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The Use Of Concrete Object Media To Improve Mathematics Learning Outcomes On The Elements Of Flat Shapes Material For 3rd Grade Students At SD Negeri 1 Lawang

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Abstract --*,Mathematics is one of the subjects that is often considered difficult, frightening, unenjoyable, and serious.So students feel scared and lazy to study mathematics.In reality, Mathematics is very important in daily life because with mathematics we are able to solve several problems around us.This causes many students' learning outcomes in mathematics to not meet the KKTP (Criteria for Achievement of Learning Objectives).The purpose of this research is to improve the learning outcomes of third-grade students at SD Negeri 1 Lawang.By using concrete objects (surrounding objects, strings, and sticks) as the media, it is hoped that it can improve students' learning outcomes and understanding of the material on Flat Figure Elements.This research was conducted on third-grade students at SD Negeri 1 Lawang using qualitative data.The research was conducted in 2 cycles.In the first cycle, only 40% of the students managed to achieve a score above the predetermined KKTP (75).In the second cycle, the researcher used concrete objects (thread, sticks) as learning media.and it turns out that around 85% of the students completed the tasks and achieved results above the Minimum Completeness Criteria (KKM).Thus, it can be concluded that the use of concrete objects as media can enhance students' understanding and learning outcomes.*

Keywords : *learning outcomes, flat shapes*

INTRODUCTION

Mathematics is one of the subjects that is often considered scary, unpleasant, and serious by most students.In reality, Mathematics is one of the important subjects because students can use it to solve everyday problems.Because of the initial belief that mathematics is a difficult and frightening subject, students become reluctant to study mathematics, resulting in their performance in mathematics often being lower compared to other subjects.

Learning is a process marked by personal transformation.Learning outcomes are a measure of students' understanding of a particular learning material.to understand a subject, a basic conceptual understanding is required first.As Bruner, Hudoyo (2000) said, mathematics is the study of mathematical concepts and structures found in the material being learned, as well as seeking the relationships between these mathematical concepts and structures.Bruner also stated that learning mathematics goes through 3 representative stages, namely, enactive (motor) through concrete objects, iconic (image) visual representation, and symbolic (formal mathematical notation).According to (Kunandar, 2013), learning outcomes are certain competencies or abilities, whether cognitive, affective, or psychomotor, that are achieved or mastered by students after undergoing the teaching and learning process.According to (Sanjaya, 2014), learning is acting to gain certain experiences in accordance with the expected goals.Learning outcomes are influenced by the learner's experience with the physical world and its environment.The learning outcomes of students depend on what they already know, the learning subject, the goals, and the motivation that informs the

process of interaction with the material being studied.According to (Sadirman, 2014), learning outcomes are in the form of behavioral changes or someone's behavior who learns will change or increase in behavior, whether in the form of knowledge, skills, or mastery of values (attitudes).according to psychology experts, not all behavioral changes can be classified as learning outcomes.Learning outcomes are "the changes that occur in students, both concerning cognitive, affective, and psychomotor aspects as a result of learning activities" (Susanto, 2013).

The use of concrete objects turns out to greatly support students' understanding of a learning material, as stated in the Visual Learning Theory, which posits that many people find it easier to learn using images or real objects that can be seen and manipulated.Therefore, concrete objects can serve as visual aids that clarify mathematical concepts.Students are able to perceive shapes, sizes, and relationships between objects, which helps them understand abstract concepts such as geometry or algebra, (Mayer, R.E:2009).According to Ibrahim and Syaodih, concrete media is intended to achieve optimal results from the teaching and learning process.one of the recommendations is also to use media that is direct, tangible, or real. According to (Sudjana, 2009), the use of concrete or real objects in the teaching and learning process aims to introduce a specific unit of study, the working process of a particular study object, or other necessary parts and aspects.Concrete objects themselves are included as learning media that come from real objects that are well-known by students and easily obtainable.This media is easy to use by teachers and students because it is often found in the surrounding environment.Concrete objects provide a real experience that students will personally encounter.because concrete object media is often found in the surrounding environment and frequently encountered by students.According to (Sanjaya, 2014).Direct experience with using concrete media also greatly influences students' learning outcomes and has high accuracy.With concrete objects, it will greatly help students to approach the actual situation.

In another word, math learning should be start from the concrete object first before it goes to an abstract symbol. That's why , the researcher take a conclusion that a learning using concrete object or media make students more understand on the subject while they understand the subject their result outcome will be reach.

The Elements of Flat Buildings is one of the materials in mathematics learning. The elements of flat shapes are the basis for the formation of a flat shape or geometry. In this material, grade 3 students of SD Negeri 1 Lawang are less able to understand the basic concepts of this material. So that the learning outcomes of the students were less than expected. Most students still cannot mention the differences in the elements contained in a flat shape. The success of learning is influenced by two factors, namely internal factors (factors that come from within the student) and external factors (factors that come from outside the student). Internal factors include intelligence, ability, talent, motivation and so on. While external factors include the natural environment, socio-economic, teachers, teaching methods, curriculum, programs, subject matter, facilities and infrastructure. These factors are both supporting and inhibiting. (Asri Budiningsih C, 2005, 22:23)

The purpose of this research is to improve the learning outcomes of 3rd grade students of SD Negeri 1 Lawang. To improve student learning outcomes, it is necessary to understand the concept of dasra for students. According to Van Hiele or better known as Van Hiele Theory, understanding geometry develops through 5 stages of thinking that are hierarchical and sequential. The stages include Level 0: (Visualization or observation of shapes), Level 1 : Analysis, Level 2: abstraction or informal deduction, level 3: Formal Deduction, and Level 4: Rigor or Accuracy. These stages are carried out in understanding the elements of flat buildings and their properties from the lowest to the highest.

Based on the theory above, the researcher concluded that for understanding the basic concepts of grade 3 students there is a level 0 theory, namely visualization or shape observation. Researchers chose the use of concrete objects as a means for student learning outcomes to increase.

According to the theory developed by Jean Piaget and Lev Vygotsky, which emphasizes that students build their knowledge through direct experience. In the context of mathematics learning, the use of concrete objects allows students to physically explore mathematical concepts, such as number, shape, or size, which are easier to understand practically.

According to Piaget, children are at a certain stage of cognitive development where they learn by interacting with physical objects around them. By using concrete objects, students can understand mathematical concepts through real experiences and construct their knowledge actively. This theory is known as Construtivism Theory.

From some of the theories above, the researcher decided that the use of concrete objects in learning mathematics material on the Elements of Flat Buildings is very appropriate to use so that the learning outcomes of 3rd grade students of SD Negeri 1 Lawang can improve.

METHOD

This type of research is Classroom Action Research using qualitative data as the basis for analyzing this research. According to Lincoln and Guba, 1985 in his book "Naturalistic Inquiry" explains that qualitative research focuses on the subjective meaning and natural context of the phenomenon under study. This research emphasizes observation and written tests obtained from students.

The subjects in this study were 3rd grade students of SD negeri 1 Lawang, totaling 29 students. Which consists of 17 male students and 12 female students. This study uses 2 cycles, the first cycle the teacher only uses the learning resources of the package book only. The second cycle the teacher used picture media and concrete objects as a means of learning.

RESULTS AND DISCUSSION

Based on the results obtained from the pre-cycle, around 25% of students (7 students) were able to achieve results above the Minimum Completeness Criteria (KKM).In the first cycle, using picture media, 40% (11 students) scored above the KKM.It turns out that when the researcher used images and concrete objects as learning tools, student learning outcomes improved, with 85% (24 students) exceeding the KKM, scoring between 75 and 100, 10% (3 students) scoring 65, and 5% (2 students) scoring 40.

The following is a comparison table of Student Learning Outcomes between cycles.

Category	The result of the data obtained		
	Pre cycle	Cycle 1	Cycle 2
Highest score	85	90	100
Lowest score	15	30	40
Total score	1844	1969	2324
Average score	63,58	67,89	80,14
Number of students complete	7	11	24
Number of students are not complete	22	18	5
Percentage of classical completion	25%	40%	85%
Percentage of classical incompleteness	75%	60%	15%

From the results above, it can be concluded that the use of learning facilities or learning media determines students' understanding and learning outcomes. In the pre-cycle, learning was only teacher-centered. The teacher explained using the textbook. After that, students were asked to work on the questions in the package book.

In the first cycle, the teacher used visual media. Although this was effective, the learning was less enjoyable, causing students' concentration to last only a short while because they felt bored, and the learning remained teacher-centered.Because the teacher is the one who is active, not the students.Although the learning outcomes increased to 40%, only 11 students scored above the KKM, so the desired target has not been met.

In the second cycle, the teacher used additional media in the form of concrete objects.In addition to pictures and objects around the students, both inside and outside the classroom, the teacher also asks the students to create flat shape frameworks using string or thread and sticks.This activity is done in groups.After finishing, the students move to the front of the class to present and explain the parts of the Flat Shape Framework they have created.It turns out that the use of this additional media can improve students' learning outcomes and also enhance their understanding of the material on the Elements of Plane Figures.The results obtained by the students increased very drastically.from the first cycle where only 40% of the students completed it, it increased to 85%.from 11 students who completed it increased to 24 students achieving results above the KKM or completed.Although there are still 5 students who have not yet completed the requirements because their scores are still below the KKM, they need further guidance.

From the results of the research above, it can be concluded that the use of concrete object media is very suitable for teaching the Elements of Plane Geometry.The use of this media not only helps students better understand the basic concepts but also makes the classroom atmosphere more lively, enjoyable, active, and encourages students to be more creative.They are able to pour their ideas into creating something based on the concrete media.In addition to making learning more enjoyable, students are also able to show, mention, and even explain which parts are included in the elements of flat shapes.

CONCLUSION

The conclusion of this research is that there is a significant influence between the PPT-based CTL learning model used by the control class and the STEAM-based microsite technology learning used by the experimental class. In this research, it was proven that the STEAM-based microsite technology used by the experimental class had a significant influence on both computational thinking abilities and digital skills. This is shown in the Independent Samples t-test on computational thinking abilities which shows the average value of the control class is 42.17, while the average value of the experimental class is 80.42. In digital skills which were measured using a questionnaire instrument, the average score for the control class was 69.71, while the average score for the experimental class was 74.08.

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