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## THE EFFECT OF MODIFICATION OF THROWING AND CATCHING GAMES ON GROSS MOTOR SKILLS IN CHILDREN OF DHARMA WANITA BALONGBENDO KINDERGARTEN

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### ABSTRACT

Game modification is a specialised version of the game in which some rules are adapted to the needs and abilities of the players. Not only that, the equipment in game activities is also adjusted. There are many kinds of modifications, one of which is the modification of leper catch. In throwing catch for kindergarten children really needs gross motor skills, there are several elements in gross motor skills, namely coordination, balance, agility, agility, and speed. The purpose of this study was to determine the effect of playing throwing catch on gross motor skills of class B children at Dharma Wanita Sumokembangsri Balongbendo Kindergarten. This type of research is quantitative research, the research method uses experimental method with One Group Pretest-Posttest Design design. The sample of this research is children of Dharma Wanita Sumokembangsri Balongbendo Kindergarten. Data analysis in this study used the T test (different test). The results of the Paired Sample T-test show that the game of throwing catch shows a significance value of 0.00, that the value is less than  $\alpha$  (0.05) can be said  $H_0$  rejected. Thus, from the results of data analysis, it is stated that  $sig > \alpha$ , or it can be interpreted that there is a significant difference in influence between the pre-test and post-test. In other words, there is an effect of game modification on gross motor skills of class B children at Dharma Wanita Sumokembangsri Balongbendo Kindergarten.

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## INTRODUCTION

Early childhood education or education in kindergarten is the most basic education and occupies a very strategic position in coaching efforts aimed at children from birth to 6 years of age which is done through providing educational stimulus to help development, growth both physically and spiritually so that children have readiness to enter further education (Susanto, 2017). Early childhood experiences growth and development, especially rapid physical growth. Physical activity and the release of large amounts of energy are characteristic of children's activities at this time. Therefore, children need a channel for physical activity, both physical activities related to gross motor movements and fine motor movements. The right stimulus from parents, teachers and the environment around the child must be given to

develop the abilities possessed by the child.

Children's physical and motor development tends to follow relatively similar patterns that they can be seen as normal or experiencing obstacles. However, there are differences in the rate of development between one child and another, so that no two individuals are exactly the same, both in physical growth and motor development. Motor development depends on the maturity of muscles and nerves so that children will find it difficult to demonstrate a certain skill when it is not mature (Trianto, 2011). Motor development is the development of the elements of development and control of body movements. Motor development develops with the maturity of nerves and brain. Motor development includes two things, namely fine and gross motor. Fine motor is a movement that uses fine muscles or certain parts of the body, while gross motor development is the development of movements that include balance and coordination between limbs.

Motor development means the development of control of physical movements through coordinated activities of nerve centres, nerves and muscles. Motor development in children includes gross and fine motor skills. Gross motor is body movement that uses large muscles while fine motor is body movement that uses small muscles. It is called fine motor, when it only involves certain parts of the body and is carried out by small muscles, because it does not require energy, however, this fine motor requires careful coordination (Hurlock, 2013).

Gross motor development in children begins physical movements in the form of coordination of body movements in children, such as crawling, running, tiptoeing, jumping, hanging, throwing and catching, and maintaining balance (Montolalu, 2014). Gross motor development is very important for early childhood, especially children in playgroups, and kindergartens. Children's gross motor development needs help from educators in early childhood education institutions. The ability to perform physical movements and actions for a child is related to self-confidence and self-concept formation. Therefore gross motor development is as important as other aspects of development for early childhood education.

Motor activities that use the hands, wrists and fingers are a predictable development. Through play, it is expected that children can focus more on dexterity skills such as throwing, catching where the hands will be heavily used during play. One way to optimally improve children's abilities is through play in kindergarten learning. Play can be done in various forms, one of which is by playing throwing and catching. In improving gross motor skills of early childhood in group B, we will use play media that is very easy to obtain and found in the field such as lightweight objects that do not burden children. The media used is used as a tool to help develop so that children have motor skills, the media also functions as a stimulus for children to be interested.

In reality, as in the observations of researchers conducted in the field on children's gross motor skills, especially playing throwing and catching, there are several obstacles in Dharma Wanita Kindergarten Sumokembangsri, Balongbendo, Sidoarjo. Some things are caused because gross motor learning at the school has not been done optimally involving physical activity by playing in children. In addition, the learning media used to improve children's gross motor skills are also still minimal, some play equipment that should be outside the

classroom to support children's activities are still limited and what they are. The age range of students is also visible, children who are older and have a larger body posture can throw and catch, while smaller children still look less able to carry out.

Based on the description above, the researcher is interested in conducting a study with the title *The Effect of Modification of Throwing Catch Games on Gross Motor Skills in Dharma Wanita Kindergarten B Children*.

## METHODS

This study uses quantitative research methods, experiments. Experimental research is research used to seek the effect of certain treatments on others in controlled conditions (Sugiyono, 2017). This research design uses a *one group pretest-posttest design* which is a research design that only involves one group. The independent variable in the study is the modification of the throwing catch game for the dependent variable in this research is gross motor skills. Population is a generalisation area consisting of objects / subjects that have certain qualities and characteristics set by researchers to study and then draw conclusions (Sugiyono, 2017). The population in this study were all dharma wanita kindergarten children while the sample used in this study was 27 children including 14 boys and 13 girls. The instrument used is the TGMD-2 testing 12 basic movement skills which are divided into two subtests, namely locomotor and control objects.

Locomotor skills consist of the following.

1. Run - step quickly, until there is a movement where both feet hover briefly in the air.
2. Gallop - performs a horse's stride quickly
3. Hop - jump a minimum distance on each leg.
4. Leap - perform skills related to jumping over objects with one foot.
5. Horizontal jump - perform a horizontal jump from a standing position forwards as far as possible.
6. Slide - a sideways movement on a straight line from one point to another.

Control object skills consist of:

7. Striking a stationary ball - hitting a stationary ball using a bat.
8. Tationary dribble - dribble (bounce) the ball on the floor with the dominant hand without moving.
9. Catch - The ability to catch a thrown ball.
10. Kick - the ability to kick the ball.
11. Overhand throw - throwing the ball as far as possible at a predetermined object.
12. Underhand roll - rolling the ball to a specific target

## RESULTS AND DISCUSSION

### Research Results

Descriptive statistics are statistics used to analyse data by describing or describing the data that has been collected as it is without intending to make general conclusions or generalisations. The statistical descriptions needed in this study are the number of samples,

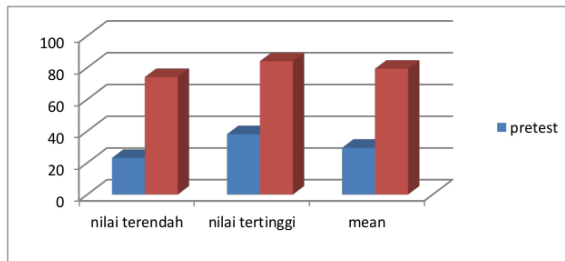
average, standard deviation, lowest value, and highest value. The following is a statistical description table that has been calculated using SPSS 22 for windows.

**24** Statistical Description Table  
Descriptive Statistics

|           | N  | Mean    | Std. Deviation | Minimum | Maximum |
|-----------|----|---------|----------------|---------|---------|
| Pre Test  | 27 | 29.4444 | 3.94514        | 23      | 38      |
| Post Test | 27 | 79.2593 | 2.42729        | 74      | 84      |

Based on the table above, it can be seen that before being given *treatment* or treatment, the *pretest* value has a standard deviation of 3.94514, the lowest value is 23 and the highest value is 38. After being given treatment or treatment, the posttest value has a standard deviation of 2.42729, the lowest value is 74, and the highest value is 84.

**Picture Diagram of Statistical Description**



### Hypothesis Test Requirements

After knowing the data description, the next step that must be fulfilled is the normality test and also the homogeneity test.

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### Normality Test

Normality test is a test carried out with the aim of assessing the distribution of data in a data group or variable, whether the data distribution is normally distributed or not. This research data normality test can propose the following hypothesis

$H_0$  = sample data is not normally distributed

$H_1$  = sample data is normally distributed

**Normality Test Table**

| Category           | Asymp.Sig (2-tailed) | Significance | Results |
|--------------------|----------------------|--------------|---------|
| Pretest - Posttest | 0,140                | >0,05        | Normal  |

The results of the data normality test in the experimental group on the *pretest - Posttest* results are 0.140. The probability value or Asymp. Sig (2-tailed) for both tests > 0.05, therefore  $H_1$  is accepted. Thus it can be concluded that the data in the experimental group is normally distributed. So the normality test requirements for experimental data can be fulfilled.

### Homogeneity Test

The homogeneity test is a test conducted to determine whether the variances of two or more distributions are equal. This test is used to ensure that groups of data do come from the same sample.

In this homogeneity test, the following hypothesis was proposed:

$H_0$  = it can be said that the data variation is homogeneous

$H_1$  = it can be said that the data variation is not homogeneous

**Homogeneity Test Table**

| Category           | Significance | Sig. Levene Statistic | Results     |
|--------------------|--------------|-----------------------|-------------|
| PreTest - PostTest | 0,238        | >0,05                 | Homogeneous |

The results of the data homogeneity test in the experimental group in the *pretest - posttest* category have a significance value of  $0.238 > 0.05$ , therefore  $H_1$  is accepted. Thus it can be concluded that the data in the experimental group has a homogeneous data variance. So the experimental data homogeneity test requirements can be met.

### Hypothesis Testing

*Paired Sample T-test* is one of the statistical tests used to test the truth or falsity of the hypothesis stating that between two mean samples taken randomly from the same population, there is no significant difference (Sudjiono, 2010). To prove whether the treatment given has an effect, the difference between before and after treatment is calculated. The difference was calculated by *paired sample test*. After data processing, the *paired sample test* results are as follows:

In this research data difference test, the following hypothesis is proposed:

$H_0$  = There is no effect of throwing and catching the ball on gross motor skills in group B children at Dharma Wanita Kindergarten.

$H_1$  = There is an effect of throwing and catching the ball on gross motor skills in group B children at the dharma wanit kindergarten.

**Paired Samples Test**

|        |                    | Paired Differences |                |                 |   |          | t      | df | Sig. (2-tailed) |
|--------|--------------------|--------------------|----------------|-----------------|---|----------|--------|----|-----------------|
|        |                    | Mean               | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference |          |        |    |                 |
|        |                    |                    |                |                 | Lower                                     | Upper    |        |    |                 |
|        |                    |                    |                |                 |   |          |        |    |                 |
| Pair 1 | Post Test-Pre Test | 49.81481           | 4.21569        | .81131          | 51.48249                                  | 48.14714 | 61.400 | 26 | .000            |

The results of the data difference test in the experimental group on the pretest and posttest can be seen that the Sig value. (2-tailed) of  $0.000 < 0.05$ , it can be concluded that there is a significant effect after being given treatment and can be seen from the results of the gross motor pretest and posttest. So  $H_1$  is accepted.

Hypothesis testing is carried out based on the results of data analysis and its interpretation. This hypothesis testing was carried out using the *paired sample t-test* method. The hypothesis in this study is stated as follows: "The game of throwing and catching has an effect on gross motor skills in group B children of Dharma Wanita Sumokembangsri Kindergarten". From the results of the calculations that have been carried out, the Sig. (2-tailed) value is  $0.000 < 0.05$ , so  $H_0$  is accepted. Thus between *pretest* and *posttest* there is a significant effect. So after getting *treatment* or *treatment*, gross motor skills in group B children of Dharma Wanita Sumokembangsri Kindergarten increased significantly.

## Discussion

The discussion of the results of this study provides further interpretation, especially regarding the results of the data analysis that has been previously stated. Early childhood is a period of growth and development of children often referred to as the golden age. At that time the physical condition and all the abilities of children are developing rapidly (Isjoni, 2011). Early childhood is an individual who is undergoing a very rapid growth and development process. It is even said to be a developmental leap. For this reason, early childhood is said to be the golden age, which is a very valuable age compared to later ages. This age is a unique phase of life. This period is the right time to lay the foundations for developing their abilities, so that efforts to develop all the potential of early childhood can be achieved optimally. The golden period only lasts once throughout the span of human life, so early childhood is at a critical age. Critical age in the sense that the golden period determines the next development as a stage for the development of various potentials possessed by children.

Providing stimulus to gross motor development in early childhood is very important to optimise children's movement abilities. Children's movement skills will develop well if children get guidance, motivation and opportunities to practice body movements. If children practice a lot of movement, it will be beneficial in mastering their motor movements, children react faster, become agile in moving which has an impact on children's self-confidence and independence so that children become confident in doing all activities because children know their physical abilities. According to Sujiono (2014), the characteristics of the goals of kindergarten children's motor development activities are to develop children's motor skills, train children in gross and fine movements, improve the ability to manage, control body movements and coordination, and healthy body skills. To develop motor skills, appropriate learning methods are needed and adapted to the characteristics of kindergarten children through movement exercises such as walking, jumping, running, gymnastics, and skills with the ball. These physical exercises are expected to help children's gross motor development in exercising the body which is useful for growth and development.

Throwing games are a very effective activity to help the learning process, both for mass, individual, and group learning. throwing is a movement that directs an object that is held by swinging the hand in a certain direction. The movements made when throwing are using the strength of the hands and arms that require coordination of several elements of movement,

such as arm movements with fingers that must release the object held at the right time. (Sumantri, 2005). While catching efforts made by young children are in the form of hand movements to stop an object rolling on the floor or an object nearby. The child's ability will increase if the child often repeats these activities. Because by repeating there will be synchronisation of hand movements with the speed of the object to be caught (Sumantri, 2005).

The game of throwing and catching the ball is one of the games that can develop children's gross motor skills. This ball throwing and catching game is often applied to early childhood with the aim of training motor skills. In addition, the activity of playing throwing and catching the ball can heighten all aspects of children's growth and development. The game of throwing and catching the ball is one of the games that train Susan's physical movements (Rahayu, 2013). Throwing and catching games are also non-print teaching materials that are rich in information and complete because they can reach children directly. In addition to throwing and catching activities, there are also many modifications to the game to make it interesting so that all children are happy to do the activity.

Game modification is an effort to deliver material by simplifying tools and rules tailored to the character of students. With the aim of facilitating the teaching and learning process, delivering material creatively and innovatively, and making students happier during the teaching and learning process, especially in throwing catch. One way to deliver creative and innovative teaching is by modifying a lesson to make it more interesting and make children enthusiastic and active in participating in activities. Modified play is a fun activity for early childhood that is done voluntarily or without coercion repeatedly and causes satisfaction. Play is a necessity for children that can have a positive impact on all aspects of child development (Jojo, 2020).

Through play, children have the opportunity to explore, discover, express feelings, create, and learn in a fun way. In addition, play helps children control themselves, others and the environment. This situation provides an impetus to conduct research on gross motor skills, one way to improve students' gross motor skills is by playing throwing and catching the ball (Novianti, 2020). From the provision of modifications to throwing and catching, it can improve gross motor skills in early childhood, especially in the elements of balance, strength, and coordination. From the results between *pretest* and *posttest* there is a significant effect. So after getting *treatment* or *treatment*, gross motor skills in group B children of Dharma Wanita Sumokembangsri Kindergarten increased significantly.

## 8 CONCLUSIONS

Based on the results of data analysis, hypothesis testing and discussion that have been stated in the previous chapter, the conclusions in this study are as follows: There is an effect of increasing gross motor skills in group B children of Dharma Wanita Sumokembangsri Kindergarten after being given the *treatment* of throwing/catching games.



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