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**The Effectiveness of Fun Game Strategy in Improving Children's  
Recognition of Geometric Shapes**

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**Abstract**

Early childhood is an individual who is developing a process of growth. This research is based on the underdeveloped ability of children to identify the geometry of children in the Al-Hidayah Kindergarten of Kamil. This phenomenon is due to the selection and use of inaccurate learning strategies that are not appealing to children. This research aims to help improve children's recognition of geometric shapes through a fun game. This research used a pre-experimental method using one group pre-test post-test design. The subjects selected were 13 students of TK Al-Hidayah Tilatang Kamang. The data were collected using observation and the data analysis was examined by a statistical test. The descriptive result showed that fun game has improved children's recognition of geometric shapes. The statistical analysis obtained a significant difference between pre-test and post-test scores. Hence, the fun game strategy has effectively improved children's recognition of geometric shapes at TK Al-Hidayah Tilatang Kamang.

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## INTRODUCTION

Early childhood education essentially aims to facilitate children's growth and development as a whole and emphasizes the aspects of childhood development; cognitive development, social development, physical development, and motor development. In terms of cognitive development, according to Yuliana, it is directed to each skill namely auditory, visual, tactile, and arithmetic, geometry, and early science. Though the seven skills have pivotal roles in the children's cognitive development, the paper only focuses on the aspect of geometry.

Geometry is associated with Mathematics viewed from the learning concept, math, needless to say, is important in our daily life. It can be taught at an early age through the knowledge we are exposed to in our surroundings. Geometry is a branch of Mathematics which concerns shapes, space, and composition with its characteristics, size, and relation to each other. Triharso argued that building the concept of geometry at an early age starts from identifying shapes, investigating figures, separating objects such as triangle, square and circle. Besides, learning the concept of location like beneath, above, left and right is the basic understanding of geometry.

Given that, geometry can be understood as a mathematical concept concerns with flat shapes (2-dimensional) and solid shapes (3-dimensional). To introduce the geometrical concept to children, it needs a proper and interesting method and strategy. This is because interesting and fun learning helps children to understand quickly the geometrical shapes both 2-dimensional and 3-dimensional shapes.

Geometrical shapes recognition as explained above is developed into several points; introducing, pointing out, naming and collecting objects in the surroundings based on the geometric shapes. Hence, children will be able to select, match, compare and arrange each geometric shape. Therefore, the teacher should apply the correct method during learning activity and prioritize playing through learning and learning through play strategy.

Playing through learning and learning through play strategy for early childhood activities will provide an opportunity to interact with the environment. It will naturally motivate children to inquire deeper and spontaneously to develop their skills.

Play is defined as a media used to measure the ability and potency of a child. When playing, children find a variety of objects, recognize each

characteristic and understand the event occurs in the environment. Play is an educational tool that gives pleasure, enjoyment, and happiness. This way, children will experience pre-training to recognize rules, norms, prohibitions, honesty, and loyalty.

In an attempt to develop children's geometry skills, the teacher needs a proper method and strategy which is following early childhood learning characteristics. As previously mentioned, playing through learning and learning through play is what we are focusing on. Hence, one of the ways to introduce geometric shapes is through fun game strategy.

The fun game is categorized as a play. Play is an activity done voluntarily for recreational enjoyment and containing fun. The purpose of a game is to gain enjoyment during activity. It can be applied with or without tool and gives benefits for the player.

The children's outcome of Al Hidayah kindergarten (hereafter referred to as TK) and interview with the principle and the teachers showed that students of group B-1 encountered problems in learning geometric shapes. For instance, the inability to recognize basic geometric shapes such as triangle, square and circle, failure in matching and naming the objects based on its geometric shape.

To improve children's ability in geometric shapes recognition, the teacher needs a proper method and strategy which is following early childhood learning characteristics. One of the solutions to introduce geometric shapes is playing through learning and learning through play strategy using a fun game.

## METHODS

This research is quantitative using an experimental method. According to Sujiono (2007:107), an experimental method seeks for the influence of treatment on one variable to another variable in controlled conditions. In this research, the influence is a fun game; the influenced variable is the low ability of children's recognition of geometric shapes. The experimental method is used to seek the influence of treatment and examine a hypothesis in cause-effect relation in a controlled condition. Thus method involves manipulating one stimulation or condition to cause stimulation changes of an object.

The writer chose the pre-experimental approach with one group pre-test post-test design. It is called pre-experimental because the research still contains the dependent variable. Thus, the

result of the experiment which is the dependent variable is not merely influenced by the independent variable. In this research, the writer initially measured the variable before giving the treatment, and after the treatment was given, the dependent variable was measured with the same instrument.

The data before and after treatment were compared using average scores. The t-test analysis was used to compare the values before and after the fun game was implemented. It aims to see the significant improvement of children's recognition of geometric shapes.

The technique of data collection was observation and documentation. Observation is an activity using sight sense as the main tool. It is a process of collecting data that can be observed by the researcher. Meanwhile, documentation is used as valid proof to support the learning activity. It consists of documents, notes, memento, and reports. In detail, the documenter includes autobiography, personal letters, books, diary, memorial, clipping, governmental or non-governmental warrant, story, film, and photo.

The sampling technique used was purposive sampling. As explained by Sugiono, purposive sampling is a technique to determine sample in certain consideration to attain representative data of certain fields. We can conclude that purposive sampling is a technique in which the sample is selected purposively based on the requirements needed by the researcher.

## RESULTS AND DISCUSSION

### Recognizing geometric shapes

According to Tombokan, et al, geometry is derived from Greek words *get* and *metering*. *Ge* means earth and *metering* means to measure. In brief, geometry is a study of flat and solid shapes and their relations. Geometry is a branch of Mathematics which is first introduced by Thales (624-547) concerning spatial skills. Iswanto stated that geometry concerns on shapes, space, and composition with its characteristics, size, and relation to each other.

Seefeld and Wasik cited by Putri also asserted that creating situations in the classroom help children to improve geometric shapes recognition provide experience to interact in the environment and enable them to identify the geometric shapes easily.

Stages in introducing geometric shapes for early childhood

Learning letters and numbers are important for children as it determines their success in the later years. Burns in her book underlines how

Math concept is shaped in children. She stated that the mathematics category that can be taught at an early age is number (arithmetic, counting, pattern and function, size, graph, estimation, probability and problem-solving).

Children will perceive the concept of geometry through play as long as the teachers help to introduce them. Building the geometric concept at an early age starts by identifying shapes, investigating figure and separating the objects. Children later will attempt to recognize and understand the basic shapes by its respective names such as circle, triangle, square and the other shapes.

According to Wahyudi as cited by Fuadiayah, the stages to introduce geometric concept includes recognizing basic shapes (circle, triangle, square), distinguishing shapes, naming, matching each shape with its name, classifying each shape into its group and identifying shapes in the surroundings.

### Geometry skills developed in early childhood

Young children are in the stage of pre-operational which means it is a preparation into the concrete work organization. Children are expected to think intuitively and consider the shape and its size as well as its relation based on their interpretation and experience. Early age is an appropriate stage to introduce children to the mathematical concept. It is the right time to be taught about basic geometry because children are responsive to their environment. As their curiosity is higher, we can stimulate and motivate them following their development.

Geometry skills associated with the concept of shape and size. The skills developed for early childhood are; a) selecting object based on color, shape, and size b) matching object based on color, shape and size c) comparing object based on size, length, width and height d) measuring object in a simple way e) understanding and using size terms such as big-small, long-short, high-low.

### Play strategy with Fun Game

Play is essential for children's health. It improves affiliation with peers, reduces stress, enhances cognitive development, boosts adventurous energy and provides a safe place from dangerous behavior. The play also enhances the possibility to speak and interact with each other. During the interaction, children practice their roles for later years.

Hurlock (2008) in Hazizah (2014) defined play as any activity engaged in for the enjoyment it gives, without consideration of its re-

sult. The activity is done voluntarily without any compulsion. Game is a good setting for children cognitive development and associated with the aspects of symbol and imagination. For instance, a child imagines a stick as a horse and rides it as if it is a horse.

The play contains pleasure, relief, intensive enjoyment, freedom from pressure and sadness and releases one's freedom. It connects to self-expression and spontaneity. Besides, it enables every individual to compete and accept winning or losing as well as self-actualization. Hence, with play, someone learns about life, how to socialize, realize his existence, be independent and brave and has leadership.

Children spend most of their time playing. According to Widarmi (2009:17-18), several experts said that play is a media to learn. Playing and learning is a unit process that perpetuates in daily life. Playing is the first stage of learning that everybody experienced. Through the fun game, a child investigates and attains experience within his own experience, others' experience or the environment.

From the explanation above, we can suggest that play is an important component that is closely associated with childhood development. Thus, it is necessary to be applied during children's activities. It is an activity engaged in for the enjoyment it gives, without consideration of its result. Furthermore, it helps individual adaptation and enhances children's cognitive development especially social and emotional development.

**Fun games**

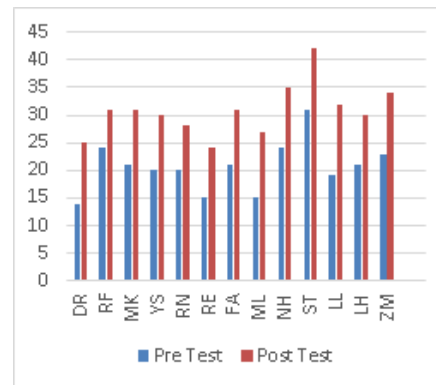
Every game has its procedure or rule that is established in a certain way and required sportsmanship and commitment. In a game, it takes punishment, appreciation, and sanction. There has to be a winner or loser and those are placed in the process from training to achievement. Santrock in Sujarwo and Eva Emania Elisa (2011:2) stated that play is an activity conducted for its own sake.

In other words, a fun game is categorized as play. It is an activity done voluntarily for recreational enjoyment and containing fun. The purpose of a game is to gain enjoyment during activity. It can be applied with or without tool and gives benefits for the player.

The proper method and strategy need to be applied following children's learning characteristics. It should be noted that learning through play and playing through learning is what we are prioritized on. The fun game is not only helping in shaping children's mentality and behavior but

also learning mathematics naturally during the activity.

Findings on the research showed improvement in children's recognition of geometric shapes. The average score before treatment is 20,16 while after treatment is 30,76



**Figure 1.** Score comparison between pre-test and post-test

The Figure describes every child has improved in recognizing geometric shapes. There is a significant difference between pre-test and post-test. And to examine the significant improvement using the fun game of the experimental group, t-test analysis was applied. The following table describes the hypothesis examination using the t-test. The accumulation to attain in examining the accuracy of the alternative hypothesis ( $h_a$ )

NO	Stu- dent's Code	Post-test	Pre-test	D	D2
		Score	Score		
1	DR	25	14	11	121
2	RF	31	24	7	49
3	MK	31	21	10	100
4	YS	30	20	10	100
5	RN	28	20	8	64
6	RE	24	15	9	81
7	FA	31	21	10	100
8	ML	27	15	12	144
9	NH	35	24	11	121
10	ST	42	31	11	121
11	LL	32	19	13	169
12	LH	30	21	9	81
13	ZM	34	23	11	121
TOTAL		268	400		
AVR		20.61538462	30.7692	132	1372

The significance of  $t_0$  was examined by comparing  $t(-t$  observation) with  $t_t$ . The result acquired was  $t_0$  was greater than  $t_t$   $22,55 > 2,18$ . There was a significant difference between pre-test and post-test, which means an alternative hypothesis was accepted. If that is so, the fun game strategy is effective in improving children's recognition of geometric shapes.

Some children of group B1 were unable to recognize the basic geometric shapes such as triangle, square and circle. They lacked in distinguishing the characteristics of the geometric shapes, had difficulty in understanding and naming the geometrical shapes, giving examples and matching the object around them with the geometric shapes. This problem occurred due to the limited learning media. The teacher only provided whiteboard and some pictures of geometric shapes. As a consequence, children were failed to have a proper understanding of geometric shapes and confused when naming them.

This research aims to see the improvement of children aged 5-6 years through a fun game. The result of the research in TK Al-Hidayah Tilatang Kamang has shown that fun game improves children's recognition of geometric shapes.

Lestari, K.W in Desy W.R (2014) explained that children's recognition of geometric shapes involves identifying, pointing out, naming and collecting the objects in the same geometric shapes. Besides, Triharso asserted that building the concept of geometry at an early age starts from identifying shapes, investigating figures, separating objects such as triangle, square and circle. Besides, learning the concept of location like beneath, above, left and right is the basic understanding of geometry.

Muhammad Fadillah (2012:168) stated that the play method is implementing game as the learning media. Play is an activity done with functional enjoyment. Moreover, Mathematical game, according to Yuliani, can be implemented at early age and provide benefits; 1) to teach children with a proper, interesting and fun concept 2) to fulfill children curiosity with fun learning activity as math concept is not easy 3) to reduce early fear of math 4) to help children to learn math naturally.

Children can develop a feeling of fear of math. When a child answers incorrectly to a problem, our disappointment is showing, and that is when the fear begins. Another way to help children recognizing geometric shapes is by finding out the shapes in their surroundings. This way, they will be able to figure out the relation between the objects.

Based on the result and discussion, we can infer that fun game enables children to learn the basic concept of geometric shapes in safe and fun condition. Though plays seem to be a lot of fun, it also facilitates children to learn naturally and gives benefits for children's development. Therefore, fun games can be applied as characteristics and learning methods.

The results of this study can be seen from the following table:

Aspect		Percent-age	Category
Validity	Content	96,66%	Very Valid
	Language	84%	Very Valid
	Affiliation	78%	Valid
Practicality	Implementation of learning	94,43%	Very practical
	Teacher response	92,18%	Very practical
Effectiveness	Learning activity	95,41%	Very active
	Learning outcomes	87,35%	Very active

## CONCLUSION

The result and analysis at TK Al-Hidayah Tilatang Kamang, showed that fun game is effective in improving children's recognition of geometric shapes. This proved by the result analysis that the alternative hypothesis ( $H_a$ ) was accepted. So, the fun game has successfully improved children's recognition of geometric shapes at TK Al-Hidayah Tilatang Kamang.

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