

**APPLICATION OF SNAKES AND LADDERS MEDIA ASSISTED BY
NUMBER CARDS TO IMPROVE STUDENT ACTIVITY AND LEARNING
OUTCOMES IN CLASS II MATHEMATICS SUBJECTS**

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ABSTRACT

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This study focuses on the use of snakes and ladders media with the help of number cards in learning mathematics for addition and subtraction. This study aims to improve activity and learning outcomes in the addition and subtraction material for Class II Girijoyo State Elementary School. The research method uses classroom action research (CAR). The subjects of this research were 10 students of Class II Girijoyo State Elementary School. The results of the pre-cycle research showed that the percentage was 66.5%, the first cycle increased to 76.5%, and the second cycle increased to 84%. This can be interpreted, that through the observation of the activeness of the second grade students, the success indicator has reached 90% and is categorized as active. In addition to the results of observations, the tests that have been carried out have also increased, from the percentage in the pretest 30% of students who completed the KKM, in the posttest 1 in the first cycle, the percentage increased to 50% of the students who completed the KKM. In posttest 2 in cycle II the percentage of students' completeness rose to 90%. Thus the achievement of the resulting competence with a percentage of 90% of students categorized as complete, exceeding the indicator of success with the achievement of class competence reaching more than 75%.

INTRODUCTION

According to (Suryadi, 2018) education is providing knowledge, culture, and values to a generation that can develop so that it can be given to the next generation. Education in learning activities is usually carried out in an educational institution or better known as a school. School is a place of learning where students are nurtured to become intelligent individuals and have good personalities. Education should be implemented as early as possible starting from the family environment so that children get sufficient provisions to go to a higher level of education.

Elementary school is the longest level of education to be completed, which is 6 years; students must go through it to go to the next level. Elementary school education starts from the age of 7 years to 13 years, the age of about 7 to 8 years, namely between grades 1 to grade 2 is the age of child reasoning development, where children's thoughts and feelings begin to develop (Hajar, 2012). Education in elementary schools is considered very important because it affects the development of education at the next level. This is because education in elementary schools as a place for students to acquire basic knowledge through every learning in the classroom.

According to (Isjoni, 2009) learning is basically an educator's effort to help students in carrying out learning activities. Learning activities have a role as an influencer on someone who learns to experience changes and aims to provide better changes to each individual. Learning activities have several interrelated components, namely educators, students, educational goals, educational tools and the educational environment (Saat, 2015). Educators as transmitters of material and students as recipients of material carry out learning activities; this allows communication interactions between educators and students so that learning can run more effectively. In Indonesia, learning has been

structured systematically in an educational institution. Educational institutions provide learning experiences and knowledge to students through several subjects that must be mastered, one of which is mathematics.

Students must master mathematics-learning materials; however, mathematics is often considered a difficult subject because students have to memorize certain formulas and symbols to calculate numbers so that mathematics lessons are less attractive to students. Learning mathematics is more about working on problems related to numbers and the solution needs to use formulas, this is what is considered that mathematics is a difficult and complicated learning. The cause of failure in learning mathematics is that students do not understand mathematical concepts or students misunderstand mathematical concepts (Novitasari, 2016). Teachers as supervisors in learning activities have an important role in improving learning outcomes and implementing the learning process, giving motivation to be more active in learning and providing conceptual understanding of the material being taught.

Based on the results of observations made in August 2021 in Class II SDN Girijoyo, obstacles were found in the mathematics learning process, while these obstacles included the lack of maximum activity and the value of student learning outcomes, this was evidenced by student learning outcomes that did not meet the minimum completeness criteria. The enthusiasm of students when learning took place was fairly low, this was evidenced by the presence of students who joked, talked to their friends and did not pay attention when the teacher delivered learning material. Lack of interest in learning, this is evidenced by the presence of students who are still silent when the teacher asks and offers questions about the learning material. The teacher dominates the learning process activities thus limiting the space for students to think critically. Submission of material by teachers in learning activities still uses conventional methods in the form of lectures and the use of limited media such as worksheets and blackboards.

In accordance with the above problems, it is necessary to have mathematics learning that involves students actively in learning so that students' enthusiasm for learning increases. In addition, there is a need for learning by using mathematics learning media so that students' attention is focused on learning. Learning media is something that is used as a distribution of messages from the sender to the recipient which can influence students in such a way as to facilitate the learning process and goals that need to be achieved (Sukiman & Pd, 2012). The suitability of learning media with learning materials has a big effect on learning outcomes, because learning media have an important role as a tool to facilitate learning material delivery. The role of learning media as a distribution of messages from the sender of the message to the recipient of the message and learning media will make it easier for students to understand the material presented by the teacher (Tafonao, 2018). This is emphasized by (Baharun, 2016) that learning media serves as a tool to improve students' understanding of learning materials, because learning media is one of the main factors that influence learning success. Thus, the use of learning media is needed to fulfill learning objectives. The use of learning media in the form of snake and ladder game is the right media to increase student activity. Snakes and ladders games are generally square, in which there are 100 smaller squares and there are pictures of snakes and ladders. Snakes and ladders media is a traditional game media that still exists to be played by children and with such modifications it can be used as a learning medium (Baiquni, 2016). The game of snakes and ladders can be played by two or more people, its use as a learning medium can create a pleasant atmosphere. In addition, snakes and ladders as a learning medium can provide children with an understanding of the importance of working together and acting in a sporting manner (Widowati, 2014).

Based on the explanation of the background above, researchers are interested in studying with the title "Application of Snakes and Ladders Media Assisted by Number Cards to Improve Student Activity and Learning Outcomes in Class II Mathematics Subjects".

METHOD RESEARCH

This research uses Classroom Action Research (CAR). Classroom Action Research is a reflective research. Research activities that start with the teacher in the learning process, then do

how to solve problems with real, measurable and planned actions (Suwandi, 2010:10). Classroom Action Research in its procedure there are four stages, namely planning, implementation, observation and reflection. The research model can be described as follows (Arikunto 2015: 42).

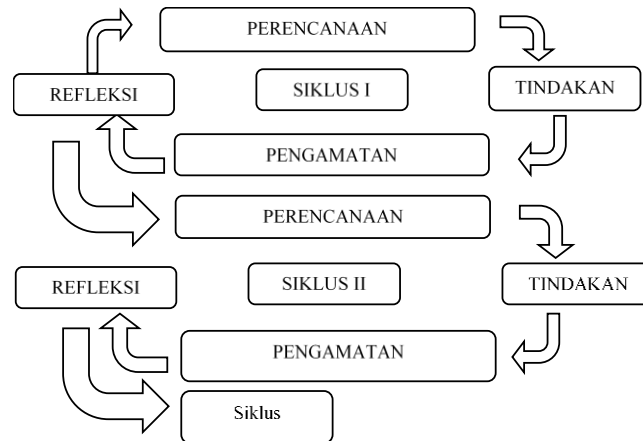


Figure 1. Action Research Cycle

This research was conducted in the odd semester of the 2021/2022 academic year, namely from August 2021. The subjects in this study were second grade students at SDN Girijoyo, Kemiri District, Purworejo Regency, totaling 22 students, consisting of 11 boys and 11 girls. Due to the pandemic conditions, schools do not carry out direct learning processes with a complete number of students. So the researchers used a sample of 10 students who had been adjusted in consultation with the school and still adhered to the health protocol.

Classroom action research was carried out in 2 stages of Cycle, namely Cycle I and Cycle II, but prior to Cycle I, the pre-Cycle stage was first carried out to identify initial abilities and deficiencies in the learning process. Each Cycle consists of planning, action, observation, and reflection as follows: (1) Planning, this stage prepares all the necessities needed in learning such as syllabus, lesson plans, learning media, test questions, answer keys, and observation sheets, (2) Action, at this stage is the implementation of learning which is carried out 2 times in each cycle with learning material for addition and subtraction in the long and short way, (3) Observation, this stage records all information using the prepared observation sheet and makes field notes. at each meeting, (4) Reflection, at this stage the researcher evaluates the implementation of the actions used to consider actions in the next cycle.

The steps for student learning using the snake and ladder media with the help of number cards are as follows: (1) the teacher explains the learning objectives using the snake and ladder media with the help of number cards; (2) the teacher gives the material to be studied; (3) the teacher adjusts the student's sitting position; (4) the teacher explains the material using the snake and ladder learning media with the help of number cards; (5) teachers condition students during learning activities; (6) the teacher gives questions according to the material to students to find out learning outcomes.

The data collection techniques in this action research are: (1) active observation using observation sheets to record all student activities during learning activities by means of observation; (2) interviews or question and answer activities with classroom teachers to explore information related to learning; (3) test questions in the form of descriptions given to students in order to determine the ability of understanding, knowledge, and memory when participating in learning; (3) documentation in the form of lesson plans (RPP), syllabus, media, photos and videos as evidence that action research has been carried out; (4) Notes in the field are used to describe all learning activities that have taken place.

Data analysis techniques as a tool to measure student success after participating in learning activities. Learning success is calculated using the appropriate formula from the learning objectives.

Learning activities in this action research were measured on student learning activity and student learning outcomes using the following formula:

Analysis of student learning activities (Ningsih, Hidayat, & Kusairi, 2018)

$$\text{Scoring assessment} = \frac{\text{Total student scores}}{\text{max total value}} \times 10$$

Analysis of the value of learning outcomes (Widoyoko, 2014)

$$SA = B$$

Description:

SA = Final score of the test taker

B = Number of correct answers

Table 1. Conversion of Activity Assessment Results and Student Learning Outcomes

Mastery Level	Standard Score	Category
90% - 100%	A	Very good
80% - 89%	B	Well
70% - 79%	C	Enough
60% - 69%	D	Low
0% - 59%	E	Very low

This research is said to be successful if the indicators of success are met, namely (1) the average percentage of student activity scores reaches 80% and 80% or 8 of the number of students get good categories, (2) the average percentage of student learning outcomes reaches $\geq 75\%$ and 80% or 8 out of 10 students have met the minimum standard of completeness criteria.

RESULT AND DISCUSSION

Result

Student Learning Activities

Data on the results of activity in learning mathematics with addition and subtraction at the pre-cycle stage, cycle I and II can be seen in Table 2.

Table 2. Student Activity Results

No	Name	Cycle		
		Precycle	Cycle I	Cycle II
1	Subject 1	75	80	85
2	Subject 2	80	85	95
3	Subject 3	60	75	80
4	Subject 4	55	70	75
5	Subject 5	60	70	80
6	Subject 6	60	75	80
7	Subject 7	80	85	90
8	Subject 8	70	80	90
9	Subject 9	65	75	85
10	Subject 10	60	70	80
Average		66,5%	76,5%	84%
Percentage of passing		20%	40%	90%

Based on table 2 above, it is concluded that student activity has increased. At the pre-cycle stage the average percentage reached 66.5% with the "low" category, there were 2 students who had met the success indicators with a completeness percentage of 20%, after the application of the snake ladder media with the help of number cards in the first cycle the

average percentage achieved was 76.5% is categorized as "enough" there are 4 students who have met the success indicators with a percentage of 40% and continued in the second cycle the average percentage reached 84% with the "good" category there were 9 students who met the success indicators with a percentage of 90%. Because it has met the success indicator 80%, the cycle is stopped.

Student learning outcomes

Data on student learning outcomes in mathematics learning with addition and subtraction at the pre-cycle stage, cycle I and II can be seen in Table 3.

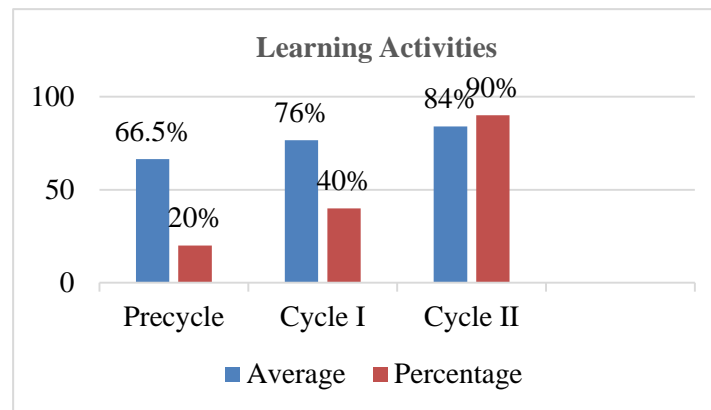
Table 3. Student Learning Outcomes

No	Name	Student learning outcomes		
		Precycle	Cycle I	Cycle II
1	Subject 1	60	80	90
2	Subject 2	80	90	100
3	Subject 3	60	70	90
4	Subject 4	50	60	80
5	Subject 5	40	70	80
6	Subject 6	40	60	70
7	Subject 7	80	90	100
8	Subject 8	80	90	100
9	Subject 9	50	70	80
10	Subject 10	60	80	100
Average		60%	76%	89%
Percentage of passing		30%	50%	90%

Based on table 3 above, it is concluded that student learning outcomes have increased. At the pre-cycle stage the average value of learning outcomes reached 60% with the "low" category there were 3 students who had met the success indicators with a percentage of completeness of 30%, after the application of the snake and ladder media with the help of number cards in the first cycle the average value of student learning outcomes reached 76% with the "enough" category, there were 5 students who had met the success indicators with a percentage of 50% and continued in the second cycle stage the average value of learning outcomes reached 89% categorized as "good" there were 9 students who met the success indicators with a percentage of 90%. Because the success indicator has been met $\geq 80\%$ so the cycle is not continued.

Discussion

Student Learning Activities



Based on the results obtained by applying the snake and ladder media with the help of number cards, it shows that an increase in student learning activity in mathematics learning in class II SD Negeri Girijoyo in cycle I shows the average percentage of student activity is 76.5% with the "enough" category and becomes 84% in the second cycle with the "good" category. The use of snakes and ladders media with the help of number cards allows students to learn actively and work together in groups to solve problems. This shows that the use of tamgga snake media with the help of number cards can increase student learning activities.

Student learning outcomes

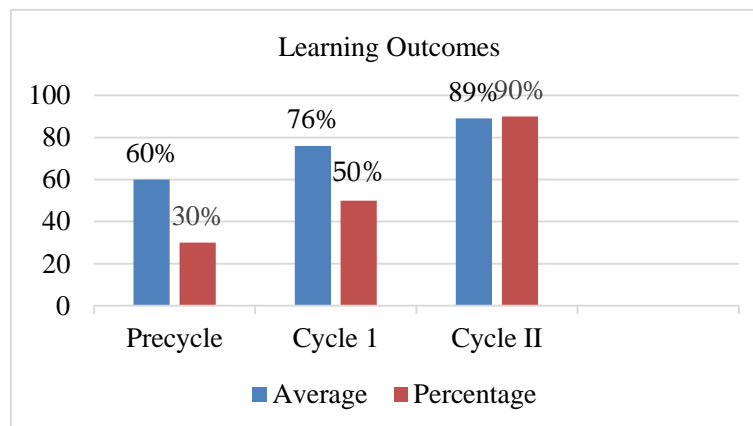


Figure 3. Student learning outcomes

Student learning outcomes in the first cycle stage reached an average percentage of 76% in the "enough" category, and increased in the second cycle stage with an average percentage of 89% in the "good" category. Learning outcomes are an important part as evidence that learning has met the objectives of learning. This proves that the use of snakes and ladders media with the help of number cards can improve student learning outcomes.

Based on observations during the learning process the teacher's efforts in conveying the material and conditioning the class can be carried out properly. Learning has been carried out in accordance with the learning objectives and obtained good results. Some notes that need to be considered in this study include: there are still people who are embarrassed to ask and convey something verbally, there are still those who pay less attention, and learning outcomes are still below the minimum completeness criteria. The

teacher's efforts in this case are by giving gifts and appreciating each student's questions and responses, giving motivation to be more active in learning, and providing examples of questions from the easiest to the most difficult so that students slowly understand the concept of the material. Another thing, the use of snake and ladder learning media with the help of number cards can be applied well and students are able to use it with teacher assistance. Action research using snakes and ladders media with the help of number cards to increase student activity and learning outcomes in cycle II has met the indicators of success and taking into account the results of the action, the cycle is stopped.

CONCLUSION

Data analysis results about learning activities using snakes and ladders media assisted by number cards to increase the activity and learning outcomes of second grade students at SD Negeri Girijoyo are as follows: student learning activity has increased satisfactorily with a percentage of 84% categorized as active and student learning outcomes have increased in the cycle II with an average percentage of 89% is categorized as high.

Based on the research that has been done, the snake and ladder learning media with the help of number cards is expected to be able to provide support to teachers to use media in the teaching and learning process. The snake and ladder media with the help of number cards can help the learning process, especially in abstract subjects such as examples of addition and subtraction mathematics. Snakes and ladders learning media can be an alternative for teachers in providing conceptual understanding and making learning more creative and innovative.

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