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The use of Traditional Games to Increase Interest in Learning Multiplication in Class 4 Primary School Students in the City of Bandung

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ABSTRACT

Learning multiplication is challenging for fourth-graders of an elementary school in Bandung in terms of the subject when they learn it at school. Some students exhibit no curiosity in mathematics, despite the fact that curiosity is a significant part of learning effectively. This study aims to examine students' responses on the use of traditional games as a way to grip the minds of pupils in learning multiplication with creative and constructive methods. With the use of the case study approach, the findings are presented through a descriptive analysis through a number of tables which are made from the responses to the questionnaires. The subjects were 30 fourth-grade students. The data were collected through questionnaires and documents with the help of the descriptive statistical methods for the analysis to represent the results in numerical and tabular formats. The conclusion drawn from the research is that the *dakon* game, the most traditional one, as a learning medium was perceived to be able to bring a remarkable change in students' interest to learn multiplication.

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A. INTRODUCTION

In government regulation number 16 of 2022, learning processes need to be held interactively, in a more inspiring manner, able to provide fun and challenging opportunities for continued active participation and to improve talents and interests. For the reason, it is necessary to use learning media that best suits the existing conditions of need (Abari et al., 2022). The use of learning media is important because it will have a direct impact on the learning activities carried out (Ramadhani & Wandini, 2023). Moreover, education is one of the important things to develop because it influences the potential within each individual. However, in republic of Indonesia law number 20 of 2003 concerning the national education system, every individual student is expected to be able to improve their abilities and potential interests and talents.

Moreover in general, educational problems are still very complex, one of which is that many teachers do not use media to support learning activities (Rebollo et al., 2022). Moreover, the impact is that students have not been able to maximize the development of the potential that

exists within each individual. Moreover, most learning in school still focuses on conveying concepts and theories rather than focusing on how learning can be active and fun for every student (Husain & Mohammed, 2024). For this reason, this is proof that there are still problems experienced by the world of education. If this continues, the potential within each child, including their interest in learning and developing will experience obstacles. For this reason, it is hoped that every teacher will be able to facilitate a fun and active learning process.

Fun learning is in accordance with the explanation of the standard that a learning activity must be designed so that children can have high enthusiasm in terms of self-activation, development of various creativity and their sense of enjoyment in carrying out learning activities (Marlian et al., 2024). Moreover, mathematics learning activities in elementary school require high creativity on the part of each teacher so that the material taught can be understood and students can enjoy learning the material. Based on the results of observations made, it was found that students' interest during the mathematics learning process was not active and they felt less actively involved in learning activities. Moreover, in multiplication material, they still feel that the learning is too difficult and boring. This condition is related to students' interest in learning activities (Melaningsih et al., 2023).

Many students experience mathematics learning and they feel that, this learning has a fairly high level of difficulty (sum). This condition is because this learning uses various kinds of formulas that are difficult to memorize. They even have to memorize formulas to use in the learning process. Even in learning mathematics, you not only have the ability to understand formulas but you also have to memorize and interpret these formulas. Understanding concepts in mathematics learning is part of the skills or abilities possessed by each student in understanding and explaining various kinds of situations and actions that are general in the mathematics learning process (sum). Every student in learning activities at school needs to receive mathematics learning so that each student has the ability to understand mathematical concepts, explain various kinds of relationships and apply them in solving problems related to concepts and algorithms (Iasha et al., 2021).

For this reason, so that they have ability to understand more meaningfully, mathematics learning needs to be directed towards connected development of various kinds of ideas, especially mathematical ideas, so that a comprehensive understanding is built (Sari et al., 2024). The development of these ideas must be linked to the mathematical concepts that every child has in everyday life, especially in terms of traditional games (sum). One of the subjects that is considered most difficult in mathematics for elementary school students is multiplication. This condition has been proven in the test results achieved by each student that the result do not meet the KKM criteria and in the results of interviews conducted with subject teachers, many students complained about solving multiplication problems. The difficulty is due to students' ability to understand the concept of multiplication. Apart from that, this also influences interest in learning mathematics, especially in multiplication material because one of the main factors is that the approach used by the teacher is still teaching-centered. This means that learning is still fully focused on the teacher while the role of students is still not dominant (Ummayyah et al., 2024). For this reason, these conditions cause the cultivation of concepts to take a very long time, so it is necessary to implement learning that is interesting and more meaningful for each student.

One important factor in students' learning activities is their interest in learning activities. When each student does not have a good interest in learning, negative possibilities will occur during learning activities. Good interest will give rise to stimulation in each student to able to participate in learning activities well, including satisfying the mind in these learning activities. When viewed from an educational perspective, interest in learning is important because it is one of the underlying reasons for every student's motivation to learn. When each student does not have good motivation to learn, their focus will be different and their learning process will also experience obstacles (Maulidiyyah et al., 2021).

For this reason, interest in seeking is an important element in increasing each person's motivation to continue to focus on a particular object or activity. Their focus on one thing is part of the role of interest that exists within each individual. For this reason, interest is one of the important things to support the teaching and learning process of each student. This was conveyed in the explanation that the learning process will run smoothly if each student has the same interest in the material to be studied (Purnamasari et al., 2023). Several studies also stated that students have a good interest in learning, which will increase their activity during the learning process. At that time it could be concluded that this interest had a very high influence on their success in learning (Andriyani et al., 2023). For this reason, it is very important for every individual to pay attention to this interest because it is interest that underlies a person's carrying out certain actions and increases the motivation they experience.

In accordance with this explanation, this research needs to use appropriate learning media to support learning activities. One medium is to use traditional games in the form of marbles to teach multiplication material (Rohendi, 2019). This mathematics learning needs to be developed with learning media in the form of traditional game learning. In this game, you can use materials obtained from the surrounding environment, especially pebbles, marbles, clothes buttons, number cards as well as beads and other props adapted to the mental development of each child at school (Mei et al., 2020). In accordance with the research results, it is stated that those who use traditional games in mathematics learning activities will fulfill more developed abilities, including the ability to cooperate, sportsmanship, the ability to develop dexterity and strategy. Apart from that, traditional games developed in learning activities will have an impact on children's growth and development abilities. Learning that uses traditional games is used for elementary school students to make the learning process more understanding (Hartatik & Rahayu, 2018). For the reason, this opinion uses marbles as a first step in teaching multiplication operations. For the reason, further research needs to be done on this game to reveal the influence it has on each student's interest learning. For the reason, the aim of the research is to discover how students' interest in learning increases by implementing traditional games.

B. METHODS

This research used a case study approach. This approach was used in this study because we aimed to obtain an in-depth understanding of the students' responses of the complex phenomenon of the possibility of traditional games to be used as a method to keep students' attention within their real-life contexts. The subjects were limited to only were 30 fourth-grade students in order to dig deeper information about the use of traditional games in teaching

multiplication. This current study aims to examine how traditional games were used as a way to grip the minds of pupils in learning multiplication with creative and constructive methods. The research results were in the form of numbers as percentages and also qualitative descriptions. This method means that a study attempts to describe various kinds of findings or situations in accordance with phenomena that occur in real life (Bowen, 2019). The committee was carried out in elementary schools in the city of Bandung with the main focus on grade 4 students. When viewed from a population perspective, the population of this study was all students in the elementary school.

Then subjects were taken through purposive sampling from this population of students determining the sample utilizes a certain method of consideration or purposive sampling. If this material is related to multiplication material the learning steps were implemented in class 4 so that based on certain considerations the research was carried out in class 4. Apart from that, it was also found that mathematics learning friends were less interested in each student. For the reason, on average they do not like mathematics, so based on these considerations they were chosen to carry out research. Therefore, the sample for this research was 30 students in class 4.

In accordance with research testing each student's interest in learning, the technique used to collect data and information is using *alket* methods and also documentation. This method is a technique used to collect information by asking respondents a number of questions and statements via a written list (Arikunto, 2022). This questionnaire was used to examine whether students had a high level of interest in learning multiplication after adding traditional games. Furthermore, this research was obtained from documentation carried out on direct observations. This technique was used to obtain data or other information that is directly useful for research.

In addition data collection techniques using questionnaires, there were instruments used to reveal aspects of feelings of happiness, aspects of attention, aspects of interest and aspects of their active involvement. These instruments were designed to consist of statements that were used to measure each student's interest in learning using traditional games. Then the data analysis was carried out on all the information obtained in the form of description. This analysis was used to describe the research results obtained. For the reason, these results will be explained or presented objectively in data used to test the hypothesis. The results of the analysis were presented using descriptive statistics through percentages to reveal the extent of interest for each student.

C. RESULTS AND DISCUSSION

Playing marbles is a traditional game used in learning activities and this is one of the first steps carried out by teachers in multiplication operators. This material is given in class 3 in the form of basic multiplication and simple multiplication, namely whole numbers under 50. The use of multiplication under 50 is more effective because the numbers are small and still relatively simple. The main goal in learning mathematics is the ability to calculate and also the ability to solve problems carried out by each student. This action will later have an impact after implementing the learning process, including the ability to calculate whole numbers and measure them as well as data processing. In accordance with the research results, this marble

game is a game that can be taught to every students in terms of counting skills (Marhamah & Zarya, 2024). Mathematics learning that uses the traditional game of marbles means that each player will place the marbles that have been previously agreed upon into a square circle. Then in the discussion it was agreed that 2 marbles, 3 marbles, 4 marbles, and 5 marbles would be used in learning activities. The number of participants or players is divided into several groups and each group contains four people.

In this lesson, all players placed the previously agreed number of marbles into the square used for learning. Player 1 had the task of counting how many marbles fit in the square. Then the player was tasked with checking how many marbles there are. The counting steps carried out in this lesson are one by one the marbles in the square and how many players there were if they agreed on 3 points. Then 4 x 3 = 12. They checked how many marbles were in the square if the total was 12 then this had been done, in accordance. Thus, when the results were correct, it could be said that the number matched the number of marbles. This applied continuously according to number of marbles agreed by each person, whether it is 5 marbles or 4 marbles. Apart from marbles, they can also be replaced with seeds which can be easily obtained in rural areas or replaced with tree trunks or twigs. In accordance with the results of the research carried out, some data can be presented as a result of the research questionnaire on the application of learning models using traditional games. This information is divided into several indicators, namely the results of research regarding each student's feelings of enjoyment in studying the mathematics of multiplication calculations, the aspect of their attention, the results in terms of their interest in studying the material, and the assessment in terms of their involvement. The first result presented in Table 1 concerns the feeling of happiness that results after learning using marbles as a medium.

Table 1. Students' Interest in Learning in Terms of Feelings of Enjoyment

Interest Categories	**Freq**	**F Relative %**
Very Interested	8	26.7%
Interest	15	50.0%
Interested enough	5	16.7%
Less Interested	1	3.3%
Not interested	1	3.3%
Total	30	100%

In accordance with the information in the Table 1, it can be explained that many students enjoy learning supported by traditional games. This was proven by the questionnaire assessment and analysis, as many as 8 students stated that they were very interested in studying multiplication material using traditional games and as many as 15 students were interested in studying multiplication material. In general, 76% of students enjoy learning multiplication material. Then shown in Table 2, it is explained how the attention was generated by students during the provision of learning materials.

Table 2. Students' Interest in Learning from the Attention Point

Interest Categories	Freq	F Relative %
Very Interested	5	16.7%
Interest	17	56.7%
Interested enough	6	20.0%
Less Interested	1	3.3%
Not interested	1	3.3%
Total	30	100%

In accordance with the information presented in Table 2 regarding assessment and analysis of the level of students' attention and enthusiasm for studying multiplication material using traditional games. The results show that they are interested and very interested in learning multiplication material. On average, they are in the enthusiast category so their level of attention is still in the good category because overall students are still interested in learning multiplication material through traditional games. For the reason, this traditional game provides attention for each student to pay attention to the multiplication material. Furthermore, in the Table 3, it is shown how interest in generated during learning.

Table 3. Students' Interest in Learning in Terms of Interest

Interest Categories	Freq	F Relative %
Very Interested	5	16.7%
Interest	10	33.3%
Interested enough	10	33.3%
Less Interested	5	16.7%
Not interested	0	-
Total	30	100%

In accordance with the information in Table 3, analyzing student interest in terms of interest in learning is mostly generated by those who fall into the categories of interested and quite interested. 33.3% of them chose to be interested and interested enough to learn multiplication material through traditional games. If this is added together with those who are in the very interested category on average, the result is that they are interested in learning this multiplication material through traditional games. Then it is also presented in table 4 regarding student involvement during learning.

Table 4. Students' Interest in Learning in Terms of Engagement

Interest Categories	Freq	F Relative %
Very Interested	4	13.3%
Interest	14	46.7%
Interested enough	11	36.7%
Less Interested	1	3.3%
Not interested	0	-
Total	30	100%

In accordance with the information in Table 4 regarding the analysis of learning interest in terms of children's involvement during learning. According to the research, 14 children or 46.7% of them had very active involvement during the learning process. Meanwhile, 13.3% were very active in participating in learning activities carried out by the teacher. At that time the overall method could be analysed that they were interested in studying multiplication material and in terms of their involvement they were actively involved in following the learning stages and answering various kinds of problems given. Overall, in this analysis it can be explained that the use of traditional games in learning multiplication material is able to increase the interest of each student as seen from several aspects that have been studied starting from their involvement during learning, how interested they are how attentive they are in learning and the feelings of pleasure they experience.

In accordance with the results of the research carried out, further discussion can be presented to analyze the results that had been obtained on the use of traditional games to increase students' interest in learning regarding multiplication material. After the learning activities were included with the addition of traditional games, it resulted in an increase in each student's interest in learning about multiplication material. These results show that there are differences in results and differences in observations made before and after providing traditional games in learning. According to the research results, the average level of student interest in learning about multiplication learning after additional game services were provided in learning resulted in higher results of average interest in learning compares to those who had not received additional traditional games in learning. If they look at the several stages carried out during the learning process from the first stage to the second stage, there was an increase of 15% compared to before after implementing learning accompanied by traditional games.

Meanwhile, the results of the pre-research carried out in the first stage showed an increase of 15% and close diffraction carried out there was an increase in the second stage of 30%. Moreover, those who before being given traditional games in learning showed that their interest in learning was still in the sufficient or lower category. After receiving additional games packaged in the learning, the students' level of interest in learning multiplication increased and was at a stage that fell into the good category or was close to a very good assessment. This condition shows that every student's interest in learning will increase when multiplication learning is directed to using traditional game methods and techniques. This condition shows that there is a relationship between the use of traditional games and the interest in learning experienced by students in the city of Bandung. In fact, their interest in learning became more enthusiastic than before, showing that there was quite a high level of interest and good participation in multiplication learning activities are supplemented with the support of traditional games, each child's interest in learning will increase, which will lead to positive development and increased interest in learning.

The topic discussed in this lesson is multiplication, so everything from unit multiplication to hundreds is discussed in this material. Traditional games are a type of game are type of game that exists in a certain area or is used by other areas from generation to generation based on local regional cultures (Komen, 2017). This game is usually played by those who live in the area with the rules and concept of the game still being played traditionally. However, even though the games are still played traditionally, the current generation still knows them as fun games.

One game that is used to increase children's interest in learning is through the traditional game of marbles. This game uses *congklak* seeds or marbles which will later be used to explain concretely into an object where students can use the *congklak* seeds to solve counting problems.

The traditional game of marbles is one of the games that can be used as learning medium for students to train students' abilities in mastering the material and to increase interest in learning (Sari, 2022). In accordance with research, it is clear that the use of marbles as learning medium will be able to provide sharpness in thinking correctly in arithmetic operations such as those carried out in addition, multiplication and division (Valencia, 2023). Interesting media will usually be able to increase motivation and interest in learning mathematics. Moreover, it is already established that many elementary school students tend to have difficulty learning multiplication material, but with this media they are able to think quickly about the arithmetic operations they are carrying out. For this reason, referring to this, it can be concluded that each student's interest in learning can increase when learning is combined with the traditional game of *dakon* or congklak.

For this reason, as a whole it states that there is a relationship between learning carried out with multiplication material and increasing interest in learning through the application of the traditional game of marbles. This condition is in accordance with the results of observations carried out in real conditions at the beginning of the three lessons carried out without utilizing learning media (Leonardou et al., 2021). The students still showed a character that was less enthusiastic and did not want to actively participate in learning. However, when teachers use traditional game media to explained deliver multiplication material, students become more active, willing to follow the material well and able to answer the challenges given. Moreover, in another explanation, research result were presented that the use of the traditional *dakon* game learning media was able to improve each student's numeracy skills effectively (Leonardou et al., 2019). For this reason, through learning carried out using *dakon* media, the enthusiasm of each individual can increase and they are able to apply the mathematical mindset they have through the learning process using games.

D. *CONCLUSIONS* AND SUGGESTIONS

In accordance with the results of the research conducted, the conclusion of this research can be determined, namely that the use of the traditional marble game learning media is able to make a positive contribution to increasing interest in learning in every 4th grade student in elementary schools in the city of Bandung. For the reason, traditional games have a positive relationship and also significantly increase students' interest in learning multiplication material. This game is one of the media used to stimulate enthusiasm and increase their motivation in learning. Fun and interesting learning media will be asily liked by every student so that before implementation and after implementation the results will be different.

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