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IMPLEMENTATION OF THE CONCEPT OF VALUE COMPARISON IN THE TRADITIONAL GAME OF TEK-PRESS IN THE MATHEMATICS LEARNING PROCESS

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Abstract

Implementation is an action or implementation of something that has been prepared carefully. What will be implemented in this study is the mathematical concept contained in traditional text-press games in the learning process. The purpose of conducting this research is to to know the increase in mathematics learning outcomes for class VII students at MTsN 2 Konawe Selatan by implementing mathematical concepts in traditional text-press games in the learning process. The research was conducted in class VII B MTsN 2 Konawe Selatan which was taken using *purposive sampling* with the consideration that there were many students who had played tek-tekan. Data collection methods consist of observation, and tests. Test scores derived from students' *pre-test and post* look for the value of the difference or *N-Gain* then do a hypothesis test using *one sample t-test.* The results of this study indicate that there is an increase in students' mathematics learning outcomes before and after the implementation of mathematical concepts in traditional text-press games in the material learning process compared to the results of hypothesis testing, namely $t_{hitung} = 9{,}643$ and with a $t_{tabel} = 2{,}110$ *Sig (2-tailed) value* of. In addition, 0,000 from the *N-Gain value* it is known that there was an increase in the high category by 6 students (33.33%), the medium category by 9 students (50%), and the low category by 3 students (16.66%).

Keywords: implementation of mathematical concepts; traditional tek-takan game

INTRODUCTION

Mathematics is a science that has abstract ideas because it contains symbols and symbols that do not manifest in the real world. This is coupled with the monotonous mathematics learning and lack of integration with real activities directly, causing students to only memorize the concept without understanding how to apply the concept to daily life. Ulya and Rahayu (2017) stating that unvaried mathematics learning makes students bored so that to relieve their boredom, students prefer to play with their friends. For this reason, teaching staff are required to be creative in delivering material so that it is not monotonous and boring.

Various strategies are used by teachers, one of which is by inserting or implementing games that are fun for children such as traditional games. The word implementation itself comes from English, namely *to implement* which means implementing (Mamonto dkk., 2018). Implementation is not just an activity, but an activity that is planned and arranged and carried out seriously based on certain norms to be able to achieve the objectives of the activity (Syafriyanto, 2015). Traditional games are games that were created in ancient times, passed down from

one generation to another and characterized by the simplicity of the materials (Qomariah & Hamidah, 2022). Use of the game traditional that has mathematical elements in the learning process is one of the solutions in improving the quality of learning, especially mathematics so that it is more in demand by students because there is an element of fun in it. Many Traditional games which contains learning values, especially mathematics which Be able to train skills in arithmetic, thinking, and logical (Sari & Switania, 2021). Moreover, traditional games tend to encourage children to move and do activities, so that they will be much healthier, in addition to traditional games that are usually done together, encourage children to learn to work together and respect each other (Yudiwinata & Handoyo, 2014).

In addition to inserting the mathematical content contained in traditional games in the material and sample questions, you can also directly carry out activities in traditional games during the learning process. This aims to allow students to see and feel the function of mathematics directly in daily activities so that students can understand the concept of mathematics in its entirety and can improve mathematics learning outcomes. By doing playing activities, it is hoped that players, in this case, students can gain an understanding of the mathematical concepts contained in the games played, train themselves to be skilled in using the applicable operations and rules (Saputra, 2016). This is in line with the results of research that has been conducted by Kurniawati, where in his research it was concluded that the use of modified traditional games can improve mathematics learning outcomes (Kurniawati, 2015).

One of the games that has a lot to do with math material is tek-takken. The tek-press game is a traditional game played by two teams, namely the batting squad and the catching squad. The game uses two pieces of wood, one of which resembles a stick measuring about 30 cm and the other is shorter. Tek-pression is usually done on the field or open ground yard with the aim of being freer to play. This game is also found in various regions although there are slight differences in the implementation of this game and the colicy differences are found in the mention of the name of this game such as gatrik, tak lizard, patil catfish, and benthik (Handayani & Irawan, 2021). Meanwhile, tek-pression itself is a mention in the area where the researcher conducted the research, namely in Lapoa village, Tinaggea district.

Related to how to play traditional tek-press games Handayani and Irawan (2021) explained three stages, namely: (1) In the first half, the team that plucked the short wood used a long stick from the excavated hole towards the guard team who was trying to catch the short wood so that they could take turns in the game. If it is not caught, then the short wood is thrown into the hole where there is a long wood. If the throw hits a long stick, a change of players will be made. It should be noted that when a short stick is caught at each stage of the game, there is a substitution between the team that is guarding and the team that is playing. (2) In the second half, players hit short sticks using long sticks. If they are not successfully caught, then the team on guard throws a short stick and is repelled by the player. Furthermore, a distance is calculated using a long stick from where the short stick fell as a point from the team that plays first. (3) In the third round, players place a short stick at an angle on the slope of the hole. This is what is important about this beating, whether it is 1 or 2 times, which makes the calculation using long wood or short ones. If it is only one time, the distance calculation uses a long stick, but if there is more than one beating, it is calculated with a short stick. The winner is determined which team collects the most points.

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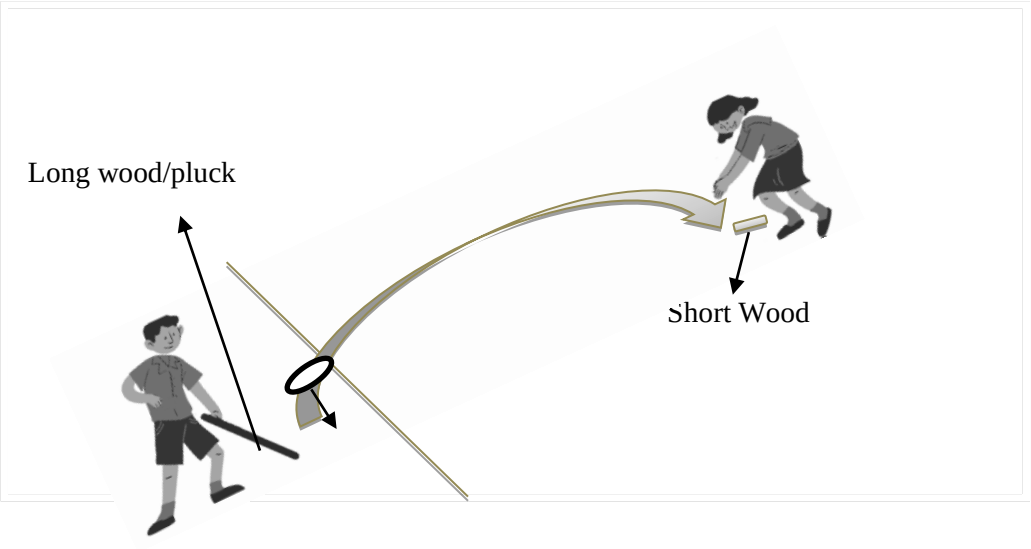

Figure 1. Illustration of Tek-press Traditional Game

Research related to the use or implementation of the same game has been conducted by previous researchers to improve students' mathematics learning outcomes. One of these studies is conducted by Alkulub (2019) which concluded that mathematics learning with the use of gatrik games in mixed calculation operation materials by grade IV elementary school students has been declared effective in use, including in terms of ideal use of time, more effective student activities, obtaining positive responses from students, and obtaining student scores that are above the KKM. Other similar studies have also been conducted by Said and Suyanto (2018) With the conclusion that the learning of mathematics of addition operations in the teacher's mathematics subject is carried out with traditional benthic games because in benthic games basically students are trained to perform addition calculation operations but are carried out with an interactive game that can attract students' attention.

Based on the results of the relevant research that has been described, it can be seen that in traditional games tek-pression is effective to be colluded with mathematics learning materials in the classroom. The difference between this study and previous studies is the name of the tek-press game itself which is a mention of the game in the area where the researcher conducted the research, namely in Lapoa village, Tinaggea district. Meanwhile, the latest in this study is that the focus of the implementation of the concepts contained in the tek-press game is on the equivalent of comparison material. The implementation will not only present materials or problems that are characterized by a game of pressure in the classroom, but will also practice the game on the sidelines of learning to better reveal the mathematical concepts that are being learned in the game.

RESEARCH METHODS

The type of research used in this study uses quantitative research research with *a one group pre-test-posttest design*. One whole class was selected from the research population, namely all students of grade VII MTsN 2 South Konawe through the Purposive Sampling *technique* with consideration of the needs in this study, namely there are more than half of the students who have played the game of tek-

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press and obtained class VII B as a research sample. The selected samples were then given *a pre-test* before the implementation of mathematical concepts in the game of typing, after which they were given *a post test*. The research was conducted at MTsN 2 South Konawe in the 2022/2023 even semester school year. The purpose of this study is to determine the improvement of mathematics learning outcomes of grade VII students at MTsN 2 South Konawe with the implementation of mathematical concepts in traditional games of tek-pression in the learning process. The data collection method consists of tests and observations with instruments in the form of *pre-test questions,* posttest *questions* and student activity sheets. Test scores derived from *the pretest* and *posttest* students are searched for difference values or *N-Gain*, then hypothesis tests are carried out using *one sample t-test* to see the improvement of students' mathematics learning outcomes before and after the implementation of mathematical concepts in traditional games of tek-pression in the learning process.

RESEARCH RESULTS

Learning Outcomes

After the pre-test questions are given, then the treatment or implementation of mathematical concepts in the traditional game of tek-pression and followed by the giving of post-test questions, it will be known to what extent the improvement of student learning outcomes with the normalized gain formula (*N-Gain*). Normalized gain (*N-Gain*) used to avoid the author's normal conclusion result, because the value *The pre-test of the study is different. N-Gain Test* can be calculated using the hake equation next (Susanto, 2012):

$$N - gain = \frac{Skor\ Posttes - Skor\ Pretest}{Skor\ Ideal - Skor\ Pretes}$$

It is explained that the normalized gain (*N-Gain*) is g, the maximum (ideal) score is the result of the initial and final trials. *N-Gain* can be interpreted as follows:

Table 1**.** N-Gain *Interpretation*

The magnitude of *N-Gain*	**Interpretasi**
N-Gain ≥ 0.7	Tall
0.3 ≤ *N-Gain* < 0.7	Keep
N-Gain < 0.3	Low

The following is a recapitulation of the improvement of students' mathematics learning outcomes in comparison materials using the gain value can be seen in the following table:

Table 2. Description of *N-Gain Data* Mathematics Learning Outcomes

Interpretasi	**Frequency**	**Presentase**
Tall	6	33,33 %
Keep	9	50 %
Low	3	16,67 %
Sum	18	100 %

From table 2, it can be seen that the mathematics learning outcomes of students had an increase in the high category by 6 students (33.33%), while the medium category was 9 students (50%), and the low category was 3 students (16.67%). The normalized gain value (N-Gain) obtained was then analyzed by a hypothesis test using *a one sample t test*. The results of the hypothesis test to

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improve student learning outcomes can be seen in the following table.

Table 3. Hypothesis Test Results for Improving Student Learning Outcomes

t	Df	Sig. (2-tailed)	Mean
9,642	17	0,000	0,59010

Based on table 3, the results of the hypothesis test to improve student learning outcomes using the Normalized Gain *(N-Gain)* value with $t_{hitung} = 9{,}642$ and with $t_{tabel} = 2{,}110$*a Sig (2-tailed)* value as great. The value indicates that it means $0{,}0000{,}000 < 0{,}05, H_0$ rejected and H_1 accepted. Furthermore, it can be concluded that there is an increase in learning outcomes before and after the implementation of mathematical concepts in the traditional game of tek-pression in grade VII B students at MTs Negeri 2 South Konawe.

Student Activities

Based on the student activity observation sheet that has been filled out by the observer in accordance with the existing category, it can be shown briefly in the following table:

Table 4. Results of Student Activity Observation Analysis

Aspects observed	**Percentage**
Readiness	10 %
Activeness	16 %
Enthusiasm	28 %
Creativity	28 %
Discipline	10 %
Total	92 %

From the results of observation or observation of student activities by observers after being analyzed and listed in table 4, a total percentage of 92% was obtained. From these results, it can be said that students in the learning process with the implementation of mathematical concepts in traditional games of tek-press in comparison materials are in the very active category according to the observed indicators. Students are very enthusiastic during the learning process, especially when playing tek-press games where learning activities while playing traditional games are a new experience for them.

DISCUSSION

The implementation of mathematical concepts in traditional games of tek-pression in the learning process begins by observing and discussing the relationship between traditional games of tek-pression and comparison materials by briefly activating the process of playing in the classroom. The purpose of briefly activating the playing process is so that students can see and observe directly the concept of comparison contained in each aspect of the game of pressing. Furthermore, deliver learning materials and explain examples of questions related to comparison materials in accordance with the teaching materials that have been prepared previously. In the development process, more examples of problems related to comparison materials, especially those contained in traditional tek-pression games, students can understand the relationship between mathematical concepts and real activities when playing.

The results of the analysis showed an increase in learning outcomes before

and after the implementation of mathematics concepts in the traditional game of tek-pression in grade VII B students of MTs Negeri 2 South Konawe. In addition to playing a role in improving mathematics learning outcomes, based on the results of observations, student activities in the learning process in the classroom are in the high category or in other words very active. Students seemed very enthusiastic about the learning process, especially when playing pressure games. This is because learning mathematics activities full of numbers feel more interesting if done interspersed with games.

Mathematical content contains at least one of mental and related activities such as reasoning, abstraction, conjecture, representation, visualization, deduction, inducing, analyzing, synthesizing, connecting, generalizing, and proving (Sugiarti & Andalas, 2020). Play and learning activities have the goal of developing motivation, courage and creativity in children because one of the important functions of play is to provide opportunities for children to assimilate the reality of themselves and themselves to reality (Ishak et al., 2021). The use of tek-tap games that have mathematical elements in learning can support the instructional goals of teaching mathematics both cognitive, affective and psychomotor aspects (Tampubolon, 2020).

When playing, children can already see and feel firsthand the practice of using the concept of comparison. The concept of comparison can be found from the aspect of making and using the tools used in the form of wood which consists of 2 different sizes, namely prying wood measuring two or three times the length of the wood to be plucked. In addition, indirectly children can also learn to make and use non-standard measuring instruments.

CONCLUSION

Based on the analysis of the results of the research and discussions that have been carried out, it is concluded that the implementation of mathematics concepts in the traditional game of tek-pression in the learning process in grade VII B at MTsN 2 South Konawe improves students' mathematics learning outcomes. This can be seen from: 1.) Mathematics learning outcomes of students of comparison materials are equal. 2.) Student activities that are in the high category.

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