
**USE OF THE MONOPOLY GAME AS A MEDIA FOR LEARNING
MATHEMATICS THE MAIN DISCUSSION OF SPACE BUILDING**

*THE UTILIZATION OF THE MONOPOLY GAME AS A MATHEMATICAL
LEARNING MEDIA SUBJECT GEOMETRY SHAPE*

Hafif Komarullah¹, Sekar Arum Pangesti²

¹ Tadris Mathematics Study Program , Al-Falah As-Sunniah University, Jember,
Indonesia

² Indonesian Language and Literature Education Study Program , Jember
University, Jember, Indonesia

Email : ¹ hafififa4 @ gmail .com

Abstract

Mathematics is a comprehensive and general field, which has a very vital contribution to various fields of science and the development of human thought patterns, as well as underlying the growth of modern technology. Mathematics is taught at various levels of education from elementary school to university level. One of the materials taught in elementary school is building space. There are many geometric shapes discussed in elementary school mathematics material, namely cubes, blocks, prisms, pyramids, cones, cylinders and balls. A geometric shape is defined as a shape that has length, width and height. Building space is one of the materials that is considered difficult for students to understand. This is because students are not careful in distinguishing variables in spatial shapes. Apart from that, monotonous learning methods cause students to be less interested in studying volume material. Therefore, researchers want to apply a learning method using modified monopoly game media. Monopoly game is one of the most famous board games in the world. The goal of this monopoly game is to control all the tiles on the board through buying, renting, and exchanging properties in a simplified economic system. Researchers will use the monopoly method to find the volume and surface area of geometric figures, so that students will be interested in trying to do it. Researchers provide questions and prizes in the game. Apart from playing while learning using this monopoly method, students can more easily memorize the formulas for finding the volume of geometric figures. The population of this research is class 5 at SDN Sukamakmur 01. The sample used in this research is 30 class 5 students from SDN Sukamakmur 01 who will be divided into experimental class and control class. The expected result of this research is that students can better understand and be able to work on the questions that have been given related to spatial shapes.

Key words: Monopoly, Mathematics, Build Space

INTRODUCTION

Mathematics is a science that goes from general to specific, systematic science, and the queen and servant of science. The main basis of mathematics is process in reasoning (*reasoning*), very symbolic language. Another basis of mathematics can be seen from the verification process, the aspects analyzed, and the language used. In mathematics, the principles are the clear basic meaning, the required estimates, postulates and theorems related to the use of axioms and theorems in sequence based on their "time of birth", and appropriate mathematical modeling. Mathematical thinking means following mathematical rules to organize problems into mathematical models. For the improvement of science, technology and industry, mathematics has very important obligation. In science, such as Physics, Chemistry, Economics, and so on, mathematics is used as a language and tool. Modern science is almost all based on mathematics. The rapid development of modern science also has an impact on growth technology and industry. Almost every part of modern human life today makes use of mathematics, either directly or indirectly. One of the materials that has been successfully developed is building space.

Space building material is material that is given at the elementary school (SD) level. A geometric shape is a part of space that is determined by a collection of points found on all surfaces of the shape. The surface of the shape is called the side where there are many shapes room which will be discussed in material mathematics level elementary school, namely beam, cube, pyramid,

prism, sphere, cone, and cylinder. Material related to wakefulness room is three dimensions and volume. This will discuss about the volume of a geometric figure.

Covid-19 is a virus that has been declared a pandemic by WHO. Covid-19 paralyzes all activities in various fields, including education. The pandemic forced the process of teaching and learning to be done online or what is usually called learning from home. However, in September 2021, the Indonesian Minister of Education allowed limited face-to-face teaching and learning processes. This statement is certainly good news for students and educators. However, prolonged holidays affect students' psychology, especially decreasing students' enthusiasm for learning. This has an impact on understanding students regarding the material presented.

Volume gets up room become wrong one material which is considered difficult to understand by student. Matter the caused because student not enough thorough in distinguishing variables in spatial shapes. Apart from that, the learning method is monotonous cause student not enough interested learn material volume geometry. By because that required a method which can make student more interested for study especially in Century stare advance limited. By because that researchers want apply method learning use media modification polymath.. Game monopoly is something game board which very familiar in the world. The aim of this monopoly game is to control the entire area in on board through commerce, rent, and each other exchange assets which packed into the economy simple.

The population of this study was grade 5 at SDN Sukamakmur 01. The sample used in this study was 18 grade 5 students from SDN Sukamakmur 01. Results Which expected on study This is student more enthusiastic in learn material get up room so that can increase mastery student material .

THEORETICAL BASIS

Mathematics is the science of numbers, which studies the relationship between numbers and the operational relationship procedures used in problems regarding numbers. In Erman Suherman's opinion, mathematics is knowledge that is explained by mathematics itself. Mathematics is the knowledge of strict structures, theorems or results, supernatural exacts and so on.

Whereas according to book Tips Education Mathematics in Indonesia Which Written by Soedjadi, he explains several explanations about mathematics, including:

1. Mathematics is part knowledge knowledge accurate And structured and systematic.
2. Mathematics is Skills about number And calculation.
3. Mathematics The same with part about reasoning logic And related to numbers.

There are several kinds of special meanings of mathematics, namely; has the aim of explaining determination, is based on agreement, has a conclusive thinking pattern, has symbols that are empty of meaning, pays attention to the topic being discussed, remains in the technique that has been determined

Connected with mathematics correspondence, NCTM (2005) sets proficiency standards that students must achieve.

1. Coordinate and harmonize Mathematical ideas to convey to other students
2. Manifest mathematical ideas in an integrated and clear manner to other students, teachers, and others.
3. Advance or increase students' mathematical understanding by considering other students' ideas and strategies.
4. Utilize mathematical language appropriately in various mathematical expressions

On world education para expert interpret understanding Study in a way not the same, However on origin own meaning Which The same, Hamalik had time explained in 1993 that learning is a form of transition and development in the student's original personality as well as continuous practice, so that arise exists change from Which initially No Can so that become Can. Hudoyo also gave his thoughts in 1988, namely that Study is Wrong something method active in get knowledge and the increase in actual experience causes changes in attitudes, for example after learn somebody can understand And present where actually students have never done it. Then an expert in 1990 named Anwar states that learning is a transition from any attitude which can be interpreted as increasing maturity or which is caused by a condition of every living creature.

According to the opinion of the researchers above, it can be concluded that learning is an individual student procedure in correlation with the environment around them, thus giving

rise to a process of changing attitudes as impact from process Study And results correlation with the environment. In the process of learning mathematics, each student cannot know the level above, if they do not learn the things or basics which are included in the requirements for continuing with the next teaching strategy. In studying mathematics, students are required to be prepared when receiving lessons. Preparedness here means the learning experience and intelligence maturity that a student has, in the end the learning outcomes are more useful for students. .

In 1988 an expert named Russeffendi argued that "learning mathematics For a child is procedure Which prolonged and on continuously until in need understanding And knowledge fundamental mathematics the positive on background Study For next. And "Study mathematics Which intermittently will be annoying Study". In the same year, an expert also expressed almost the same opinion, this expert named Hudoyo stated that "learning mathematics in fragments disrupts the learning process."

Judging from the opinion above, it can be concluded that the mathematics learning system proper in start with understand plans Which more detailed by using previous plans to arrive at a more specific form. The teaching and learning process is a method that contains a series of teacher actions that proceed in a state of education in achieving objective Which Already determined. In process guide Mathematics learning is an activity that cannot be shared between the teacher who teaches and the students who learn. As Usman stated, the teaching process will be said to be successful if students

can express what they have learned freely and with confidence in various situations that occur in their lives.

According to Trianto, the idea of a teaching and learning activity model is a learning plan or model Which utilized For guide in designing activity Study teaching in class or tutorial teaching and learning activities. The teaching and learning activity model is based on planning the teaching and learning activities that will be used, including one of the tutorial objectives, the steps in the study activity, the scope of teaching and learning activities, and class organization.

In the Minister of National Education's regulation Number 41 of 2007 concerning Process Standards for Primary and Secondary Education Units, it is explained that: "the teaching and learning process is a method that connects teachers or educators with students and learning resources in a learning environment. The teaching and learning process must be organized and structured which is designed in a lesson plan."

Meanwhile, the concept of learning activities put forward by Djamarah, SB "is one of the methods used to meet the targets that have been inaugurated." In activity learning, model Which needed by Teacher so that the methods used vary according to what the learning activity wants to achieve at the end.

From the methods of teaching and learning activities, models and styles of teaching and learning activities , activities can be formulated that the model of teaching and learning activities are steps or pattern integrated Which used For become guidelines in order to achieve

your intentions teaching and learning activities with strategy therein, procedures, concepts, materials, media and assessment tools for teaching and learning activities. Whereas draft activity Study teach is Wrong one way or procedure Which used in correlation between student And teacher so Can reach intention activity Study teach Which has determined in accordance with the learning concept materials and procedures.

An innovative learning process is if the process creates new things In the learning process, with new things, students will not get bored and will be more enthusiastic in exploring the teaching and learning activities being carried out. The nation's future millennial generation and teachers must be able to become innovators in carrying out current learning innovations, especially in terms of learning.

Many people understand the essence and benefits of mathematics, in fact mathematics is still interpreted as a scary demon. Mathematics interpreted complicated, mathematics nerve-racking, only There is One answer what is true, and limits one's opinion, to the point of being unimaginative just because there is one answer already definitely true. This thinking is actually misleading. Mathematics is actually not an easy thing, but with the right work and procedures for publishing and studying Which interesting, will invite children interested And No Afraid with beauty Which There is on mathematics. Correlation And activity Work Using mathematics must be interesting, challenging and a necessity, not forced or forced.

To make it easier to understand interest in learning, this study will first describe it as interest and learning. In language, interest is a high tendency towards something. Interest is traits that will always remain in every human being. A person's interest has a huge impact on a person's activities because with interest he will do something he likes. On the other hand, without someone's interest it is impossible to do something. Whereas understanding interest in a way term has Lots be delivered according to experts, including what Hilgard quoted by Slameto stated, "*Interest is a persistent tendency to pay attention to end enjoying some activity and content*".

Sardiman A. m put forward that interest called Also as a condition that arises when someone knows the characteristics or meaning while the situation is related to one's own ambitions or needs. Meanwhile, according to Hurlock (Sixth Edition, volume 2:114) interest is a source of motivation that invites people to do what they want what if they are free to choose. This interest can encourage someone to do what they want. So interest can be defined as motivation, or in other words motivation is interest, which has conditions as stated by Hurlock. Then according to the opinion of Zakiah Daradjat, et al. stated that interest is "a persistent mental tendency to pursue something that is valuable to people".

From several quotes delivered by experts it can be concluded that, interest is tendency someone against purpose or something activities that are of interest and are accompanied by a feeling of happiness, attention, and creativity.

A spatial shape is a three-dimensional shape that has volume ,

content, space and also the sides that limit each edge. Comprehensively, spatial shapes can be categorized into two types, namely: curved-sided shapes and flat-sided shapes. Shapes written in flat-sided shapes are cubes, blocks, prisms and pyramids. Next, the curved-sided space shapes listed include cones, cylinders and balls.

2.3 Game Monopoly

According to Wulandari and Sukimo (2012:32), Monopoly is one of the most famous board games in the world. The goal of the game is to control all the tiles on the board by buying, renting and exchanging properties in a simplified economic system. Each player takes turns rolling the dice to move his pieces, and if he lands on a tile that does not belong to another player, he can buy that tile at the listed price. Wulandari and Sukrino added, Monopoly is a board game where players compete to collect wealth by implementing a game system that includes questions that are answered by participating players.

RESEARCH METHODS

This research is classified as quantitative research where the data is presented in the form of numbers which are then analyzed to obtain information that can be obtained understood audience general (Martono, 2012). Study quantitative is a method used to research populations and samples based on positive principles. Large populations can be easily analyzed using quantitative

methods (Bugin, 2013). Researchers in this study used SPSS software to help analyze research data.

This research uses a field research approach where researchers go directly to the field to collect data. The data collection technique used is to carry out tests on samples and then look for correlations between the test results and the learning methods that researchers apply.

This research conducted in SDN 01 Sukamakmur which is located at Curah Kendal Hamlet, Sukamakmur Village, Ajung District, Jember Regency.

Population is all objects in the form of people, objects or events that have certain specifications (Priadana and Muis, 2009). Population is area general Which consists from subject or object Which has certain characteristics which are then studied and reached a conclusion (Sugiyono, 2010). The population in this study were 5th grade students at SDN 01 Sukamakmur with a total of 56 students. The sample is part of the population to be researched or analyzed as a representative of the sample. Samples are used to make research easier. The sample in this study was 18 students at SDN 01 Sukamakmur.

Technique collection data on study This is with do description test on the sample after learning using monopoly media on building space.

The student essay test consists of the 5 questions and assessment instruments in the student description test are presented in Table 3.1 as follows.

Answer	Score
Answer Correct And Step Correct	20
Answer Correct And Step Wrong	15
Answer Wrong And Step Correct	10
Answer Wrong And Step Wrong	5
Not answered	0

Steps game modification polymath as follows:

1. Game consists from 2 player or more.
2. Player throw dice.
3. Then it is one of the players who gets his turn first Which throw dau And walk more first appropriate the number of dice obtained.
4. Player Which get turn For walk moreover formerly, then stop according to the resulting dice, they are the ones who work on the questions provided in the existing clues.
5. The clue is on the card that the researcher has provided. There are 2 cards that players can take, namely the question card and the prize card.
6. If the first player incorrectly answers the question they have taken from the card, then the player does not get the chance to roll the dice again. If the player answers the question correctly then player get One chance For throw dice return.
7. To find out whether the answer they have done is correct or wrong, players can open the bottom of the question.
8. For that question has been answered no can done again.
9. So next until question which given answered finished.

The variables in this research consist of independent variables and dependent variables. Independent variables are variables that influence other variables. The dependent variable is a variable that depends on the independent variable. The independent variable in this research is the learning method using monopoly media, while the dependent variable is student learning achievement.

The validates test is a testing technique used to measure validity A instrument Which in matter This is test description. Researchers take advantage application SPSS For help do test validity data provided that if $r_{hitung} > r_{tabel}$, then the instrument item is declared valid.

Reliability testing is a test carried out to measure levels trust tool gauge. If mark reliability instruments more small of value table, so instruments have level trust Which low (Santoso, 2000).

The normality test is a test to determine whether data is normally distributed or not. The normality test used in this research was Kolmogorov-Smirnov with a significance level of 0.05. If the significance value is > 0.05 then the data is normally distributed.

The test shows how far the influence between the independent variable and the dependent variable (Ghozali in Sujarweni (2015)). If the significant probability value is smaller than 0.05 (5%) then an independent variable has a significant effect on the dependent variable. The criteria are:

- a. If $t \text{ count} > t \text{ table}$ then H_0

rejected And Ha accepted

b. If $t \text{ count} < t_{\text{table}}$ so H_0 accepted
And H_a rejected.

DISCUSSION

This research was carried out at SDN 01 Sukamakmur which is located at Curah Kendal Hamlet, Sukamakmur Village, Ajung District, Jember Regency. SDN 01 Sukamakmur is a state school under the auspices of the Ministry of Education, Culture, Research and Technology of the Republic of Indonesia. SDN 01 Sukamakmur consists of 12 groups with details of 152 male students and 159 female students. The school applies curriculum 13 to its teaching and learning process .

Researchers chose SDN 01 Sukamakmur as the research object because convenience access And exists encouragement from party school. This encouragement was due to students' psychological changes after the long holiday due to the impact of the pandemic. The most visible psychological change is a lack of enthusiasm in Study, so that party school And researcher endeavor provide learning innovations to increase students' interest in the material presented.

The data collection technique in this research is a description test technique where the questions tested are 5 questions. The test results of the samples are shown in Table 4.1 as follows.

Table 4.1 Results Test Description

No	Name	Score
1	Amanda May Cindy Aulia	95
2	Aulia Come on Cesta Febrina	95
3	Febrina Darmawati	95
4	Fira Adelia Tri Wulandari	100
5	Word Gani Arifin Son	100
6	Galuh Bagas Prasetya	95
7	Ganesha Shihab	75
8	Haris Wisdyatmoko	100
9	Harisona Dafid Son	95
10	Jessica Homestead Nissa	85
11	Karina Bi Augustine	100
12	Nova Sulistiyani	100
13	Regita Gusni Wardani	75
14	Ryanitha Prameswari	100
15	Mattress Risky Imroati Khasanah	80
16	Triana Devi Nova Narima	100
17	Widya Ayu Marshela	95
18	Yolanda Aracelly Setiawan	90

Based on Table 4.1 obtained average exam 93 with score highest 100 and the lowest score is 75.

Test validity done For measure how much valid results test description given to students. The validity test in this study used SPSS software with a significance level of 0.05 and a sample size of 18 students. Researchers compare *person correlation* every item question with *r table* . If $r_{count} > r_{table}$, then the question item is declared valid. The validity test of the description test is presented in Table 4.2 as follows.

Table 4.2 Test Validity

Variable	Question Items	Person Correlation	r_{table} (5%)	Ket
X	X1	0.823	0.468	Valid
	X2	0.718		Valid
	X3	0.552		Valid
	X4	0.75		Valid
	X5	0.52		Valid
TOTAL	1		Valid	

Based on Table 4.2 every question valid, so study This can next.

Reliability testing is carried out as a measure of how consistent test questions are when the questions are tested repeatedly. The reliability test is used to measure the level of confidence in the essay test questions. The method used by researchers that is Reliability Alpha Cronbach (α) with criteria If mark alpha (α) > 0.6, so test description said reliable. Results test reliability served on Table as follows.

Table 4.3 Test Reliability

Variable	Reliability Coefficient	Cronbach's Alpha	Information
Question	10 questions	0.693	Reliable

Based on Table 4.3 obtained that mark coefficient Cronbach's Alpha 0.693 >0.6, then you can concluded that question reliable.

The Normality Test is carried out to obtain information regarding whether the data is normally distributed or not. In this research, researchers used the Kolmogorov method Smirnov with level significance 0.05. If mark significance > 0.05,

then it can be concluded that the data is normally distributed. The normality test of this research data is presented in Table 4.4 as follows.

Table 4.4 Test Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Nilai	.312	18	.000	.769	18	.001

a. Lilliefors Significance Correction

Based on Table 4.4, the significance value is <0.05, so it can be concluded that the data is distributed No normal. For overcome matter This researcher do SQRT transformation. The results of the SQRT normality test are presented in table 4.5 as follows.

Table 4.5 Test Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Sqrt_Nilia	.244	18	.006	.844	18	.007

a. Lilliefors Significance Correction

Based on Table 4.5, the significance value is <0.05, so it can be concluded that the data is normally distributed.

Hypothesis on study This is Ho (There is influence media monopoly on student learning achievement in the sub-subject of building space), Ha (There is no

influence of monopoly media on student learning achievement in the sub-subject of building space). Hypothesis testing on research This uses the t test paired test with . The criteria for the t test are as follows.

a. If $t \text{ count} > 0.05$ then H_0 rejected And H_a accepted

b. If $t \text{ count} < 0.05$ so H_0 accepted And H_a rejected

Results test t on study This served on Table 4.6 as following.

Table 4.6 Test Hypothesis
One-Sample Test

Test Value = 0						
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Nilai	45.914	17	.000	93.05556	88.7795	97.3316

be based table 4.6 available that $t < 0.05$, SO o be accepted and Has been rejected or in other words there is influence of monopoly media on students' learning achievement sub-topic of spatial structure).

After the Covid-19 pandemic forced teaching and learning activities to be hampered. The entire teaching and learning process must be carried out online. However, in September 2021, every school will have face-to-face meetings in the teaching and learning process. The length of school holidays results in low levels of enthusiasm Study student decrease so that required method new For overcome things the. Wrong One method Which done that is use media monopoly as media learning. Based on results testing, is known that learning methods use media monopoly influential positive to student achievement. This can be influenced by the loss of student boredom towards learning with monopoly media. Students will be more active in answering questions because the more students answer questions correctly, the

more students will win the match.

CONCLUSION

Based on the results of research on the influence of comic media on performance Study student obtained that media monopoly influential to learning outcomes. This can be caused because in facing the new normal era students experience a decrease in enthusiasm for learning, so an innovative method is needed to increase the level of enthusiasm and willingness of students.

Based on results study Which researcher do, so can submitted some suggestions as follows:

1. Teachers should make monopoly as an alternative media in conveying material on other sub-subjects.
2. To researcher other should look for study about media other to increase student creativity.

BIBLIOGRAPHY

Erman Suherman et al (2003 : 15). *Strategy Learning Mathematics Contemporary* . Bandung: JICA Indonesian Education University.

Soedjadi.Kiat (1999/2000 : 12) *Mathematics Education in Indonesia Constataion of the State Period Now Going to Hope Period Front* . Directorate General Higher Education Department of National Education.

Sujitno, 2023, *Media Monopoly Students Easily Learn Accounting*, Indramayu, Adab Publisher.

Adrian, QJ, Ambarwari, A., & Lubis, M. (2020). Design of an electronic book for elementary school mathematics lessons based on augmented reality. *Symmetric: Journal of Mechanical Engineering, Electrical Engineering and Computer Science* , 11 (1), 171-176. Gurupendidikan.co.id.

Ramdani, Y. (2006). Study of mathematical understanding through the ethics of mathematical modeling. *MIMBAR: Journal of Social and Development* , 22 (1), 1-14.

Initiating the Concept of Interest in Learning Mathematics. (nd). (np): GUEPEDIA.

Patria, L., & Yulianto, K. (2011). Using Facebook to Support Online Teaching and Learning Activities Independently. In *Proceedings of the FMIPA-UT National Seminar* .

Hamid, H. (2014). Improving Mathematics Learning Outcomes Through Problem Solving Learning for Class I MKN A Students at SMK Negeri 3 Palopo. *Al-Khwarizmi: Journal of Mathematics and Natural Sciences*

Education , 2 (1), 103-118.

application model learning cooperative type think pairs share in Nias regional government private vocational school mathematics learning (2010:51).