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Improving Counting Skills Assisted by The Jarimatika Method in Fifth Grade Elementary School Students

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Abstract

This study aims to improve students' multiplication counting skills in mathematics. The design of this study was Classroom Action Research model which in its implementation used 2 cycles. The independent variable in this study is thejarimatics method, with the dependent variable namely increasing counting skills. The population in this study were students at SD 2 Bategede, with a sample of 19 students. This research consisted of 2 cycles, which consisted of planning, implementing, monitoring, and reflecting. Learning is increased in cycle 2 if the indicators for cycle 1 have not been achieved. The collection and analysis of information is carried out on the results of the implementation of the study and partner observations. The results showed that the use of the Jarimatics method could improve learning outcomes and changes in attitudes towards learning materials. In cycle I, the average was 69.47. Learning is increased in cycle 2 if the indicators in cycle 1 have not achieved learning success. Then after cycle II the average increase was 86.31. Thus, it is concluded that the use of the Jarimatics method can improve learning outcomes and changes in student achievement in learning. Learning using the jarimatics method and other learning tools can make learning more active.

Key words: arithmetic, counting, fingermatics method, multiplication, skills

INTRODUCTION

Education is a way for humans to develop their abilities through the learning process. Education can change human life patterns for the better. Education will be able to engage people in developing their potential and skills. A good educational process will also produce brilliant ideas for achieving a more decent life. Education is an absolute necessity that must be developed in line with development demands. This demand aims to increase quality human resources (Ulfah, 2022).

The purpose of education is a media to develop human potential. Education is very influential for social change because basically education is not only limited to learning material but also the formation of character in students. Learning is a change in behavior and is the result of repeated practice. Learning also means that the subject of study must be studied, not taught. The subjects in question are students or also called learners who are the center of learning activities. Students as learning subjects are required to actively search, discover, analyze, formulate, solve problems, and conclude a problem (Mayasari, 2021).

According to (Romlah, 2016), One of the very important abilities for

children that needs to be developed in order to equip them for life in the future and now is to provide them with the ability to count. The ability to calculate is an effort to understand mathematics relating to the properties and relationships of real numbers. Mathematics is very useful in everyday life. Mathematics is a strong, concise and clear means of communication, it can be used to present information in many ways, to increase the willingness to think critically, accuracy and spatial awareness and to provide satisfaction in an effort to solve a complex problem even though it is related to numbers. Mathematics has four basic concepts, namely addition, subtraction, multiplication and division. Based on the four counting concepts above, this study will only discuss one of the four concepts, namely multiplication.

There are several factors that influence a student's counting ability and factors from outside the student. Factors from outside the student, such as the teaching and learning process, can influence a student's low counting skills, for example learning that is less enjoyable, the learning process is monotonous, and learning media that is less interesting, making students feel bored and less enthusiastic (Nurmasari, 2011). During the process of teaching and learning activities, not all students can quickly grasp the learning given by the teacher. Of course, for this multiplication counting operation, at the beginning the teacher asks students to memorize multiplications 1-10. However, in reality this process cannot be the main solution for some students to be able to do multiplication. This is a special concern when conducting learning in class so that each student receives learning that suits their respective abilities.

According to the observations in fifth grade and asked whether there were any difficult lessons, many children answered that mathematics was a difficult lesson. Even though it is an important subject, in reality there are still many students who consider mathematics to be very difficult, which makes them lazy to learn it. For students who think arithmetic is difficult because there are several factors, for example they are lazy to count, lazy to think too complicatedly, if they play with numbers students feel dizzy and so on. Students tend to avoid mathematics because they consider the subject to be too difficult and unimportant. This must be overcome by teachers being clever in creating learning methods in the classroom so that students do not get bored and also find it easy to accept the material being taught and can solve existing problems. Learning while playing will also make students comfortable and enthusiastic about learning.

Based on the observations, students answered multiplication calculation operation questions using common methods, namely by repeated addition or by rote memorization. When asked about the operation of calculating multiplication of numbers 1-5, many students were able to answer quickly and enthusiastically. However, when asked about the operation of calculating multiplication of large numbers (6-10), students experienced difficulty and became discouraged. Students become bored in adding a number as large as the

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number of multipliers, and quite a few students lose concentration and whine about not being able to answer.

From the results of interviews with class teachers, the process of learning the multiplication calculation operation should have been taught in class III, but during that year there was a Covid outbreak which required students to study at home and learn via cellphone. This event means that students cannot receive the material well due to the teacher's limited ability to teach the material online. The lack of variety in the methods teachers use in teaching mathematics also has an influence. The teacher explains the concept of multiplication calculation operations using a general lecture method and teaches multiplication by adding a number repeatedly according to the number of multipliers. The use of the lecture method is less effective for mathematics subjects, because it will make students bored if the lecture method used by the teacher is not interesting.

Jarimatika is a fun learning method. So, it needs to be proven that the Jarimatika method can be used to improve students' multiplication calculation skills in mathematics subjects on the subject of multiplication. The Jarimatika method is a learning method that uses fingers to calculate, by using this method students will find it easier to use because it can be used at any time and anywhere. According to (Suparni, 2018) stated that the Jarimatics method is very easily accepted by students, by using this method students will be required to understand mathematical calculations and not memorize them. (Salilama, Damopoli, and Manahung, 2022) revealed that teachers at SDN 3 Sumalata used the Jarimatika method because it was considered to be an effective way to learn mathematics. This study aims to improve students' multiplication counting skills in mathematics.

METODE

The approach in this research is a qualitative and quantitative approach. The type of research used is Classroom Action Research. This Classroom Action Research was carried out with the aim of improving counting skills in multiplication 6-10. This research took samples from fifth grade students at SD 5th grade using the Jarimatika method.

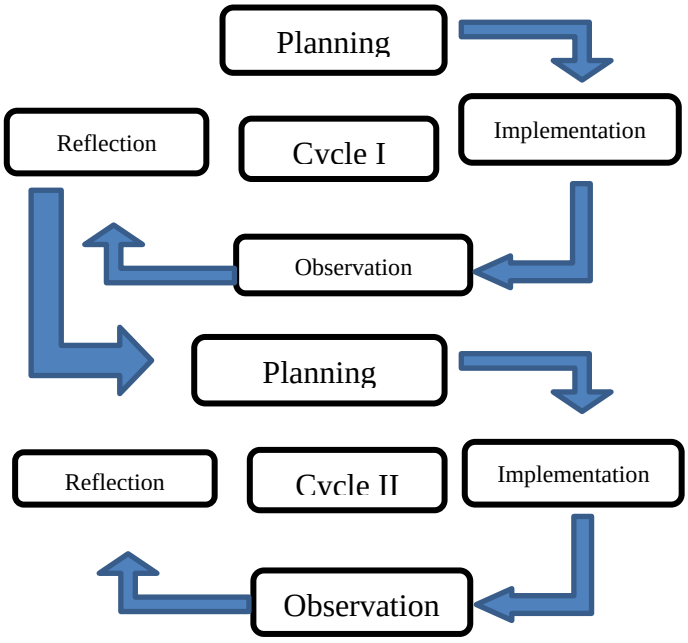

Figure 1. Cycle of Research

This research was carried out in 2 cycles, each cycle consisting of one meeting. Each cycle consists of 4 steps (Figure 1) or stages according to Kemis and MK Taggart in (Lestari, Khamdun, &

Riswari, 2023) includes: planning (planning), implementation of action (action), observation (observation) and reflection (thinking).

The subjects of this research were class V students at SD 2 Bategede consisting of 19 students. There are two data collected, namely pre-test data and post-test data. Data was obtained from observations of teacher and student activities during the learning process.

The data collection techniques used include interviews, observation, pre-test and post-test, as well as documentation. The data analysis technique used is qualitative and quantitative data analysis which describes the reality as obtained to determine effectiveness use of the Jarimatics method in improving counting skills in multiplication 6-10. There are 3 stages in analyzing qualitative data including, (1) data reduction, (2) data presentation, and (3) conclusions (Sugiyono, 2013).

Data analysis, evaluation and reflection are carried out from the beginning to the end of research activities. Analysis begins with collecting data from interviews, observations, evaluation tests, field notes, as well as documentation. Data from observations of teacher activities, student activities, student learning outcomes, aspects of students' skills and knowledge during learning are calculated based on a specified formula.

Then students' conclusions were grouped between students who got scores above the average into the categories of complete and incomplete learning, both individually and in groups. Students are said to have completed individually if their score reaches the specified standard score, namely 70, while students have not completed if their score is below the 70. Classical completion is determined by a minimum of 80% of students in the class completing their studies. If it is less than 80%, then action is needed in the next cycle.

RESULT AND DISCISSION

The data in this research is determined by the results of the pre-cycle, cycle I. The standard score which has been determined by the school is 70. At the pre-cycle stage, there were 2 students who achieved complete learning outcomes. Then the first cycle stage is carried out, data on learning outcomes of students who experienced learning completeness in the first cycle were 14 students and 5 students who had not achieved completeness. This data can be seen in table 1.

Table 1. Recapitulation of Students' Counting Skill in Cycle 1

No	Name	Precycle	Cycle I
1	AND	50	70
2	SNA	50	70
3	NW	50	80
4	FNA	40	80
5	YSW	40	50
6	KIN	50	70
7	BC	40	60
8	H.N	40	50
9	FFH	60	80
10	P.A	60	70
11	PSD	50	70
12	NAZ	40	70
13	BFN	60	80
14	ANK	70	80
15	S.A	40	60

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16	SNP	60	80
17	NN	30	50
18	MAA	40	70
19	DAP	70	80
<70		17	5
>70		2	14
Average		49.47	69.47

The table 1 above is the student's score without treatment as initial data where a recapitulation of the results of the student's counting ability test will be carried out to determine normality testing. Normality testing aims to determine the variety of data that will be used. It is hoped that the data used will be normally distributed so that the ability data for class V students at SD 2 Bategede is homogeneous.

Based on table 1, it can be concluded that in the first cycle, descriptively, the test results of students' counting skills using the Jarimatika method were better. This can be seen from the average value of the first cycle (after treatment) which was 69.47, higher than the pre-cycle value (before treatment) which only reached 49.47. However, the determination of completeness had not been achieved so a second cycle was carried out. Data on test results in cycle II are presented in Table 2.

Table 2. Recapitulation of Students' Counting Skill in Cycle 2

No	Name	Cycle 1	Cycle 2
1	AND	70	90
2	SNA	70	100
3	NW	80	90
4	FNA	80	100
5	YSW	50	80
6	KIN	70	90
7	BC	60	90
8	H.N	50	60
9	FFH	80	100
10	P.A	70	90
11	PSD	70	80
12	NAZ	70	90
13	BFN	80	100
14	ANK	80	100
15	S.A	60	90
16	SNP	80	90
17	NN	50	60
18	MAA	70	90
19	DAP	80	100
<70		5	2
>70		14	17
Average		69.47	88.95

The cycle II stage is an improvement on the reflection of cycle I, as an effort to improve learning so that in cycle II, improvements are made to the actions that have been implemented in cycle I. The implementation of the actions in cycle II is almost the same as the implementation of the actions in cycle I.

The learning outcomes in calculating skills using Jarimatics increased in aspect from cycle I to cycle II. The improvement can be seen in Figure 1.

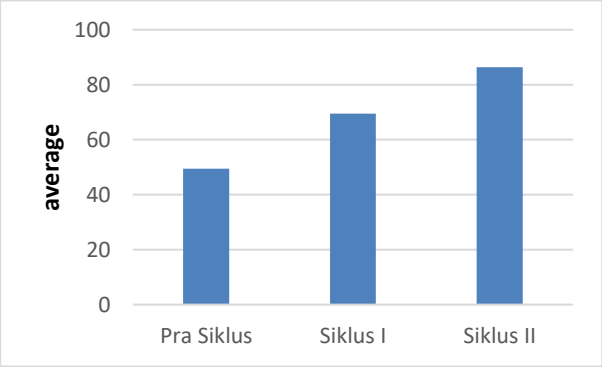

Figure 1. Average student scores

Data analysis shows that students who experience complete learning increase. The results of cycle I showed an average of 69.47, then after cycle II the

average increase was 86.31. This shows that the scores of all students have met the specified criteria. In other words, the 80% learning completeness requirement has been achieved. Therefore, the provision of action will be stopped until cycle II.

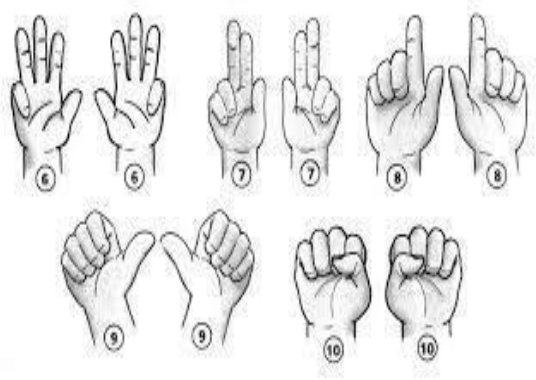

Figure 2. Jarimatika method

From the results of observations, learning using the Jarimatika method in class V SD 2 Bategede is divided into three activities, namely initial activities, core activities and closing activities. The steps for initial learning activities begin with preparing the space, tools and learning media, checking student readiness, conveying the competencies to be achieved and conducting an apperception. The core activities include introducing the Jarimatika method (Figure 2), conveying the steps for using Jarimatika, guiding students to demonstrate Jarimatika, listening to student questions, answering student questions, and providing evaluations. Closing activities include compiling a summary of learning and providing follow-up.

The results obtained in this study are in line with research (Rahmatullah, 2016) which concluded that the application of the Jarimatika method in mathematics learning in class IV of SD Negen 06 West Metro in the 2015/2016 academic year had a positive and meaningful effect on mathematics learning outcomes in the cognitive domain. The research results show that the ng (2 tailed) value is 0.023-0.05. Besides that (Awaliyah, 2017) added that the average student mathematics learning outcomes in multiplication material taught using a classroom action research design consisting of two cycles had increased.

Learning outcomes in the cognitive domain in cycle I were 45%, in cycle II it increased to 75%. The use of mathematical techniques also makes students find it easier to do multiplication and more confident in expressing opinions. Then (Ellyanti, Riswari, & Santoso, 2022) also found that there was a significant difference between the pretest and posttest scores on students' counting skills as shown using the paired sample t-test, which was known to have a sig (2-tailed) of 0.000 < 0.05. (2) There is an increase in students' counting skills after applying the Jarimatika method which is demonstrated using the n-gain test, knowing that the n-gain score is 0.7480 in the high category.

During the treatment using mathematics, students appeared to be more active in learning multiplication. Their activeness in learning is proven by the students' attention during learning. Students become active in using their fingers in learning through the finger method. This is proven by the students' enthusiasm in demonstrating the Jarimatics method and asking about multiplication procedures using the

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Jarimatics method. Students who do not understand how to do multiplication using the finger method actively ask friends who can do it and the teacher. Students help each other in learning multiplication using the Jarimatika method.

CONCLUSION

From the research results, it was concluded that the average increase in the value of the results of two cycles of the Jarimatika method increased to 86.31. Apart from that, learning using the Jarimatics method can make learning more active.

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