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Efforts to Improve Cognitive Learning Outcomes of Grade 2 Students of Junganyar 2 State Elementary School in Mathematics Subjects Through LKPD

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Abstract

This classroom action research investigated the effectiveness of Learner Worksheets (LKPDs) in improving the cognitive learning outcomes of 2nd-grade students in mathematics, specifically addition with carrying, at SD Negeri Junganyar 2. The study, conducted over two cycles, involved 34 students and utilized pre- and post-tests, observations, and student questionnaires. Results showed a significant increase in students' average scores after implementing the LKPDs, rising from 40% in the pre-test to 80.88% in the post-test of cycle 2. The LKPDs, designed collaboratively with the classroom teacher, fostered deeper conceptual understanding and increased student engagement. While positive, the study acknowledges methodological limitations and suggests further research with a more robust design

Keywords:

LKPD; Student Learning Outcomes; Summarization land Storing Technique

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A. Introduction

Education is a crucial long-term investment for the progress of the Indonesian nation. Teachers, as educators, play a vital role in shaping the next generation and realizing future hopes. Careful planning and management of education from an early age is necessary (Law of the Republic of Indonesia Number 20 of 2003 concerning the National Education System). Mathematics, with its logical concepts, plays a major role in problem solving and the development of systematic, logical, analytical, critical and creative thinking skills. Mastery of mathematical modeling skills, problem solving, and interpretation of results are key to improving problem solving ability. Deep conceptual understanding is a prerequisite for students' success in applying mathematical knowledge.

The elementary mathematics curriculum, based on the Decree of the Head of the Education Standards, Curriculum and Assessment Agency of the Ministry of Education, Culture, Research and Technology Number 032/H/KR/2024, teaches addition and subtraction operations in stages. Grade 2 students learn addition and subtraction with the saving technique. However, initial observations at SD Negeri Junganyar 2 showed that 15 out of 34 grade 2 students had difficulty in solving simple addition problems. This can be seen from the low average score of the addition and subtraction pretest before the research.

Based on (Buyung et al., 2022), there are several factors that contribute to low learning outcomes: first, lack of understanding of the basic concepts of arithmetic operations; many students have difficulty distinguishing addition and subtraction, and do not understand commutative and associative properties. Second, monotonous learning methods (e.g., lectures and direct problem exercises) make students bored and less motivated. Third, the lack of interesting and interactive learning media makes it difficult for students to understand concepts visually and concretely. Fourth, the lack of opportunities to practice independently and collaboratively, and the lack of parental support. Many parents (laborers or fishermen) pay less attention to their children's learning at home.

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Previous research, such as Pujiono (2023), Also highlighted the lack of student interest in learning mathematics due to monotonous conventional monotonous conventional learning methods, resulting in difficulties in the technique of storing numbers. Therefore, learning innovations are needed to improve students' understanding of addition by storing techniques. The use of interesting, creative and innovative Learner Worksheets (LKPD) is a potential solution to overcome this challenge. innovative is a potential solution to overcome this challenge (Hasanah, 2023). LKPD not only trains students in calculation, but also in problem solving and creativity. problem solving and creativity. There is a gap between students' needs for interesting and interactive learning with learning methods that are still conventional. learning methods that are still conventional. This research aims to develop and implement skill-based LKPD to improve understanding of concepts of addition and substraction with saving techniques for grade 2 students of SDN Junganyar 2.

B. Methods

This study used a classroom action research (PTK) approach with a collaborative design involving researchers and grade 2 teachers of SD Negeri Junganyar 2, Socah District, Bangkalan Regency, East Java. This research was conducted in two cycles, each consisting of four stages: planning, action implementation, observation, and reflection. The next cycle was carried out based on the results of the previous cycle's reflection. This research was conducted at SD Negeri Junganyar 2, which is located at Jl. Junganyar Selatan, Kec. Socah, Kab. Bangkalan, East Java 69161. This school is located close to the sea that separates Madura Island and Java Island. The research lasted for one month, from February 20 to March 20, 2025. This period includes pre-research and the implementation of two research cycles. The subjects of this study were 34 grade 2 students of SD Negeri Junganyar 2 in the 2025/2026 academic year (15 boys and 19 girls), as well as the grade 2 teacher as a collaborator.

Data collection techniques in this study used test and non-test instruments. Researchers gave pre-test and post-test questions at the beginning and end of each cycle, the aim was to measure students' ability to understand the concept of addition

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and subtraction with the technique of saving. The score is calculated using the formula: S = (R/N) x 100, where S = value, R = number of correct questions, and N = maximum score. In addition, researchers also conducted observations, where researchers and class teachers separately observed student learning activities during the learning process, including participation, understanding of concepts, and ability to solve problems, distributed student response questionnaires, researchers and class teachers separately observed student learning activities during the learning process, including participation, understanding of concepts, and ability to solve problems and also documentation.

Data analysis techniques in this study were qualitative and quantitative. Qualitative data from observations, student response questionnaires, and field notes were analyzed descriptively to describe the learning process, student responses to LKPD, and factors that influence the improvement of concept understanding. Qualitative data will be used to enrich and strengthen the findings of quantitative data. The qualitative data analysis technique used is thematic analysis. Quantitative data in the form of pre-test and post-test scores are analyzed descriptively to compare the improvement of students' concept understanding in each cycle. The average value and percentage of improvement will be calculated and interpreted.

The research procedure began with the pre-research stage, where initial observations were made to identify learning problems and formulate action plans, as well as collecting student response questionnaires. Furthermore, in Cycle 1, researchers and teachers designed learning activities using skill-based Learner Worksheets (LKPD), where a pre-test was given before the implementation of learning. Learning was carried out as planned with the researcher and teacher acting as observers to observe student activities and record qualitative data. After the lesson, the collected data were analyzed to evaluate the effectiveness of the lesson and plan improvements for the next cycle, followed by the post-test. In Cycle 2, the same stages were repeated with improvements based on the reflection results from Cycle 1.

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C. Results and Discussion

This study examines the effectiveness of Learner Worksheets (LKPD) on cognitive learning outcomes of 2nd grade students of SD Negeri Junganyar 2 in addition calculation operations with saving techniques. The results showed a significant increase in students' cognitive learning outcomes after the implementation of LKPD..

Before the use of LKPD, there were obstacles in understanding the concept of addition, especially the menyiman technique. This has an impact on learning outcomes that are less than optimal. After learning intervention with LKPD, there was an increase in understanding the concept of addition with the menympan technique. LKPD is proven to help students understand concepts in a more in-depth and structured manner. This increased understanding is reflected in a significant increase in learning outcomes..

The results showed a significant increase in students' cognitive learning outcomes after the implementation of LKPD. Before the use of LKPD, students had difficulty in understanding the concept of addition with saving techniques, which had an impact on low learning outcomes. After learning intervention with LKPD, students' concept understanding and learning outcomes increased significantly. This is evidenced by the comparison of the average score of student scores on the post test cycle 1 (50.88%) and cycle 2 (80.88%) as listed in the table below.

Tabel 1. Comparison of pre-test and post test results in cycle 1 and cycle 2

Cycle	Pre-test (mean)	Post-test (mean)	Percentage of increase	Number of students completed (KKM >70)
Siklus 1	40	50,88	27,2%	7
Siklus 2	71,25	80,88	13,7%	28

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D. Conclusion

This class action research shows that the use of Learner Worksheets (LKPD) in learning math addition operations with saving techniques for grade 2 students of SD Negeri Junganyar 2 is effective in improving students' cognitive learning outcomes. This is evidenced by the increase in the average post-test score in the second cycle, which shows that students better understand the concept of addition with saving techniques after using LKPD.

The well-designed LKPD that is done in groups, with the application of the peer tutor method, is proven to help students understand concepts in a more in-depth and structured manner. Students become more active in the learning process, so they more easily understand and remember the concepts taught.

Although this study showed positive results, it should be kept in mind that this study has methodological limitations. Therefore, further research is needed with a more robust design and more diverse data collection methods to test the effectiveness of the LKPD more comprehensively

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.

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