with special needs who experience mentally disabled, it occurs because of the imperfect brain development and nerve function. Mental disabled is divided into three kinds which are high mental, low mental, and specific learning difficulties (Suparno, 2007). The strategy that is used in the students who have under average mental is different from the normal one in general. The strategy is specially designed since every student is having different needs which followed by the characteristics and difficulty level differences for each student.

Core quality-of-life domains and most commonly used indicators according to Schalock (2004), in indicator of physical well-being including health (functioning, symptoms, fitness, nutrition), ctivities of daily living (self-care, mobility), and leisure (recreation, hobbies). Mental retardation disorders not only have an impact on the IQ aspects of the child, but IQ limitations have an impact on the social environment, motor skills and child activities. A special method is required for the mentally disabled student in delivering the learning. By using a special method, the teacher must be more patient in teaching and dealing with the mentally disabled student since based on the previous explanation, the mentally disabled student has below average intelligence compared to the normal student in general. According to Putri & Purnomo (2013), in adaptive physical education learning, teachers do not only give material learning yet they must understand about the knowledge itself. Delphie (2006), stated that in general, SNC (Special Needs Children) are having weakness in motion skill, physically unhealthy, motion coordination, lack of ability to adjust their surroundings and lack of gross and fine motor skill.

The factors that happen to the mild mental disabled require activities that relate to mental health and physical health, with locomotor, non-locomotor, and manipulative basic movement in purpose to improve movement skills as the training. This basic movement is important to be performed since it is supporting the ability of daily activities independently and the fundamental movement that every people must learn. Widianto (2012), stated that the fundamental basic movement is the basic movements that developed parallelly with the growth and maturity level of children. Mentally disabled children are having problems caused by the intelligence growth obstacle (Prawati, 2015). There is a method of learning which is required in purpose to make mentally disabled children are easier to understand in learning. By giving a game with understandable rules (reactive game) which can help to improve the learning result of mentally disabled students

and improve the learning of their movement ability (Giagazoglou et al., 2012; Golubović et al., 2012).

Gabbard & Miller (1987), games are important to students because it can make them feel happy. The pleasure provided by the game makes children didn't feel burdened and free to express themselves. The impact is that games carried out with modified games not only respond to physical aspects but also improve basic movement skills, cognitive and affective domains. Meanwhile, according to Alaunyte et al. (2015), modification is generally defined as an attempt to change or adjust. But in particular, modification is an effort to create and present something new, unique, and interesting. Modified games are intended to encourage children to be more enthusiastic, active and fun, so that these activities can improve the fitness and motor skills of intellectual disabilities. Beuchat-Mamie et al. (2018), stated that sports games are a media to encourage the development of motor skills, physical abilities, reasoning knowledge, appreciation of values (attitude, mental, emotional, spiritual, social), and habituation to a healthy lifestyle that leads to to stimulate balanced growth and development.

The theory that is used by the researcher to understand about the influence of the throwing modification sports game in improving middle mental disabled student gross motoric is the association from the previous studies results which are stated the influence of recreative sports game in improve kicking manipulative basic movement in middle mental disabled student, the influence of age and balancing exercise toward the gross motoric skill of mentally disabled students in special education school and the efforts in improving the locomotor basic movement of mentally disabled children by traditional game. In conducting this research, the researcher is using those three theories which become the basic theory. According to the characteristics of those theories, the researcher is fascinated in understanding about the influence of the throwing modification sports game in improving mild mental disabled student gross motoric (Matson et al., 2009; Macías et al., 2018; Nyandra et al., 2018). Therefore, this study aims to improve gross motor skills by modifying the sport of throwing.

Materials and Methods

The population is the total number of a collection of objects that have certain traits or characteristics. Asiamah et al. (2017), stated that the general population is probably what is universally known and specified by researchers, though it makes little sense without being specified alongside target and accessible the population. The population in this research itself is a mild mentally disabled student, and Notoatmojo (2005), stated that sample is a smaller set of the population that becomes the representative of the chosen population. This research uses a total sampling technique, the total sampling technique itself is a sampling technique where the number of samples is the same as the population (Sugiyono, 2007). In other words, the whole population is used as the sample and 20 mild mentally disabled students in special needs children school 01 Jakarta, with 14 boys and 6 girls as the sample for this research.

The method that is used in this research is quantitative descriptive with experiment and One Group pre-test – Post-test Design. The research was occurred by giving the preliminary test and continued with the treatment as the final test. The form of the initial test (pre-test) was a shooting test which was conducted with five times of shooting in 2 meters of distance and continued with the treatment by giving 6 modified shooting training model which will be performed in 14 meetings. Related to the theory of Bompa (1999), which showed that a phase of training 2 to 6 weeks in duration, in the other words, the times that are required in the training phase is 2 until 6 weeks. Furthermore, the final test (post-test) is similar to the initial test. The population is the total number of a collection of objects that have certain traits or characteristics.

Pratama & Suparman (2019), states that students carry out movements according to what the teacher instructs and do it repeatedly. The repetition of movements here is intended to make movement automation occur (Pratama & Suparman, 2019). So, in this study using the principle of repetition exercise. Post-test was a shooting test same like pre-test with five times of shooting in 2 meters of distance. The design of research was shown in Figure 1.

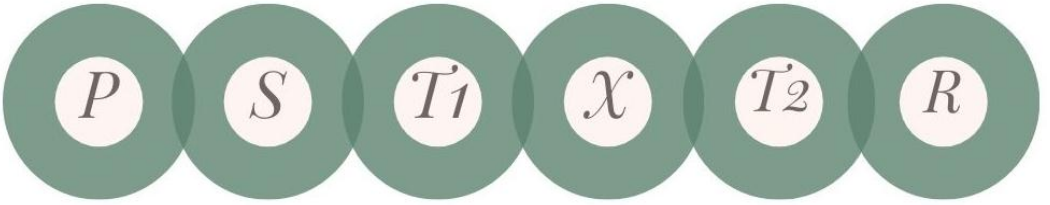

Figure 1. The design of the research

Annotation:
P : population
S : sample
T1 : pre-test throwing the ball to the basket
X : participants are throwing a ball
T2 : post-test throwing the ball to the basket
R : result

Since the COVID-19 virus outbreak, this research will be conducted online by sending a learning video and the student will perform as following in the instruction on the learning video, the results of the performance are recorded by the parents as the student's guidance. Data analysis by grouping data based on variables and types of respondents, tabulating data based on variables from all respondents, presenting data for each variable studied, performing calculations to answer problem formulations, and performing calculations to test hypotheses that have been proposed and research that does not formulate hypotheses, and didn't do the last steps The steps taken in the individual analysis of the data using the Wilcoxon match pairs test formula include: 1) Collecting data from the pre-test / initial observation and the results of the post-test / final observation. 2) Calculating the average and the respective results of the pre-test / pre-observation and post-test / final observation results. 3) Creating a table of changes by looking for the different values of each sample using the formula for

the post-test / final observation value - the pre-test / initial observation value. Then calculate the level of each sample to produce positive (+) and negative (-) values. Furthermore, to find out the group average and error level of the study by using the T-test (Matson & Shoemaker, 2009; Guidetti et al., 2010).

Results

The result of the study applied 6 variations of the model where each model was divided into each session of the meeting. The model which has been designed is adjusted to the mild mental disabled needs to improve gross motoric skills (Wilson, 2019; Kalynychenko et al., 2021; Peter, 2015). The descriptive distribution study to the mentally disabled student who has given game treatment throwing modified in improving gross motoric skill for the mild mentally disabled student according to the gender (Table 1).

Table 1
The data distribution of mentally disabled student according to the gender

No	Gender	Total	Percentage
1	Male	14	70%
2	Female	6	30%
3	Total	20	100%

The sample is the total population of the student in special education school 01 Jakarta. Based on the table above showed that 70% of the total students are boy students, and 30% are girl students. Furthermore, mentally disabled students get the treatment as a modified game in improving gross motoric skills. From the results of Table 2 also shows the difference in the increase before and after treatment of men and women. Male SNC students were more dominant in increasing after treatment than female intellectual disability students.

Table 2
Differences of pre-test and post-test

No	Initial	Post-test	Pre-Test	Gender	Differences T_2-T_1
1	JK	3	4	L	1
2	RU	1	3	L	2
3	RA	3	5	L	2
4	AM	3	4	L	1
5	AI	1	2	L	1
6	ST	3	3	P	0
7	DS	3	5	L	2
8	IJ	3	3	L	0
9	FS	4	4	L	0
10	AK	3	4	P	1
11	DS	1	3	L	2
12	SM	0	2	P	2
13	AU	3	3	L	0
14	IS	4	4	L	0
15	SR	2	2	P	0

16	DD	0	3	L	3
17	RM	4	4	P	0
18	AI	4	3	L	-1
19	SU	0	2	L	2
20	MUA	2	3	P	1

Based on the Wilcoxon test using SPSS 16 shows that the calculation of the Wilcoxon Signed Rank Test, the Z value obtained is -3.000 with a p-value (Asymp. Sig 2 tailed) of 0.003 which is less than the critical research limit of 0.05 (Table 3).

Table 3
Comparison for the Wilcoxon test

Ranks				
		N	Mean Rank	Sum of Ranks
postest - pretest	Negative Ranks	1[a]	3.50	3.50
	Positive Ranks	12[b]	7.29	87.50
	Ties	7[c]		
	Total	20		
a. postest < pretest				
b. postest > pretest				
c. postest = pretest				
Test Statistics[b]				
		postest - pretest		
Z		-3.000[a]		
Asymp. Sig. (2-tailed)		.003		
a. Based on negative ranks.				
b. Wilcoxon Signed Ranks Test				

To determine the effectiveness of the results of the treatment of the entire group that has been carried out, it is carried out by the T-test which is presented in Table 4, as below:

Table 4
Data paired samples statistics

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre-test	2.35	20	1.387	.310
	Post-test	3.30	20	.923	.206

Based on Table 4, the data from the pre-test results showed that the average score of 20 mentally retarded students was 2.35. And the results of the post-test obtained an average value of 3.10. This reveals that there is a positive difference

between the pre-test and post-test of mentally disabled students before and after the modification game treatment.

Table 5
Data paired samples test

Paired Samples Test									
		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Pretest - Posttest	.950	1.050	.235	1.441	.459	4.046	19	.001

The significance difference test results by using SPSS 16 showed that the t-count was 4.046 > 1.792 t-table, df=19, and a significance level 0.001>0.05. It means that there is a different result between the improvement of mentally disabled children's gross motoric skills before and after the treatment (Figure 2).

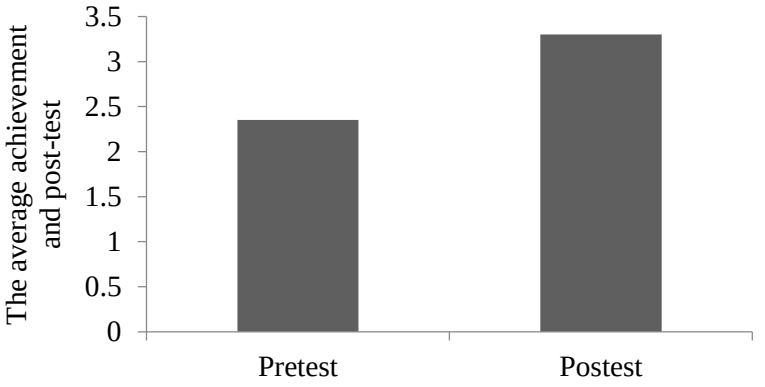

Figure 2. The average achievement and post-test of mentally disabled students

This research does not control all the activities outside the treatment which the researcher has conducted, with the result of the influence of other variables that cannot be avoided. As happened to one of the students “S” where “S” was not in a good condition in doing the post-test and there is an obstacle that cannot be avoided during the post-test (Munir et al., 2021; Edwards et al., 2017).

Discussion

The results of research with the implementation of recreational games to students with a mentally disabled in special schools 01 Jakarta provide improved results. The results of these studies indicate that after being given the modification of throwing treatment, the average value increased from 2.35 to an average value of 3.30. The impact of this change on the implementation of a recreational game which increases the motion of the multilateral aspects of the motion. Lumintuarso (2011), stated that multilateral motion is an amalgamation of various basic movements and basic movements of sports skills. The basic motion divided into

three main types of motion, namely locomotor motion, non-locomotor motion, and manipulative motion (Westendorp et al., 2011; Pratt & Greydanus, 2007).

Such as the opinion of Whitebread et al. (2012), which said that psychological research has established that there are five fundamental types of human play, commonly referred to as physical play, play with objects, symbolic play, pretence or socio-dramatic play, and games with rules. This recreational game leads to the physical aspect, in its application it does not give pressure to think on the child so that there is no pressure, in the absence of pressure the child will be freer and calmer in carrying out the treatment, in line with opinion of Smith (2016). Play is often defined as activity done for its own sake, characterized by means rather than ends (the process is more important than any end point or goal), flexibility (objects are put in new combinations or roles are acted out in new ways), and positive affect (children often smile, laugh, and say they enjoy it) (Zhang et al., 2020; Savazzi et al., 2018).

In the implementation of this treatment, there are still children who have not been able to improve, this obstacle occurs because the "S" child has not been able to coordinate their movements properly in the implementation of the test. This is also by the statement put forward by (Delphie, 2006), mentally disabled children have weaknesses in terms of movement skills, physically unhealthy, movement coordination, body balance, gross motor skills and fine motor skills.

Conclusion

These are the conclusion of this research, first there are six models of variations in the basic motion leaning application on the mentally disabled student. The deployment of data is conducted remotely by using a video call or the student can share the video to the researcher in parents' control. In its application, the researcher will only review the video which contained the performance of the student in doing motions that eventually occurs the lack of direct control from the researcher. However, the implementation of this research works very well since the sample can give well-timed data, from the time the model is implemented to how long the model is conducted. In the application of each session, the repetition is given to the sample until the time for each implementation of specified variation is ended. Second, by using a throwing modified game can improve a mentally disabled child's gross motoric skill. This improvement occurs because of the implementation in 6 meeting session in 2 weeks. This improvement is categorized as moderate due to the limited control provided by the researcher and the meeting which is only conducted 6 times from the pre-test until the post-test. According to the data, the result of t-count 4.046 > 1.729 t-table, df=19 from 20 mild mentally disabled children as the sample. In order to use this variation of the game model in getting more control in implementation and improving the intensity and the repetition with added time.

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