

IMPROVES THE ABILITY TO CALCULATE CHILDREN THROUGH THE CONSTRUCTIVE GAME

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ABSTRACT

The research objective in this paper is to determine the increase in children's numeracy skills through constructive play in grade 1 students in elementary schools. Elementary school is basically education that is organized with the aim of facilitating the growth and development of children as a whole or emphasizing the development of all aspects of the child's personality as it means that elementary school education provides opportunities to develop children's personalities, therefore education for early childhood especially in schools.

The research method is the method used by researchers in collecting research data. The method used in this research is classroom action research.

Based on the results of research and discussion, it can be concluded that the ability counting the child at by using constructivist games has been successful with the number of students 19 people, with a category of 10 boys and 9 girls can be increased through the use of constructive play media. This study shows that there is an increase in numeracy skills by using constructive games for students of SD Aghia Sophia Medan. The findings of this study also provide evidence that using constructive games requires students to be active in learning, this is because students themselves are looking for the material to be studied, students also feel happy and challenged in learning because constructive games are applied by learning while playing,

Keyword: children numeracy, construtive play

INTRODUCTION

Childhood is a period where individuals experience very rapid development. One of the stages at that time is called the golden age in a person's life. This stage is called golden age because the aspects of children's intelligence can be developed appropriately and well so that they are able to easily accept what other people say and at this time there is also a very rapid physical development. Maximum stimulation develops rapidly because the teaching and learning process in schools is a complex and comprehensive learning process. Therefore, to achieve high achievement while studying, one must have a high Intelligence Quotient (IQ), because intelligence is

a potential provision that makes learning easier so that learning outcomes will be optimal [1].

Elementary school is basically education that is organized with the aim of facilitating the growth & development of children as a whole or emphasizing the development of all aspects of the child's personality as it means that elementary school education provides opportunities to develop children's personalities, therefore education for early childhood especially in schools The foundation needs to provide various activities that can develop various aspects of child development [2].

Children need games as educational media in school learning by using game

tools that meet the requirements to develop various children's skills according to age levels by paying attention to develop mental traits, creatively the teacher can create and use game tools that come from the surrounding environment. and take advantage of used goods or media that already exist or are available [3].

The research objective in this paper is to determine the increase in children's numeracy skills through constructive play in grade 1 students in elementary schools. The ability to count in children from an early age needs to be given to equip children's lives in the future. The term ability can be defined in various meanings, namely ability is the power to take an action as a result of nature and training [4].

The same thing was also stated by that ability is the capacity with various kinds of tasks in a predetermined job. certain. In other words, the ability is an ability that a person has from birth where this potential or ability is generated and also training as a support someone to complete his task [5].

In the Big Indonesian Dictionary the ability to derive from the word able which means can or can, then gets the prefix and suffix, which then becomes the word. In addition to that, the definition of ability also means ability, strength or potential innate or the results of training that can be used to carry out an act or action [3].

Based on the background of the problem, the researcher will limit the scope of the problem, so that the researcher is more focused. The scope of problems discussed are as follows:

- a. Lack of media and learning resources that are used as learning resources in improving student abilities.
- b. Lack of effectiveness in assisting students in numeracy skills.
- c. Lack of interest in numeracy activities, because students are given monotonous activities to carry out tasks in magazines or worksheets
- d. The ability students to count is still low.

Starting from the background problems described above, the problem of this research can be formulated as follows: How to increase children's numeracy skills through constructive games for grade 1 students in elementary schools?

Counting comes from the word count which has the meaning of a state, after getting the prefix ber, it turns into a meaning which is defined as an activity of counting or adding, subtracting, dividing, multiplying and so on [6]. The ability to count in a broad sense is an ability that is important in everyday life, so it can be said that in all activities of human life, this ability must be needed. In order to emphasize this meaning and understanding and to develop the ability to think at a higher level, problem solving in mathematics is not only an integrated part of learning, but must be the basis or core of activities.

Mathematics is essentially a way of learning that regulates how a person's thoughts are carried out, so that through mathematics a person can regulate the course of his thoughts. Counting is the basis of some of the sciences that are used in everyday life such as addition, subtraction, division, or multiplication, therefore if early childhood can add and subtract and compare, they must be very good at understanding numbers [7].

RESEARCH METHOD

- a. Initial description the research method is the method used by researchers in collecting research data. The method used in this research is classroom action research Classroom action research in English is called classroom action research. In which the researcher collaborates with the principal or class teacher. The main purpose of classroom action research is to improve the practice of classroom learning practices. This type of classroom action research used in this research is collaborative, namely that the person who will take the action must also be involved in the

research process.

- b. Implementation stage, in this activity, all who are involved in this research are fully involved in the process of planning, acting, observing, and reflecting.
- c. Data collection techniques, the data collected in this study are observational data (qualitative data) and evaluation test results. Data collection techniques in this study are:
 - 1) Observation
 - 2) Test
 - 3) Test the validity of research instruments

So that the instrument made by the researcher can be said to be valid, a validity test is carried out [8]. Validity is related to the ability to measure exactly what is desired to be measured. Meanwhile, another definition of validity is the degree to which the test measures what it wants to measure.

Researchers will test the validity of the instrument at Aghia Sophia Elementary School, Medan with a total of 20 students. To ensure this validity, all questions are arranged based on theoretical studies relating to the problem. The method used to determine the validity level of the instrument in this study is to use the product moment correlation formula.

In this activity, all who are involved in this research are fully involved in the process of planning, acting, observing, and reflecting.

1. Planning

Before planning is carried out, it is necessary to make observations in grade 1 students of A Sophia private SD, Medan. In the survey it was found that several conditions that affect student learning outcomes are still low. In fact, what happens to students who are always passive in learning takes place, teachers who always use conventional methods so that students experience boredom when receiving these less-

ons, so that student learning outcomes are still low. This can be seen in the acquisition of scores in mathematics learning, which is that more than the majority of students get grades below the KKM. This research action was carried out in 2 cycles. Cycle 1 consists of 2 meetings and cycle 2 consists of 2 meetings. Cycle 1 and cycle 2 actions are carried out according to the plan arranged in the RPP.

2. Research Design

Experts argue that the implementation of classroom action research consists of several cycles, each of which there are four common stages, namely:

- a. Planning,
- b. Implementation,
- c. Observation and
- d. Reflection.

However, it should be noted that the stages of implementation and observation are actually carried out simultaneously.

The implementation of classroom action research begins with the first cycle which consists of four stages. If it is known where the successes and obstacles that arise from those implemented in the first cycle, the teacher or researcher determines the design for the second cycle activity. In the implementation of activities in the second cycle, it can be in the same form as the previous activity if it is aimed at repeating success or means of convincing/strengthening the results. However the activities carried out in the second cycle have various additional improvements from previous actions which are of course aimed at fixing various obstacles or difficulties found in first cycle.

- a. Cycle Plan 1, Planning activities carried out in this stage are the preparation of learning tools, including Learning Implementation Plans (RPP) about natural and artificial

environments, the media used in this learning include visual aids, namely various forms of concept map images, evaluation tools which include assessment rubrics and itemized questions (attached), as well as the lesson plan implementation observation sheet (attached), the lesson plan (RPP) in this cycle for 3 meetings in 3 hours.

b. Execution and observation, the activities carried out at this stage are to implement the Learning Implementation Plan (RPP) which has been compiled in classroom learning according to what the teacher wants so this research plan is in the form of action research work procedures carried out in the classroom. The implementation of the action cycle 1 is in accordance with the program med plan, namely:

- 1) The research carried out learning subject of "numeracy skills".
- 2) Explain the subject matter and continue using the play method & provide group numeracy skill
- 3) Provide opportunities for students to play an active role during the learning process such as asking question expressing opinion.
- 4) At the end of the cycle, the teacher gives cycle 1 test questions.
- 5) The teacher gives questions in the form of homework. Observation activities are carried out as a means of collecting data related to the implementation of research actions. Observations are made by the observer to observe learning activities that apply numeracy skills. Observers use observation sheets to collect learning activity data, both teacher learning data and student learning data.

3. Reflection

The data were collected and then

analyzed by the researcher. The analysis was carried out by measuring both quantitatively and qualitatively. The data obtained were collected and then concluded how the children's numeracy skill through constructive games in grade 1 students elementary schools.

a. Completeness of Student Learning Outcomes (individual), Before carrying out the learning process with the Numbered Head Together learning model, the researcher conducted an evaluation or pretest to determine the level of students' initial understanding of the Environmental Conservation Business Subtheme. description of student learning completeness.

$$KB = \frac{T}{Tt} \times 100$$

$$KB = \frac{2925}{3900} \times 100\%$$

$$KB = 75\% \text{ (completed)}$$

$$KB = \frac{3900 - 2925}{3900} \times 100\%$$

$$KB = 25\% \text{ (not completed)}$$

Table 1. Descriptions of individual student initial test results.

Number	Presentation	Information
1	75%	Complete
2	25%	Not Complete

The results of observations and short interviews showed that students' abilities were still low. The low ability of students is caused by the less varied media used in learning to count so that students in the learning process to count are still very low.

Based on the data available on the activities before the action given by the researcher, the initial data obtained from 20 students can be seen that the number of children who got the very unsatisfactory category were 8 students (40%), students who obtained the unsatisfactory score were 6 students (30%), and there were 1 student

(5%) who were satisfactory, while the students who got the satisfactory category were 3 children (15%) while the students who got the very satisfactory category were 2 students with a proportion of 10%. Based on the results of research and discussion, it can be concluded that the ability counting the child at by using constructivist games has been successful with the number of students 19 people, with a category of 10 boys and 9 girls can be increased through the use of constructive play media.

b. Execution and observation, the activities carried out at this stage are to implement the Learning Implementation Plan (RPP) which has been compiled in classroom learning according to what the teacher wants so this research plan is in the form of action research work procedures carried out in the classroom. The implementation of the action cycle 1 is in accordance with the program med plan, namely:

- 1) The research carried out learning the subject of numeracy skill
- 2) Explain the subject matter and continue using the play method and provide group numeracy skills.
- 3) Provide opportunities for students to play an active role during the learning process such as asking question expressing opinion
- 4) At the end of the cycle, the teacher gives cycle 1 test questions.
- 5) The teacher gives questions in the form of homework. Observation activities are carried out as a means of collecting data related to the implementation of research actions. Observations are made by the observer to observe learning activities that apply numeracy skills. Observers use observation sheets to collect

learning activity data, both teacher learning data and student learning data.

Description of the results of the implementation of cycle I

Based on the table above, it can be seen that of the students only 5 students who got complete scores reached the Minimum Completeness Criteria (KKM), namely 75 and 44.38%, while 9 students scored incomplete and did not reach the Minimum Completeness Criteria. (KKM) which has been determined is 125.30%. It can be stated that the results obtained by students on the pretest are still low.

The results of observations and short interviews conducted showed that students numeracy skills were still low. The low number of students' numeracy skills is caused by the less varied media used in learning to count so that students in the learning process to count are still very low.

Based on the data available on the activities before the action was given by the researcher, the initial data obtained from the 20 number of students, it can be seen that the number of children who got the very unsatisfactory category were eight students (40%), there were 6 students who obtained the unsatisfactory score (30%), and students who were quite satisfying were 1 student (5%), while students who got the satisfactory category were three children (15%) while students who got the very satisfactory category were 2 students with a percentage of 10%.

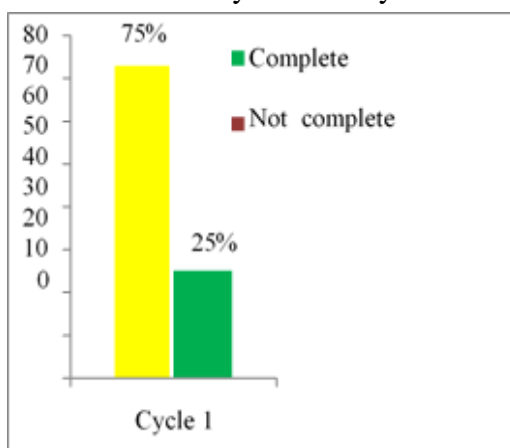
The core activities in learning begin with the teacher's explanation of the activities that will be carried out on that day. The activities that will be carried out by students are counting 1-30, showing the numbers mentioned. At the end of the activity, the teacher asks questions about the activities that have been carried out. The teacher asks each child about the numbers listed on the constructive play media. After that the teacher reflects back on learning to count.

Improves the Ability to Calculate Children Through the Constructive Game

The results of the analysis of teacher observations are in accordance with the observation sheet as many as 10 observed aspects must be achieved by the teacher. In cycle I, the scores achieved by the teacher from 10 aspects were only 7 aspects (70%) including: (1) the teacher prepares students to learn; (2) the teacher prepares constructive games; (3) the teacher asks students to show the numbers mentioned; (4) the teacher asks students to name numbers 1-20 sequentially; (5) the teacher asks students to write down numbers 1-10; (6) the teacher asks students to sort the constructive games from small to large sizes and then counts; (7) the teacher asks students to name the color of each constructive game; (8) the teacher holds a question and answer about today's activities.

From the histogram above, it can be seen that the result is a score of students with the very unsatisfactory category, there are 4 students (20%), 6 students (30%) who get the unsatisfactory score (30%), and 5 students who are quite satisfying (25%). while students who get the Satisfactory category there are 3 children (15%) and there are 2 children (10) with a score of very satisfactory.

Table 1. Results of evaluation of children's numeracy skills in cycle I



After knowing the deficiencies that occurred in cycle I, both those carried out by teachers and students, then in the second cycle of learning the teacher will try to minimize the mistakes previously made,

so that the learning outcomes using constructive game media are as expected, namely achieving success indicators 75%.

Description of the results of the implementation of cycle II

In cycle II the teacher is more systematic in implementing learning using a learning model using constructive play. In the initial activity the teacher conveys the learning objectives and reminds them about implementation of constructive play.

After completing explaining the learning objectives, the teacher divides students into several groups. The teacher divides students into 8 study groups, each group member consisting of students of various academic levels, ethnicities, and gender

The results of observations of children's learning activities in cycle II included the teacher conveying learning objectives and students listening to the teacher's guide, listening to the stories that were told

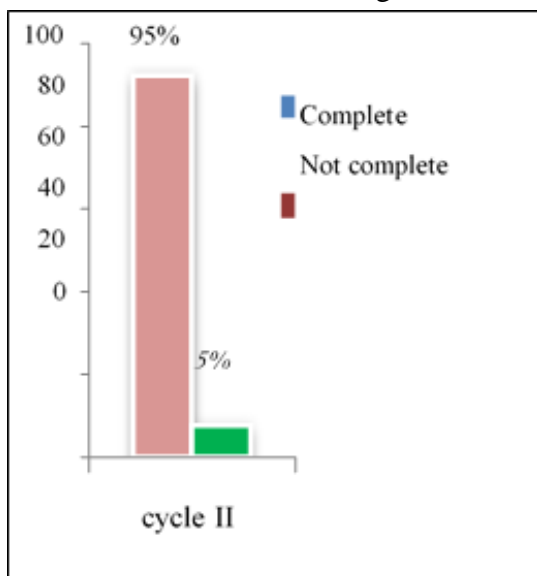
the teacher and students listen to the teacher's direction, then the teacher conducts questions and answers with the teacher about constructive game media, and students listen to conclusions about activities undertaken.

Calculation of classical value in cycle II action, the results of classical students' acquisition in activities of increasing children's numeracy skills through constructive play of elementary school students has increased, because the success rate of students reaches 95%. Students who get a score of very satisfactory with percentage of 45%, namely 9 students from 20 children as a whole. The score of satisfactory with a percentage of 35%, namely 7 students were obtained and for a satisfactory score of 15%, namely 3 students were obtained, while the unsatisfactory was 1 person with a percentage of 5%.

This can be seen from preliminary observations of children's numeracy skills, only 6 people with the above category are quite satisfying with a percentage of 30% and as many as 14 students who have not

been able to count with a percentage of 60%. In the first cycle the children's numeracy ability increased by 45% so that it became 75% or as many as 15 students were said to be successful. From the data obtained because the indicators of student success had not been achieved from the initial observations and activities in cycle I, the researchers continued the research stage in cycle II by creating the same learning scenario as cycle I. Learning activities in cycle II to improve children's numeracy skills increased by 20 % to 95% or 19 students, so this study was stopped because it had achieved the success indicator, namely 95%.

For more details, see this diagram:



Score	Category	%
2	Very satisfactory	10
3	Satisfactory	15
5	Quite satisfying	25
6	Unsatisfactory	30
7	Very unsatisfactory	20
8	Total	100

This study shows that there is an increase in numeracy skills by using constructive games for students of SD Aghia Sophia Medan. The findings of this study also provide evidence that using constructive games requires students to be active in le-

arning, this is because students themselves are looking for the material to be studied, students also feel happy and challenged in learning because constructive games are applied by learning while playing. In the implementation of the teaching and learning process, it is hoped that the teacher can apply constructive games that are adjusted to subthemes so that the learning objective can be achieved.

Based on the conclusions and implications of this study, the researcher can provide some suggestions to determine in implementing the following causal learning:

1. For students 1 SD Aghia Sophia, Medan must improve the quality of learning by being diligent and active, in order to achieve maximum learning objectives and can achieve learning achievement. The development of learning innovations that have been carried out by teachers to improve learning in order to improve the quality of learning in terms of this is the result of student learning.
2. Authors are taught to do similar research on other subthemes, in order to obtain more comprehensive results so that research can be useful in the learning process.
3. For students, students are expected to be used as a consideration for researchers to use appropriate strategies, methods, models, or learning approaches.

CONCLUSIONS

This research was conducted at SD Aghia Sophia, Medan which is located in Tanjung Selamat Medan. The type of research used is Classroom Action Research (CAR) by using constructive games to improve numeracy skills. This research was carried out in 2 cycles which included planning, implementing, observing, and reflecting. In the implementation of this research, the researcher and the classroom teacher collaborated in which the researcher acted as the teacher and the class teacher was tasked with observing

teacher activities in the teaching and learning process [9].

Learning data to improve children's numeracy skills through constructive play are carried out in two cycles. Data in the form of processes obtained from the indicators to be achieved. The factors examined in this study are as follows:

- a. Children's factors, by observing children's activities in learning to count by mentioning numbers 1-20, then writing numbers 1-10, sorting games from small to largest & recognizing colors.
- b. Teacher factors, observing teacher activities in the use of constructive game media to improve students' numeracy skills through the implementation of classroom action research carried out in 2 (two) cycles. Each cycle consists of four meetings, carried out according to research procedures.

This study shows that there is an increase in numeracy skills by using constructive games for students of SD Aghia Sophia Medan. The findings of this study also provide evidence that using constructive games requires students to be active in learning, this is because students themselves are looking for the material to be studied, students also feel happy and challenged in learning because constructive games are applied by learning while playing. In the implementation of the teaching and learning process, it is hoped that the teacher can apply constructive games that are adjusted to subthemes so that the learning objectives can be achieved. The application of the constructive game model also has an impact on improving student learning outcomes, where the learning outcomes of the theme and low students assume that the theme is a lesson that is difficult to understand turns into a fun theme and learning outcomes also increase, therefore in an effort to improve learning outcomes it is necessary to choose a model can focus students' attention and invite students to be more

active in the learning process, one of which is through constructive play.

In this study, there are limitations which are expected to open up opportunities for other researchers to carry out similar research which will be useful for completing scientific insights. Among these limitations are as follows:

1. This research was only conducted within a relatively very short research period, so that the results achieved were not maximized.
2. This research is limited to constructive games to improve learning. There are many factors that may affect student learning outcomes, such as: attitudes towards teachers, the school environment and so on. Thus these conditions may also influence student learning outcomes.

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