

# **THE EFFECT OF OUTDOOR EDUCATIVE GAME TOOLS (APE) AND LEARNING STYLES ON KINESTHETIC INTELLIGENCE OF CHILDREN**

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## **ABSTRACT:**

This study aims to determine the effect of outdoor educational game tools (APE) and learning styles on children's kinesthetic intelligence. This is done because based on preliminary observations the ability of the child's kinesthetic intelligence tendency is still low. This research was conducted in class A1 Paud Islam Terpadu Madani, Luwuk District in the 2019/2020 school year. This research is a quantitative research with experimental methods. The research design used a 2x2 factorial design. The sampling technique used purposive sampling technique, using integrated Islamic paud as an experimental class and tk pertiwi as a control class. Data collection using questionnaires and tests, then tested the validity and reliability. Data analysis using normality test and data homogeneity test. Hypothesis testing uses the two way ANOVA test. The results showed that there was an influence of

outdoor educational game tools (APE) and learning styles on the tendency of kinesthetic intelligence in the Islamic Paud Islam Terpadu Madani Luwuk but not significant.

## **INTRODUCTION:**

Early childhood education is seen as something very strategic in order to prepare superior and tough future generations. Early childhood is the golden age where children will easily accept, follow, see, and hear everything that is exemplified, heard or shown. Ndari and Chandrawaty (2018: 7) say that early childhood education is the provision of efforts to stimulate, guide, nurture and provide learning activities that will produce abilities and skills in children (competencies).

At an early age, children have a high sensitivity to receiving stimulation, so at this age is the right time to provide stimuli to develop aspects of their development. Developmental aspects that can be given to children are aspects of cognitive development,

language, social emotional, religious and moral values, art and motor physics. However, during the early growth period, physical condition is one of the most important in providing stimulation. Providing this stimulation can increase the large muscles in children.

Perfect physical development will be easier to train and shape from an early age. Because at this age, the child's physique is in a process of good growth and rapid brain development. Intelligence is a natural ability from birth that develops over time to be able to create solutions to any problems that arise. The higher the level of intelligence, the easier it is for someone to achieve success, and conversely the lower the level of intelligence, the more difficult it is to achieve success. Therefore, intelligence needs to be trained and developed. One of the intelligences that exist in every individual is kinesthetic intelligence. According to Purnama et al, (2019: 71) kinesthetic intelligence is a good coordination between nerves (mind) and good body organs which will result in high kinesthetic intelligence.

Children who have movement-kinesthetic intelligence need the opportunity to move, and master movement. They need to be stimulated given fine motor tasks, such as cutting, folding, sewing, sticking, knitting, connecting, painting and painting, as well as gross motor skills such as running, jumping, rolling, walking footpaths, walking on one leg, rhythmic gymnastics, creeping, and running short distances (Musfiroh, 2014: 1.17). Children with this intellectual tendency learn by touching, manipulating, and moving. They need access to playing fields, obstacle courses, swimming pools and sports halls. They also need supporting games such as educational games (APE) both indoors and outdoors.

Utoyo & Arifin (2017: 6) suggest that kinesthetic can be in the form of a person's ability to express ideas, ideas, strengths, skills

and express himself related to his body intelligence. Acesta (2019: 14) also states that "the characteristics of children who have kinesthetic intelligence are a) prominent in their sports ability compared to their peers, b) tend to like to move, can't sit still for long, tapping on something and likes to imitate motion or behavior that catches his attention, c) likes activities that rely on the strength of movement, such as climbing, running, jumping, or rolling, d) is fast and agile in mastering handicraft tasks such as folding, cutting, cutting and matching , e) have good body coordination, balanced movements, are flexible and dexterous, f) like to touch things and unpack their things and toys, and g) artistically they have the ability to dance and move their bodies flexibly and flexibly. "

Apart from different intelligences, children's learning styles in absorbing the material presented are also different so it is important for parents and educators to understand it. Learning styles are one's own perspective on something that is seen or experienced. According to Ghufroon and Risnawita (2014: 42) learning style is an approach that explains how individuals learn or the way each person takes to concentrate on the process and master difficult and new information through different perceptions. Another case with Lucy (2016: 47) which states that learning styles are the preferred way for a child to think, process, and understand information. Finding learning styles is the key to achieving goals because one's learning style is a combination of how to absorb and organize and process information.

Rahmawati and Daryanto (2015: 1) argue that learning styles are a way of recognizing various preferred learning methods that may be more effective for these students. Then Uno (2008: 180) adds that learning style is a person's ability to

understand and absorb lessons, of course different levels, some are fast and some are very slow. Brien in Susilowati (2013: 96) states that there are four kinds of learning styles, namely visual learning styles, auditory learning styles, kinesthetic learning styles and mixed or combination learning styles. Brien in Susilowati (2013: 94) argues that in general, human learning styles are divided into four types, namely visual learning styles, auditory learning styles, kinesthetic learning styles and combined or mixed learning styles.

Playing is an activity that is very popular with early childhood and playing activities in children is basically the child's own learning process. By playing, children can do activities that stimulate and encourage the development of aspects of their abilities and potential. Children learn starting from real objects, therefore in order for children's play to be more meaningful and with good results, it must be supported by means or games that contain educational values.

Basically, there are those who use tools and some don't. But in general, playing activities use tools or games that contain elements or educational values. Game tools like this are often called educational play tools. The game tools used are specially made for playing activities such as dolls, Imobilan cars and others that are sold in toy shops, but some are made by themselves using materials that are around the child such as toys made of orange peels, pistols from banana stalks and so on.

Zaman (2007: 63), argues that educational games are games designed for kindergarten children with the aim of improving aspects of child development. Meanwhile, according to Ismail (2007: 120), educational games are all forms of games designed to provide educational experiences or learning experiences to the players, including

traditional and modern games which are given educational and teaching content.

Fadlillah (2017: 56) argues that APE is any tool or form of game which contains educational values for children's growth and development. This is also stated by Tedjasaputra in Ardini and Lestarinigrum (2018: 37) that educational game tools are playing tools specially designed for educational purposes.

Game tools can be said to be educational if they have characteristics, one of which is that they contain educational values. In addition, the making of Educational Game Tools has requirements that must be met in accordance with predetermined rules so that it will be safe when using and can function to stimulate children's development. The following is a further explanation of the characteristics, conditions, and functions of the Educational Game Tool (APE). The characteristics of the Educational Game Tool (APE) according to Ismail (2009: 109-146) include:

- 1) Stimulating children to actively participate in the process, not just passively silent and just watching.
- 2) The form of the toy "unstrusure" so that it allows children to shape, change, develop according to their imagination.
- 3) Created with the aim of developing certain developmental aspects in accordance with the stages of its age.
- 4) Easy and simple design so as not to hinder children's freedom for creativity.
- 5) Safe for children, both from paint, color, and basic materials that are neat and not sharp, thus helping parents or educators in supervising children's activities.

The opinion above has similarities with the opinion expressed by Tedjasaputra (Kamtini and Husni, 2005: 61) that the characteristics of the Educational Game Tool (APE) are that they can be used for various purposes, benefits, and take various forms; aimed primarily at preschool children; in terms

of security is very well taken care of shape, use of paint, as well as selection of materials; forming children actively involved and constructive.

Based on the data obtained in early January 2020 observations at the Islamic Integrated School Madani, Luwuk District, it is illustrated that the tendency for children's kinesthetic intelligence is still low. This can be seen in the presence of some children who are more silent and daydreaming a lot and are still sleepy, especially in the morning. There are also children who are still shy when the lesson is taking place, namely when the teacher chooses several children to come forward and point to the hijaiyah letters mentioned by the teacher. However, some of the selected children were not willing because they were ashamed of their friends, so that only the brave children would go forward.

There are also children who prefer to play in class rather than outside during recess. especially girls. This is when they should be active outside the classroom to practice their kinesthetic abilities. They are reluctant to play outside the room because they don't like fighting over boys. a more extreme way of playing than girls. Even so, teachers still require children to be disciplined, that when it comes time to break, children must play outside the classroom. And vice versa, when the time comes, the children must be in the classroom.

Most of the children's learning styles in Paud Islam Terpadu Madani that dominate are mixed learning styles, especially Audiotorial and Visual. This can be seen in the characteristics of children who are more interested in symbols / images, and prefer sound / music. They prefer drawing, coloring and singing activities than physical activities. They are more interested when invited to watch movies.

The results of the observations above are also supported by a narrow school yard which causes the limitations of the School's Outdoor Educational Game Tool (APE) and is not proportional to the large number of students so that not all children can use it at the same time, plus time. limited rest. It seems that many children do not use APE, especially girls because they prefer to play indoors. Therefore, the researcher will conduct research in the Islamic Integrated Islamic School in Madani to test whether there is an effect of the Outdoor Educational Game Tool (APE) and children's learning styles on children's kinesthetic intelligence.

#### RESEARCH METHODS:

This research is an experimental study and was carried out in the Islamic Integrated School Madani, Luwuk District, Banggai Regency. The population in this research were students at Paud IT Madani as an experimental class and students at TK Pertiwi Kec. Luwuk as a control class. The sampling technique was using purposive sampling technique. The samples in this study were Group A1 Paud IT Madani with 10 children and Group A Tk Pertiwi with 10 children. This research design uses a 2x2 factorial design.

Table 1. Descriptive statistical calculation results table

Learning Style (B) (APE) (A)	With Outdoor Educational Games (APE) in A1)	Without Educational Games (APE) (A2)
Audiotorial (B <sub>1</sub> )	A <sub>1</sub> B <sub>1</sub>	A <sub>2</sub> B <sub>1</sub>
Visual (B <sub>2</sub> )	A <sub>1</sub> B <sub>2</sub>	A <sub>2</sub> B <sub>2</sub>

### Information:

A1B1: groups of children with Audiotorial learning styles when using the Outdoor Educational Game Tool (APE) at Madani Kindergarten.

A1B2: groups of children with a visual learning style when using the Outdoor Educational Game Tool (APE) at TK Madani.

A2B1: group of children with audiotorial learning style without any outdoor educational games (APE) in TK Pertiwi.

A2B2: groups of children with Visual learning styles without Educational Play Tools (APE) Outdoor at TK Pertiwi.

Data collection techniques using questionnaires / questionnaires and tests. The test and questionnaire used a Likert scale with a score of 1 - 4. The questionnaire instrument was used to measure the auditory and visual learning style variables, while the test instrument was used to measure the kinesthetic intelligence variable. The instrument was tested using validity and reliability tests. The data analysis technique used descriptive analysis and inferential analysis. Descriptive analysis is used to describe a data in the form of mean, median, standard deviation, frequency distribution table, and histogram. Inferential analysis is used to test the analysis requirements and hypotheses. The analysis requirements were tested for normality using the SPSS program with the Liliefors test. Then the homogeneity test was carried out to find out whether the study sample came from a population that had the same variance. Furthermore, testing the hypothesis using the two-way analysis of variance test. If the results of the two-way ANOVA test are significant, it is necessary to do further testing.

### RESULTS AND DISCUSSION

Research result

Table 2. Descriptive statistical calculation results table

Based on the table above, it can be

Gaya Belajar (B)	Alat Permainan Edukatif (APE) (A)		Jumlah
	A1	A2	
B1	n = 10	n = 10	n = 20
	x = 29	x = 27,5	x = 28,25
	s = 6,74	s = 5,07	s = 5,90
B2	n = 10	n = 10	n = 20
	x = 28	x = 27,5	x = 27,75
	s = 5,67	s = 5,07	s = 5,37
$\Sigma$	n = 20	n = 20	n = 40
	x = 28,5	x = 27,5	x = 28
	s = 6,20	s = 5,07	s = 5,62

concluded that the average kinesthetic intelligence with APE is higher, namely 28.5 compared to the average tendency of kinesthetic intelligence without APE, which is 27.5. Meanwhile, the average audiotorial learning style was 28.25 higher than the average visual learning style, namely 27.75.

#### 1. Normality Test:

The normality test is used to test the data distribution of each variable. If the data distribution is normal, it will be easier to determine estimates in inference. The normality test uses the Liliefors test with the criteria for rejecting  $H_0$  if  $L_0$  is greater than  $L$  list and accept  $H_0$  if  $L_0$  is less than  $L$  list and the results are as follows:

Table 3. Summary of Normality Test Results

Variable	$L_0$	$L_D$	List Note
Kinesthetic Intelligence with APE Outdoor	0,175	0,190	Normal
Kinesthetic Intelligence without APE Outdoor	0,189	0,258	Normal
Auditorial learning style with APE Outdoor	0,210	0,258	Normal
Auditorial learning style without APE Outdoor	0,196	0,258	Normal
Visual learning style with APE Outdoor	0,165	0,258	Normal
Visual learning style without APE Outdoor	0,210	0,258	Normal

Based on the table above, it is known that the  $L_0$  value is less than  $L_{Dlist}$  so it can be stated that the data is normally distributed.

## 2. Variance Homogeneity Test:

The homogeneity test is used to determine whether the data from the research results in the experimental class and control class have the same variant value or not. It is said to have the same / no different (homogeneous) variant value if the significance level is  $\geq 0.05$  and if the significance level is  $< 0.05$  then the data is concluded to have different (not homogeneous) variant values. From the results of the calculation of the homogeneity test (as in attachment 20), it is known that the significance value is 0.960. Because the value obtained from the homogeneity test has a significance level of  $\geq 0.05$ , the data has the same / not different (homogeneous) variant values.

**Levene's Test of Equality of Error Variances<sup>a</sup>**

Dependent Variable: kinestetik

F	df1	df2	Sig.
.100	3	36	.960

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + APE + gaya\_belajar + APE \* gaya\_belajar

## 3. ANAVA test:

Hypothesis testing is intended to answer the problem formulation, namely acceptance or rejection of  $H_0$  with a significance level of 0.05. The results of hypothesis testing are presented in a two-way analysis of variance through SPSS as follows:

**Tests of Between-Subjects Effects**

Dependent Variable: kinestetik

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	384.400 <sup>a</sup>	3	128.133	3.944	.016
Intercept	20250.000	1	20250.000	623.290	.000
APE	384.400	1	384.400	11.832	.001
gaya_belajar	.000	1	.000	.000	1.000
APE * gaya_belajar	.000	1	.000	.000	1.000
Error	1169.600	36	32.489		
Total	21804.000	40			
Corrected Total	1554.000	39			

a. R Squared = .747 (Adjusted R Squared = .697)

From the picture the test of between subject's effects above is the final result of the required two way analysis test.

a) Corrected model. From the correction of this model, it can be seen how much influence the independent variable has on the dependent variable. From the table above, it is seen based on the sig value. If the sig value  $< 0.05$ , that is ( $0.000 < 0.05$ ), it means that the model obtained is valid.

b) Intercept. The value of the intercept in this case changes in the dependent variable without the need to be influenced by the existence of the independent variable, meaning that without the influence of the independent variable, the dependent variable can change its value. If Significance (Sig.)  $< 0.05$  (Alfa) = Significant. Based on Table 4.8. The significance (Sig.) Of the Intercept shows 0.000 means that the Intercept is significant

c) APE Outdoor. Whether or not APE Outdoor affects the tendency of kinesthetic intelligence is indicated by a significant value. From the table above, the sig value is 0,000 or value ( $0,000 < 0.05$ ). In this case, it means that APE Outdoor has a significant effect on the kinesthetic tendency of children.

d) Learning styles. Whether or not the learning style affects the tendency of kinesthetic intelligence is indicated by a significant value. From the table above the sig value is 1,000 or the value ( $1,000 > 0.05$ ). In this case, it means that the learning style does not significantly influence the kinesthetic tendency of the child.

e) APE Outdoor \* Learning style. This test aims to determine whether there is an interaction between APE Outdoor and learning styles on children's kinesthetic intelligence. If the significance (Sig.)  $< 0.05$  = significant. From the table above it is known that the value ( $1,000 > 0.05$ ) so that in this case it can be concluded that there is no significant interaction between APE Outdoor and learning styles.

f) Error. The error value of the model, the smaller the model the better.

g) R Squared. The value of multiple determination of all independent variables with the dependent. Based on the table above, the determination value is 0.747 close to 1, which means that the correlation is strong.

## DISCUSSION:

1. The Influence of Outdoor Educational Game Tools (APE) on the tendency of kinesthetic intelligence.

The results of the 2-line Anava test, obtained a sig value of 0,000 or a value ( $0,000 < 0.05$ ). So it can be concluded that there is a significant influence between giving APE Outdoor on the tendency of children's kinesthetic intelligence. According to Acesa (2019: 4) stimulation of kinesthetic intelligence occurs when children play. It is during play that the child tries to train muscle coordination and movement.

The results of the study were supported by Syamsiah (2014) who found that children's kinesthetic intelligence experienced development and improvement after research was carried out through ball games, with the results of the study that 10% of children were in the underdeveloped category, 10% in the category of starting to develop, 20 % in the developing category as expected and 60% in the very well developed category. In this case, kinesthetic intelligence has increased by using ball games.

Furthermore, the results of research conducted by Putri (2019) proved that kinesthetic intelligence can be increased through basketball, with the results of the study achieving success criteria of 76% - 80%. Thus it can be concluded that intelligence kinesthetic can experience improvement and development by using educational game tools.

2. The influence of learning styles on the tendency of kinesthetic intelligence.

Learning style is how information can be well received by students. Based on research conducted by Gardner (Chatib, 99-102), it turns out that students' learning styles are reflected in the tendencies of intelligence possessed by these students. Therefore, it can be seen that learning styles have an influence on intelligence, one of which is kinesthetic intelligence. This is supported by the findings of research conducted by Rayesh (2016). The results of his research indicate that the relationship between learning style variables and multiple intelligence generally has a strong level of relationship. One of the multiple intelligences referred to is kinesthetic intelligence.

Furthermore, the results of research conducted by Permana, Ardi, and Sumarmin (2017) and found that multiple intelligence has very weak to weak correlation criteria with each learning style. Students with visual learning styles have a weak correlation with multiple intelligence and students with auditory learning styles have a very weak correlation with multiple intelligence. One of the multiple intelligences is kinesthetic intelligence which has an average value of 20.86. From the results of this study, it is found that learning styles have a relationship with multiple intelligence, although the level of correlation is weak.

Based on the results of descriptive data analysis, it was found that the average value (mean) of audiotorial learning styles with the provision of Educational Game Tools (APE) Outdoor (A1B1) was 29.00, while the average (mean) value of audiotorial learning styles without giving Educational Games Tools (APE) Outdoor (A2B1) which is 27.5. The mean value (mean) of visual learning styles with the provision of Educational Game Tools (APE) Outdoor (A1B2) is 28.00, and the mean value (mean) of visual learning styles without the

provision of Educational Game Tools (APE) Outdoor (A2B2) namely 27.5. The mean (mean) number of audiotorial learning styles was 28.25 and the mean number (mean) of visual learning styles was 27.75.

From the results of the analysis, it was found that there was a difference of 0.5 in the two variables. Therefore, the audiotorial learning style with the provision of the Educational Game Tool (APE) Outdoor has a higher influence than the visual learning style with the provision of the Outdoor Educational Game Tool (APE). Thus it can be concluded that there is an effect of learning styles on kinesthetic intelligence but it is not significant.

3. The interaction of outdoor educational game tools (APE) and learning styles on the tendency of kinesthetic intelligence.

Educational play tools are expected to be able to make children actively involved where all members of the child's body can move optimally, thus helping the child's kinesthetic development (Fadlillah, 2017: 68). Without educational play tools, children will feel bored and bored in learning. In addition to aiming for children not to feel bored and bored in learning APE will also make children happier and can explore with learning according to themes (Hasanah, 2019: 22).

Sumani (Anas and Munir: 234) stated that a child who has a visual learning style, the child will learn faster by seeing, for example reading books, seeing demonstrations conducted by teachers, seeing examples scattered in nature and natural phenomena. Observation, or see the lessons presented on TV or video tapes. Whereas for children who have an auditory learning style, they will learn more easily by listening, where the application of the lecture, question and answer, and discussion methods is more effective.

The interaction in this case is the cooperation of two or more independent

variables in influencing a dependent variable. Interaction occurs when the independent variable has different effects on a dependent variable at various levels than another independent variable. The findings of the research that did not find any significant interaction of Outdoor Educational Game Tools on the tendency of kinesthetic intelligence, were less in number and not in accordance with existing theories. However, there are findings which state that learning styles and APE have interactions but are not specific to kinesthetic intelligence, but spatial intelligence. The results of previous research findings also rarely link the variables in this study. For example, the learning style variable is more dominantly associated with critical thinking skills, cognitive abilities, learning achievement, learning motivation and learning outcomes.

Games are activities carried out by children repeatedly that cause joy to children, channel their hobbies and how to use goods something to be played with. With play, children can stimulate the growth of their muscles. Games can be played anywhere and anytime and with any tools (Melati, Jihansyah & Fitriana, 2020). One of them is by means of outdoor educational games. The development aspect that can be developed from the existence of an outdoor educational game tool is kinesthetic intelligence that combines physical and mental skills to produce perfect movements.

Based on research conducted by Gardner, it turns out that students' learning styles are reflected in the tendency of intelligence possessed by these students. This is in accordance with Chatib's (Rayesh, 2016: 91) explanation of the meaning of the relationship between learning styles and multiple intelligence.

When the information reaches the brain, the modality task is complete. Information will



be captured by the learning styles of each student. Learning styles are the brain's way of capturing information in distinctive ways. According to Howard Gardner, the originator of the theory of Multiple Intelligences, a person's learning style can be seen from their dominant multiple intelligences. When there are people whose multiple intelligence is linguistically dominant, it means that the person will find it easier to understand if the information is conveyed in a typical linguistic pattern. In conclusion, learning styles are closely related to a person's multiple intelligence and are always changing, although at certain times show a constant symbol.

Based on this theoretical study, it can be analyzed that both APE and learning styles have a relationship with kinesthetic intelligence. The results of the research on the interaction between the APE Outdoor variable and the learning style variable on the tendency of kinesthetic intelligence can be seen from the difference in the mean number in the description analysis. The mean total of kinesthetic intelligence with APE provision is 28.5 and the mean number of kinesthetic intelligence without giving APE is 27.5. From these results, it can be seen that there is a difference of 0.5, it can be concluded that there is an interaction between the APE Outdoor variable and the learning style variable on the tendency of kinesthetic intelligence but it is not significant.

#### **CONCLUSION:**

1. There is a significant effect of the Outdoor Educational Game Tool (APE) on children's kinesthetic tendencies. This can be seen from the mean between the experimental class and the control class where the mean of the experimental class is greater than the mean of the control class. Furthermore, it can also be seen in the ANOVA test that the sig value is

obtained  $<0.05$ , so it can be concluded that there is a significant effect on the effect of the Outdoor Educational Game Tool (APE) on the kinesthetic tendency.

2. There is an influence between auditorial and visual learning styles on the tendency of kinesthetic intelligence but it is not significant, which can be seen in the results of descriptive analysis that there is a difference in the number of means even though the value is small.

3. There is an interaction between the Outdoor Educational Game Tool (APE) and learning styles on children's kinesthetic tendencies but it is not significant, which can be seen in the results of descriptive analysis that there are differences even though the value is small.

#### **SUGGESTION:**

The suggestions that can be given in this research are:

1. To Teachers: It is hoped that this research can provide input and as material for future consideration, especially in the development of multiple intelligence, since the research location is one of the favorite schools in Luwuk sub-district, so it is hoped that it will pay more attention to the development of students.
2. For other researchers: Future research is expected to be able to correct deficiencies and further enhance existing research.

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