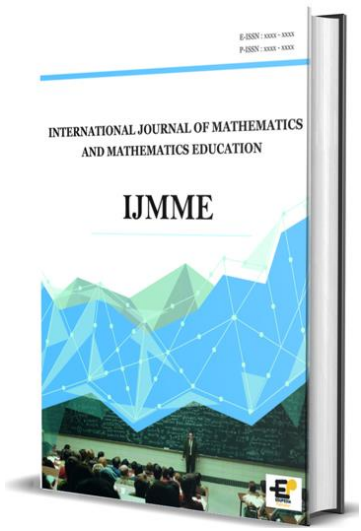

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The Relationship between Learning Activities and Mathematical Problem-Solving Abilities in Elementary School

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Abstract

This research investigates the relationship between elementary school students' learning activities and mathematical problem-solving abilities. A quantitative functional correlation method was utilized with 52 fourth-grade students. Questionnaires were used to measure learning activities, while problem descriptions were used to assess mathematical problem-solving abilities. The IBM SPSS Statistics 22.0 application and the Spearman Rank method were used for data analysis. The study results indicate a positive relationship between learning activities and mathematical problem-solving abilities. The regression equation showed a proportional relationship, where higher learning activities resulted in better problem-solving abilities. The coefficient of determination indicated that 8.2% of the variance in problem-solving abilities could be attributed to learning activities. The t-test results demonstrated a significant relationship between learning activities and mathematical problem-solving abilities. Tested the cognitive learning theory with learning activities and define relation outcome in mathematical problem solving. Therefore, this study concludes that learning activities significantly impact the mathematical problem-solving abilities of fourth-grade elementary school students in Banjarwatu, Bogor Regency.

Introduction

Education is a basic need that is never separated from human life. Education provides opportunities for children to learn through learning activities that support creating and achieving learning objectives. National Education System Law No. 20 of 2003 states that: "Education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble character and the skills needed by themselves, society, nation and state (Indonesia, 2003)".

Susilo, Usodo & Sari (2023), learning and education are closely linked, and one of the key components of learning is the study of mathematics, which is a subject that is taught in schools. The explanation

above shows that education has a learning process and atmosphere that refers to learning activities. Education in schools is in the process of teaching and learning activities. Learning activities are critical because students planning and implementing subjects in learning must be active or do more learning activities. As stated by John Dewey that student learning activities are project methods with the motto of learning by doing (Baharun, 2015). Student learning activities in the learning process can be in the form of interaction, writing, listening, and so on. The interactions carried out in the learning process can be in the form of interactions between teachers and students, students with students, and students with the learning media used in the learning process.

A good activity is an effort made by the teacher to support supportive situations and conditions. As stated by Anglin (1995) that efforts that can support the creation of learning activities are lesson planning oriented towards student activity, communicating, making choices if dilemmas occur, and developing situations so that students engage in practical conversations (Supinah, 2014). In addition to the efforts made by the teacher, learning activities must also include activities carried out by students as the learning principles that students must do are preparation for learning, self-motivation, active participation, and knowledge of learning outcomes (Supinah, 2014). The learning process will be carried out optimally when students and teachers can work together well. In the process of learning activities, students and teachers play an essential role in creating an active and fun learning environment. For example, student learning activities can be carried out in class such as reading books, asking teachers, doing work, and answering questions (Prasetyo, 2014).

Education can be achieved optimally with supportive learning activities. Education can produce qualified graduates with various abilities they have. One of the abilities that can be possessed is solving problems. The problem-solving is intended so that students can adjust and solve problems in their lives. Cooney (Ulvah & Afriansyah, 2016) suggests that problem-solving skills can support students to think analytically in making decisions and improve critical thinking skills in dealing with actual situations in their lives. Problem-solving abilities can be possessed by students who have much experience so that students can create ideas or ways related to solving problems that students face and get directions from the teacher. This is in line with the opinion of Ruseffendi 1989 regarding the teacher's task in helping with problem-solving, namely: 1) The teacher must know that the student's mental development is sufficient and already has sufficient prerequisite knowledge to solve the problem; 2) help students find ways to solve the problem; 3) supervise students completing questions; 4) pay attention to students in reviewing answers, methods, solutions, etc., that have been done to find better ways, avoid mistakes, etc. (Nurfatanah, Rusmono, & Nurjannah, 2018).

The ability to solve mathematical problems can be seen from the fulfillment of the indicators of mathematical problem-solving ability (Angraini & Fitri, 2023). The explanation above shows that students' problem-solving abilities in learning activities and processes require guidance with the teacher's task of helping students solve problems. This problem-solving ability is also contained in the 2013 curriculum, which states that problem-solving ability is essential which is contained in the Content Standards in Minister of Education and Culture Number 64 of 2013, which states that "students are

expected to be able to demonstrate a logical, critical, analytical, careful and thorough attitude, responsible, responsive, and not easily give up in solving problems" (Kemendikbud, 2014).

Problem-solving ability is an ability that students in learning must possess. As stated by Gagne that problem-solving is a type of learning that has the highest and most complex level compared to other types of learning, then problem-solving abilities are critical, especially in mathematics as Branca states that problem-solving ability is a general goal of learning mathematics, basic skills in learning mathematics, problem-solving includes methods, procedures, and strategies which are the core and central processes in the mathematics curriculum (Nurfatanah, Rusmono, & Nurjannah, 2018).

Problem-solving abilities can be done in the learning process, like in mathematics. Mathematical problem-solving abilities are critical for students to have. The National Council of Teachers of Mathematics (NCTM, 2000) (Ansori & Lisdawati, 2014) stipulates that there are five abilities that students must have through learning mathematics and are included in high-level mathematical abilities, namely: (1) problem-solving, (2) reasoning and proofing, (3) communication, (4) connection, (5) representation.

Assessment of the quality of education in Indonesia according to the 2018 PISA (Program For International Student Assessment) in mathematics with an average score of 379 while the average set by the OECD (Organization For Economic Co-Operation and Development) is 489 so that the average score is average is below average. Then in the long-term or three-year period, Indonesia gets a score of 2. In the short term, Indonesia gets a score of -7, so Indonesia is included in the low achievement category. Some students excel with a score of 0.6, and students have low achievements with a score of 51.7, so the achievements of Indonesian students are included in low achievement (OECD, 2019).

Based on the results of observations at the Banjarwaru 01 Public Elementary School, especially in class IV students, there needed to be more teacher innovation in the teaching process where the teacher dominated the learning process or learning activities. Teachers still need to fully implement the program from the 2013 curriculum, which emphasizes student-centered learning. Learning still uses conventional methods that make students feel bored and do not give students the freedom to carry out learning activities properly. Implementation of teacher-centered learning so that it does not stimulate students to carry out activities in learning to the fullest.

Teacher-centered learning makes students feel bored and does not carry out positive learning activities that should be done. The presence can see it of harmful activities carried out by students, such as chatting when the teacher explains, being sleepy, not paying attention, joking when learning, and even playing with paper when the teacher gives assignments, not being enthusiastic, and not doing the assignments given by the teacher. The learning process that can be seen in the classroom is that not all students can solve problems independently, such as students who plagiarize their friends' answers, learning that rarely carry out discussions, the lack of students who ask questions, argue about material or strategies that must be carried out in the learning process.

Lack of students' ability to solve problems results in weak understanding and mastery of students in solving problems independently. Students need help understanding the material being studied and how to solve the problems in the material. When the teacher gives assignments in the form of math questions, it can be seen that some students get out of their seats and look for answers by tracing the answers of other students who have already completed them, and some are doing the assignment together. The teacher pays little attention to student activities and only checks some students when doing assignments. Teachers in giving assignments have yet to stimulate students on problems that must be solved by solving problems, such as in learning mathematics.

The importance of learning activities in learning has been researched by Hamzah and Mahmudah (2012) at MTs Salafiyah Cirebon City, which states that student learning activities such as asking questions, discussions, paying attention to the teacher's teaching, taking notes, doing assignments, making mathematical patterns, using mathematical patterns, solving problems, dare to come forward, mentally calm, is in the medium category with a score classification of observations and tests showing that there are only 9 or 22.5% of students who have low learning activity with the decision that there is an influence of learning activities on understanding mathematical concepts of class VII students with a regression equation of Y = 2,536 + 0.982X. Then the coefficient of determination is 85.4%. So learning activities are fundamental in implementing every type and level of education. (Hamzah & Mahmudah, 2012).

The importance of activity in learning has also been researched by Ekawati (2016) at the Datok Modern Islamic Boarding School Middle School, which states the importance of learning activities because of changes in behavior that occur in students which are carried out intentionally with the title Effects of Discipline and Learning Activities on Student Mathematics Learning Outcomes with the result that there is significant influence between learning activities and mathematics learning outcomes of class VII students of Modern Islamic Boarding School Datok Sulaiman Palopo with a count of 2.398 with a probability of 0.018 where 0.018 is less than 0.05. Student learning activities such as carrying out learning activities/tasks at school, engaging in problem-solving, trying to find various information, carrying out group discussions, and training themselves in working on questions in this study are in the very high category. Learning outcomes are in the high category, so it can be concluded that learning activities affect students' mathematics learning outcomes (Ekawati, 2016).

Research Objectives

To find out the relationship between Learning Activities and Mathematical Problem-Solving Abilities in Elementary School.

Theoretical framework

Albert Bandura, born on December 4, 1925, in a small Canadian town near Edmonton, is the father of cognitive theory. His initial education took place in a simple school with only two teachers. Bandura's

journey into psychology was serendipitous, as he initially majored in biological sciences at the University of British Columbia but found his true calling in psychology. He completed his Ph.D. in Clinical Psychology at the University of Iowa in 1952. His pioneering research led to his election as president of the American Psychological Association in 1974 and recognition with the Outstanding Lifetime Contribution to Psychology award in 2004. Albert Bandura's work firmly established him as a leading scholar in cognitive theory (Nabavi, 2012). The three categories academics use to group learning theories are behaviourism, Social Learning Theory (SLT), and Social Cognitive Learning Theory (SCLT). Albert Bandura is the most prominent living psychologist when it comes to research. His Social Cognitive theory has impacted numerous fields of study, including social policy, health sciences, education, and psychotherapy. (See Figure 1 Social learning and social cognitive learning are based on observation, Nabavi, 2012):

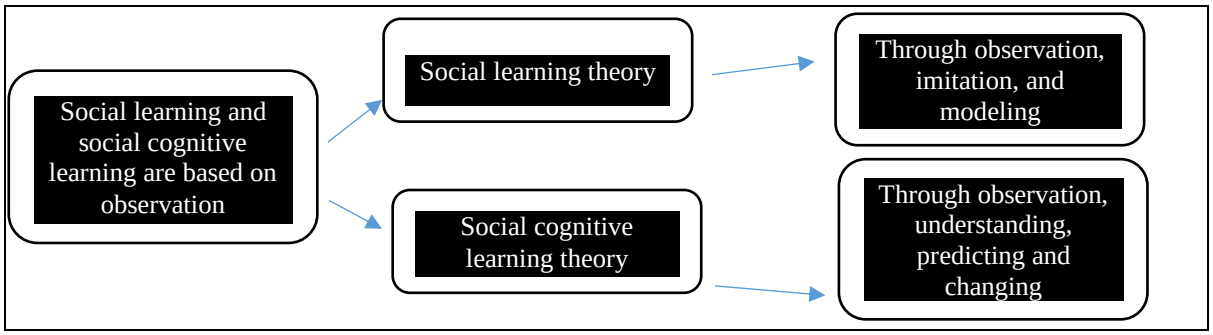

Figure 1. Social Learning and Social Cognitive Learning

The use of Social Cognitive Learning Theory (SCLT) in mathematics learning emphasizes that mathematics is not only about facts and numbers but also involves developing students' social and emotional skills, which allows them to be active in the learning process. This is in line with the views expressed by Darling-Hammond, et.al. (2020) regarding the importance of creating an environment that supports students' cognitive and emotional development. In addition, research by Hwang & Son (2021) regarding the relationship between students' attitudes toward mathematics and mathematics achievement in elementary schools is relevant to studies on the relationship between learning activities and mathematical problem-solving abilities. Likewise, research by Xia, et.al. (2022) highlighted the motivation, engagement, and mathematics achievement of elementary school students in China, which is related to the relationship between learning activities and mathematical problem-solving abilities. Furthermore, Schukajlow, Rakoczy, & Pekrun, (2023) explains the link between increased attention to emotions and motivation in mathematics education with concepts related to social cognitive theory, such as observational learning and the influence of the social environment on learning. Finally, Hidayat, et.al. (2019) highlights the role of motivational factors and teachers in student engagement in mathematics learning, emphasizing that intrinsically motivated students who receive support from teachers and peers tend to be more involved in mathematics activities and thus can acquire problem-solving skills better.

Learning strategies designed to increase student interest, promote confidence in mathematics, and help students see the value of mathematics in their daily lives can contribute to improved mathematics

achievement. Apart from that, the role of teachers who can provide appropriate support and motivation also significantly impacts student engagement in mathematics learning. Thus, a better understanding of the relationship between social, emotional, and motivational aspects and mathematical problem-solving abilities can help create more effective and sustainable learning environments in schools and improve student mathematics achievement.

Method

This research methodology is based on the concept of ontology and theory of knowledge in social cognitive learning. Ontology refers to fundamental beliefs and assumptions about the nature of learning and the role of social interactions in the process. In the theory of knowledge, mathematical knowledge is not only seen as a fixed and objective entity but also as a dynamic and socially constructed phenomenon. Data collection was carried out using quantitative methods to understand the relationship between learning activities and students' mathematical problem-solving abilities, as explained in the implementation of this research.

This research uses a quantitative approach with a functional correlation research design. This research was conducted in class IV of Banjarwaru 01 Elementary School, Jl. Veteran III, Banjarwaru Village, Ciawi District, Bogor Regency. The sample population was 52 students selected using a saturated sampling technique in the 2019/2020 academic year.

Research variables the variables in this research are the independent variable X, namely learning activities, and the dependent variable Y, namely the ability to solve mathematical problems related to two-dimensional shapes. Operational Understanding of Learning Activity Variables Learning Activity Variables, which are the essential foundation of the learning process, are operationalized as changes in student behaviour that can be observed during learning activities. Learning activity indicators are used to measure this variable. Variable Problem-Solving Ability Students' problem-solving ability is operationalized as obtaining solutions through strategies for solving mathematical problems related to two-dimensional shapes. Indicators are used to measure this variable.

Observation data collection techniques are used to identify problems faced by students during learning activities. Questionnaires are used to collect data on learning activities, and open questions are used to collect data on mathematical problem-solving abilities. Validity and Reliability of the Instrument: The instrument's validity was assessed using the Pearson Product Moment correlation technique, and reliability was measured using Cronbach's Alpha formula. Data Analysis Techniques Descriptive analysis describes each variable's maximum, minimum, mean, and standard deviation. Inferential analysis was conducted using Spearman Rank correlation analysis, regression equation, coefficient of determination, and significance test.

Results

The description of the research data presented in this study explains, in general, how the distribution of data in the field regarding learning activities as variable X and problem-solving abilities as variable Y is carried out in class IV an Elementary school Banjarwaru 01, Ciawi District, Bogor Regency. The data collection used was a questionnaire for learning activity variables and description questions for the math problem-solving ability variable given to 52 students as respondents. Description of Learning Activity Data (Variable X) Learning activity as variable X in this study was measured using a questionnaire as a data collection technique and scoring using a Likert scale with five choices as alternative answers. The number of questionnaires used in data collection was 30, with 20 positive and ten negative items, which had been tested for validity and reliability. The score obtained is converted into a value to adjust to the problem-solving ability variable. Based on research data, data is obtained in table 1 below:

Table 1. Descriptive Data of Learning Activities and Problem-Solving Ability

	Variables	N	Min	Max	Mean	SD
X	Learning Activity	52	55	97	82	8,7,41
Y	Problem-Solving Ability	52	12	100	60,25	18,66

Based on table 1, it was found that the range of student learning activity values with the lowest score was 55, and the highest score was 97, with an average value of 82.42 and a standard deviation of 8.741. Furthermore, the value obtained from the highest frequency distribution is 14, which is in the class interval between 76 to 82 with a percentage rate of 27%. Then the lowest frequency distribution is in the class interval between 55-61 and 62-68. The analysis showed that one student was in the high category, and 51 students were in the very high category in learning activities. The average result of student learning activities is 82.42, which shows that student learning activities are in the very high category. The highest indicators of learning activity are 5 and 6, of 14%. At the same time, the lowest indicators are indicators 2 and 4 of 11%. The descriptive results of learning activities were obtained with a mean value of 82.42, a median of 82.00, and a mode of 79.

Problem-solving ability as a Y variable in this study was measured using description questions as the data collection technique and scoring using a score of 1-10 for each question. There are four questions with a weight of 25 for each question. The questions were tested for validity and reliability before data collection. The range of scores for mathematical problem-solving ability with the lowest score is 13, and the highest score is 100, with an average value of 60.25 and a standard deviation of 18.669. The highest frequency distribution result is 28, in the interval class between s52 to 64, with a percentage of 53%. Then the lowest frequency distribution is two, which is in the class interval between 26-38. Four students are in the deficient category, and 12 are in the very high category in problem-solving abilities. The average result of students' problem-solving abilities is 60.25, which shows that students' problem-solving abilities are in the high category. Descriptive results of problem-solving abilities with a mean value of 60.25, a median of 60.00, and a mode of 60.

The results of the research analysis determined that the significance used was 5%, indicating that the results of the study with the Kolmogorov-Smirnov test were not normally distributed with a sig value obtained of 0.200 for the learning activity variable, which stated the sig value was more significant than 0.05 so that the learning activity data usually distributed and for the problem-solving ability variable a sig result of 0.000 is obtained where the sig value is smaller than 0.05 which states that the data is not normally distributed. Furthermore, the following prerequisite test is the linearity test, where the data analysis determined that the significance used was 5%, and using the ANOVA table, the results obtained were a sig deviation from linearity of 0.860 where the sig value was more significant than 0.05, it could be concluded that learning activity data and problem-solving ability has a significant linear relationship. One of the two prerequisites above do not meet the prerequisites for analysis, so this data analysis uses non-parametric data analysis.

This test is the core of the research because by testing this hypothesis, answers will be obtained from the results of the hypothesis that has been proposed, the correlation test with Rank Spearman. This test is conducted to determine whether or not there is a relationship between learning activities and problem-solving abilities—analysis using the Rank Spearman correlation test. Based on the calculations that have been done, it can be seen that the correlation value is rxy = 0.286. Furthermore, the rxy correlation value is compared with the r table at the 5% significance level, and it is known that the r value for N = 52 is 0.273. Then the result is (0.286 > 0.273), then H0 is rejected, and Ha is accepted with the conclusion that there is a significant correlation or unidirectional relationship between learning activities and mathematical problem-solving abilities.

Table 2. Spearman Rank Correlation Calculation and Analysis

Correlations				
			Learning Activity Ranking	Problem-Solving Ability Ranking
Spearman's rho	Learning Activity Ranking	Correlation Coefficient	1,000	,286*
		Sig. (2-tailed)		,040
		N	52	52
	Problem-Solving Ability Ranking	Correlation Coefficient	,286*	1,000
		Sig. (2-tailed)	,040	
		N	52	52

*. Correlation is significant at the 0.05 level (2-tailed).

Regression equation analysis was conducted to determine how learning activities influence problem-solving abilities. It is known that component a's value is 18.910, and component b is 0.286. From the analysis results, it was found that there is a proportional relationship between learning activities and problem-solving abilities. Directly proportional means that the higher the learning activity, the higher the students' mathematical problem-solving ability. The regression equation obtained is $\hat{Y}$ 18.910 + 0.286 X. It is illustrated that the predicted gain of Y will increase by 0.286 X.

The correlation analysis between variables X and Y is 0.286, meaning a positive relationship exists. The

determination obtained is 0.2862 = 0.082. The R Square determines how much the activity variable influences the mathematical problem-solving ability variable. The contribution of the influence of learning activities on students' mathematical problem-solving abilities is 0.2862 = 0.082, equivalent to 8.2%. Meanwhile, 91.8% of mathematical problem-solving ability is influenced by other factors.

Discussion

Based on the results of research that have been processed and analyzed regarding student learning activities and mathematical problem-solving abilities in class IV flat material at an Elementary school Banjarwaru 01, it can be said that there is a significant influence between learning activities and mathematical problem-solving abilities for class IV an Elementary school Banjarwaru 01 Ciawi District Bogor Regency. Based on the research results, the prerequisite test before the data analysis test was not used because this study was not normally distributed. However, the data was linear and carried out using the normality and linearity tests. Furthermore, this study used descriptive tests and non-parametric statistical tests as data analysis using the Rank Spearman method in its correlation analysis. The results of the descriptive analysis on the learning activity variable show that the learning activity is in the very high category, while the results of the descriptive analysis on the problem-solving ability variable are in the high category. Rank Spearman's correlation analysis showed that recount> table (0.286 > 0.273) shows a significant correlation or relationship between the learning activity variables and the problem-solving ability variable with a weak interpretation of the relationship. Furthermore, the data analysis was continued with the analysis of the regression equation with the results of the regression equation analysis of $\hat{Y}$ 18.910 + 0.286 X so that it can be said that there is a relationship between learning activities and problem-solving abilities a positive relationship or a relationship that is directly proportional, meaning the higher and better the learning activity students, the higher the ability to solve problems. Then the coefficient of determination of the data obtained the results of R square of 8.2%, which means the magnitude of the influence of learning activity variables determines the results of the variable ability to solve mathematical problems. Furthermore, data analysis was carried out by testing the significance of the regression using the T-test, so the results obtained were a count of 2.114 more significant than the table of 2.008 or (2.114 > 2.008) so that the proposed hypothesis can be accepted with a decision to accept Ha and reject H0 that there is an effect of learning activities on math problem-solving ability.

The results of this study indicate that learning activities and solving abilities have a positive or negative relationship. If the learning activity is high, the problem-solving ability will also increase even though the relationship between learning activity and problem-solving ability is weak or low. The low relationship and influence between learning activities and mathematical problem-solving abilities, with an effect of 8.2 based on the results of observations, is one of them caused by the lack of maximum student learning activities in the learning process and teacher activities that dominate in learning, the lack of application of problem-based learning and poor learning. They are centred on students and the need for teacher effort in providing experience to students to solve mathematical problems. Problem-

solving abilities in mathematics must be continuously improved by carrying out learning activities to the maximum and applying problem-based learning so students can have problem-solving abilities.

Based on the results of observations and analysis that have been carried out, learning activities that affect problem-solving abilities by 8.2% need efforts to increase the activities carried out by students and teachers in the process of learning mathematics in class IV elementary school in Banjarwaru 01, one of which is an activity in the form of writing results obtained by 73.5 or 11% with the lowest value than the other indicators. Writing activities include writing, copying material, or summaries related to material or strategies needed to solve problems. This aligns with the observation that some students still do not write material, and the teacher does not control students optimally during the learning process. Another activity that must be improved is oral activity, where the analysis results show 75 or 11% results. Students must be more active in asking questions, giving suggestions, or discussing because this can provide experience for students in solving problems.

This is in line with the results of unstructured interviews conducted with fourth-grade homeroom teachers and observations in the field that there are classes that rarely form groups to discuss in class. Then the teacher stated that only 5 to 8 out of 37 students in the class dared to ask questions or give opinions. His advice was during the process of learning mathematics in class. Then for discussion, the teacher said that discussions were rarely carried out. Specifically, discussions only occurred when the teacher explained mathematical material. Student learning activities that greatly influence the ability to solve mathematical problems in this study are metric activities with a yield of 93 or 14%. Metric activities include students doing practical experiments and learning with movement. It is shown that this metric activity indicator is the highest. The high learning activity of students also increases their ability to solve mathematical problems owned by students.

Learning activities have an essential role in the learning process to achieve learning objectives. one of the learning objectives in the 2013 curriculum, especially in learning mathematics, is for students to have problem-solving skills. Learning activities can be seen from the activities carried out by students and teachers in the learning process. As stated by Polya (Agustin, Wijayanti, & Winarti, 2014), motivation and activities that support learning that use problem-solving abilities with the teacher's efforts to provide problem-solving experiences that require different strategies to solve the problems presented, a sense of comfort in carrying out activities learning in the learning process so that problem-solving abilities will be achieved as well as findings which explain that there is an influence of learning activities on problem-solving abilities. Then there are research findings that are in line with research results (Nurmala, Tripalupi, & Suharsono, 2014) which show a positive effect of learning activities on learning outcomes and research results Simamora, Sidabutar, & Surya, (2017) which states the influence of problem-based learning on learning activities.

The effect of learning activities on problem-solving abilities in this study was 8.2%, while the influence of other factors was 91.8%. Other factors affect problem-solving abilities, namely experience, motivation, ability to understand problems, and skills (Handayani, 2017). Irawan, Suharta, & Suparta

(2016) suggested that the factors that influence problem-solving abilities include prior knowledge, which influences mathematical problem-solving abilities, appreciation of mathematics, contributes directly to mathematical problem-solving abilities, and logical-mathematical intelligence, which contributes directly to mathematical problem-solving abilities. Observing learning assisted by concrete media is suitable for overcoming students' low conceptual knowledge so that learning activities become more meaningful and exciting (Tegeh, Parwata, & Ostaviani, 2020). Prior knowledge is necessary but not sufficient for critical thought on a particular subject

The researcher's analysis suggests that fourth-grade students at an elementary school in Banjarwaru 01, Ciawi District, Bogor Regency are not optimal in filling out learning activity questionnaires or lack student honesty in filling out learning activity questionnaires with a large number of questionnaire scores get high scores, and this is not by the learning activities that occur when researchers made observations and filled out questionnaires assisted by their parents. Data retrieval using online media and this implementation carried out at each other's homes was also an obstacle and could have been more optimal in this study. The lack of maximum student learning activities leads to students' inability to solve problems.

Conclusion

Based on the results of research on the Effect of Learning Activities on Mathematics Problem Solving Ability in elementary school classes, it can be concluded that there is a significant relationship between student learning activities and mathematical problem-solving abilities in class IV Elementary School Banjarwaru 01, Ciawi District, Bogor Regency. The results of the descriptive analysis show that students' learning activities are in the very high category, while students' problem-solving abilities are in the high category. The correlation between learning activities and problem-solving abilities is obtained with positive values or directly proportional, which indicates that the more active students are in learning, the higher their problem-solving abilities.

Because they account for attention, memory, and motivation, the SCLT theories have frequently been referred to as a bridge between behaviorist and cognitive learning theories. Additionally, a strong emphasis is placed on cognitive notions. Furthermore, it is arguable that Albert Bandura is the greatest psychologist alive. His Social Cognitive theory has impacted a wide range of this study, including student learning psychology, number understanding and logic, mathematics science, and educational behavior.

The whole study emphasized the importance of self-efficacy beliefs in learning. Self-efficacy refers to an individual's belief in their ability to perform a task or achieve a goal successfully. In mathematical learning, children with high self-efficacy beliefs in their mathematical abilities are more likely to persist in problem-solving, seek challenges, and engage in effortful learning. Additionally, this study re-build learning relation with social cognitive theory, highlighting the role of social interactions and

collaborative learning in mathematical learning. Study shows children learn from observing others and through collaborative activities, discussions, and interactions with peers and teachers. Working together with others allows children to share ideas, problem-solve collectively, and develop a deeper understanding of mathematical concepts.

From the implications of this research, the results can be used as evaluation material for all parties involved in the education sector to improve the quality of the learning process. Teachers can pay attention to written and spoken activities in mathematics learning and expand metric activities to increase student learning activity in mathematics. In addition, future researchers can consider topics such as analysis of the implementation of the 2013 curriculum with the removal of the National Examination, skills students and teachers must have in the 21st century, child psychology in social change, and related topics to develop this research further.

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