

## DEVELOPMENT OF INQUIRY-BASED STUDENT WORKSHEET (LKPD) ON MATHEMATICS SUBJECT IN THE MATERIAL OF CUBES AND CUBOIDS TO IMPROVE MATHEMATICAL UNDERSTANDING OF SLOW LEARNER CHILDREN

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### Abstract

This research based on the most slow learner is still have difficulties to define a concept of cube and block with verbal or writing. This research purpose is to developing Lembar Kerja Peserta Didik (LKPD) based with an inquiry of mathematic cubes and block subject for a slow learner and to knowing about increasing mathematical competency on a slow learner child after applying inquiry based methods. This research is implemented at SDN Margahayu 08 at Bandung District by using Research and Development methods. LKPD is developed from identifying problems, collecting data, designing LKPD, validating, revising design and doing LKPD trial. The result of the analysisist using several stage test such as prerequisite test (normality and homogeneity test) and paired sample test with analyzing the result of pre test and post test conducted individually on slow learner child about the abiity to understand the mathematical concept of cube and block. The result shown that LKPD is appropriate to use in a study methods of inquiry based on mathematical concept of cube and block for slow learner and have the increased effect by using LKPD and study methods with inquiry based

**Keywords:** Development of LKPD, Inquiry, Understanding of mathematical concepts.

### Abstrak

Penelitian ini dilatarbelakangi oleh sebagian besar slow learner masih kesulitan dalam mendefinisikan konsep kubus dan balok secara verbal maupun tulisan. Penelitian ini bertujuan untuk mengembangkan Lembar Kerja Peserta Didik (LKPD) berbasis inkuiri pada mata pelajaran matematika materi kubus dan balok untuk anak slow learner dan mengetahui peningkatkan kemampuan pemahaman matematis anak slow learner pada materi kubus dan balok setelah diterapkan model pembelajaran berbasis inkuiri. Penelitian ini dilaksanakan di SDN Margahayu 08 Kabupaten Bandung, menggunakan model Research and Development. LKPD dikembangkan dengan tahapan melakukan identifikasi masalah, pengumpulan data, mendesain LKPD, melakukan validasi, revisi desain, dan melakukan uji coba LKPD. Hasil analisis menggunakan beberapa tahap pengujian yaitu uji prasyarat (uji normalitas dan homogenitas) dan uji t (paired sample t test) dengan terlebih dahulu dilakukan analisis data hasil tes (pre-tes dan post tes) yang dilakukan secara individual terhadap anak slow learner tentang kemampuan pemahaman konsep matematis materi kubus dan balok. Hasil penelitian menunjukkan bahwa LKPD layak digunakan dalam pembelajaran anak slow learner materi kubus dan balok dengan berbasis inkuiri dan terdapat peningkatan kemampuan pemahaman konsep matematis anak slow learner dengan menggunakan LKPD dan dengan menerapkan model pembelajaran berbasis inkuiri.

Kata Kunci: Pengembangan LKPD, Inkuiri, Pemahaman konsep matematis

### INTRODUCTION

In elementary school, the students' comprehension abilities are not the same, some are fast and some are slow. Children who are slow in learning are said to be slow learners. Slow learner children have the same demands as other students, which must achieve predetermined

competencies. Slow learners are slow children in the learning process, so they need more time compared to other students who have normal intellectual potential levels. Children who are slow to learn are also part of students who are less able to master knowledge within a specified time limit because there are certain factors that influence it. Students who are slow to learn cause low achievement. This can be caused by IQ factors. According to the research of Binet and Simon, mentally weak children have IQs between 50 to 69 and are classified as slow learner children. They are very difficult to be educated. If it is possible to be educated they need a considerable amount of time to understand the lesson even though in the end the achievement is not as optimal as students in general.

In elementary school, slow learner children are required to have understanding abilities, including mathematical understanding abilities. Understanding is different from memorizing. Understanding the learning process is a process of understanding knowledge that is more than memorizing. The most important understanding ability possessed by slow learner children in elementary school is the ability of mathematical understanding. The ability of mathematical understanding is the ability to explain, apply, prove, associate a concept with other concepts in the mathematical process.

In elementary school, the ability of mathematical understanding is given to students in mathematics. However, most students in elementary schools, especially slow learners, still experience difficulties in learning mathematical material, especially cubes and cuboids. This is supported by the results of initial observations by researchers in the field which show that most slow learner children do not understand the concept of building volume of cubes and cuboids. Slow learner children still have difficulty in defining the concept of cubes and cuboids in oral and written ways, so that slow learner children have difficulty in solving the problems of cubes and cuboids which are connected with daily life. Slow learner children need more time in the learning process. The learning process of slow learners has not used learning aids that can help slow learner children be actively involved as subjects of learning, so that they can discover their own concepts, and build their knowledge based on their experiences.

A concrete tool that can help slow learners find concepts is a Student Worksheet (LKPD) based on inquiry. Inquiry-based Student Worksheet (LKPD) is one of the facilities to help and facilitate teaching and learning activities so that effective interaction is formed between students and educators, and can increase the activities of students in improving learning achievement. Thus learning presented by using inquiry-based LKPD can motivate students in learning mathematics and make competencies in mathematics subject to be

achieved optimally, which ultimately students are skilled in applying the concepts learned in everyday life.

According to the Ministry of National Education (2008) LKPD are sheets containing tasks that must be done by students. The activity sheet is usually in the form of instructions, steps to complete a task. The role of students is to find and find their own subject matter, while educators act as facilitators and guide students to learn. Another advantage of using LKPD is that it makes it easier for educators to carry out learning, for students to learn independently and learn to work on written assignments.

Student worksheet (LKPD) is one of the learning resources that can be developed by educators as facilitators in learning activities (Wina, 2008). LKPD that is prepared can be designed and developed according to the conditions and situations of learning activities that will be encountered. Student worksheet (LKPD) can be in the form of guidelines for developing cognitive aspects of training and guidelines for developing all aspects of learning in the form of experimental or demonstration guides (Trianto, 2017). LKPD contains a set of basic activities that must be carried out by students to maximize understanding in an effort to form basic abilities according to indicators of learning achievement that must be taken.

Suedi Ahmad (2011) revealed the benefits gained by using LKPD in the learning process are as follows:

1. Activating students in the learning process.
2. Helping students develop concepts.
3. Train students in finding and developing process skills.
4. As a guide for educators and students in implementing the learning process.
5. Helping students obtain notes about the material learned through learning activities.

Helping students to add information about concepts learned through systematic learning activities

Based on the above background, researchers conducted a study entitled "Development of Student Worksheets (LKPD) Based on Inquiry in Mathematics Subjects Cubes and Cuboids to Improve Mathematical Understanding of Slow Learner Children.

The problem in this research are (1) How to develop Student Inquiry Worksheet (LKPD) based on inquiry in mathematics subject matter cubes and cuboids in slow learner children ?; (2) Is there an increase in the ability of slow learner children's mathematical understanding of cube and cuboid material after using inquiry-based LKPD?

The purpose of this study is to develop an inquiry-based Student Worksheet (LKPD)

on mathematics subjects in cubes and cuboids in slow learners and to learn to improve the mathematical understanding abilities of slow learners in cubes and cuboids after using inquiry-based LKPD.

## **METHOD**

### **Type of Research**

This type of research is research and development. Development research is carried out with reference to the Research & Development (R&D) procedure. Research and development are research methods used to produce certain products and test the effectiveness of these products. In this research, researchers aim to produce or develop a product, namely LKPD that is in line with the inquiry learning model.

The stages of the research consist of: identifying problems, collecting data, designing LKPD, validating, revising designs, and conducting LKPD trials.

1. Identification of the problem: identify the problem by studying the LKPD that is already available in the 2013 curriculum book, which is the LKPD in the thematic book as one of the references for the preparation of LKPD based on the inquiry model. Then the researchers conducted interviews with mathematics subject teachers, Alfiah, S.Pd, as well as conducted learning practiced by the teacher in class.
2. Data collection: Data collection is done by collecting data and scores of slow learner students during the 54<sup>th</sup> grade of elementary school which will be used as research subjects during the implementation test.
3. Designing student worksheets (LKPD): Based on the results of a preliminary study and data collection, the researcher then compiles an inquiry-based LKPD design from the inquiry learning model step namely the orientation step, the step formulating the problem, the step of submitting a hypothesis, the step of collecting data, the step of testing the hypothesis up to the step of formulating a conclusion. The next step is to plan the development of learning tools and instruments, both the LKPD assessment instrument based on the inquiry model and the test instrument. LKPD assessment instruments based on the inquiry model in the form of an instrument of validation assessment by experts and instruments provided to students.
4. Validation: At this stage, validation of inquiry-based LKPD is carried out by providing LKPD assessment sheets to experts who are competent in their fields, to teachers at SDN Margahayu 08 Bandung Regency, and to students who are considered slow learners. The

inquiry-based LKPD that has been validated is then continuously revised according to the advice and input of competent experts, educators, and students.

5. Design revision: In the design revision stage, the researcher carries out an analysis of the inquiry-based LKPD assessment sheet given to the expert. In addition, researchers made revisions in accordance with the results of the assessment on the validation sheet by students. Any matter that is suggested by experts and students is revised properly according to the validation sheet assessment. Revision of the LKPD based on inquiry is carried out continuously until it is approved by the expert.
6. Trial: Product trial in this case the revised LKPD is carried out by testing it during the implementation of learning in the class of slow learner children in the form of mathematics learning (cube and cuboid material) with inquiry-based LKPD.

### **Research Instruments**

The instruments used in this study were learning instruments and research instruments. The learning instrument consists of a learning implementation plan (RPP) using an inquiry-based learning model and an inquiry-based Student Worksheet (LKPD). The instrument of data collection was in the form of pre-test and post-test questions to find out the increase in the ability of mathematical understanding of slow learner children after learning using inquiry-based LKPD.

### **Data Collection Techniques**

Data collection techniques in the preparation of inquiry-based LKPD, namely by:

1. Analyze and pay attention to the syntax or stages in the learning of inquiry models that are used when learning mathematics about cubes and cuboids in slow learner children.
2. LKPD validation data based on the inquiry model obtained through filling in the assessment and validation sheets in the form of a questionnaire with a Likert scale by experts, educators, and students. The assessment and validation sheets are given directly to the validator along with the inquiry-based LKPD to then be assessed by the validators. The assessment sheet is also in the form of a questionnaire given to the students and teachers in SDN Margahayu 08 of Bandung Regency. Revisions are made by observing the results of the evaluation by the validator.
3. Data on the implementation of lesson plans using inquiry-based learning models.
4. Trial data of LKPD products using tests. The test is used to measure the mathematical understanding ability of slow learner children. The test is given at the end of the inquiry-based learning material. The test given at the end of learning aims to find out the

improvement of the ability of slow learner's mathematical understanding of cube and cuboid material using LKPD after inquiry-based learning is implemented.

### Data Analysis Techniques

#### Analysis of Learning Instruments

The instrument used and submitted to experts in the LKPD validation test was a Likert scale questionnaire with 4 scales, namely Very Good, Good, Fairly Good, and Poor. The teacher's response questionnaire instrument was in the form of a questionnaire which was then given to educators who were considered competent in elementary mathematics education. The questionnaire instrument in the form of LKPD assessment for students is given to students who are slow learners with different abilities. Questionnaire in the form of a Likert scale with a rating of 4 scales in the category of Very Good, Good, Fairly Good, and Poor. The data obtained in the form of expert assessment score data from the validation sheets filled out by experts were analyzed with a reference adapted using a Likert scale with 4 scales which will be described qualitatively.

Scoring categories and score intervals for each category are shown in the following table 1.

**Table 1.** Score Intervals for Each Score Category.

No	Score Category	Score Interval
1.	Very Good	$(S \text{ min} + 3p) \leq S \leq S \text{ maks}$
2	Good	$(S \text{ min} + 2p) \leq S \leq (S \text{ min} + 3p - 1)$
3	Fairly Good	$(S \text{ min} + p) \leq S \leq (S \text{ min} + 2p - 1)$
4	Poor	$S \text{ min} \leq S \leq (S \text{ min} + p - 1)$

Source: Khayati (2015: 63)

$S$  :  $S \text{ min}$   $S \text{ maks}$

$p$  : Respondent score : Lowest score

$p$  : Highest score : Length of interval

The steps of compiling the assessment criteria above are

- Determine the number of intervals, i.e. 4
- Determine the range of scores, i.e. maximum and minimum scores.
- Calculate class length ( $p$ ), which is the range of scores divided by the number of classes.
- Arrange interval classes starting from the lowest to the highest score.

#### Analysis of Improvement of Mathematical Understanding Ability of Slow Learner Children

The instrument at the time of the fieldwork test consisted of tests of mathematical understanding ability. The mathematical understanding ability test is used to measure the improvement of the mathematical understanding ability of slow learner children on cube and

cuboid material using LKPD after inquiry-based learning model is implemented. In the data analysis technique of mathematical understanding ability of slow learner children, the prerequisite test analysis is the normality and homogeneity test, while the hypothesis test is used to find out the improvement of the mathematical understanding ability of slow learner children in cube and cuboid material after using inquiry-based LKPD. The instrument that was analyzed by the expert was then revised according to the advice and input from the expert. RPP using inquiry learning model is appropriate to be used to improve mathematical understanding of students in class V SDN Margahayu 08 on the subject of the volume of cubes and cuboids. Then the test questions are worth testing to find out the level of validity and reliability.

Validity test of the question items uses the Pearson Product Moment correlation test with the help of SPSS software version 24.0 for Windows. The formula used to calculate the coefficient of empirical validity is the product moment correlation formula using raw numbers. The results of the validity test of each item about the mathematical understanding ability test items are stated valid.

Reliability test is carried out to find out the level of stability. The instrument reliability test uses the Alpha Cronbach reliability coefficient.

**Table 2.** Calculation Results of Questions Reliability of Mathematical Understanding Ability Test

Cronbach's Alpha	N of Items
.733	16

Based on table 2 above, the calculation with the help of SPSS software version 24.0 for Windows uses the Alpha Cronbach formula, the reliability test of the mathematical understanding ability test has a score of 0.733 which means that the degree of stability is relatively high.

Data collection techniques in this study were in the form of a test item in the form of a description to measure mathematical understanding of slow learner students on the subject of the volume of cubes and cuboids. The description test is used to find out the answers of respondents who are open in nature and analyzed the level of mathematical understanding of the sample under study. The instrument used was a question sheet in the form of a description test used for pre-test and post-test.

Data analysis was performed on the results of tests (pre-test and post-test) conducted individually on slow learner students in class V at SDN Margahayu 08 (10 slow learner children) about the ability of mathematical understanding in the subject matter of the volume

of cubes and cuboids. Then the statistical analysis is managed using SPSS software version 24.0 for Windows in several stages of testing, namely the prerequisite test (normality test and homogeneity test), T-test (if sample normality and homogeneity are met) or Mann Whitney test (if sample normality and homogeneity are not met ) and gain test.

## RESULTS AND DISCUSSION

### Result

#### Development of Inquiry-based LKPD

Based on the results of expert validation and the implementation of inquiry-based learning models in slow learner children, it was found that LKPD was appropriate to be used in either category. The implementation of the learning model in this case using an inquiry-based LKPD is considered appropriate for use in learning because in all three meetings using an inquiry-based LKPD the implementation of the activity reaches 80%.

The data on the implementation of inquiry-based learning models using LKPD on learning cubes and cuboids in slow learner children are used to describe the results of observations of the implementation of learning conducted by the teacher. The results of the test of inquiry learning model can be seen in table 3 below.

**Table 3.** Implementation of Inquiry Learning Stages of cube and cuboid material in slow learner children

NO	STAGE OF INQUIRY LEARNING STRATEGY	OBSERVED ASPECT	OBSERVATION SCORE RESULT		
			1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>
1.	Orientation	Explain the topic, objectives and learning outcomes that are expected to be achieved by students	3	3	4
		Explain the main activities that must be carried out by students to achieve goals	4	3	4
		Explain the importance of topics and learning activities	4	3	3
2.	Formulating Problem	Problem formulation is formulated by the students themselves	2	3	3
		The formulation of the problem is examined and contains puzzles with definitive answers	2	3	3
3.	Proposing Hypothesis	Concepts in a problem are concepts that are already known to students.	3	4	4
		Asking questions that can encourage students to be able to formulate temporary answers	3	4	4
4.	Collecting data	Formulate various estimates of possible answers to a problem being studied	2	5	5
		Asking questions that can encourage students to think in search of the information needed.	3	4	5

5.	Testing the hypothesis	Determine acceptable answer in accordance with the data/information obtained based on data collection.	2	4	5
6.	Formulating conclusions	Describe the findings obtained based on the results of hypothesis testing	2	4	4
		Able to show students relevant data	3	3	4
<b>TOTAL</b>			33	43	48
<b>PERCENTAGE</b>			55%	72%	80%

Based on Table 3 above, the recapitulation results of the analysis of teacher activities in implementing the steps of inquiry learning each meeting have increased so that they reach 80% at the last meeting in either category. Therefore, the implementation of learning with the development of LKPD with the steps of inquiry learning is carried out by the teacher properly.

### Improving Mathematical Understanding Ability of Slow Learner Children

The ability to understand mathematics is the ability to accept, absorb, understand mathematical concepts systematically, logically, and hierarchically from the simplest to the complex. Understanding and mastery of a material or concept is a prerequisite for mastering the next material or concept. Low mathematical understanding ability can cause difficulties in learning mathematics. The following results of the pretest and posttest results of mathematical understanding of slow learner class V students at SD Margahayu 08 can be seen in table 4.

**Table 4.** Pre-test and Post-test Results of Mathematical Understanding of slow learners in Class V SDN Margahayu 08

NO	Research Subject	PRE-TEST		POST-TEST	
		TOTAL	SCORE	TOTAL	SCORE
1	S1s	26	52	28	56
2	S2	12	24	35	70
3	S3	7	14	20	40
4	S4	8	16	38	76
5	S5	13	26	33	66
6	S6	13	26	23	46
7	S7	1	2	40	80
8	S8	15	30	28	56
9	S9	8	16	34	68
10	S10	10	20	30	60
<b>Average</b>		<b>22,6</b>		<b>61,8</b>	
<b>Lowest Score</b>		<b>1</b>		<b>40</b>	
<b>Highest Score</b>		<b>52</b>		<b>80</b>	

Based on table 4 above, the pretest results show the highest value is 52, the lowest value is 2, and the average value is 22.6. SDN Margahayu 08 sets the KKM score in mathematics as 70. There are no students who score above the KKM, almost all of them are below the KKM. This shows that all class V students of SDN Margahayu 08 who are slow learner children have a low mathematical understanding on the subject of the volume of cubes and cuboids. Therefore

we need an effort through the development of Student Worksheets (LKPD) on inquiry-based learning to improve mathematical understanding of slow learner children.

Based on table 4 above, after being treated with the application of inquiry-based learning, the results obtained post-test which showed the highest value was 80, the lowest value was 40, and the average value of 10 students was 61.8%.

To prove that there is an increase in mathematical understanding between slow learner children in class V SDN Margahayu 08 on the subject matter of the volume of cubes and cuboids after applying inquiry-based learning, it is necessary to test normality and homogeneity as a precondition for knowing the increase in mathematical understanding of slow learners children using LKPD after applying learning inquiry-based. The following are tests of normality and homogeneity of the pre-test and post-test scores.

### Normality Test

Normality test is performed to determine whether the pre-test and post-test scores of the population is normal or not. The formulation of the hypothesis is:

- $H_0$  : The pretest and post-test scores of mathematical understanding are normally distributed.  
 $H_1$  : The pretest and post-test scores of mathematical understanding are not normally distributed.

The statistical test used was a normality test using Shapiro Wilk with a significance level ( $\alpha$ ) of 0.05. Test criteria, namely:

If the significance value ( $\alpha$ ) > 0.05 then  $H_0$  is accepted

If the significance value ( $\alpha$ )  $\leq$  0.05 then  $H_0$  is rejected

The normality test results of the pretest and posttest scores can be seen in Table 5 below,

**Table 5.** The Results of Tests of Normality of pre-test and post-test scores

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
PRE_TEST	.197	10	.200*	.914	10	.312
POST_TEST	.130	10	.200*	.970	10	.895

Based on Table 5. above, the pre-test significance value of 0.200 is obtained and the post-test has a significance value of 0.200. Because the significance value is greater than 0.05, according to the  $H_0$  test criteria, which means the pre-test and post-test mathematical understanding scores are normally distributed.

### Homogeneity Test

Based on the results of the normality test of mathematical understanding above, it has a normal distribution. Homogeneity test is done to find out whether each data obtained has a homogeneous population variance (the same) or not. The formulation of the hypothesis is:

- H<sub>0</sub> :  $\sigma_1^2 = \sigma_2^2$ , The pretest and post-test scores of mathematical understanding have homogeneous variance
- H<sub>1</sub> :  $\sigma_1^2 \neq \sigma_2^2$ , The pretest and post-test values of mathematical understanding data do not have homogeneous variance

The statistical test used was the Levene test with a significance level ( $\alpha$ ) of 0.05. The test criteria, namely:

If the significance value ( $\alpha$ ) > 0,05 then H<sub>0</sub> is accepted

If the significance value ( $\alpha$ ) ≤ 0,05 then H<sub>0</sub> is rejected

**Table 6.** Results of Homogeneity Test

Levene Statistic	df1	df2	Sig.
.114	1	18	.740

Based on Table 6. above, a significance value of 0.740 is obtained. Because the significance value is more than 0.05, H<sub>0</sub> is accepted. This shows that the data of pre-test and post-test of mathematical understanding derived from homogeneous variance.

**Paired Sampel T-Test Analysis**

Paired sample t-test analysis is a hypothesis testing method with the data used are not free (in pairs). Pairing characteristics include a sample of the study conducted two different treatments, namely before and after inquiry-based learning to measure the increase in mathematical understanding ability. The statistical hypothesis is used as follows.

H<sub>o</sub> :  $\mu_1 = \mu_2$  : There is no increase in mathematical understanding ability

H<sub>i</sub> :  $\mu_1 \neq \mu_2$  : There is an increase in the ability of mathematical understanding.

If, sig < 0,025 then H<sub>0</sub> is rejected, while sig > 0,025 then H<sub>0</sub> is accepted.

The results obtained based on the calculation of the model obtained the results of the pre-test and post-test of homogeneity test in the following table 7.

**Table 7** Test Results of Paired Sample T-Test

Paired Differences							
Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
			Lower	Upper			

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Pair 1	PRE_								
	TEST								
	POST	39.20000	21.35832	6.75409	54.47882	23.92118	-5.804	9	.000
	_TES								
	T								

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Based on table 7 above, the value of sig. (2-tailed) of 0,000 <0.025, meaning  $H_0$  was rejected, concluded that there was an increase in capacity. There is an increase in the ability to understand mathematical concepts of slow learner children who apply inquiry-based learning models compared to slow learner children who learn without using inquiry-based LKPD.

### Discussion

Mathematical understanding is one of the competencies in mathematics that must be mastered by elementary school students, including slow learners. Mathematical understanding is a mental process to absorb, understand ideas, describe an understanding, so that it can communicate a meaning contained in information into other forms that are more meaningful. Understanding and mastery of a material or concept is a prerequisite for mastering the next material or concept. Therefore, the ability to understand mathematics is very fundamental in learning mathematics so that learning becomes more meaningful.

The purpose of this study was to develop an inquiry-based Student Worksheet (LKPD) on the mathematics subject matter of cube and cuboid in slow learners and to learn improving the mathematical understanding ability of slow learners in cube and cuboid material after the implementation of inquiry-based LKPD.

Learning with the development of inquiry-based LKPD is a way and art of learning that emphasizes the process of thinking critically and analytically based on curiosity to seek and find the concept of subject matter to achieve meaningful learning outcomes. The steps of developing LKPD with inquiry-based learning are orientation, formulating problems, proposing hypotheses, collecting data, testing hypotheses, and formulating conclusions.

The orientation step, the teacher explains the topics, objectives, and learning outcomes to be achieved, explains the main activities that must be carried out, and explains the importance of topics and learning activities. The step of formulating a problem is a step to bring slow learner students to a problem that contains a puzzle. It is said riddles in the formulation of the problem that you want to study due to the problem certainly have answers and slow learner students are encouraged to find the right answer. The process of finding answers is very important in inquiry strategy.

To answer the problems that have been formulated, the teacher stimulates slow learner students with questions contained in the student worksheet at the stage of proposing a hypothesis. To answer these questions and test the hypotheses put forward, the slow learner students in groups manipulate the LKPD that has been provided with guidance contained in the steps of collecting data. Collecting data is an activity to capture the information needed to test the proposed hypothesis. The process of collecting data not only requires strong motivation to learn, but also requires determination and the ability to use its thinking potential. The next step in testing the hypothesis is by asking slow learner students to calculate the entire contents in the building space and multiplying the length, width and height. Finally, conclude that by multiplying the length, width, and height are the same as the volume (cube and cuboid). The formula they find themselves from the information obtained. Through the steps of the inquiry learning strategy, it is hoped that it can improve the mathematical understanding of slow learner children.

The development of LKPD in inquiry-based learning was implemented in the class of slow learners of 10 people. Before it is given treatment, it is given a pre-test. Pre-test results show the highest value is 52, the lowest value is 2, and the average value is 22.6. SDN Margahayu 08 sets the KKM value of mathematics subjects to be 70. Based on normal and homogeneous data processing and analysis. Next, test the increased ability to understand mathematical concepts of slow learner children who apply inquiry-based learning models. Based on the results of testing the hypothesis it was concluded that the inquiry learning strategy can improve the mathematical understanding of slow learner students.

## **CONCLUSION**

### **Conclusion**

Based on the stated research objectives and the results of data analysis, the conclusions of this study are as follows:

1. Inquiry-based LKPD is appropriate to be used in slow learner children's learning on cube and cuboid material.
2. There is an increase in the ability to understand mathematical concepts of slow learner children who use LKPD by applying inquiry-based learning.

### **Suggestion**

Based on the findings obtained in this study, the researcher provides suggestions to the teacher and subsequent researchers, as follows.

1. Inquiry-based LKPD can improve students' slow learner mathematical understanding ability, it is better that LKPD can be used in mathematics learning besides cube and cuboid material.
2. We recommend that in learning mathematics, teachers are more innovative in making LKPD in accordance with the subject so that it can bridge the mindset of students, especially those who are slow learners with abstract subjects so that mathematical understanding of students can increase.
3. The results of this study can be used as a reference for other researchers to conduct further research with different variables

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## REFERENCES

- Ahmad, Suedi (2011). *Media Pembelajaran, Alat Peraga, dan Alat Bantu Belajar*. [Online]. Tersedia: <http://suediguru.blogspot.com>. [26 Maret 2016]
- Lestari, Karunia Eka, dan Yudhanegara, Mokhammad Ridwan. (2017). *Penelitian Pendidikan Matematika*. Bandung: PT. Refika Aditama.
- Mangunsong, Frieda (2009). *Psikologi dan Pendidikan Anak Berkebutuhan Khusus. jilid Ke satu*. Jakarta: LPSP 3 Fakultas Psikologi UI.
- Prastowo, Andi, (2015). *Panduan Kreatif Membuat Bahan Ajar Inovatif*. Yogyakarta. Diva Press.
- Pujiati (2004). *Penggunaan Alat Peraga dalam Pembelajaran Matematika SMP*. [Online]. Tersedia: <http://p4tkmatematika.org/downloads/smp/AlatPeragaMatematika.pdf>. [24 Maret 2016]
- Rahadi, Aristo (2003). *Media Pembelajaran. Departemen Nasional*. Direktorat Jenderal Pendidikan Dasar dan Menengah Direktorat Tenaga Kependidikan.
- Ruseffendi, E. T. (1992). *Pendidikan Matematika 3*. Jakarta: Depdikbud.
- Sanjaya, Wina. (2008). *Strategi Pembelajaran Berorientasi Standar Proses Pendidikan*. Jakarta: Kencana Prenada Media Group.
- Sugiyono. (2008). *Metode Penelitian Kombinasi (Mixed Methods)*. Bandung: Alfabeta.
- Sugiyono. (2015). *Metode Penelitian dan pengembangan research&development*. Bandung: Alfabeta.
- Sukmadinata, N.S. 2012. *Pendekatan Penelitian Pendidikan*. Bandung: PT.Remaja Rosdakarya.
- Susanto, Ahmad. (2013). *Teori Belajar dan Pembelajaran di Sekolah Dasar*. Jakarta: Kencana Prenada Media Group.

Trianto, (2017), *Mendesain Model Pembelajaran Inovatif Progresif dan Kontekstua*,  
Gamedia Digital.

Wena, Made. (2010). *Strategi Pembelajaran Inovatif Kontemporer*. Jakarta: PT. Bumi Aksara.