



## **The Influence of the Development of Modified Teaching Materials for Kids Athletics Games on Gross Motor Learning Outcomes of Preschoolers**

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### **ABSTRACT**

*The gross motor skills of preschoolers are an important part of the child's growth and development process in learning motion. Kids Athletic is one of the intervention references that is thought to be able to develop and improve the gross motor skills of preschool children. However, references to the intervention of the Athletic figurative game in learning need to be developed through game modification. This study aims to analyze the effect of developing modified teaching materials for children's athletic games on gross motor learning outcomes for preschoolers. This type of research is experimental with a pretest and posttest design. 19 students from PAUD TAAM Al-Mubarak Kota Kediri are selected to be part of this study from nonprobability sampling. The results of this study obtained a significance value of 0.00, which is smaller than 0.05. Based on the gross motor skills pretest results are in the BSH (Grow as Expected) level which students are capable to convey the movement, yet they are not capable to perform it properly, and still require teacher assistance. Whereas the gross motor skills post-test results are in the BSB (Well Developed) level which students are capable to perform the movement without teacher assistance. The conclusion of this study is teaching modules developed can influence and improve the learning outcomes of preschool students in terms of their gross motor skills.*

**Keywords:** *Gross Motor Skills; Kids Athletic; Preschool Children.*

### **INTRODUCTION**

Law Number 20 of 2003 concerning the National Education System mandates that 'Education in Kindergartens is an effort aimed at fostering children from birth to the age of six years which is carried out through the provision of educational stimuli to assist physical and spiritual growth and development. so that children have readiness in entering further education. It is further stated in the Law of the Republic of Indonesia number 20 of 2003 concerning the national education system, article 28, that: (1) Early childhood education is held before the basic education level; (2) Early childhood education can be organized through formal, non-formal and/or informal channels; (3) Early childhood education in the formal pathway in the form of Kindergarten, Raudatul

Athfal (RA), or other equivalent forms; (4) Early childhood education in non-formal channels is in the form of playgroups (KB), child care parks (TPA), or other equivalent forms; (5) Early childhood education through informal education is in the form of family education or education organized by the environment.

Given the importance of preschool education, the role of the teacher is very clear as the manager of the learning process. The process is very complex, there are many series of decisions made by the teacher quickly and accurately based on the results of informal observations. Permendikbud No. 137 and 148 of 2014 explained the importance of early childhood education. Therefore, the attention of the government, observers, practitioners, and parents is very important. Efforts to improve the quality of teachers, the curriculum system has been stipulated in Law Number 20 of 2013 concerning the National Education System which has provisions that "A teacher who teaches in all kindergartens up to high school must have a minimum education of S-1. Teachers are required to have pedagogical competence, professional competence, and personal and social competence. To master pedagogical competence, professional competence, and personal and social competence, teachers must study educational science both theoretically and practically, one of which is learning evaluation and assessment. A teacher who masters the above competencies is expected to be able to compete in the rapid development of education and technology.

Along with the rapid development of technology, there are new challenges for teachers in teaching, as well as a negative impact on the health of children who are more dominant in using gadgets compared to physical activity. This phenomenon hurts the development and movement skills. The research results of the Communication Studies Center (Puskakom) University of Indonesia in collaboration with the Indonesian Internet Service Providers Association (PJJII) show that the growth of internet users in Indonesia continues to increase, this increases sharply when compared to research in 2017 with 54.86% users while in 2019 it reached 64.96%. Based on age group, 75.5% of children and adolescents (10-24 years) already consume the internet (Asosiasi Penyelenggara Jasa Internet, 2019). In a study conducted by the Ministry of Religion in 2019 on Raudlatul Athfa students aged 5-6 years, totaling 1514 students, it was found that 70.6% of children used cell phones even though they were still under parental supervision. The results of the study also stated that when children experienced an increase of 1 hour in the use of cellphones, it would have a negative impact, namely being lazy to study and having difficulty concentrating on learning 4.5%. While the positive impact of playing on

cellphones for hospital children increased by 2.82%, the positive impacts obtained were insight, good communication, and others.

As teachers at this age, this is a challenge for teachers to package physical activities as attractive as possible. Learning and playing models must be packaged according to the needs and development of children. The teacher gives the children the freedom to move about their environment by keeping an eye on the children's activities to keep them focused and not cause injury. The tools used by teachers in teaching must also be considered so that children are safe and comfortable in carrying out their movement tasks. In addition to the development and growth of children, with physical activity children are expected to be fit.

The culture of active living correlates with health status so that indirectly basic movement skills have a positive relationship with health. The survey from National Center for Health Statistics (2016) showed that 'the prevalence of obesity has increased, from 5.0% to 12.4% for children aged 2-5 years, 6.5% to 17% for children aged 2-5 years. 6-11 years, and 5% to 17% for children 12-19 years. Obesity is a trigger for degenerative diseases, which can interfere with child development. The Indonesian Pediatrician Association IDAI (2014), states that 'the consequences of obesity are increased blood pressure, arteriosclerosis, left ventricular hypertrophy, asthma, type 2 diabetes, weakened liver, abnormal blood lipid levels, and metabolic syndrome'. In 2017, being overweight affected 107.7 billion children and 603 billion adults (The Institute for Health Metrics and Evaluation (IHME), 2017).

The teacher's role is important in the active living culture of his students. Physical activity is an important part of overall education, to develop physical fitness, character, basic movement abilities, and aspects of a healthy lifestyle (Puspitasari, 2018; Rezky et al., 2017). Teachers are given the authority and are expected to be the pioneers of gross motor physical activity in schools. However, in the field, it is often found that physical activities, especially in PAUD, do not have a significant impact on the gross motor physique. Research in East Java conducted by the Indonesian Pediatrician Association (IDAI), there were 2,634 children from 0-72 months of age, showing normal developmental examination results according to age 53%, doubtful (must be examined in more detail) about 13% and those experiencing deviations. to development as much as 34%. Approximately 10% of the deviations to development are gross motor aspects (walking and sitting), there are also 30% in fine motor (writing and holding), language speech 44% and socialization independence 16%. Furthermore, a more detailed

examination was carried for out about 13% and those who experienced deviations from development were 34%. About 10% of deviations to development are gross motor aspects (walking and sitting), there are also 30% in fine motor (writing and holding), language speech, 44,% and socialization of independence 16% (Veldman et al., 2018).

The golden age for motor development is in preschool education. Motor ability is needed for the development of movement skills and physical activity. Sports given in early childhood must be appropriate, this is intended to support the process of growth and development of children. Therefore, it is necessary to create practical guidelines that can be used together so that the goals and benefits of gross motor activities for preschool children are achieved. Motor development is expected to form special mastery to support movement abilities. The needs for motor development vary according to the age of the child and the coordination skills needed. One of the motor development factors that the author considers important is gross motor skills. This is also to Holloway's opinion that gross motor skills in children have a very central role because they will also play a role in the pattern of children's social relationships (Holloway et al., 2018; Petros et al., 2016). The increase in gross motor skills cannot develop by itself as the child ages. Gross motor skills develop through various learning and movement experiences of children. For example, if a child sees a toy around him, the tendency to move will be more intense and seek his motor potential (Lisa et al., 2020; Putra & Bafirman, 2020).

The understanding of motor movements given by a teacher determines student activities to be able to move actively and perfectly in daily activities. Activities in schools are so active, that the problem of movement in children needs to be considered because it contributes to the growth of children. Seeing the importance of gross motor movement for early childhood, it should be a concern for early childhood education (PAUD) teachers in every school by spurring the gross motoric potential of children with various approaches and learning methods, for example by utilizing outbound games, traditional games (engklek) and even through media. hulahoop game (Iradnus & Nurrochmah, 2021; Lisa et al., 2020; Novitasari et al., 2019). The success of students in carrying out a movement task in learning affects their participation. Students will feel happy if they can do a movement, then it is likely that the movement will be repeated at another time. Students who have not been able to or find it difficult to move in a game then at other times these students tend to be reluctant to do repetition movements. For this reason, elementary school physical education starts learning basic movements so that students have good movement skills according to their development stage so that later students

can perform more complex movements in sports.

Based on the explanation above, gross motor skills are needed by every individual. Good gross motor development is closely related to locomotor and non-locomotor development (Novitasari et al., 2019; Nuridayu et al., 2020). Therefore, a teacher is expected to teach an appropriate model to improve motor skills. This is of course to avoid the negative effects caused by a lack of physical activity. This was also conveyed by the IAAF or the International Association Of Athletics Federations (2009:45) that the greater the opportunity for children to move, the greater the opportunity for children to learn. The wider the range of motion and dexterity the child has the opportunity to practice, the wider his experience is to be drawn into the agility of special events.

At the elementary school level, it has a sports game model, namely Kids Athletics. Kids Athletics is a basic motion recognition model specially designed by the International Association of Athletics Federations (IAAF) to promote and expand Athletics in schools and sports clubs. Kids Athletics divides the categories of children based on age, namely, 7 to 12 years. Children have the opportunity to be active and learn various movement skills, as well as improve their physical fitness. Kids' Athletics moves include speed, strength, endurance, agility, and coordination (Ngadiman, 2017). Hindriani, et al. (2018) state that sports modification in physical education is very necessary, especially for children, this is because children at an early age are physically and emotionally immature when compared to adults. Based on the explanation above, researchers are trying to explore, review and construct a research result in the form of modification of children's sports movements that are relatively safe, especially interesting for preschoolers. Through research, it is hoped that it can give birth to a new teaching material that is concrete and can support the process of growth and development of children at school. However, the effect of developing modified Kids Athletics teaching materials on gross motor learning outcomes for preschoolers is still unknown. Based on the background above, we want to analyze the effect of the modification of the Kids Athletics game on the gross motor learning outcomes of preschool children.

## METHOD

This type of research is quasi-experimental research using a pretest-posttest design where the sampling used is saturated. Sampling was determined because the population was relatively small, namely 19 PAUD preschool children at TAAM Al-Mubarak, Kediri



City, male and female aged 4-6 years. The independent variable in this study was a modification of the kid's athletics game. Meanwhile, the dependent variable in this study is the result of gross motor learning. The research instrument used a Likert scale questionnaire to assess aspects of the development of body movement balance, body movement agility, body movement speed, and body movement coordination.

## RESULTS AND DISCUSSION

Analysis of measurement data using descriptive, normality, homogeneity, and influence tests. The data normality test is used to determine whether the data to be analyzed is normally distributed or not. The results of the normality test of the data are as follows.

**Table 1.**  
Descriptive statistic

	N	Minimum	Maximum	Mean	Std. Deviation
Pre	190	2	4	3,21	,595
Post	190	3	4	3,86	,350
Valid N (listwise)	190				

Based on table 1, the average gross motor skills before and after the intervention increased from the lowest range of 2 to 3 in 190 preschool children. Furthermore, normality and homogeneity tests were carried out.

**Table 2.**  
One-Sample Kolmogorov-Smirnov Test

	Pre	Post
N	190	190
Normal Parameters <sup>a,b</sup>	Mean	3,21
	Std. Deviation	,595
	Most Extreme Differences	
Most Extreme Differences	Absolute	,335
	Positive	,335
	Negative	-,270
Test Statistic	,335	,515
Asymp. Sig. (2-tailed)	,000 <sup>c</sup>	,000 <sup>c</sup>

Based on the results of the normality test of the data in table 1, it is obtained that the significance value of the pre and post-data is 0.00 each. This value is smaller than 0.05. Then the decision was obtained to reject H1 with the conclusion that both pre and post-data were not normally distributed.

The homogeneity test of the data is used to determine whether the data to be analyzed has the same variance between groups. If the data variance is homogeneous, parametric tests can be used, but if the data are not normally distributed, nonparametric

tests can be used. The results of the data homogeneity test are as follows

**Table 3.**  
 Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Score	Based on Mean	54.678	1	378	.000
	Based on Median	33.430	1	378	.000
	Based on Median and with adjusted df	33.430	1	342.034	.000
	Based on trimmed mean	71.313	1	378	.000

Based on the results of the homogeneity test of the data in the table above, it was obtained that the significance value of the pre and post-data was 0.00. This value is smaller than 0.05. Therefore, the decision to reject H1 was obtained with the conclusion that the variety of pre and post-data was not homogeneous. After testing the normality and homogeneity of the data, the next step is to test the difference using the appropriate nonparametric test, namely the Wilcoxon signed rank test.

Wilcoxon signed rank test is used to see if there is a difference in the average results of the pretest-posttest data observations. This test can be used to see the effectiveness of a method to be applied. The results of the different tests using the Wilcoxon test are as follows.

**Table 4.**  
 Wilcoxon signed rank test

Test Statistics		Pre - Post
Z		-10,529 <sup>b</sup>
Asymp. Sig. (2-tailed)		,000

Based on the results of the Wilcoxon test in **Table 4**, a significance value of 0.00 is obtained. This value is smaller than 0.05. Therefore, the decision to reject H1 was obtained with the conclusion that there was a significant difference between the pretest-posttest data. The results of the Wilcoxon test can be interpreted that the given learning method can have a significant effect on gross motor learning outcomes. This is indicated by the average in the pretest data, students obtain a BSH (Developing According to Expectations) score scale, namely the child can perform movements but is not precise and correct and is still assisted by the teacher. Meanwhile, in the post-test results, children's gross motor skills are at the BSB level (Very Good Development), that is, children can move correctly without the help of the teacher.

Based on the results of the study, shows that there is an influence of the development of teaching materials modified by the Kids Athletics game on the gross

motoric learning outcomes of preschool children, which is indicated by the average value in the pretest data. and correct and still assisted by the teacher, while the results of the post-test gross motor skills of children at the BSB level, namely, Very Good Development, namely the child can move correctly without the help of the teacher. The results obtained were probably due to the development of modified teaching materials for the Kids Athletics game which were given according to the needs of preschool children, thus influencing their gross motor learning outcomes (Akbaruddin, 2018; Anisah et al., 2020; et al., 2015).

At the elementary school level Kids, Athletics is a basic motion recognition model specially designed by the International Association of Athletics Federations (IAAF) to promote and expand Athletics in schools and sports clubs. Kids Athletics divides the categories of children based on age, namely, 7 to 12 years (Hb, 2020). Children have the opportunity to be active and learn various movement skills, as well as improve their physical fitness. Kids' Athletics moves include speed, strength, endurance, agility, agility, and coordination (Çalık et al., 2018; Petros et al., 2016). The rapid development of Kids Athletics in Elementary Schools is the basis of this research so that students in Kindergarten are familiar with the movements in Kids Athletics which have been modified to suit the age of Preschool children, namely 4-6 years. Various basic movement models are modified in the form of competitive games (individual and team games) which aim to teach agility, coordination, speed, strength, and endurance as well as softer tools to minimize injury to children. Modifications that support the activeness of children's movements and the opportunity to try various kinds of gross motor movements of children (Putra & Bafirman, 2020; Zeng et al., 2017). Motor development through the development of teaching materials is expected to form special mastery to support movement abilities. The golden age for motor development is in preschool education (Nuridayu et al., 2020). This is because gross motor skills in children have a very central role. After all, they will also play a major role in the pattern of children's social relationships (Holloway et al., 2018). The increase in gross motor skills cannot develop by itself as the child ages. Gross motor skills develop through various learning and movement experiences of children (Lisa et al., 2020).

## CONCLUSIONS AND SUGGESTIONS

Based on the results of the study, it can be concluded that the development of gross motor teaching materials through the modification of the Kids Athletics game



affects the gross motor level of preschool children in the PAUD class at TAAM Al-Mubarak, Kediri City from BSH (Developing As Expected) to BSB (Developing Very Well). Future research is expected to be able to prove or even develop kids' athletic games for preschoolers to train gross motor skills. New game modifications are needed in further research to know the influence of other influences related to the gross motor skills of preschool children.

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