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Improve the Learning Outcomes of Mathematics through the Learning Model of Talking Stick in the Fifth-Grade of Public Primary School 060843 of Medan Barat

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Abstract

The purpose of this study is to determine the increase in learning outcomes of mathematics through the learning model of Talking Stick in fifth-grade of Public Primary School 060843 of Medan Barat. Learning model used is Talking Stick. This study is a Classroom Action Research. The implementation of this research is done in 2 Cycles that are Cycle I and II. Each cycle consists of four stages: planning, action, observation and reflection / evaluation. The research instrument uses an observation sheet of the implementation of learning and tests. Subjects in this study were the fifth-grade students of Public Primary School as many as one class with 45 students consisting of 22 male students and 23 female students. From the pretest done to 45 students there are 8 students who complete the study and 37 students of students still classified not yet complete study. Based on the pretest data the students can be said still classified not yet completed classically. Furthermore after the implementation of Cycle I there are 30 of students who complete learning and 15 of students who do not complete learning (increased by 48.89%). Then Cycle II was implemented and improved in rate of completeness was achieved, i.e. students who completed the study consisted of 41 of students (increased by 24.44%). Thus it can be concluded that the use of learning model of Talking Stick can improve the learning outcomes of mathematics of students in the fifth-grade of Public Primary School.

Keywords: Learning Outcomes; Classroom Action Research; Talking Stick.

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1. Introduction

After several preliminary tests were conducted in Public Primary School 060843 of Medan Barat, it is known that there are some students who are not complete in Mathematical repetition. Many students have scores below the Minimum Completeness Criteria (MCC). MCC in Public Primary School 060843 of Medan Barat is 70. But there are still many students who have not achieved that MCC. In [13] it is explained that the Minimum Completeness Criteria (MCC) in the Province of Special Region of Yogyakarta is quite adequate i.e. 70.From the above explanation it can be found that the MCC of each region varies, because the school can assign MCC according to the students' ability in each school.

If students do not reach MCC then the teacher will perform remedial by providing the same Basic Competence and Competency Standard but with different matter. However, in [14] it is explained that if the number of students who score below MCC does not reach 80% then the learning process is said to be unsuccessful, so the second, third and so on cycles must be implemented. So it can be said that if students cannot reach the MCC then each teacher has an idea or a way out to solve the problematic in MCC in various ways so that students score can reach MCC.

There are internal factors that cause students not to reach MCC. They include encouragement or desire in learning, emotions, brain development, properties and so forth. In addition to internal factors that exist in students, there are external factors that cause students not to reach MCC. External factors are factors that come from outside the student self, namely parents, friends, environment, teachers, and others. A teacher in the classroom is a dominant factor for improving the quality of education by improving the learning outcomes of students. But in [1] it is explained that globally, the factors that influence student learning can we distinguish into 3 kinds, namely internal factors, external factors, and learning approach factors. From the explanation it can be said that the factors that affect the students so as not to reach MCC is not much different from the journal found. These factors have a very important influence for students and mutually support in the learning process.

In the daily life of students studying mathematics, teachers rarely use props in the work of abstract mathematical concepts. They often use blackboards and chalk in learning. The learning administered by teachers does not seem to make the students become active. When students are asked to do the problems, some students do not seem to understand how to solve the problems given by the teacher. Then no students ask questions, and only smart students can follow the lesson. In addition, reference [8] explains that teachers only use conventional media and learning models so that learning is less appealing to students. From this explanation can be seen that the model and the learning media is very important to improve learning outcomes of students and become an attraction for students when learning takes place.

In addition, students appear to be less skilled at communicating to convey information such as expressing ideas, asking questions, and responding to questions / opinions of others. They tend to be passive when teachers ask questions to check their understanding, when in fact they already understand the material that has been taught from the point of view of the assigned task, both at school and at home. The situation is likely to occur because students are rarely given the opportunity to speak. Similarly, reference [8] explains that it starts with students

who look lazy in learning and passive when teachers ask questions. From the opinions cited above can be said that there are still many students who are not active in learning, less skilled in communicating and so forth.

Thus, the use of learning models of Talking Stick is not only able to improve students' skills in communicating but also can provide solutions to students in understanding a concept of subjects so as to improve their learning outcomes. After the authors studied the learning model of Talking Stick, the authors consider that this instructional model is appropriate to teach any lessons to students, especially Mathematics because students can think, dare to express opinions, and understand and apply them in everyday life. In addition, the learning model of Talking Stick is not monotonic but learning math becomes fun. This learning model is done with the help of stick, who holds the stick is obliged to answer questions from the teacher after the students learn the subject matter.Learning by Talking Stick is very suitable to apply to students of Primary School, in addition to train speak; this learning will create a fun atmosphere and make students active in learning.

2. Theoretical Review

2.1. Definition of Education

In [20] it states that "Education is a moral enterprise that shapes human development".

In addition, [21] states that “Education also can be interpreted as a conscious and planned to realize the atmosphere and learning to learners are actively developing personality, intelligence, morals and skills which required himself, community of the nation and state.”

From the opinions cited above it can be concluded that education is a plan to develop the cognitive, affective and psychomotor skills of students to shape human development.

2.2. Definition of Learning

According to [17] "the learning is a process of effort by a person to obtain a change of behavior as a result of interaction with his environment."

Furthermore in [4] it states that: "Learning is an effort or activity that aims to make changes in a person, including changes in behavior, attitudes, habits, science, skills, etc."

Gagne [17] states that learning has two meanings / definitions: "(1) learning is a process to gain motivation in knowledge, skills, habits and behavior, (2) learning is mastery of knowledge or skills gained from instruction (that provides instruction) ".

From the opinions cited above can be concluded that learning is a process of changing one's behavior in the mastery of knowledge and skills and the behavior derived from interaction with his environment.

The good study relates the learning or learning materials to the theory of learning. By using learning theory, the learning and teaching system will run well.

2.3. Learning Theory

Piaget argued that "the way children think is not only less mature than adults because of lack of knowledge, but different qualitatively" [9].

"The three cognitive theorists who have been highly influential in understanding of the processes of human learning are Jean Piaget, David Ausubel, and Lev Vygotsky" [3].

In [7] it is explained that “Cognitive learning theory represents here the part of the field of Cognitive Science that focuses on the study of how people learn and remember the information presented to them.”

“Piaget and Vygotsky, were strong proponents of constructivism which viewed learning as a search for meaning and described elements that helped predict what students understand at different stages of development” [2].

According to [11],“Behaviorism in schools placed the responsibility for learning directly on the shoulders of teachers”.

“Constructivist learning theorists view the learning process as an active construal of new information in relation to each learner’s past experience, beliefs, and individual perceptions” [15].

From the various opinions cited above can be concluded that there are cognitive learning theory, constructive, and behavioristic. The learning theories found in this study are cognitive and behavioristic. In addition, learning theories included in the behavioristic group is connectionism, classical conditioning, operant conditioning, system behavior and contiguous conditioning.

2.4. Definition of Learning Outcomes

According to [5] "the learning outcome is the end of the base and the peak of the learning process". Reference [18] Explains that "Learning outcomes are the abilities that students possess once they have received their learning experience". While in [12] it is explained that the learning outcomes are the ability possessed that is knowledge (cognitive), attitudes (affective), as well as skills (psychomotor) which are all obtained through teaching and learning process.

From the above explanation can be stated that the learning outcome is a peak of learning process or ability that learners get after doing learning activities that are cognitive, affective and psychomotor in the form of information.

2.5. Definition of Mathematics

In [21] it was stated that "Mathematics is the basic knowledge required by the students to higher education."

While in [6] it is explained that "mathematics is one of the most important auxiliary science in everyday life as well as supporting the advancement of science and technology."

So it can be inferred from the above opinions that mathematics is a very important basic knowledge in everyday life for education and scientific progress.

The function of learning mathematics is as a tool, mindset, and science or knowledge. By knowing the mathematical functions are expected as teachers we can understand the relationship between mathematics with various other sciences or life.

2.6. Definition of Learning Model

It is stated in [10] that "the learning model is the whole set of presentation of teaching materials covering all aspects before, during and after the learning conducted by the teacher, as well as all related facilities that is used directly or indirectly in the teaching and learning process." Joyce and Weil [16] stated that "the learning model is a plan or pattern that can be used to form a curriculum (long-term learning plan), to design instructional materials, and to guide learning in class or otherwise." From the above explanation can be stated that the learning model is a series of presentation plan of teaching materials used to form a long-term learning plan by the teacher with all the facilities to guide the classroom learning directly or indirectly in the learning and teaching process.

2.7. Learning Model of Talking Stick

In [10] it is stated that "learning by talking stick model encourages learners to dare to express an opinion". The steps taken by the teacher in running the learning model of Talking Stick [10] include:(1) In the implementation of teaching by this Talking Stick model, the teacher first explains the energy materials and changes, then the students are given the opportunity to read and study the material. Give enough time for this activity. (2) The teacher then asks the students to close the book. He picked up the stick that had been prepared before. (3) The stick is given to one of the students. (4) Students are invited to sing together while studying.(5) After that the stick is rotated, if the teacher says stop then the student carrying the stick must answer the question from the teacher. And so on until most students get a turn to answer each question. (6) The last step of the learning model of talking stick is the teacher gives the students the opportunity to reflect on the material they have learned. The teacher gives a review of all the answers given by the students. Furthermore students together formulate conclusions.

3. Research Method

The present study is a classroom action research. In accordance with this type of research, this study has research stages in the form of cycles. This study consists of Cycle I and Cycle II with stages in each cycle are as follows: (1) planning, (2) implementation, (3) observation, and (4) reflection. The subject of this class action research is the fifth-grade students of Public Primary School 060843 of Medan Baratas many as 45 students consisting of 22 male students and 23 female students. The data collected is from the results of observation and test.

The formula used in the observation is:

Average score = $\frac{\text{Total score}}{\text{Total number of indicators}} \times 100\%$

with criteria:

< 64 = Poor 75 – 79 = Good

65 -74 = Fair 80 – 100 = Very good

As stated in [22] to determine the percentage of abilities of students the following formula is used:

$$PPH = \frac{B}{N} \times 100\%$$

where:

PPH = Score of learning outcomes of student

B = Achieved total score

N = Maximum total score

According to Lewin [5] to determine percentage of classical success the following formula is used:

$$P = \frac{f}{n} \times 100\%$$

where:

P = score of learning outcomes of student

f = the number of all students who have changed

n = the total number of students

4. Results of Research

Research results: at the time of pre-test before an action was administered the average score of the class of 34.44 was obtained with the classically completeness at 8 or 17.78% of the students, this state is said not yet succeeded both individually and classically. After administration of the action through the use of the learning model of Talking Stick by the present author in Cycle I, the results showed that the average score of the class increased to 68.44 (an increase of 50.66) with a rate of completeness of learning of 30 students (Increased by 22) or 66.67% (increased by 48.89%).In Cycle II the average score of classes increased to 83.78 (an increase of

17.11), and the rate of learning completeness increased to 41 students (increased by 11 students) or 91.11% (increased by 24.44%) and the achievement of capability of students classically in solving the problem by 100% (increased by 60%).

Table 1: Percentage of results of solving of problems of pre-test, post-test I in cycle I and post-test II in cycle II

Problem No.	Pre-Test		Post-Test in Cycle I		Post-Test in Cycle II	
	%	Description	%	Description	%	Description
1	33.33 %	Not yet succeeded	88.89 %	Succeeded	100 %	Succeeded
2	37.78 %	Not yet succeeded	66.67 %	Not yet succeeded	100 %	Succeeded
3	31.11 %	Not yet succeeded	62.22 %	Not yet succeeded	97.78%	Succeeded
4	44.44 %	Not yet succeeded	77.78 %	Succeeded	77.78%	Succeeded
5	44.44 %	Not yet succeeded	93.33 %	Succeeded	82.22%	Succeeded
6	31.11 %	Not yet succeeded	53.33 %	Not yet succeeded	77.78%	Succeeded
7	48,89 %	Not yet succeeded	88.89 %	Succeeded	80 %	Succeeded
8	26.67 %	Not yet succeeded	48.89 %	Not yet succeeded	73.33%	Succeeded
9	17.78%	Not yet succeeded	35.56%	Not yet succeeded	71.11%	Succeeded
10	28.89 %	Not yet succeeded	68.89 %	Not yet succeeded	75.56%	Succeeded
Average Percentage	**34,44**		**68,45**		**83,56**	

From the above table it can be concluded that there is an increase in learning outcomes of students starting and pre-test to post-test students in Cycle II. In other words, the use of the learning model of Talking Stick can improve the learning outcomes of mathematics in the fifth-grade of Public Primary School 060843 of Medan Barat.

5. Discussion

Learning theory that supports in this research is learning theory of Piaget. Piaget's theory according to [9] is a

learning process consisting of three stages, namely assimilation, accommodation and equilibration. Assimilation is the process of integrating new information into existing cognitive structures, accommodation is the process of adapting the cognitive structure to new situations, and equabilitation is the adjustment of continuity between assimilation and accommodation. Piaget theory is very supportive of the implementation of learning by using innovative learning model that will be studied at Public Primary School 060843 of Medan Barat. The learning model that will be applied in that primary school is the learning model of Talking Stick.In this learning model students can develop speaking skills and express opinions from the material presented.

To this research, relevant research can be compared i.e. research that has been applied before or research results similar to the research that will researcher do. Here are the results of research relevant to the research that researchers are doing, among others:

a. Ni Putu Ayu Samiasih and his colleagues (2015) "Influence Learning Model of Learning Video-Assisted Talking Stick on Learning Outcomes of Bahasa Indonesia in The Eight-Grade". There is an influence of learning with the talking stick model on the learning outcomes of the students. The difference between the journals of Ni Putu Ayu Samiasih and his colleagues with this research is about the material used, where in the journal of Ni Putu is Indonesian while in this research is Mathematics. In addition, the population types in the two studies were also different, where in the journal all students of the eight-grade in junior high school became populations, while the population of the study was the fifth-grade students of primary school.

b. Iwan and his colleagues (2016) "Application of Cooperative Learning Model of Type Talking Stick to Increase Interest and Learning Outcomes of Biology in Environmental Pollution Material in Class XA of Senior High School of Yapis Manokwari."There is an increase in interest and learning outcomes of biology of students in environmental pollution materials with the application of Talking Stick model. There is a clear difference from the journal with this research that there are 3 variables whereas in this study there are only 2 variables. In addition, there are also differences in the subjects studied, namely Biology in the journal, while in this study is Mathematics. In terms of population studied there are also differences, where the population in the journal is the students of high school, while in this study were the students of primary school.

6. Conclusions

Based on the results and discussions that have been raised, it can be concluded as follows: The use of learning models of Talking Stick can improve learning outcomes of mathematics of the fifth-grade students of Public Primary School 060843 of Medan Barat.

7. Suggestions

Suggestions that can be submitted by the author based on this research are as follows:

Schools should provide the learning media students need so that the learning process becomes fun. Teachers should use the learning model of the Talking Stick to improve the learning outcomes of students.The students are expected to be more active in the learning process in order to obtain better learning outcomes. The results of

this study can be used as a comparison in assessing the wider variables for the learning model of Talking Stick.

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