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23 - 24 September 2019
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Medan, North Sumatra - Indonesia

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Rundown of The 4th Annual Internatioanal Seminar on Transformative Education and Educational Leadership (AISTEEL) 2019
Garuda Plaza Hotel, Medan, 23 – 24 September 2019

1st day (Monday, September 23, 2019)

Time	Activities	PIC
15.00 – 20.00	Registration in Garuda Plaza Hotel	committee

2nd day (Tuesday, September 24, 2019)

Time	Activities	PIC/Moderator
07.00 – 08.30	Poster Sessions 1	Section Poster 1
08.30 - 09.00	**Opening Ceremony** 1. MC Speech 2. Traditional Welcome Dance 3. Indonesian National Anthem 4. Pray 5. Chairperson Report 6. **MoU signing between Unimed and PSU - Thailand** 7. Welcoming speech of Director of Postgraduate School 8. Welcoming speech and official opening of Rector of State University of Medan	MC
09.00 – 09.40	Plenary Lecture 1: **Prof. Dr. Syawal Gultom, M.Pd** (State University of Medan– Indonesia)	Moderator Section
09.40 – 10.25	Plenari Lecture 2 **Prof. W. L. Quint Oga-Baldwin** (Department of Education, Faculty of education and Integrated Art and Sciences, Waseda University - Japan)	Prof. Amrin Saragih, PhD (Panel)
10.30 – 11.15	Plenari Lecture 3 **Prof. Dr. Wu-Yuin Hwang**(Graduate Institute of Network Learning Technology National Central University, NCU - Taiwan)	
11.15 – 12.00	Plenari Lecture 4 **Prof. Dr. Ekkarin Sungtong** (Dean of Faculty of Education Prince of Songkla University - Thailand)	Mangara Simanjorang, PhD (Panel)
12.00 – 12.45	Plenari Lecture 5 **Asst. Prof. Patcharin Panjaburee, Ph.D.(**Mahidol University – Thailand)	
12.45 – 13.30	**Lunch Break/** Poster Sessions 2	Section Poster 2
13.30 – 15.30	**Parallel Session 1**	
15.30 – 16.00	Break/ Poster Sessions 3	Section Poster 3

15.50 – 18.00	**Parallel Session 2**	Moderator/Operator
18.00 – 19.00	Break/ Prayer	
19.00 – End	Banquet (Gala Dinner) - Announce of Best Presenter - Announce of Best Poster	Consumption Section

Proceedings of the 4th Annual International Seminar on Transformative Education and Educational Leadership (AISTEEL 2019)

Preface

The 4th Annual International Seminar on Transformative Education and Educational Leadership (AISTEEL 2019) was held in Garuda Plaza Hotel, Medan City-Indonesia on 23-24 September 2019. This seminar is organized by Postgraduate School, Univesitas Negeri Medan and become a routine agenda at Postgraduate program of Unimed now.

The AISTEEL is realized this year with various presenters, lecturers, researchers and students from universities both in and out of Indonesia participating in, the seminar with theme "Education, Learning and Leadership Innovation."
The plenary speakers coming from various provinces in Indonesia have been present topics covering multi disciplines. They have contributed many inspiring inputs on current trending educational research topics all over the world. The expectation is that all potential lecturers and students have shared their research findings for improving their teaching process and quality, and leadership.

The fourth AISTEEL presents a keynote speaker and 4 distinguished invited speakers from Indonesia, Japan, Taiwan, and Thailand. In addition, presenters come from various Government and Private Universities, Institutions, Academy, and Schools. Some of them are those who have sat and will sit in the oral defence examination.

There are 310 articles submitted to committee, some of which are presented orally in parallel sessions, and others are presented through posters. The articles have been reviewed by double blind reviewer and 172 of them were accepted for published by Atlantis Press indexed by International Indexation and 96 papers are published by digital library indexed by google scholar.
The Committees of AISTEEL invest great efforts in reviewing the papers submitted to the conference and organizing the sessions to enable the participants to gain maximum benefit.

Grateful thanks to all of members of The 4th Annual International Seminar on Transformative Education and Educational Leadership (AISTEEL 2019) for their outstanding contributions. Thanks also given to publisher for producing this volume.

The Editors

Bornok Sinaga
Rahmad Husein
Juniastel Rajagukguk

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Development of Study Peripheral Base on the Realistic Approaches to Increase Ability of Mathematical Reasoning of Student Junior High School State 6 Medan

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***Abstract*—The aims this research are: (1) Knowing valid developed learningdevice using realistic, (2) Knowing practical developed device Learning uses realistic (3) Knowing effective developed learning devices using realistic approach to the comparison material, (4) Knowing the increase in mathematical penalty ability students use learning tools developed with realistic learning on the proposed material, This research is a development study using modified Thiagarajan, Semmel and Semmel (4D) development model. Trials were conducted twice the first (trial I) in class VII-1 and (trial II) in class VII-k. The results of this study indicate: (1) The validity learning devices according to expert teams is valid (2) Learning devices meet the practical criteria, namely the assessment experts and practitioners of learning devices in general is good and can be used with a slight revision and ability of teachers to manage learning obtained an average 4.08 in category good (3) Learning devices meet the effective criteria classical completeness reaching 86.6%, achievement objectives is 80%, 75.8%, and 75%, student responses to learning are obtained average 90.59%, and learning time does not exceed normal study time. (4) Improvement mathematical reasoning abilities seen from the value of N-gain that is 0.44 in the category of "moderate".**

Keywords- ***Development of Learning Tools, Learning Based on Realistic Approaches , Mathematical Reasoning.***

I. INTRODUCTION

Education can be said as a conscious effort carried out in a planned manner according to procedures, with the aim of the realization of teaching and learning activities in schools. Education is given as an effort to improve the quality of human resources who are competent in knowledge. Education is often a topic of discussion, because education in Indonesia is still far behind that of other countries. This happens because the quality of learning provided is less than optimal. The problem of education is very closely related to learning, learning is the main activity in implementing education. So the quality of education is related to how the quality of learning itself.

Being a professional teacher must be able to develop learning well, logically, and systematically. Not only experts in teaching, but in the problem of preparing tools (tools) for learning are required to be more creative. Learning devices are one element of teacher readiness in implementing learning. The factors that influence the learning process and learning outcomes will be seen by the presence of student activities, the ability of the teacher to process learning, the factors of teaching strategies, and the learning tools that will be used.

Learning devices are tools or equipment that are used by educators who have not yet carried out a learning whose contents are activities carried out by students and instructors in a detailed and orderly manner. Learning tools used by teachers in teaching according to Ibrahim (Trianto, 2009: 201) [1], namely: "Syllabus, Learning Implementation Plan, Student Activity sheets Evaluation Instrument or Learning Outcomes Test, Learning media, and student textbooks ". Learning tools are one of the things that affect the success of education, and also a factor that must be considered by a teacher and should be required by every teacher without exception.

Developing learning tools is a teacher's effort to realize learning preparation before learning is done. This statement by a statement from the Standard and Middle Education process standard (Permendikbud No 65, 2013) [2] namely: "the preparation of learning tools is part of learning planning."

Based on the statements and observations of researchers in the field which is the cause of the low learning outcomes of students in schools one of them resulted from the inadequate teacher learning tools for students to improve their abilities so that learning is less effective. This statement was revealed based on researchers' interviews with several mathematics teachers at Medan 6 Public Middle School, revealing that: 1) Besides having difficulties in preparing lesson plans, not much time to prepare them. Therefore, the lesson plans that are used

are still in the old form, not yet revised so that the teacher's lesson plans are still old and also not made by the teacher concerned but taken from the internet, 2) There is no use of lesson plans at the school only with the teacher's book and student books only. 3) they also do not really understand the appropriate model or approach used to increase students' interest and motivation to learn mathematics, 4) the inadequate environment or media at school becomes an obstacle to carrying out learning that is close to students. So the learning device used by the teacher is not in line with expectations as a learning device that overcomes students in learning difficulties mathematics. Not to say that learning devices that meet the effective category are used in the learning process, this is seen based on the reality in the field that the teacher is not able to prepare the learning tools that will be used in the learning process in accordance with students' weaknesses in understanding mathematics. Therefore the learning tools used do not yet have valid, practical and effective categories used in the classroom so that students' mathematical abilities are very low.

In learning mathematics the ability of mathematical reasoning occurs when students experience several stages, according to NCTM (Rohanna, 2015) [3]" *1) observe pattern or regularity, 2) formulate generalization and conjecture related to observed regularity, 3) assess / test the conjecture; 4) construct and assess mathematical arguments, and 5) describe (validate) logical conclusions about some ideas and its relatednes "* from the quote above can be said of the process of a person's stages in reasoning in understanding mathematics, namely 1) observing patterns or regularities, 2) make generalizations and allegations related to the observed regularity, 3) assess / test the allegations; 4) build and assess mathematical arguments, and 5) describe (validate) logical conclusions about the interrelationships between related ideas. Meanwhile, according to the Ministry of National Education in DirjenDikdasmen No.506 / C / PP / 2004 in the Sadiq quote (2005: 25) explains the indicators of mathematical reasoning ability, namely (1) the ability to present mathematics with oral, written, tables, pictures, diagrams, (2) able to submit allegations, (3) able to do mathematical manipulation, (4) able to draw conclusions, show evidence, provide reasons or evidence of the correctness of the solution, (5) able to draw conclusions from statements, (6) check the validity of an argument, (7) determine the pattern or nature of the mathematical symptoms to make generalizations.

In the initial observation the researcher made in the field to students of SMPN 6 Medan with a total 35 students it was concluded that the students' reasoning ability was still low. This is evident when the researcher makes observations by giving a number of questions consisting of several mathematical abilities and in this matter of mathematical reasoning abilities the researcher finds still low. As for the matter of reasoning ability that researchers gave to students of SMP N 6 Medan as follows

> If a circle has a diameter of 4 cm, the area is 6.28 cm² If the diameter is 8 cm, how wide is the area?

But the results of the students' answers were met in the field as follows

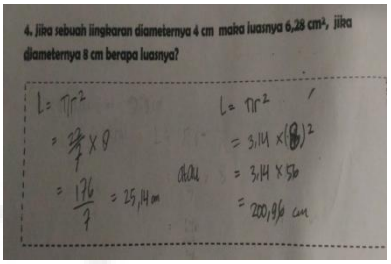


Fig.1. Problem Reasoning Ability

From the results of the students 'answers above it shows that the students' reasoning ability in solving mathematical problems is still low. The average student does not understand the purpose of the given problem. They tend to rush to directly calculate the area of the circle by using the formula he knows in calculating the area of the circle without understanding the contents of the problem.

Based on the evidence of the answer process generated in the field, showing researchers that students' reasoning ability in learning mathematics is low and not only that from the observations of researchers when students complete the tests given, there are some students who seem doubtful (unsure) with their ability to answer the question. His inability to understand the problem makes students think he is not able to do it. They find it difficult to solve, tend to depend on others so they choose to cheat. There is no motivation in students to try to work on these problems with their own abilities. The mistakes of students in the process of answering or can be said by doing the answer process carried out by the student is in line with the findings of Pradana (2015) [4] regarding the mistakes made by students in the answer process, namely "1) reading error questions, namely students are wrong in understanding the illustrated images in problems, students do not understand the problem correctly. 2) mathematical errors, namely students are careless in doing calculations, wrong in applying calculation procedures, and students are wrong in understanding mathematical concepts. "

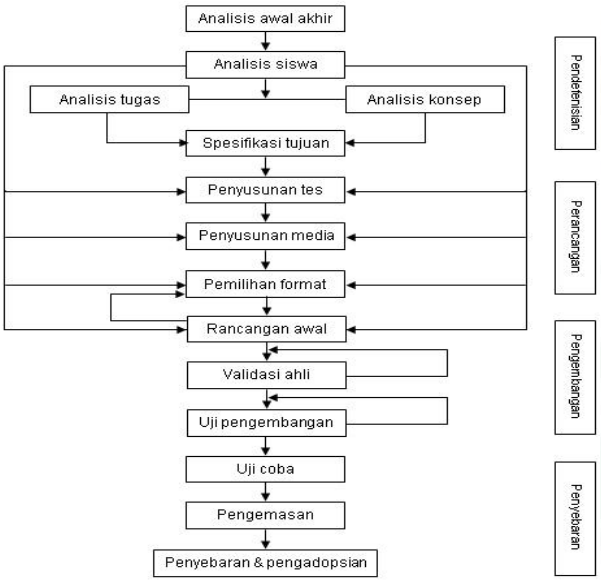
Hasratuddin (2002) says that student learning outcomes with a realistic mathematical approach are better than conventional mathematics learning in mathematics learning geometry units. Furthermore [5], Saragih (2007) explained that the ability to think logically and the communication skills of junior high school mathematics taught by using PMR were better than those of junior high school students who were taught with normal mathematics learning [6].

Based on the above problems, it is very possible to overcome the low ability of students 'mathematical reasoning through learning based on a realistic approach, so researchers feel the need to conduct research under the title "**Development of Learning Tools Based on Realistic**

Approaches to Improve Students' Mathematical Reasoning Abilities in SMP Negeri 6 Medan."

II. RESEARCH METHOD

The research is including research development devices which refers to the model 4-D Thiagarajan (1974), which consists of rectangular material stage pendefinidefine, design, develop, and disseminate. Devices learning was developed using realistic approachesthat is Plan Implementation Learning, Sheet Activities Students, Book Teacher, Books Student, and test the ability reasoning mathematically students .Model development of the research schematically shown at Figure 2.



1. Define

The purpose the defining stage is to determine and define the needs lesson carried out by analyzing the objectives and constraints material to be developed learning tools. The definition phase consists of: Initial- end analysis (Front-end analysis) , Student analysis (Learner analysis), Task analysis, Concept analysis (Concepts analysis), Formulation of learning objectives (Specifying instructional objectives*)*

2. Design

Interest stages of design is designing learning device, in order to obtain prototype. This stage can be started if the objectives learning material have been set in the previous stage. The design phase include: Preparation test, selection media, format selection, initial design

3 Development

The development phase aims to produce revised draft learning tools based on expert input and data obtained from trials. Activities at this stage include: Expert appraisal ,Developmental testing

4. Disseminate

The dissemination process final stage of development. Dissemination phase is carried out to promote development products to be accepted by users, both individuals, group, or the system. Manufacturers and distributors must be selective and work together to package material in the right form. According to Thiagarajan, S., Semmel, DS, &Semmel, MI (1974: 9), *"the terminal stages of final packaging, diffusion, and adoption are the most important although most frequently overlooked."*(In the final, diffusion and adoption stages is the most important thing even though it is most often ignored) [7].

Dissemination can be done in other classes with the aim to determine the effectiveness to use devices in the learning process. Distribution can also be done through a process of transmission to the learning practitioners involved in a particular forum. This form of dissemination aims to obtain input, correction, suggestions, assessments, to perfect the final product development so that it is ready for adoption by product users.

III. RESULT AND DISCUSSION

Based on the formulation problem and the research questions raised in the previous section, based on data obtained from the results of trials I and II, it will be known whether the formulation problem and the questions raised have been answered or not. The results of the analysis of the data obtained from the results of the trial show: (1) learning devices based on realistic approaches developed are valid; (2) learning tools based on realistic approaches developed practically; (3) learning tools based on realistic approaches developed effectively; (4) an increase in students' mathematical reasoning abilities by using learning devices based on a realistic approach that was developed.

1. The Validity of Learning Devices Based on Realistic Approaches Developed

Based on the results validation learning tools based on the realistic approach developed, it was found that, learning tools based on a realistic approach namely Learning Implementation Plan, Teacher's Book, Student's Book, and Student Activity Sheet were declared valid or had degrees good validity. Furthermore, the results of the validation of the mathematical reasoning ability test are also valid or have a good degree of validity. This shows that the learning tools based on realistic approaches developed in both namely Learning Implementation Plan, Teacher's Book, Student's Book, and Student Activity Sheet, and mathematical reasoning ability tests have met the validity criteria.

Validity criteria are obtained through expert assessment of learning tools based on a realistic approach developed. Obtaining a valid learning device is caused by several factors, including: (1) learning devices based realistic approach developed that have fulfilled content validity. This means that the development learning tools based on a realistic approach is

in accordance with the demands of the existing curriculum. These curriculum demands relate to core competencies and basic competencies that students must achieve in learning activities that are tailored to the material or subject matter provided and adjusted to the learning steps based on a realistic approach. The above is in line with the opinion of Arikunto (2012: 57) which states that, good content validity is when a learning device can measure certain specific objectives that are parallel to the material or content of the lessons given. The validity of this content, also often referred to as curriculum validity [8].

Secondly, learning tools based on a realistic approach developed have fulfilled construct validity. That is, in the development of learning tools based on a realistic approach that is in accordance with the concepts and indicators of mathematical reasoning ability which are then combined with learning based on a realistic approach (adjusted to the characteristics and principles of learning based on a realistic approach). The developed learning tools are arranged in a complementary way between the Learning Implementation Plan, Teacher's Book, Student's Bookand Student Activity Sheet which is adapted to learning based on a realistic approach to measuring mathematical reasoning abilities.

Based on the research results and opinions above, and supported by development research conducted by Sinaga (2007), where based on the results of expert validation and revisions that have been made, it is found that, the development of learning models and tools in the form of lesson plans, teacher books, student books, and LAS is valid and can be applied [9]. Furthermore, the same thing was expressed through the results of Syahbana's research (2012: 21), which is based on the results of the development of learning tools that have been carried out fulfilling valid criteria. Valid illustrated from the results of the validator's assessment that all validators stated both based on *content* (according to the curriculum), construct (according to the characteristics/principles of learning) and language (in accordance with applicable language rules, namely improved spelling) [10].

2. Practicality of Learning Tools Based on the realistic approach developed

The results assessment practicality of learning tools are obtained from expert / practitioner assessments which state that the developed learning tools can be used with little or no revision. Based results of expert assessments, the components of learning tools developed in the form Learning Implementation Plans, Teacher's Books, Student Books, Student Activity Sheets and tests of students' understanding ability in mathematical concepts are practical / able used with minor revisions.

Then according to Nieveen (2007), " Another characteristic of high-quality interventions end-users (for example the teachers and learners) consider the intervention to be usable and that it is easy for them to use the materials in a way that is largely compatible with the developers' intentions[1]. If these conditions are met, we call these practical interventions ", which means that the other criteria for quality learning tools are users (teachers and students) can easily use the material in a way that is in line with the intent of the developer (who develops the learning tool).

For practicality assessment, further reviewed from the teacher's ability to process learning. Said to be practical if the teacher's ability to process learning is in the minimum category is quite good $2.50 \leq KG < 3.50$.

The acquisition practical learning tools is caused by several things. As for a number of things that support practicality are: (1) Learning Implementation Plan which is prepared is easy to understand and easy to use by teachers and students in the learning process; (2) The modelsteps based on the realistic approach are easily carried out by the teacher; (3) Student Activity Sheets which are arranged are easily understood by students because the instructions provided are clear, the writing is easy to read, and the pictures and tables used are easy to understand and interesting; (4) Teacher's Book and Student's Book which are arranged with sentences that are easy to understand and learning material is systematically presented; and (5) The question and statement sentences on the students' ability to understand mathematical concepts are not ambiguous (have more than one meaning) and the instructions are easy to understand.

In addition, research conducted by Wulandari, et al (2014) that the development of learning tools based on realistic mathematics learning subject matter cubes and blocks using the Thiagarajan 4-D Model is considered practical enough to be implemented based on the results of managing learning. Meeting the practicality criteria can be seen from the average percentage of teacher activity in all learning is 86.1% with a good category [12].

Based on description above can be concluded that the learning tools developed through a realistic approach have fulfilled the practicality as expected. Thus the learning tools through a realistic approach that is developed easily and can be implemented by teachers and students.

3. Effectiveness of Learning Devices Based on Realistic Approaches Developed

Based on the results of trial I and trial II, learning tools based on realistic approach that were developed have met the categories of effectiveness in terms of aspects, namely: (1) completeness student learning classically; (2) achievement learning objectives; (3) positive response to learning component components based realistic approach developed; (4) time used does not exceed the time on normal learning. The following will be presented a discussion for each indicator in measuring or seeing the effectiveness of learning tools based on a realistic approach.

1) Completion of student learning classically

Results*posttest* analysis trial I and trial II it was found that the students' mathematical reasoning ability had met the classical completeness criteria. This is due to the material and problems that exist in student books and activity sheets that are developed in accordance with the conditions of student learning environment and refers to learning based on a realistic approach. With the application learning based on a realistic approach, students will be actively involved in the problem solving process. Students analyze and evaluate their own thinking processes and make conclusions from the knowledge that has been found with the guidance and instructions from the teacher or friend in the form of questions that lead.

Through the active involvement of students in learning based on a realistic approach it will lead students to link new information to relevant concepts so that students are able to handle their learning tasks. This resulted in the more effective learning undertaken and the impact on classical student completeness.

Furthermore, the results of the study of Wulandari et al (2015), show that learning devices based on realistic mathematics learning that are developed are included in the effective category in terms of classical student mastery learning [12].

Based on the results of the previous research and research support above, it appears that learning tools based on a realistic approach developed can help teachers and students achieve mastery learning classically. Thus it can be concluded that, the use of learning tools based on a realistic approach developed has met the effective criteria.

2) Achievement of Learning Objectives

Analysis results achievement of learning objectives in the first trial that is the results of theposttest mathematical reasoning ability has not been achieved in item number 4 and 6, while in trial 2 the achievement of learning objectives has been achieved for each item. Thus it is known that, the achievement of the posttest learning objectives of students 'mathematical reasoning abilities in the first try has not been achieved for each item, while the achievement of the posttest learning objectives for the students' mathematical reasoning ability in the second tryout has been achieved for each item.

It is natural that the achievement of learning objectives by using learning based on a realistic approach is one of the factors that meet the effectiveness criteria . This is in accordance with Yuliani&Saragih's research (2015: 122) which states " the results of achievement of learning goals are used to see the expected achievement of learning objectives". The results of the study mean that the mastery of learning objectives is to see the achievement of the expected completeness in learning [13].

This is in line with the theory of constructivism from Piaget (Sugiyono, 2009: 125), which in the theory emphasizes the importance of students 'activities to actively build their own knowledge, such as students' activities in processing materials, working on problems, making conclusions, and formulating a formula in their own words which are indispensable activities so that students can build their knowledge [14].

This is reinforced by the results of Yuliani&Saragih's research (2015: 127), namely the achievement of learning indicators on the results of pretest I and II trials have not been achieved for each item, while the achievement of learning indicators on the results of the first and second prosthesis trials achieved for each item . So it can be concluded that the achievement of this learning goal shows the use of learning tools developed to meet the effectiveness criteria [13].

3) Student Responses to Learning Tools Based on Realistic Approaches

Results analysis trial I and trial II it was found that, the average percentage of student responses in each trial was positive. This means that students respond positively to the components of learning tools based on the realistic approach developed. Student responses given to every test has reached the predetermined criteria categories, namely. This shows that, learning tools based on realistic approach developed have met the effective criteria in terms of student responses.

Responses students on stimulus teaching as activities can be categorized into two things, namely positive responses to learning (listening, reading, writing, discussing / asking) or negative responses (other actions that are not relevant). A positive response indicates that students are pleased to follow the learning process.

Based on the results of the study and supporting research, it can be concluded that the components of the learning tools based on the realistic approach developed contribute positively to students' responses in learning.

4 Improving Mathematical Reasoning Abilities by Using Learning Tools Based on a realistic approach

As stated earlier, what is meant by the ability of mathematical reasoning is one's effort to find the truth in using rules that are measured and evaluated based on the ability to think based on facts of analogy, generalization, conditionality and syllogism to produce conclusions.

The criteria effective device will also be seen from the achievement of students 'mastery learning through tests aimed at seeing how students' mathematical reasoning abilities. This criterion is fulfilled if more or equal to 85% of students are declared to have completed the KKM $\geq$75. Analysis of the data on students 'mathematical reasoning abilities in the first try posttest students' mathematical reasoning abilities showed that there were 17 students out of 30 students completing or at 56.66%. It means that 13 students or 43.33% did not complete. If referring to the criteria in Chapter III, the mathematical reasoning ability in trial I has not met the specified criteria.

This increase in mathematical reasoning ability is analyzed based on the results obtained by looking at the averages on

mathematical reasoning ability based on N-gain calculations as discussed in Chapter III previously. The increase in students in the first try by 0.2952 increased in the Second Try by 0.440. This shows that there is an increase in students' reasoning abilities using learning based on a realistic approach. Based on the results of the N-Gain calculation, it can be concluded that the learning approach based on the realistic approach developed has a positive impact on increasing mathematical reasoning abilities.

IV. CONCLUSION

Based on the results of the analysis and discussion in this study, it can be concluded as follows:

1. Learning tools based on learning based on a realistic approach to improving students' mathematical reasoning abilities that have been developed already meet valid criteria namely 1) the results of Learning Implementation Plan validation validated by a team of experts with an average total of 4.31 with valid categories, 2) the results of the validation of mathematics student activity sheets based on a realistic approach with an average total of 4.43 with a valid category, 3) the results of teacher book validation with an average total of 4.41 with a valid category, 4) student book validation with a total average of 4.40 with a valid category, and 5) validation of students' mathematical reasoning tests, where the expert team declared valid as well
2. Learning tools developed through a realistic approach have met the practical criteria in terms of: (1) expert / practitioner assessments state that the learning tools based on the realistic approach developed can be used with little revision; and (2) the ability of teachers to process learning is obtained an average of 4.08 or in the category of "good".
3. Learning tools developed through learning models based on a realistic approach have met the effective criteria. Effective criteria in terms of: (1) classical students' mastery learning has been achieved in the second trial which has met the completeness criteria ≥ 85% of students reach; (2) the achievement of learning objectives in trial II of at least 75%, namely the analogy ability of 80%; Generalization 75.8%, conditional 75% and (3) positive student responses to the components of the learning device and (4) learning time in research does not differ much with the usual learning time .
4. Improved mathematical reasoning ability using learning tools based on realistic approaches that have been developed seen from the value of *N-gain* in trial I of 0.295 means that it is in the category of "low and in trial II increased by 0.440 means it is in the category of" medium ". The *N-Gain* value for each student's mathematical reasoning ability in Test II was 0.40; 0.42; and 0.39 are all in the category of "medium" so that the highest indicator of increase is the first indicator with an *N-gain value of* 0.42 namely: analogy (the process of deducing based on similarity of data or facts).

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