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# Ludo Game Implementation to Improve Student's Motivation and Interest to Learn Mathematics for 3<sup>rd</sup> Grade in SDN 19 Nan Sabaris

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**Abstract.** This research is motivated by the low interest and motivation of students to learn mathematics in the third grade of SDN 19 Nan Sabaris. The purpose of this study was to see the effect of Ludo media to increase the interest and motivation of mathematics learning in third grade students of SDN 19 Nan Sabaris. This type of research is quasi-experimental with a sample of all third grade students of SDN 19 Nan Sabaris registered in the 2018/2019 school year. The research instrument used was in the form of a questionnaire to see motivation and student learning interest in mathematics in grade III of SDN 19 Nan Sabaris. The data analysis technique used is paired-sample t-test. The results of data analysis showed that there were significant differences in the results of interest in and motivation to learn mathematics in third grade students at SDN 19 Nan Sabaris. This means that the use of ludo game media can significantly increase students' interest and motivation in learning about Mathematics.

## 1. Introduction

According to the theory of cognitive development, children at elementary school age are still at a simple level of thinking, limited to concrete things. Every teacher in designing learning activities to be carried out in the classroom must be able to pay attention to the stages of cognitive development [1]. The foundation of cognitive development is adjusted to the way of learning, learning styles and increasing student learning interests and motivation [2].

Learning mathematics at the elementary school level must be able to accommodate the creation of continuity between interests, motivations, activities and learning outcomes [3]. The teacher can choose several methods or learning models to be able to increase student activity [4]. In addition, teachers can also be creative by creating media that can improve students' understanding in learning activities. In the concept of media is a link between the delivery of information between teachers and students [5].

The choice of learning resources also influences how students' interests, motivations and understanding in learning activities. Students will be motivated in learning activities if learning resources are designed according to their current stage and age [6]. Therefore, developing a learning media needs to pay attention to student's interest, hobbies, learning styles.

Interest is a feeling that is gained because it is related to something. This interest can be learned and can influence subsequent learning activities and influence the acceptance of new interests. So, interest in something is the result of learning and tends to support the next learning activity. Therefore interest is very influential on learning activities. If a student has a feeling of being happy about a particular lesson then there will be no sense of compulsion to learn [7].



Between interest and motivation there is a close relationship. If someone has a motivation for something, there will be interest in something. Students' interest and motivation can be improved through interesting and enjoyable learning activities [8, 9]. One of them through the planting of appropriate learning material concepts, giving chances/opportunities to students to be actively and creatively involved in learning activities and exercises continuously.

The facts found at SDN 19 Nan Sabaris show that interest in students' mathematics learning motivation is low. This can be seen from the enthusiasm of each student following the learning. Several groups of students showed indications of boredom in participating in learning activities. This is supported by observation data which states that the dominant teacher uses the lecture method in mathematics learning activities. The use of the lecture method can lead to saturation in students and inhibit student-centred learning activities [10].

To overcome the problems in learning mathematics at SDN 19 Nan Sabaris, the media can be used as an effort to increase students' interest in learning. The recommended game media is Ludo. The researcher chose Ludo based on several reasons, including: Ludo is a game that has been known for a long time by each student so that indirectly students already have an understanding of the rules of the ludo game. Ludo's game is also an adaptive type of game that is easily adapted to learning needs [11]. The selection of Ludo as a medium for learning mathematics is also motivated by the principle of learning at the elementary school level, one of which is directing learning to the concept of learning while playing.

## 2. Research Methods

This type of research is a quasi-experiment involving 22 third grade students of SDN 19 Nan Sabaris who were enrolled in the 2018/2019 school year as a research sample. The sampling technique used was purposive sampling because of the limitations of the classes available in the research area. The instrument of data collection in this study is a questionnaire that aims to assess students' interests and motivations in mathematics learning. The conclusion of the study was taken by comparing the results of data analysis using paired sample t-test and the findings obtained during the research activities.

## 3. Results and Discussion

Ludo game is one of the games designed to increase motivation to learn mathematics in third grade students at SDN 19 Nan Sabaris. This media is the development of ordinary Ludo games and is modified and adapted to learning needs. This ludo media is applied to third grade mathematics learning at SDN 19 Nan Sabaris with a total sample of 22 students. Before the conclusion of the study was taken, data analysis was performed using the paired sample t-test equation. To perform a paired sample t-test, a prerequisite test is first done, namely the test for normality and homogeneity.

**Table 1.** One-Sample Kolmogorov-Smirnov test.

Class Condition	Normal Parameters <sup>a</sup>		Most Extreme Differences			Asymp. Sig. (2-tailed)
	Mean	Std. Deviation	Absolute	Positive	Negative	
Before	2.360	0.848	0.257	0.257	- 0.198	0.110

<sup>a</sup> Test distribution is normal

Based on the data above, it can be seen that the value of sig 2. Tailed to the class before being given treatment is greater than the value of  $\alpha$  which is 0.05. This shows that the overall value of students in class III before being given treatment is normally distributed. With this conclusion, the first test as a prerequisite for carrying out a paired sample t-test has been fulfilled. Furthermore, analysis was carried out for class group data after treatment being given.

**Table 2.** One-sample normality test after treatment.

Class Condition	N	Normal Parameters <sup>a</sup>		Most Extreme Differences			Kolmogorov-Smirnov Z	Asymp. Sig. (2-tailed)
		Mean	Std. Deviation	Absolute	Positive	Negative		
After	22.000	3.770	0.869	0.222	0.222	- 0.194	1.042	0.228

<sup>a</sup> Test distribution is normal

Referring to the results indicated by the data analysis of group normality after giving the treatment, namely the application of ludo playing media in learning mathematics in class III SDN 19 Nan Sabaris, it can be concluded that the data is normally distributed. This is indicated by the value of sig 2. Tailed which is greater than the value of  $\alpha$  which is 0.05 so that it can be concluded that the data is normally distributed. The next prerequisite test is the homogeneity test.

**Table 3.** Test of homogeneity of variances.

Levene Statistic	df1	df2	Sig.
0.023	1.000	42.000	0.880

The homogeneity of the data group was obtained by carrying out the homogeneity test using the Levene test. Based on table 3, it can be seen that the sig2 value. Tailed for 0.880 is greater than the value of  $\alpha$  so it is concluded that both groups of sample class data are good which before being treated with homogeneous treatment.

To draw the main conclusions of the study, data analysis was continued to the paired sample t-test. This test can be continued because the entire data meets the requirements, which are normally distributed and homogeneous.

**Table 4.** Paired Sample t-test.

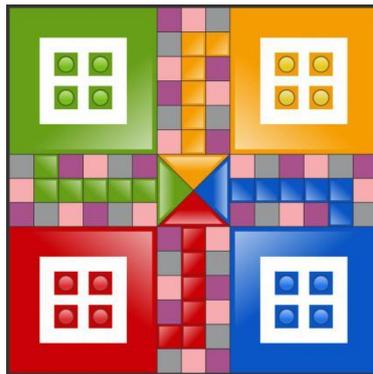
Paired Sample T-Test					
Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		Sig. (2-tailed)
			Low	Up	
1.568	0.873	0.132	1.303	1.834	0.000

By looking at the analysis data in table 4, it can be seen that the sig 2.tailed value of 0.000 is smaller than the value of  $\alpha$  which is 0.05 so that it can be concluded that there are significant differences in student interest and motivation between before and after treatment is given in the form of internal media ludo mathematics learning. The application of ludo media is one of the steps taken by the teacher to increase students' low interest and motivation in learning mathematics. It cannot be denied that mathematics is one of the subjects that is often feared and categorized difficult by several groups of students [12]. Mathematics can be made fun by applying learning concepts that are appropriate for child development [13].

Learning with ludo media so that it is more directed and in accordance with the learning objectives must be bound by several regulations [14]. These rules include: the students must answer the questions given in question cards with limited time actively. All the rules above have been introduced and explained to students before the game uses ludo in mathematics learning begins.

Ludo which was developed in the form of mathematics learning media aimed at increasing students' motivation and interests. The method used in this game has some differences compared than usual Ludo games. The board is coloured with 3 colour: purple, pink and blue. The rules are the same with ordinary

Ludo game. The difference is as follow: If a player get position in purple zone, that player have to answer the questions that have prepared in question card; If a player get position in pink zone, that player placed in netral position, it means that player do not have to answer the questions in question card. If a player get position in blue zone, that player given choice to answer questions or to be in netral position. Every player who get position to answer questions need to do it in one minute. The punishment will be given to player who answer question in wrong way. That player have to step backward in several steps. This is a consequence that should be done as one of rules in this Ludo game.



**Figure 1.** Modified Ludo board

Ludo game media is a media game that can be adapted not only in mathematics learning. This media can be applied in other learning as long as the characteristics of the material fit into the game flow and the agreed rules. The application of this media is proven to be able to increase motivation and interest in student learning, so that the game media is feasible to be developed on a broad scale to support and as a variation in learning activities.

Ludo learning media is said to be effective for increasing students' interest and motivation because in this game students are actively involved and increase cooperation within the team. Each student is motivated to answer questions and contribute to winning the game. The principle of game-based learning is one of the principles that is often forgotten by every teacher in designing and designing learning activities at the elementary school level. The games that were raised not only had an impact on satisfaction to the students but also indirectly influenced them to be willing and motivated in learning.

The game media which is packaged in ludo form has directed students to take part in each stage of learning [15]. The involvement of problem solving activities is one of the steps that students do not realize as an exercise to improve their understanding in mathematics learning. Students become motivated to learn and increase their active participation in each process after the implementation of this ludo-based learning media. Motivation can be increased by choosing appropriate teaching materials [16]. In the future teachers are expected to be more creative in developing learning resources for students whether in the form of media or teaching materials. Student needs for learning resources can be adjusted to the stage of growth and age of the student.

#### 4. Conclusion

Media is a link between teachers, students and learning materials. The use of ludo media in mathematics learning, especially at the elementary school level, has been shown to increase students' motivation and interest in learning. The ludo media that is applied is one of the steps of the teacher in adjusting learning patterns at the elementary school level which are still dominated by the Ludo game. Some of the things that are noted in the implementation of learning using game-based media such as ludo include: preparation of tools and materials that are quite mature and in a sufficiently long time so that the implementation process does not experience obstacles, preparation of students as pre-conditions before learning uses media ludo, as well as knowledge the beginning of students who need to be stimulated so that students are not constrained in solving questions that are the main focus of research. In the future,

it is expected to be able to continue the development of activity-based media playing with other types such as snakes and ladders, monopolies or other types that are often used and close in their daily play activities.

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