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The Development of Realistic Mathematical Education (RME)-Based Hots Ability Tests Assisted by Google Forms for Class IV Students of Sekolah SD Negeri 101999 Silinda

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Abstract

The aims of this study were to find out: (1) Finding a quality HOTS ability test based on quality Realistic Mathematical Education (RME) assisted by Google Form on fractional material, (2) Describing the increase in students' HOTS ability with the help of Google Form. The subjects of this study were fourth grade elementary school students for the 2021/2022 academic year. In class IV SD Negeri 101999 Silinda as many as 34 students, as many as 4 students were used for initial field trials and as many as 30 students were used for field trials. This research uses Borg and Gall development research. Data collection techniques used are observation and tests. From the results of the study it can be concluded that the test instrument developed as a whole is of good quality with a reliability analysis of 0, 799 with high interpretation. The students' HOTS ability test results were in the "enough" category with an average of 67.17%. So it can be concluded that the RME-based HOTS ability test that was developed is categorized in good criteria and has a potential effect on students' mathematical HOTS abilities.

Keywords
development of HOTS ability test; realistic mathematical education (RME); google forms

I. Introduction

With the development of the era, education is expected to be more improved than before. Efforts have been made by the government to improve the quality of education by implementing the 2013 Curriculum, one of which is a learning process centered on the development of attitudes, knowledge, and skills of students which aims to make students have better abilities in the process of observing, asking questions, reasoning, and communicate. In order to build a higher quality education, through the development and improvement of the curriculum and evaluation system, it is necessary to improve facilities and infrastructure. The development of the quality evaluation of student learning outcomes as well as improving the quality of teachers and education personnel should receive more attention than before. Teachers have a very important role in the learning process which includes input (input), process (teaching and learning activities) and output (output). One indicator of a teacher's success in carrying out the learning process is the formation of capable and independent individuals through a learning process.

The success of a learning process is determined by three main aspects, namely students (students), educators (teachers) and learning resources (materials). The success of education can be measured by the assessment of learning outcomes. Assessment of learning outcomes has the aim of measuring the success or failure of the learning that has been carried out by the teacher as well as to measure the success or failure of students in the assignment of the specified material. Thus the teacher must have a learning evaluation

tool, namely an assessment instrument. Assessment instruments must be prepared with a valid and reliable in order to provide information on the level of mastery of students in evaluation activities accurately (Purwanto, 2011).

The quality of education can be improved through improving the quality of learning and improving the quality of assessment. Assessment in the 21st century must be carried out on deeper understanding and competence (Mindayani, 2019). The assessment is done before measurement, because measurement is giving numbers to objects or rules that give quantitative meaning (Muslich in Aini, 2019). According to (Larisey in Pane, 2019) students in adult conditions need to be given the opportunity to learn directly, be critical and be given the opportunity to be involved in the assessment. The quality of learning can be seen from the results of the assessment. Assessment (assessment) is part of the evaluation of the achievement of the material that has been received by students, therefore the assessment must still pay attention to the ability objectives that have been included in the Bloom's taxonomy category. Increasing the quality of learning will be seen from the results of student assessments. Assessment or assessment is used as a tool to obtain data on the level of knowledge and skills of students (Subali, 2012: 1). With the results of the assessment or good grades, it will motivate students to be more active in learning and motivate an educator to be more enthusiastic about teaching students.

Improving the quality of learning can be seen after testing or evaluation is held. Evaluation according to Subali (2012: 1) is a series of activities that are systematic and carried out to measure the level of success and efficiency of a program or learning. The preparation of the instrument needs to be done carefully because it is concerned with the data to be obtained from students. A good instrument will produce good data because it is prepared with careful consideration. The data obtained through a good instrument is an appropriate measure of student ability. The benchmark in question is the extent to which students are able to learn.

A good instrument or measuring instrument must meet certain standards. These standards must be valid and reliable. A valid instrument means that the instrument has been tested for sure and can provide empirical information according to what is being measured (Subali, 2012: 107). The validity of an instrument has to do with specific goals and interpretations. Subali (2012:107) also explained that the instrument must be reliable, which means that an instrument or measuring instrument if used repeatedly will always have constant or consistent results. Instruments or measuring tools that are already valid and reliable can be used to obtain data to what extent students' abilities.

The quality of the learning outcomes test is also determined by three factors, namely discriminatory power, level of difficulty, and distractor analysis. Questions whose three factors are good will be considered appropriate or valid to be tested on students. Each factor has a criterion that serves as a guide to see how well the test is when viewed from its distinguishing power factor, level of difficulty, and distractor analysis. The factors in these items are absolute requirements as a reference for the quality of an instrument or question (Purwanto, 2009: 99). The questions that are currently designed are questions based on Higher Order Thinking Skills (HOTS) which involve higher levels of thinking, complex problems, and involve various cognitive levels. HOTS has its own characteristics. This level of ability includes students' abilities or skills in analyzing (analyzing), evaluating (evaluating), and creating (create). Skill indicators, analyzing, evaluating and creating are based on the theory described in the revised Bloom's Taxonomy. In order to achieve the goal of quality abilities, students must be accustomed to solving problems that require a frame of mind from analyzing, assessing and creating.

In line with the new paradigm of education in Indonesia which places more emphasis on students as human beings who have the ability to learn and develop, the government encourages the implementation of learning at the primary and secondary education levels that are learning-oriented designed to enable children to develop creativity so that it is effective and fun. Mathematics learning in schools aims to construct knowledge from the context of concrete objects as a starting point for students to acquire mathematical concepts.

In the 2013 curriculum, the government requires teachers to be able to integrate learning with the use of information and communication technology (ICT). Teachers must be able to master ICT and apply it in the learning process so that students can access various knowledge from various existing sources. The current teacher should no longer be the center of the class, standing in front of the class explaining the material, but the teacher should be an inspiration, being in the midst of students, accompanying, and guiding students who are looking for information.

Utilization of ICT in learning is expected to further improve their understanding of the material being studied. Because, by utilizing learning technology will be more interesting. The use of technology in education does not only stop at the process of seeking and conveying knowledge. Technology should also be used in the learning evaluation process. The use of ICT-based media in the evaluation of learning is expected to improve the evaluation results. The use of this technology is expected to foster a sense of pleasure and interest in students towards learning evaluation.

In the current era of technology, the form of evaluation has begun to shift from what used to be using paper tests or Paper Based Tests (PBT) to ICT-based evaluations or better known as Computer Based Tests (CBT). The development of ICT-based evaluation media has begun to be carried out. Online practice application offers can be easily found on the internet today. Some applications can even be accessed easily using an Android smartphone. One that can be used as an ICT-based evaluation medium is Google Forms. Google Forms is part of the Google Docs component provided by the tech giant Google. Google Forms is software that can be accessed for free and is quite easy to operate.

First, the lack of teacher knowledge about the procedures for developing a good test and the media used other than paper. It turned out that the teacher did not really know about the procedure for developing a good test because they only knew at a glance through the socialization that had been followed during the training and the teacher did not know what media could be used to evaluate other than paper. Second, regarding the making of good tests and the use of ICT in the evaluation process. The teacher once made a good test but only once when he was a new teacher, and did not use ICT because at that time ICT was considered difficult to implement in schools due to the lack of facilities and infrastructure in schools. Third, time to make good learning outcomes tests and the need for examples of learning outcomes tests that have been tested for quality.

Based on the results of interviews and observations that have been made that teachers in the school environment do not understand about making quality tests and using ICT as an evaluation medium. For this reason, the author is interested in developing a test using ICT with Google Form media with HOTS-based questions at SD Negeri 101999 Silinda, with the title "Development of HOTS Ability Tests Based on Realistic Mathematics Education (RME) Assisted by Google Forms for Fourth Grade Students at SD Negeri 101999 Silinda".

II. Research Methods

The form of this research is research and development (Reasearch and Development). The development model used in this study is the Borg and Gall development model which contains 10 steps of development research (in Sugiyono, 2012: 298), namely (1) potential and problems, (2) data collection, (3) product design, (4) design validation, (5) design revision, (6) product trial, (7) product revision, (8) product trial, (9) product revision, and (10) mass product manufacture.

The ten steps of development research, the researcher stopped at the seventh step, this is because the seven stages were able to cover all stages in developing HOTS questions. In addition, the limitations of time and cost were the reasons the researcher stopped at the seventh stage. The seven stages are: 1) research and data collection, 2) planning, 3) product draft development, 4) initial field trials, 5) revising test results, 6) main field trials and 7) operational product revisions.

The subjects of this study were fourth grade elementary school students for the 2021/2022 academic year. In class IV SD Negeri 101999 Silinda as many as 34 students, as many as 4 students were used for initial field trials and as many as 30 students were used for field trials.

III. Results and Discussion

3.1 Results

a. Description of the RME-Based HOTS Ability Test Development Process

In developing the HOTS ability test based on Realistic Mathematical Education (RME) assisted by Google Form, fourth grade students of SD Negeri 101999 Silinda. This research has the following stages: data collection, planning, product development, initial testing, revision of test results, field trials, and finally product improvement from field test results.

1. Data Collection Stage

At this stage, it begins with collecting several references related to this research, namely about development research, HOTS ability tests based on Realistic Mathematical Education (RME) assisted by Google Form. Next, the researcher conducted a curriculum analysis to examine the mathematics learning materials at SD Negeri 101999 Silinda. The 2013 curriculum was chosen as a reference in developing the HOTS ability test based on Realistic Mathematical Education (RME). In addition, researchers analyzed the stages of student development, and analyzed the availability of learning resources in schools.

At this stage the researchers found that the questions used to measure students' abilities were only questions in the book without paying attention to the needs of students and the development of question makers who were recommended to use HOTS.

2. Planning

At this stage the researcher makes preparations by determining the place and subject to be used in the study. The place of trial in this research is SD Negeri 101999 Silinda which is accredited with the predicate B. While the test subjects of this research are fourth grade students at SD Negeri 101999 Silinda with a total of 34 students. A total of 4 students were used for the initial trial, and as many as 30 students were used for the field trial.

3. Product Development

At this stage the researchers drafted the development of the HOTS test based on Bloom's theory. The researcher made a set of questions equipped with a grid of questions and an answer key along with the score for each question, and made a validation sheet to be given to the validator to get suggestions from the tests that had been made. From the results of the validator, the researcher revised the test that was made, the next step was to validate it at SD Negeri 101998 Silinda to find out which questions were suitable for use and which questions should be discarded.

4. Initial Trial, Field Trial and Product Revision

This trial was conducted with the aim of implementing the developed test, knowing how the quality of the developed test and the students' mathematical HOTS abilities. This trial was carried out in three stages, namely: validation by validators, initial trials and field trials. The results of the validation and testing are used to make revisions.

b. Preliminary Trial Results

The tests that were declared feasible by the validators were then tested on a limited number of students (small scale). The initial trial was conducted at SD Negeri 101999 Silinda which consisted of 4 fourth grade students consisting of 2 male students and 2 female students.

1. Item Validation

Calculations to test the validation of the questions, used the biserial point correlation formula. The formulas are:

$$\gamma_{pbi} = \frac{M_p - M_t}{S_t}\sqrt{\frac{p}{q}}$$

Test the validity of the HOTS ability test questions for fractions with 4 students as respondents in the initial trial so that it is obtained r_{tabel}= 0.95. Of the 13 item questions, there were 11 questions that were declared valid and 2 questions that were declared invalid.

2. Power of Differing Questions

Calculations to see the differentiating power of the questions, the following formula is used:

$$D = \frac{\sum A - \sum B}{Sm}$$

The distinguishing power of the HOTS ability test based on Realistic Mathematical Education (RME) which has been developed is the data obtained from the initial trial results that have been given to students.

3. Difficulty Level

Calculations to see the level of difficulty of the questions, the following formula is used:

$$P = \frac{\sum x}{Sm\ N}$$

The level of difficulty of the HOTS-based ability test based on Realistic Mathematical Education (RME), which has been developed, is obtained from the initial trial results that have been given to students.

4. Reliability

Calculations to see the reliability of the HOTS ability test items were tested using the KR formula. 20 namely:

$$r_{i=}\frac{k}{(k-1)}\left\{\frac{s_t^2-\sum p_i q_i}{s_t^2}\right\}$$

Then results r_{11}obtained from the calculation is compared with the price with a significance level of 5%. If the criteria > then the test is said to be reliable. From the results of the calculation of reliability obtained a reliability value of 0.910. Based on the criteria for the degree of reliability of the based HOTS ability test$r_{tabel}r_{hitung}r_{tabel}$*Realistic Mathematics Education* (RME) has a very high degree of reliability.

c. Field Trial Results

In the field trial, the researchers conducted a larger scale than the initial trial. This trial was conducted at SD Negeri 101999 Silinda which consisted of 30 fourth grade students consisting of 21 male students and 9 female students. The results of the field trials can be seen as follows.

1. Validity

Determination of the validity of each HOTS ability test based on Realistic Mathematical Education (RME) is to use the biserial point correlation formula. The results of calculations using manual or Microsoft Excel for correlation coefficients and r_{hitung} each item The HOTS ability test based on Realistic Mathematical Education (RME) can be seen in the following table:

Table 1 Validation of the HOTS Kemampuan Ability Test Field Trial Based on Realistic Mathematical Education (RME)

No Question	r_{hitung}	r_{tabel}	Description
1	0.581	0.361	Valid
2	0.572	0.361	Valid
3	0.696	0.361	Valid
4	0.539	0.361	Valid
5	0.783	0.361	Valid
6	0.627	0.361	Valid
7	0.728	0.361	Valid
8	0.738	0.361	Valid
9	0.803	0.361	Valid
10	0.630	0.361	Valid
11	0.620	0.361	Valid
12	0.592	0.361	Valid
13	0.528	0.361	Valid

From the table above it is involved that each item is declared valid with the test criteria being $r_{hitung} > . r_{tabel}$

2. Power of Difference

The test items can be said to be good if the item has a discrimination index of 0.41 to 0.70. This indicates that the item has distinguishing power with a good category. Meanwhile, the differentiating power with a discrimination index of 0.21 to 0.40 has a different power with a sufficient category. The following are the results of the calculation of discriminating power on the research test instrument, which can be seen in the following table:

Table 2. Distinguishing Power Results Field Trial Results

No Question	Distinguishing Power	Category
1	0.34	Enough
2	0.25	Enough
3	0.37	Enough
4	0.28	Enough
5	0.50	Good
6	0.31	Enough
7	0.46	Good
8	0.46	Good
9	0.56	Good
10	0.37	Enough
11	0.28	Enough
12	0.40	Enough
13	0.37	Enough

Based on the table above, it is known that the results in the field trial of items number 5, 7, 8, and 9 have distinguishing power in the "good" category, while items number 1, 2, 3, 4, 6, 10, 11, 12 and 13 has a distinguishing power with the “enough” category.

3. Difficulty Level

The test items are said to be good if the items have a level of difficulty in the interval 0.31-0.70, this indicates that the items are not too difficult and not too easy. The level of difficulty of the HOTS ability test based on Realistic Mathematical Education (RME) that has been developed is obtained from the test results data that have been given to students in field trials. The following results of the calculation of the difficulty level of the test instrument can be seen in the following table:

Table 3. Results of the Difficulty Level of Field Trial Results

No Question	Difficulty Level	Category
1	0.65	Currently
2	0.59	Currently
3	0.63	Currently
4	0.74	Easy
5	0.70	Currently

6	0.69	Currently
7	0.80	Easy
8	0.60	Currently
9	0.75	Easy
10	0.68	Currently
11	0.55	Currently
12	0.68	Currently
13	0.63	Currently

Based on the table above, it is known that the results of the level of difficulty in the field trial contained 10 items in the "medium" category and 3 items in the "easy" category.

4. Reliability

The results of field trials involving fourth grade students of SD Negeri 101999 Silinda with a total of 30 students. Based on the results of student answers, to determine the reliability of the HOTS ability test using the KR.20 formula. The results of calculations using Microsoft Excel provide the results of the reliability value of the HOTS ability test based on Realistic Mathematical Education (RME), namely, r_{11} = 0.799. Interpretation of the degree of reliability shows that the -based HOTS ability test*Realistic Mathematics Education* (RME), has a high degree of reliability.

d. HOTS Ability of Students in Initial Trial

After making observations for students' understanding of HOTS in class IV, the results are shown in the following table:

Table 4. Observation Results of Students' HOTS Ability on Initial Trial

No	Value Interval	The Number of Students	Percentage	Category	Total Student Score
1	0≤NS<65	1	25%	Not enough	320
2	65≤NS<75	0	0%	Enough	
3	75≤NS<90	0	0%	Good	
4	90≤NS≤100	3	75%	Very good	
	Amount	4	100%		
	Average	80.09		Good	

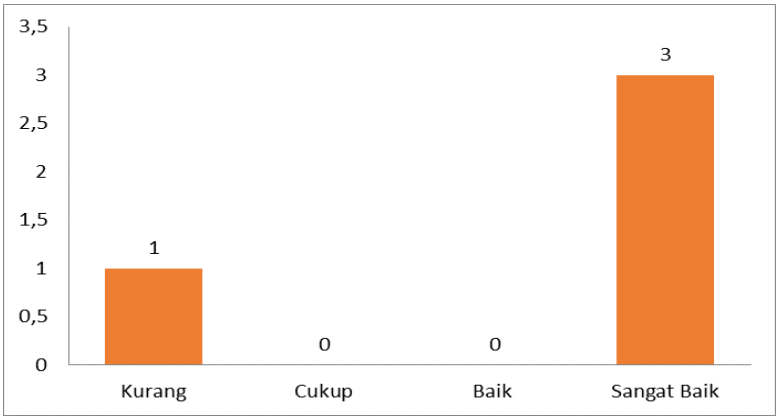

Figure 1. *Observation of Students' HOTS Ability on Initial Trial*

e. HOTS Ability of Students in Field Trials

After making observations on the initial trial, the researchers then made observations on the field trial to find out the difference between the initial trial and the field trial. The following are the results of field trial observations.

Table 5. Observation Results of HOTS Ability on Field Trial

No	Value Interval	The number of students	Percentage	Category	Total Student Score
1	0≤NS<65	11	37%	Not enough	2015
2	65≤NS<75	6	20%	Enough	
3	75≤NS<90	10	33%	Good	
4	90≤NS≤100	3	10%	Very good	
	Amount	30	100%		
	Average	67.17		Enough	

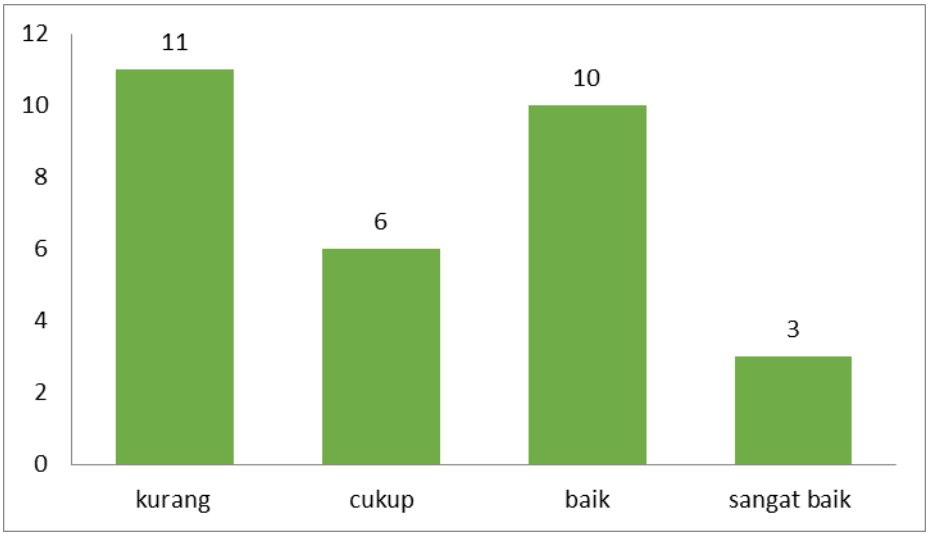

Figure 2. *Observation of HOTS Kemampuan Ability on Field Trial*

f. Student Activities on Student HOTS Ability

There are several activities that are observed to determine the students' HOTS abilities, namely as follows:

Table 6. Comparison of Student Activities

No	Type of activity	Meeting 1		Meeting 2		Meeting 3	
		Flat-Flat	Percentase	Flat-Flat	Percentase	Flat-Flat	Percentase
1	Visual Activities	2.32	54.86	2.52	59.72	2.76	65.27
2	Oral Activities	1.96	46.52	2.39	56.59	2.76	65.27
3	Listening Activities	2.05	48.61	2.55	60.41	3	70.83
4	Activity Metrics	1.92	45,48	2.45	57.98	2.71	64.23

5	Mental Activities	1.94	45.83	2.35	55.55	2.79	65.97
6	Emotional Activities	2.73	64.58	2.79	65.97	3.11	73.61
	Amount	12.92		15.05		17.13	
	Average	2.15	50.98	2.50	59.37	2.855	67.53

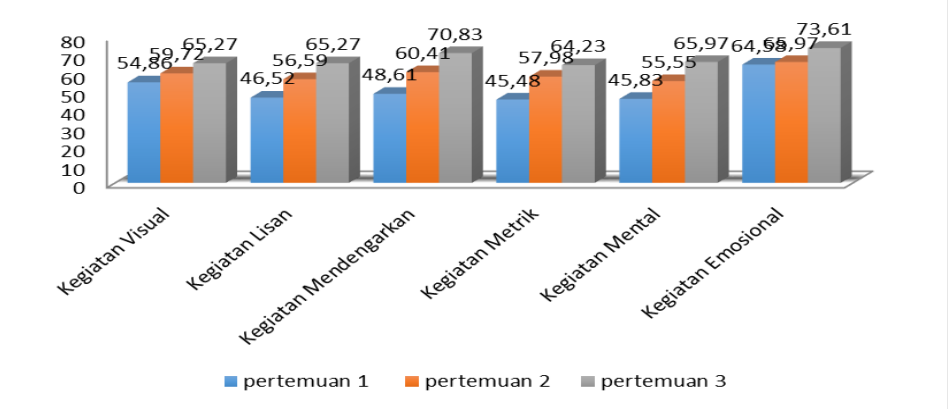

Figure 3. *Comparison of Student Activities*

3.2 Discussion

The development model used in this study is the Borg and Gall development model and is limited to seven research and development steps, namely research and data collection, planning, product draft development, initial field trials, revising test results, field trials and product revisions. The reason the researchers limit it to only seven This research and development step is due to reaching stage 7 been able to answer to research results.

Before conducting research in the field, researchers validate the product developed in the form of a HOTS ability test based on Realistic Mathematical Education (RME) to validators consisting of 3 people. The data obtained in the form of quantitative data and qualitative data. Quantitative data in the form of assessment questionnaires and qualitative data in the form of responses to suggestions, criticisms and general conclusions on the HOTS ability test based on Realistic Mathematical Education (RME) which was developed. Next, the researcher revised some of the suggestions given by the validators. The product is said to be feasible with an average percentage of 88% and then carry out trials.

The product trial is carried out in 2 stages, the first is the initial trial and the second is the field trial stage. In the initial trial process, it was carried out using 13 essay questions, which resulted in 2 invalid questions, and 11 valid questions, and with a degree of reliability of 0.910 in the very high category. In the initial trial process, the average HOTS ability of students was 80.09 with 4 students categorized as good. From the results obtained, it can be concluded that students have understood the HOTS-based questions.

Furthermore, field trials were conducted to determine the increase in students' understanding of the HOTS ability test based on Realistic Mathematical Education (RME) with the help of the Google Form that had been developed. This process uses 13 questions that are declared valid in the initial trial with 30 students. From the results obtained in this process, the results obtained, all the questions used were valid with different power in the "enough" category, the difficulty level in the "medium" category and a high degree of reliability with r_{11} = 0.799.

a. Quality Tests Based on Realistic Mathematical Education (RME) Assisted by Google Forms to Measure Students' Mathematical HOTS Abilities

The quality of the mathematics test based on Realistic Mathematical Education (RME) to measure the students' HOTS ability that was developed is valid, due to several factors, including: first, the developed test has met content validity. This means that the development of tests in the form of mathematics questions based on Realistic Mathematical Education (RME) has been in accordance with the demands of the existing curriculum. Curriculum demands are related to core competencies and basic competencies that must be achieved by students in the learning process that is adapted to the material or content of the lessons provided by the teacher. The above is in line with the opinion of Arikunto (2013) which says that good content validity is if a learning device can measure certain specific objectives in line with the subject matter provided content validity, it is often referred to as curriculum validity. The two test instruments used based on the results of the reliability test were stated to have very good quality, it can be seen from the magnitude of the reliability index, namely 0.799 (high reliability). Third, the proportion of difficulty level on the test instrument used is balanced/ideal, where the test instrument is dominated by point's questions with sufficient category that is equal to (76%). And fourth, judging from the results of the discriminatory analysis carried out, it is known that there are 4 items (31%) of good quality and 9 items (69%) having sufficient quality.

b. Students' HOTS Ability to Use Mathematics Problems Based on Realistic Mathematical Education (RME) assisted by Google Form

The students' HOTS ability is classified as "enough" with an average of 67.19. It can be seen from the activity of students who experienced an increase in visual activities at the first meeting having a percentage of 54.86% in the less active category, at the second meeting a percentage of 59.72% in the moderately active category, and at the third meeting a percentage of 65.27% in the active category. From the oral activity at the first meeting the percentage was 46.52% in the less active category, at the second meeting the percentage was 56.59% in the moderately active category, and at the third meeting the percentage was 65.27% in the active category. From listening activities at the first meeting the percentage was 48.61% in the less active category, at the second meeting it had a percentage of 60.41% in the moderately active category, and at the third meeting it had a percentage of 70.83% in the active category. From the metric activities at the first meeting, the percentage was 45.48% in the less active category, at the second meeting the percentage was 57.98% in the moderately active category, and at the third meeting the percentage was 64.23% in the moderately active category. Mental activity at the first meeting has a percentage of 45.83% in the less active category, at the second meeting it has a percentage of 55.55% in the moderately active category, and at the third meeting it has a percentage of 65.97% in the active category. Finally, emotional activities at the first meeting had a percentage of 64.58% in the moderately active category, at the second meeting a percentage of 65.97% in the active category, and finally at the third meeting a percentage of 73.61% in the active category (appendix 30).

The test in the form of mathematical problems based on Realistic Mathematical Education (RME) that has been developed has met construct validity. This means that in the development of tests in the form of mathematics questions based on Realistic Mathematical Education (RME), they are in accordance with the concepts and indicators *Higher Order Thinking Skills* (HOTS). Based on the results of student answers, then to determine the reliability of the ability test *Higher Order Thinking Skills* (HOTS) students use the KR formula. 20. The results of the Higher Order Thinking Skills (HOTS) ability

test reliability scores are, r_{11} = 0.799, Interpretation of the degree of reliability shows that the ability test *Higher Order Thinking Skills* (HOTS), has a high degree of reliability.

The purpose of High Order Thinking Skills is how to improve students' thinking skills at a higher level, especially those related to the ability to think critically in receiving various types of information, think creatively in solving a problem using the knowledge they have and make decisions in complex situations. The students' mathematical HOTS ability is influenced by the characteristics of the RME test test model developed. Among them are: first, the developed test is presented with real meaning that there are pictures related to the test delivered. Second, explanation of the problem situation at hand by providing instructions and directions. Third, can conclude the concept and problem solving.

This is in accordance with the theory that has been developed by Ausubel (Nur Rahmah, 2013) namely meaningful learning is a learning process that is associated with new information on relevant concepts contained in a person's cognitive structure. Cognitive structure includes facts, concepts, and generalizations that students have learned and remembered. That is meaningful learning occurs when students relate new experiences, phenomena, and facts into the structure of their knowledge. According to Lev Vigotsky (Mona Ekawati, 2019), assuming that learning for children is carried out in the form of interaction with the social and physical environment. So, a person's cognitive development is determined by oneself and an active social environment as well. In learning activities children get broad opportunities to develop their potential through social interaction, then forms of cooperative learning, as well as contextual learning are very appropriate to be applied. Thus, the test in the form of an RME model of mathematics is supported by several learning theories to measure students' HOTS abilities.

IV. Conclusion

Based on the results of research and discussion on the development of the HOTS ability test based on Realistic Mathematical Education (RME), the following conclusions are obtained:

1. The test instrument developed as a whole is of good quality in terms of validity, reliability, discriminating power and level of difficulty. The test developed using the Realistic Mathematical Education (RME) model is said to be valid. The test developed was the result of a reliability analysis of 0.799 with a high interpretation. The results of the analysis of the level of difficulty obtained 10 questions with moderate interpretation. The results of the analysis of discriminatory power obtained 9 questions with adequate interpretation, 4 questions with good interpretation.
2. HOTS ability of students in working on problems based on Realistic Mathematical Education (RME) it is known that from 30 field trial subjects there are 3 students (10%) have HOTS abilities in the very good category, 10 students (33%) have HOTS abilities in the category good, 6 students (20%) have HOTS ability with sufficient category, and 11 students (37%) have HOTS ability with less category. So it can be concluded that at the field trial stage the students' HOTS abilities were in the "enough" category with an average of 67.17%.

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