The metacognition of elementary students in object change learning with SQ3R (Survey, Question, Read, Recite and Review)

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Abstract. Implementing education highly important to be prioritized. The competitiveness field requires teachers to put an effort in designing learning activities that aligns the demands of society and the quality of education. This study used a 4-D model development procedure that aims to produce worksheets in accordance with the SQ3R steps in learning objects changes. Students’ worksheet with SQ3R was conducted on students 5th grade in SDN 1 Mimbaan and SDN 2 Mimbaan. Measurement of metacognition skills was performed by using MAI (Metacognitive Awareness Inventory) questionnaire. Assessment of students' mastery of concepts was obtained through pre-test and post-test scores. The N-gain (g) of metacognition skills of SDN 1 Mimbaan students was 0.43 and the N-gain value (g) 0.53 of SDN 2 Mimbaan students indicated to the medium category. N-gain (g) of concept of SDN 1 Mimbaan students was 0.48 and the N-gain value (g) of SDN 2 Mimbaan students was 0.59 which also fell in the medium category. In conclusion, the worksheet has met the criteria of valid, practical, effective and in accordance with research objectives in empowering metacognition skills and mastery of elementary students’ concepts.

1. Introduction

Based on current educational condition, students are expected to understand all learning materials in accordance with the applicable curriculum, especially in learning Natural Sciences (IPA). Science is material that recognizes and studies various natural events and contains natural knowledge that is close to the environment around students. Teachers as designers of the learning process need to carry out activities that lead to 21st century challenges so that they function to help develop skills and support student learning ratios. Teachers also need to anticipate related factors that hinder the ongoing learning process in the classroom.

The use of teaching materials is one of the actions pursued by the teachers. In general, teaching and learning materials designed are resources to achieve the main goals of learning [17]. The development of teaching materials is used as an alternative for students to master certain competencies, one of them is through student worksheets (LKS). This is a sheet containing several assignments from the teacher to be given to students according to basic competencies on the material being taught. On the worksheet, the characteristics of the various questions are highly important factors [8].

Some students may have low skill at problem solving or they merely learn the general theme of the lesson [12]. Worksheet is very useful and gives attention to problem solving needed according to the situation in the class. The teacher's task can be helped by the worksheet developed with SQ3R when
guiding students and enabling students to become effective readers in reading comprehension. Metacognition in reading or metacognition awareness of reading strategies is considered an important factor that improves reading comprehension and distinguishes reading skills from unskilled readers [5]. The steps of the SQ3R model, survey include identifying, checking or observing the entire text, the question is compiling a list of questions in accordance with the text. Read is to read the text intensively to search and find answers to some questions that have been prepared. Recite is the activity of memorizing each answer found according to the question and the review is to review all answers.

Metacognition is an individual's ability to process and the results of his thought related to a material. A simple definition of metacognition [6] is "thinking about thinking" so that it can help teachers to improve student metacognition. In fact, defining metacognition is not simple even though this term has been part of the educational vocabulary in the last few decades and the concept is valid as long as humans are able to reflect on their experience of cognition which actually has sparked much debate about the term metacognition [9]. Metacognition skill is the ability to use metacognition knowledge strategically to achieve cognitive goals, especially in cases when someone needs to overcome cognitive barriers [11]. Other statements related to metacognition state that independent learning is a broader term, including cognition, metacognition knowledge, metacognition regulation, and motivation needed to use this strategy to be successful [13].

Metacognition skill is also a high-level thought process for something they learn, especially when students develop metacognition skills in the learning process. Metacognition skill has a very positive influence on the changes that occur in the ability to think. Metacognition knowledge consists of knowledge or beliefs about factors that act and interact in various ways to influence their cognitive outcomes. There are three main categories of these factors or variables namely people, tasks, and strategies [6]. Empowering metacognition skills need to use cognitive strategies such as decentralized learning strategies, planning strategies and evaluation strategies to reach conclusions when individuals face problems [7]. When solving a problem students need to use the maximum capacity to think.

The development of metacognition skills is a valuable educational goal because these skills can help them become independent learners [15]. Students will be trained to learn independently, foster honesty, admit mistakes and have tangible in learning outcomes. The learning process in developing metacognition skills will influence awareness from designing, monitoring and controlling about what is known and the ways needed to do the work. Metacognition skill involves students' activeness, develop concepts and guide students during learning. Therefore, the development of metacognition skills is important to teach early because it will train thinking, making plans and decisions that will be useful for the future.

Metacognition activities are categorized into three covering planning, monitoring and evaluating [3]. The planning phase involves choosing the right strategy and allocating resources that affect performance. The monitoring phase refers to awareness of one's understanding and task performance. The evaluation phase refers to product assessment and the regulation of a person's learning process. The indicators metacognition skills are presented in table 1 form below.

| Table 1. Indicators and Sub-Indicators of Metacognition Skills. |
|---------------------------------------------------------------|
| **Indicator of Metacognition Skills** | **Sub Indicators of Metacognition Skills** |
| Planning | Understanding the discourse problems. Determining the problem solving strategies according to the discourse. |
| Monitoring | Checking the answers. Using the important information in problem solving. |
| Evaluating | Thinking about how much material has been understood. Evaluating results. Attempting in improving the score. |
The concept of science is very important for students to master in order to solve problems [4]. Mastery of concepts can help students in solving a problem of everyday events [1]. The teacher needs to know how far the mastery of concepts possessed by each student in the learning process. Therefore, mastery of concepts is the ability of students to understand some of the concepts of a subject matter in theory and practice that is applied in everyday life because science material is not memorization.

Mastery of student concepts is needed in metacognition skills. Mastery of the concept is interpreted as one of the intellectual skills related to students' cognitive abilities so as to bring up an idea by using the surrounding environment as a source of learning. The abilities referred to have been categorized based on the form of learning activities including intellectual skills, cognitive strategies, verbal information, and motor skills. What is done by students based on the ability to construct concepts is made as a special rule to solve problems [10].

The success of mastering the concept can be measured based on cognitive domain learning outcomes. Students who always practice their cognitive abilities in mastering concepts will get good learning outcomes. Measurement of mastery of concepts in this study was cognitive abilities of students who refer to Bloom's taxonomic indicators enhanced by [2] including C1 (remembering), C2 (understanding), C3 (applying), C4 (analyzing), C5 (evaluation), and C6 (creating). There are levels that must be mastered by students in mastering this concept research. The indicators concept mastery are presented in table 2 form below.

| No | Cognitive Categories and Processes | Definition | Terms |
|----|----------------------------------|------------|-------|
| 1  | Memorizing                       | Taking knowledge from long-term memory. | Recognizing, Recalling |
| 2  | Understanding                     | Constructing the meaning and learning material including what is spoken, written and drawn by the teacher. | Interpreting, Exemplifying, Classifying, Summarizing, Concluding, Comparing, Explaining, Executing, Implementing |
| 3  | Applying                         | Implementing or using a procedure in certain circumstances. | Executing, Implementing |
| 4  | Analyzing                        | Solving problems into parts of their compilation and determining relationships between parts and between these relationships and the whole structures or goals. | Differentiating, Organizing, Attributing |
| 5  | Evaluating                       | Making decisions based on categories and or standards. | Checking, Criticizing |
| 6  | Creating                         | Combining parts to form something new and coherent or to make an original product. | Formulizing, Planning, Producing |

*adapted from [2]

Concept mastery indicators will be easily achieved if students can be actively involved in the learning process. The more active the students the more honed their ability to improve the mastery of the concept. The teacher's role is to facilitate both the improvement and development of students' mastery of concept skills by supporting the efforts of students. The teacher not only provides an
outline of the subject matter but also carries out an effective learning process so that students can find and develop independently about concepts, facts and problem solving they face. The link between metacognition skills and students' mastery of concepts in learning changing objects can be known from developments in learning theory. Evaluation can develop from the teacher's strategy when evaluating the achievement of student learning outcomes. The evaluation is closely related to the cognitive domain. The development of metacognition skills in students requires teaching and modeling metacognition processes in the classroom as well as students' explicit knowledge of when and where to use strategies [14].

Based on the description, the purpose of this study is to find out the development of metacognition skills and increase the mastery of elementary school students' concepts in object change learning using LKS with SQ3R on SDN 1 Mimbaan students and SDN 2 Mimbaan 2019/2020 academic year.

2. Method
The research carried out was a 4-D development developed by [16]. These procedures include defining, designing, developing, and disseminating. The research and development procedures are presented in figure 1 form below.

![Flowchart of Worksheets Development of Modified the 4-D Model](image)

Figure 1. Flowchart of Worksheets Development of Modified the 4-D Model [16].
This development research was aimed to validity, practicality and effectiveness of products developed in the form of worksheet with SQ3R. The worksheet is used to develop metacognition skills and mastery of elementary school students' concepts. The research subjects were 28 students of SDN 1 Mimbaan and 30 students of SDN 2 Mimbaan about learning object change.

2.1 Method of collecting data
Method of collecting data include:

2.2 Validity
The data were used to determine the validity of the product being developed. This includes 2 validators, including: expert validator (lecturer). Data is obtained through the provision of research instrument sheets and learning instrument instrument sheets to expert validators (lecturers); and practitioner validator (teacher). Data obtained by giving the instrument sheet of learning tools to the practitioner validator (teacher).

2.3 Practicality
Questionnaires were given to students and teachers after attending learning at SDN 1 Mimbaan and SDN 2 Mimbaan. Observation consisted observing student activities and the implementation of learning so that assessment can be performed at 4 meetings. The observation assisted by 2 observers.

2.4 Effectiveness
The questionnaire used was the MAI (Metacognitive Awareness Inventory) questionnaire developed by [11]. This questionnaire is used as a tool to measure metacognition skills containing 30 statement items. Questionnaires were given at the beginning and end of learning.

The assessment of students' mastery of concepts was obtained through tests consisting of pre-test and post-test with 15 multiple choice questions and 5 question descriptions so that a total of 20 questions were given. Tests are given before and after learning the change of objects using LKS with SQ3R.

2.5 Interview
Interviews were conducted before and after the research product in the form of LKS with SQ3R was made and tested. Interviews with teachers and grade 5 students were conducted using interview guidelines.

2.6 Documentation
Documentation was done data such as student names, photos of research activities etc.

2.7 Analysis of the data
Analysis of the data used in this study included qualitative and quantitative data. The data analyzed are as follows:

2.8 Analysis of qualitative or descriptive data
This comes from data in the form of comments and suggestions from expert validators and practitioner validators obtained in the validation process to find out the revised part and the appropriateness of a product being developed.

2.9 Analysis of quantitative or statistical data
Data analysis techniques are carried out to get good quality products that meet the aspects of validity, practicality and effectiveness. Data analysis was performed on the results of metacognition skills and mastery of students' concepts.
Validity: The average score of each component is calculated using the following formula.

\[ \bar{x} = \frac{\sum x}{n} \]

Where:
- \( \bar{x} \) = The average score
- \( \sum x \) = Total skor
- \( n \) = Number of validator

Table 3. Conversion of Values for the Validity Rating Category.

| No | Score range                  | Score | Category            |
|----|------------------------------|-------|---------------------|
| 1  | \( X > \bar{x} + 1.80 \text{SB}_i \) | A     | High Validity       |
| 2  | \( \bar{x} + 0.60 \text{SB}_i < X \leq \bar{x} + 1.80 \text{SB}_i \) | B     | Valid               |
| 3  | \( \bar{x} - 0.60 \text{SB}_i < X \leq \bar{x} + 0.60 \text{SB}_i \) | C     | Moderate Validity   |
| 4  | \( \bar{x} - 1.80 \text{SB}_i < X \leq \bar{x} - 0.60 \text{SB}_i \) | D     | Low Validity        |
| 5  | \( X \leq \bar{x} - 1.80 \text{SB}_i \) | E     | Not valid           |

\(^a\)Source [18]

Where:
- \( X \) = The achieved score
- \( \bar{x}_i \) = The average ideal score
- \( \text{SB}_i \) = standard deviation of the ideal score

Metacognition skills were measured using the MAI (Metacognitive Awareness Inventory) questionnaire. The results of the MAI questionnaire were analyzed using the Normalized gain (g) formula to determine the effectiveness of metacognition skills. The gain index is calculated using the formula of the gain index converted to the criteria scale used.

Here's the formula:

\[ \text{Normalized gain (g)} = \frac{\text{post test score} - \text{pre test score}}{\text{maximum score} - \text{pre test score}} \]

Assessment of Students’ Mastery of Concepts. Students’ mastery of concepts is measured from cognitive learning outcomes obtained from pre-test and post-test scores. The data were then analyzed using the Normalized gain (g) formula to determine the effectiveness of students’ mastery of concepts. The gain index is calculated using the formula of the gain index converted to the criteria scale used.

Here's the formula:

\[ \text{Normalized gain (g)} = \frac{\text{post test score} - \text{pre test score}}{\text{maximum score} - \text{pre test score}} \]

3. Research Results
This is a research development that produces a product in the form of worksheets with SQ3R in developing metacognition skills and mastery of students’ concepts of learning change objects in SDN 1 Mimbaan and SDN 2 Mimbaan.
3.1 Analysis of validity
The total score of the syllabus validation instrument sheet is 4.40 which means high validity. The total score of the RPP validation instrument sheet is 4.50 which means that the validity is very high. The total score of the worksheet validation instrument sheet is 4.75 which means highly valid. The total score of the pre-test and post-test validation instrument sheets is 4.60 which means highly valid. Research instruments in the form of syllabus, lesson plans, LKS development, MAI questionnaire. The results of the overall test assessment fall into the highly valid category.

The validation of learning tools was carried out by expert validators (lecturers) and practitioner validators (teachers). Data was converted from scores into five categories of validity. The syllabus assessment was highly valid with an average value of 4.53. The results of lesson plan assessment was highly valid with an average value of 4.62. The worksheet assessment results was highly valid with an average value of 4.70. The results of MAI questionnaire assessment was highly valid with an average value of 4.53. The results of the assessment of students' mastery of concepts was highly valid with an average value of 4.65. The results of the assessment indicate that learning tools are appropriate to be used in the learning process in the classroom to develop metacognition skills and mastery of students' concepts.

3.2 Practicality analysis results
Trial at SDN 1 Mimbaan. The observation was conducted by a peer teacher who had previously been given an explanation regarding aspects that needed to be observed as an assessment material. Data from observations of student activities are presented in the following table.

Table 4. Observation Results of Student Activities at SDN 1 Mimbaan.

| No | Meeting 1 | Meeting 2 | Meeting 3 | Meeting 4 | Result |
|----|-----------|-----------|-----------|-----------|--------|
|    | Total %   | Total %   | Total %   | Total %   | Total % |
| Yes|           |           |           |           |        |
| Observer | 11 | 79 | 12 | 86 | 12 | 86 | 13 | 93 | 48 | 86 |
| Category | Good | Very Good | Very Good | Very Good | Very Good |

Data of observations of the implementation of learning are presented in the following table.

Table 5. Observation Results of the Implementation of SDN 1 Mimbaan Learning.

| No | Meeting 1 | Meeting 2 | Meeting 3 | Meeting 4 | Result |
|----|-----------|-----------|-----------|-----------|--------|
|    | Total %   | Total %   | Total %   | Total %   | Total % |
| Yes|           |           |           |           |        |
| Observer | 20 | 83 | 21 | 88 | 22 | 92 | 22 | 92 | 85 | 89 |
| Category | Good | Very Good | Very Good | Very Good | Very Good |

Teacher response has been determined as follows.

Table 6. Results of Teacher Response Questionnaire Assessment.

| Respondent | Total | Average | Category |
|------------|-------|---------|----------|
| Teacher    | 64    | 3.20    | Highly Positive |
Table 7. Results of Questionnaire Assessment Results of Class 5 Students of SDN 1 Mimbaan.

| No | Assessment Aspects | Number of Items | Average score | Category       |
|----|---------------------|-----------------|---------------|----------------|
| 1  | Language            | 3               | 3.12          | Highly Positive|
| 2  | Content             | 9               | 2.90          | Positive       |
| 3  | Presentation        | 2               | 3.14          | Highly Positive|
| 4  | Graphic             | 3               | 2.92          | Positive       |
| 5  | Interest            | 4               | 2.94          | Positive       |
|    | Average             |                 | 3.00          | Positive       |

The stage of spreading the product at SDN 2 Mimbaan. Data on student activity observations are presented in table below.

Table 8. Observation Results of Student Activities at SDN 2 Mimbaan.

| No | Meeting1 | Meeting2 | Meeting3 | Meeting4 | Result |
|----|----------|----------|----------|----------|--------|
|    | Total %  | Total    | Total %  | Total %  | Total %|
| Yes|          |          |          |          |        |
| Observer | 12   | 86       | 13       | 93       | 13     | 93     | 51     | 91     |
| Category | Very Good | Very Good | Very Good | Very Good | Very Good | Very Good |        |

Data from observations of the implementation of learning are presented in the following table.

Table 9. Results of Implementation in SDN 2 Mimbaan Learning.

| No | Meeting1 | Meeting2 | Meeting3 | Meeting4 | Result |
|----|----------|----------|----------|----------|--------|
|    | Total %  | Total    | Total %  | Total %  | Total %|
| Yes|          |          |          |          |        |
| Observer | 21   | 88       | 22       | 92       | 23     | 96     | 88     | 92     |
| Category | Very Good | Very Good | Very Good | Very Good | Very Good | Very Good |        |

Teacher response data were determined as follows.

Table 10. Results of Teacher Response Questionnaire Assessment.

| Respondent | Total | Average | Category       |
|------------|-------|---------|----------------|
| Teacher    | 66    | 3.30    | Highly Positive|

The distribution phase ends with the distribution of student responses to the questionnaire. Student response data is as follows.

Table 11. Questionnaire Assessment of Primary 5 Students of SDN 2 Mimbaan.

| No | Assessment Aspects | Number of Items | Average score | Category       |
|----|---------------------|-----------------|---------------|----------------|
| 1  | Language            | 3               | 3.28          | Highly Positive|
| 2  | Content             | 9               | 2.99          | Positive       |
| 3  | Presentation        | 2               | 3.20          | Highly Positive|
| 4  | Graphic             | 3               | 3.00          | Positive       |
| 5  | Interest            | 4               | 3.10          | Highly Positive|
|    | Average             |                 | 3.11          | Highly Positive|
3.3 Results of effectiveness data analysis
Field trial at SDN 1 Mimbaan. Metacognition skills were measured using the MAI questionnaire presented in the following table.

Table 12. Average Metacognition Skill Scores.

| School            | Pre-Metacognition | Category       | Post-Metacognition | Category |
|-------------------|-------------------|----------------|-------------------|----------|
| SDN 1 Mimbaan     | 61.0              | Development    | 78.2              | OK       |

Table 13. Results of the Metacognition Skills Assessment.

| Class            | N-Gain score | Category | Number of students | Percentage |
|------------------|--------------|----------|--------------------|------------|
| 5 Saturn (Trial) | 0.70 < g     | High     | 2                  | 7.1 %      |
|                  | 0.30 < g < 0.70 | Moderate | 21                 | 75 %       |
|                  | g < 0.30     | Low      | 5                  | 17.9 %     |

The students’ concept mastery test was conducted twice in pre-test and post-test with a time allocation of 2 x 35 minutes. The hydrolysing of each question was different because it was adjusted to the indicators on each problem. The results of students’ concept mastery tests are presented in table 14 form below.

Table 14. Results of Student Concept Mastery Assessment.

| Class            | N-Gain Score | Category | Number of students | Percentage |
|------------------|--------------|----------|--------------------|------------|
| 5 Saturn (Trial) | 0.70 < g     | High     | 3                  | 10.7 %     |
|                  | 0.30 < g < 0.70 | Moderate | 21                 | 75 %       |
|                  | g < 0.30     | Low      | 4                  | 14.3 %     |

Product distribution stage at SDN 2 Mimbaan. Data on students' metacognition skills assessment results are presented in the following table.

Table 15. Average Metacognition Skill Scores.

| School            | Pre-Metacognition | Category       | Post-Metacognition | Category |
|-------------------|-------------------|----------------|-------------------|----------|
| SDN 2 Mimbaan     | 62.1              | Development    | 82.5              | OK       |

Table 16. Results of Metacognition Skills Assessment.

| Class            | N-Gain Score | Category | Number of students | Percentage |
|------------------|--------------|----------|--------------------|------------|
| SDN 2 Mimbaan    | 0.70 < g     | High     | 4                  | 13.3 %     |
|                  | 0.30 < g < 0.70 | Moderate | 23                 | 76.7 %     |
|                  | g < 0.30     | Low      | 3                  | 10 %       |
The result data from the students' concept mastery test is presented in the following table.

**Table 17. Results of the Assessment of Students' Concept Mastery.**

| Class          | N-Gain Score | Category | Number of students | Percentage |
|---------------|--------------|----------|--------------------|------------|
| SDN 2 Mimbaan | 0.70 < g     | High     | 5                  | 16.7%      |
|               | 0.30 < g < 0.70 | Moderate | 22                 | 73.3%      |
|               | g < 0.30     | Low      | 3                  | 10%        |

4. Discussion

This research produced teaching materials in the form of Student Worksheets (LKS). The worksheets developed in the study were worksheets with the SQ3R model (Survey, Question, Read, Recite, and Review). The products produced in this study first went through the validation, practicality and effectiveness tests. The research results are then described and interpreted in the form of a description. Below is a description of the results of the study:

4.1 Validity

Research Instrument: The results of the study instrument validation recapitulation consisted of a syllabus validation sheet, lesson plan validation instrument sheet, worksheet validation instrument sheet, MAI questionnaire validation instrument sheet and the pre-test and post-test question validation instrument sheets. They are feasible to be used in this study.

Learning Tools: The results of the syllabus validation recapitulation of the two validators is 4.53 which means it is very valid. The result of the lesson plan validation recapitulation of the two validators is 4.62 which means it is very valid. The results of the recapitulation of the validation of the worksheet with SQ3R show that the average rating of the validator is 4.70. The results are then converted which then shows that the lesson plan with the SQ3R model is very valid and suitable for use in the classroom in the learning process. A worksheet product is valid if the validator provides an assessment that this is appropriate in terms of content, format and language. The results of the MAI questionnaire validation recapitulation of the two validators are 4.53 which means it is very valid. The results of the pre-test and post-test validation recapitulation of the two validators were 4.65 which means it was very valid. Thus, a learning tool with SQ3R material about changing objects is feasible to be used in the learning process.

4.2 Practicality

Practicality assessment is done by observing the implementation of learning by using a worksheet with SQ3R. The practicality of the worksheet is assessed by the student response questionnaire, the teacher's questionnaire response at the end of the lesson, observation of student activity and observation of the implementation of learning during four meetings.

The results of observations of the observations of the activities of Saturn's 5th grade students at SDN 1 Mimbaan at the first meeting met the good category (79%). At the second meeting with LKS activity 2, the results of the observer's evaluation met the category very well (86%). At the third meeting with LKS activity 3, the results of the observer's evaluation met the category very well (86%). At the fourth meeting with LKS activity 4, the results of the observer's evaluation met the category very well (93%). Therefore, the assessment result of the observer is 86% so that the students' activities are included in the excellent category. The results of the analysis of observations of the feasibility of class 5 learning Saturn SDN 1 Mimbaan using a worksheet with SQ3R can be seen from the value given by the observer at the first meeting (83%) which falls in the good category. At the second meeting, the observer gave an average rating of 88% in the excellent category. At the third meeting, the observer gave an average rating of 92% in the excellent category. At the fourth meeting, the
observer gave an average rating of 92% which fell into the very good category. The results of the average rating of the observer is 89% that fell into excellent category.

The results of the analysis of the teacher's questionnaire responses can be seen from the value given by the respondent. Respondents gave an average teacher response of 3.20 or very positive. The results of the assessment of the responses of Saturn's 5th grade students in SDN 1 Mimbaaan to the worksheet were 3.00 or positive. Student responses to worksheets with SQ3R is a new thing given by the teacher. In the process of working on the worksheets, students are asked to study the problem, ask questions, read to find answers, memorize the material and review it by writing a conclusion.

The results of the assessment of grade 5 students at SDN 2 Mimbaaan in the worksheet deployment stage with SQ3R are the same as the field trial classes. The results of the observation of the 5th grade students' activities in SDN 2 Mimbaaan showed that the value of the first meeting was in the good category (86%). The evaluation at the second meeting with LKS activity 2 was very good (93%), at the third meeting with LKS activity 3 was very good (93%). At the fourth meeting with LKS activity 4 was very good (93%). Therefore, the results of the assessment of the observers at the first to fourth meeting was 91% so that the activities of students included in the excellent category. The results of the analysis of observations of the feasibility of grade 5 learning at SDN 2 Mimbaaan using a worksheet with SQ3R the value given by the observer at the first meeting was 88% (very good). At the second meeting, the observer gave an average rating of 92% (very good). At the third meeting, the observer gave an average rating of 92% with a very good category. At the fourth meeting, the observer gave an average rating of 96% (very good). So, the average rating of the observer is 92% (very good). The results of the analysis of observations of learning outcomes using worksheets with SQ3R in general are very good.

The average result of the analysis of the questionnaire responses of teachers by respondents obtained was 3.30 or very positive. The average result of student responses to worksheets at SDN 2 Mimbaaan was 3.11.

4.3 Effectiveness
The results of the MAI questionnaire assessment can be seen from the average N-gain in field trials in Saturn's 5th grade at SDN 1 Mimbaaan (0.43). The distribution phase of the 5th grade worksheet at SDN 2 Mimbaaan is 0.53. These results state that the worksheet has a positive impact on students in developing metacognition skills. Effectiveness assessment is also done by administering the test after using LKS. The results of the assessment of students' mastery of concepts can be seen from the acquisition of the average N-gain in field trials in grade 5 Saturn in SDN 1 Mimbaaan is 0.48.

The distribution phase of grade 5 students at SDN 2 Mimbaaan is 0.59. Based on the achievement of students' ability in mastering the concepts and increasing the percentage obtained in this study shows that the worksheets that are developed are effectively used in learning changes in objects. This condition means that there is a consistency between the learning tools that are implemented and determined as well as the learning tools in accordance with the objectives to be achieved so that the worksheets that are developed can have a good influence on research subjects.

5. Conclusions and Suggestions
Based on the results of research on the development of worksheets with SQ3R to develop metacognition skills and mastery of students' concepts, the following conclusions are obtained: The validity test results of the development of worksheets with SQ3R are obtained from assessments and responses by validators that indicate proper use. The results of the practicality test of the worksheet with SQ3R in SDN 1 Mimbaaan and SDN 2 Mimbaaan based on the results of the assessment of student activities and observability of learning from the observer were declared practical at four meetings. The results of the effectiveness of the LKS test with SQ3R based on the results of the assessment of metacognition skills in field trials in grade 5 Saturn in SDN 1 Mimbaaan and grade 5 students in SDN 2 Mimbaaan are in the good category. Based on the results of the assessment of metacognition skills through the development of a worksheet with SQ3R, it was stated to meet the effective category as
expected in the study; The results of the worksheet effectiveness test with SQ3R are based on the results of the assessment of students' mastery of concepts in the field trials in grade 5 Saturn in SDN 1 Mimbaan and the stage of the distribution of grade 5 students in SDN 2 Mimbaan meets the effective category as expected in the research; Worksheets with SQ3R developed in research in general have a potential influence on the development of metacognition skills and students' mastery of concepts.

Based on the results of research on the development of worksheets with the SQ3R model to develop metacognition skills and mastery of students' concepts, the authors proposed some suggestions as follows: Teachers can use LKS with SQ3R that has been produced, this can be used or further developed by the teacher in learning change objects. Teachers can also invite students to develop metacognition skills and mastery of students' concepts so that in learning activities, teachers need to add an honest and courageous attitude in admitting mistakes to correct them. Teachers can develop worksheets with SQ3R produced in research to get worksheets with SQ3R that are even better for diverse material; For other researchers, worksheets with SQ3R have the potential to develop students' metacognition skills and mastery of concepts so that they need to be implemented in students with diverse levels of education. Learning that utilizes the availability of worksheets with SQ3R can be developed by taking into account other indicators of metacognition skills and mastery of students' concepts aside from the indicators used in this study; In general, the development of a worksheet with SQ3R then needs to pay attention to the benefits of the worksheet on metacognition skills and mastery of students' concepts and development of learning plans on other material.

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