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Implementation of the SSCS Learning Model to Improve Student Learning Outcomes on Data Presentation Material in Elementary School

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ABSTRACT

This study aims to improve student learning outcomes by implementing the Search, Solve, Create, and Share (SSCS) learning model on data presentation material in grade IV of elementary school. This study uses a classroom action approach implemented in two cycles, with stages of planning, implementation, observation, and reflection. The subjects of the study were grade IV students of SD Negeri Mernek 03. Data collection techniques were done through written tests to measure student learning outcomes. The results of the study indicate that the implementation of the SSCS learning model can improve student learning outcomes from cycle I to cycle II. Thus, the SSCS learning model is effective for use in mathematics learning, especially in data presentation material.

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1. INTRODUCTION

Elementary education is a very important initial level in forming the foundation of students' academic abilities, including in the field of Mathematics. Mathematics is a discipline that is very necessary in everyday life[1]. Mathematics aims to improve students' understanding and reasoning skills, as well as their ability to solve problems both in mathematics and real life[2]. Mathematics in elementary schools plays a role not only in equipping students with numeracy skills, but also in training logical, critical, and systematic thinking skills. Mathematics is taught in elementary schools because mathematics is one of the sciences that has a very important role in education that can be applied in all aspects of life[3].

The discipline that is considered as a difficult science to understand is mathematics, this is because mathematics is considered abstract, not only for elementary school students but also for college students [4]. As an

[1] Siti Murniati, Endang Retno Winarti, and Irawanti, 'Meningkatkan Kemampuan Pemecahan Masalah Dan Kerjasama Siswa SMPN 24 Semarang Melalui Model Pembelajaran SSCS', *Prisma, Prosiding Seminar Nasional Matematika*, 2 (2019), pp. 99–102.
[2] Lulu Meilia Mahartanti, Yunita Puspita Sari, and Susilo Tri Widodo, 'Upaya Meningkatkan Hasil Belajar Siswa Melalui Media Manipulatif Papan Diagram (PADI) Materi Penyajian Data Matematika Kelas V SDN Karanganyar Gunung 01 Kota Semarang', *Prosiding Webinar Penguatan Calon Guru Profesional*, 2024, pp. 839–47.
[3] Tien Dwikoraningrum, 'Upaya Meningkatkan Prestasi Belajar Matematika Materi Penyajian Data Melalui Model Discovery Learing', 3 (2022), pp. 67–77.
[4] Permana, Renda, and Margunayasa.

abstract subject, learning Mathematics in elementary schools must be designed in such a way that it can be understood well by students. Learning Mathematics in elementary schools is a process of interaction between teachers and students that is carried out consciously which aims for students to understand the context of the mathematics being taught[5]. Teachers need to try various learning strategies that can help students construct meaningful Mathematics concepts.

Mathematics as one of the subjects taught in schools, is needed by students to be able to solve problems in real-world needs [6]. One of the materials in mathematics that is relevant to everyday life and requires systematic thinking skills is data presentation material. Data presentation is very much needed in everyday life, in any field[7]. Through this material, students learn to collect, group, and present data in the form of tables or diagrams. The ability to present data is not only part of the formal curriculum, but also an important skill needed in everyday life. Through data presentation material, students learn to understand information quantitatively, organize data regularly, and draw conclusions from available data. Understanding data presentation is very important because it makes it easier to extract information from the collected data[8].

However, in classroom learning practices, many students still have difficulty understanding data presentation materials. Students tend to only memorize the steps without really understanding the meaning behind the data presentation process. As a result, student learning outcomes on this material tend to be low. This problem is also caused by learning methods that are still centered on teachers, students tend to be less active in the learning process, and do not associate concepts with students' real experiences. The learning carried out is still dominated by lecture methods and direct question giving without involving students in exploratory activities and problem solving.

This condition encourages the need for the application of innovative learning models that can increase student activity and help students understand concepts more concretely. One of the learning models that can be applied is *Search, Solve, Create, and Share* (SSCS). The SSCS learning model is one of many learning models that teach students skills in problem solving starting from searching for information to identify problems (*search*), solving problems faced (*solve*), creating solutions to these problems (*create*), and sharing knowledge from the stages that have been passed previously to other students (*share*) [9]. This SSCS model is a learning model that can train students' critical thinking skills, because in this learning, students are trained to solve a problem by trying to collect information from various sources, including in everyday life [10].

The SSCS learning model is a learning model developed by Pizzini which is designed to influence or improve conceptual understanding and develop critical thinking skills to help students solve mathematical problems[11]. The SSCS learning model is included in the cooperative learning category which is very effective in improving students' mathematical problem solving abilities [12]. This learning model is designed to help students practice critical thinking skills and improve their understanding of a scientific concept [13].

The SSCS learning model encourages students to be active in the learning process, so that students can practice critical, creative, and collaborative thinking skills [14]. The SSCS learning model makes students the center of learning (*student centered*), students will search for and find knowledge themselves. In this case, the teacher will only provide direction or a few examples, then students will develop it themselves. The goal is to provide opportunities for students to participate in the process of discovery or conceptualization as a unity of knowledge [15].

In its implementation in Elementary Schools, the SSCS model is very suitable to be applied to data presentation material in grade IV. Through the *search stage* , students are trained to actively collect data from their surroundings, so that they are directly involved in the information exploration process. At the *solve stage*,

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[15] Apriliasari and Dewi.

students analyze the data that has been collected, develop logical thinking patterns, and begin to understand the relationships between data. Furthermore, at the *create stage* , students present the data in visual form such as tables or bar charts, which helps strengthen conceptual understanding of data presentation. Finally, at the *share stage* , students present their work in front of the class, which not only trains communication skills but also deepens mastery of the material through the process of sharing and discussion. Each stage in the SSCS model encourages active involvement and deep understanding of students in the concept of data presentation. This involvement has a direct impact on improving learning outcomes, because students do not only receive information passively, but build their knowledge through real experiences.

Based on the description, this study aims to improve student learning outcomes through the implementation of the SSCS learning model on data presentation material in grade IV of elementary school. It is expected that the results of this study can be a contribution in the development of more innovative and effective Mathematics learning strategies in elementary schools.

2. METHOD OF THE RESEARCH

This research is a classroom action research. Action research is a research method that involves interventions or actions planned and implemented by researchers to improve or enhance a particular situation or problem in a practical context. The main goal is to achieve positive change or improvement in an action or situation being studied[16]. Action research has the character of research to improve and enhance the ability or professionalism of teachers in classroom learning activities, research whose results can be directly utilized for the benefit of classroom learning activities. The action research process involves repeated cycles that include planning, implementation, observation, and reflection, with the results of each cycle used to improve or adapt subsequent actions[17].

The purpose of this study was to improve student learning outcomes in data presentation material through the implementation of the *Search, Solve, Create, and Share* (SSCS) learning model. This classroom action research was conducted at SD Negeri Mernek 03, Maos District, Cilacap Regency, in the odd semester of the 2024/2025 academic year. The implementation of this research was through face-to-face meetings held in August-November 2024. The subjects of this study were 16 fourth grade students, consisting of 7 male students and 9 female students.

The research was conducted in two cycles, where each cycle includes the stages of planning, action implementation, observation, and reflection. Each stage is carried out systematically to improve the learning process and improve student learning outcomes. The research procedure begins with the planning stage, namely the preparation of the Learning Implementation Plan (RPP) based on the SSCS model, preparation of Student Worksheets (LKPD), learning media such as graph paper and colored markers, and evaluation instruments in the form of learning outcome test questions. At the action implementation stage, the teacher applies learning using SSCS syntax, which includes *search activities* (collecting data from the surrounding environment), *solve* (analyzing data), *create* (presenting data in the form of tables or diagrams), and *share* (presenting results in front of the class).

During the implementation of the action, observations were made on student activities to determine their involvement in each stage of learning. This observation was carried out by recording the students' activeness, collaboration, and ability to complete tasks based on the SSCS model syntax. After the action and observation, a reflection was carried out to evaluate the learning process and results in the cycle. This reflection is used to determine improvement steps in the next cycle.

The research data were collected through written tests given after the implementation of learning in each cycle. This test aims to measure student learning outcomes in understanding and applying the concept of data presentation. The test result data were analyzed quantitatively to calculate the average class score and the percentage of student learning completion. The average score was obtained by dividing the total number of student scores by the number of students, while the percentage of completion was calculated based on the number of students who achieved the minimum score of the Minimum Completion Criteria (KKM) that had been set, which was 70.

This research is declared successful if there is an increase in the average value of student learning outcomes from cycle I to cycle II, and at least 85% of students or at least 14 students achieve a score of ≥70. If the percentage of completion is lower, reflection and improvement are needed in the learning process. With this systematic classroom action approach, it is expected that the SSCS learning model can have a positive impact on improving student learning outcomes in data presentation material.

[16] Tamaulina Br. Sembiring and others, *Buku Ajar Metodologi Penelitian (Teori Dan Praktik)* (Saba Jaya Publisher, 2024).
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Table 1. Success Rate Criteria

Percentage Student Completed	Success Rate	Predicate
90% - 100%	Very good	A
85% - 89%	Good	B
75% - 84%	Enough	C
60% - 74%	Not enough	D
<60%	Fail	-

3. RESULT AND DISCUSSION

The research was conducted in two cycles to implement the *Search, Solve, Create, and Share* (SSCS) learning model in improving the learning outcomes of fourth grade students in data presentation material. Before the action was carried out, an initial test was given to determine the initial condition of student learning outcomes. Based on the results of the initial test, the highest score obtained by students was 85, the lowest score was 45, and the class average score was 68.75. Of the 16 students, only 8 students or 50% achieved a score above the Minimum Completion Criteria (KKM) that had been set, which was 70. This shows that students' ability to understand and present data is still low, so it is necessary to apply a learning model that can increase student involvement and understanding.

Table 2. Learning Outcome Values Student Initial Conditions

Mark	Amount Student	Total Value
45	1	45
50	1	50
60	3	180
65	3	195
70	2	140
75	1	75
80	2	160
85	3	255
Amount	16	1100
Average Value	68.75	

In cycle I meeting 1, learning begins by introducing the importance of simple data presentation in everyday life. In the *search stage* , students are invited to collect real data in the school environment, such as the type of food supplies brought by students or games played during recess. In the *solve stage* , students begin to discuss to group the data based on certain categories. However, at this stage, students are still confused in classifying data and many of the tables created are not systematic. The teacher guides intensively so that students understand how to compile a simple frequency table. In the *create stage* , students compile the data obtained into a table, and in the *share stage* , they introduce the table results in front of their group mates. Although student involvement is quite high, accuracy in compiling tables is still an obstacle.

In cycle I meeting 2, learning focused on presenting the collected data in the form of a picture diagram. The teacher gave a simple example of how one picture can represent a number of data. At the *solve stage* , students were asked to change the data in the table into a picture diagram. Some students were able to make diagrams, but many still had difficulty determining the right representation picture and making a proportional scale. At the *create stage* , students drew symbols based on the results of data grouping, then at the *share stage* , several groups presented the picture diagram in front of the class. The main problem that emerged was that students lacked confidence in speaking in front of the class and there were still inaccuracies in drawing the diagram scale.

After two meetings in cycle I, the learning outcome evaluation test was conducted , there was an increase in student learning outcomes. The highest score obtained by students in cycle I was 90, the lowest score was 60, and the class average score increased to 79.06. The percentage of learning completion also increased to 81.25%, with 13 out of 16 students successfully achieving scores above the KKM. This shows an increase in learning outcomes compared to the initial conditions, although there are still some students who have not completed it.

Table 3. Learning Outcome Values Student After Cycle I

Mark	Amount Student	Total Value
60	1	60
65	2	130
70	2	140
75	2	150
80	1	80
85	3	255
90	5	450
Amount	16	1265
Average Value	79.06	

Based on the results of reflection in cycle I, several problems were identified, namely students were still less careful in changing observation data into tables. Therefore, in cycle II improvements were made by providing more intensive guidance during the data analysis stage.

Entering cycle II meeting 1, reflection of the results of cycle I is used as a basis for improvement. The teacher reinforces understanding of the importance of accuracy in making diagrams, especially bar charts. In the *search stage* , students collect additional data from home, such as the number of family members based on the means of transportation used. In the *solve stage* , students work together to organize the data into a frequency table. In the *create stage* , students draw bar charts based on the data that has been collected, with teacher guidance on the use of the right scale and accuracy in drawing bars. In this meeting, there was an increase in student accuracy in presenting data, with bar charts that were neater and according to scale.

In cycle II meeting 2, the focus of learning is to strengthen reading skills and present the data that has been presented. In the *create stage* , students finalize their bar charts. The teacher provides direction on how to read data from the diagram and draw appropriate conclusions. In the *share stage* , each group presents their work in front of the class. In this presentation, students appear more confident compared to cycle I. They are able to explain the contents of the diagram, answer questions from classmates, and draw conclusions from the data presented.

Evaluation of learning outcomes after cycle II showed a more significant increase. The average value of student learning outcomes increased to 86.88 with a percentage of learning completion reaching 93.75%. The percentage of learning completion also increased to 93.75%, with 15 out of 16 students achieving scores above the KKM. Only one student has not achieved completion.

Table 4. Learning Outcome Values Student After Cycle II

Mark	Amount Student	Total Value
65	1	65
70	1	70
75	1	75
80	4	320
90	3	270
95	2	190
100	4	400
Amount	16	1390
Average Value	86.88	

The comparison of the percentage of completion and average student learning outcomes from the initial conditions to between cycles is presented in the following table.

Table 5. Comparison of Learning Outcomes Between Cycles

Stage Learning	highest score	Lowest Value	Average	Percentage Learning Outcome Completion
Initial Conditions	85	45	68.75	50.00%
Cycle I	90	60	79.06	81.25%
Cycle II	100	70	86.88	93.75%

The increase in the average value and percentage of student learning outcomes completion from the initial condition, the final condition of cycle I, to the final condition of cycle II will be more clearly seen in the following diagram.

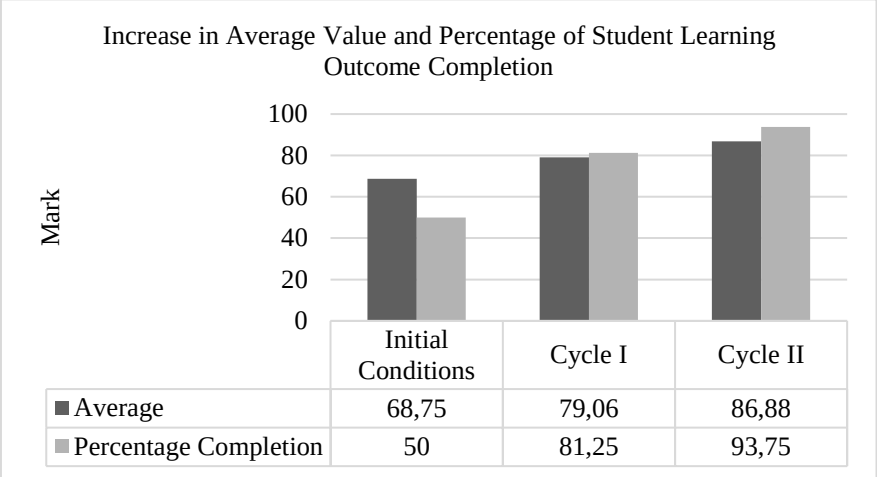

Diagram 1. Diagram of the increase in average value and percentage of learning outcome completion

The improvement in student learning outcomes shows that the implementation of the SSCS learning model has a positive impact on students' understanding of data presentation materials. Each stage in the SSCS model contributes to the student learning process: at the *search stage* , students actively collect data from their surroundings; at the *solve stage* , students analyze the data obtained; at *the create stage* , students present data in the form of tables or diagrams; and at the *share stage* , students present their work in front of their classmates. All of these stages contribute to strengthening students' conceptual understanding gradually and continuously. SSCS-based learning is able to increase students' active involvement and strengthen data analysis skills. This has direct implications for increasing student learning outcomes from the initial conditions to cycle I, and from cycle I to cycle II.

4. CONCLUSION

Based on the results of classroom action research that has been carried out in two cycles, it can be concluded that the implementation of the *Search, Solve, Create, and Share* (SSCS) learning model can improve the learning outcomes of fourth grade students of Mernek 03 Elementary School on data presentation material. In the initial conditions, the average student score was 68.75 with a completion rate of 50.00%. After the implementation of the SSCS model in cycle I, the average student score increased to 79.06 with a completion rate of 81.25%. Further improvement occurred in cycle II, where the average score reached 86.88 with a completion rate of 93.75%.

This improvement in learning outcomes shows that the SSCS model is effective in building student understanding through active activities of seeking information, solving problems, creating data presentation products, and sharing the results with friends. The active involvement of students in all stages of learning has a positive impact on improving their understanding of concepts and skills in presenting data. Thus, the SSCS learning model is worthy of being an alternative learning strategy to improve Mathematics learning outcomes, especially in data presentation materials in elementary schools.

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