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Development of Learning Devices Based on Contextual Teaching and Learning Model Based on the Context of Aceh Cultural to Improve Mathematical Representation and Self-efficacy Ability of SMAN 1 Peureulak Students

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Abstract

This study aims to: 1) The effectiveness of learning-based learning model of CTL-BKBA; 2) describe the improvement of students mathematical representation and self-efficacy ability based on CTL-BKBA learning model developed learning tools. This research is a development research done in two stages, that is first stage of development of learning device based on CTL-BKBA model by using 4-D development model, and second stage tested learning device based on CTL-BKBA learning model developed in class XI IPA 1 and XI IPA 2 SMAN 1 Peureulak. From the results of trial I and trial II obtained: 1) learning devices based on CTL-BKBA model developed has meet effectical used to improvement mathematical representation and self-efficacy ability of students; 2) there is an increase of students mathematical representation and self-efficacy ability by using learning tool based on CTL-BKBA model .

Keywords: CTL-BKBA devices developed, 4-D models, Mathematical representation, Self-efficacy

1. Introduction

Science evolves with increasingly advanced technology. The development of science and technology has resulted in demands for every country to improve Human Resources (HR). This HR needs to be improved in quality to face the competition so as not to be left behind from other countries. One important factor that can improve the quality of human resources is education. In this case formal education has an important role in the development that is by conducting quality learning by making the right learning device.

Learning tools need to be developed and developed by teachers. Jailani (2011) points out: Some considerations concerning the importance of the preparation and development of learning tools by teachers include: to improve the quality of learning, as part of the task of educators for professional development, and as a form of accountability in the framework of internal and external quality assurance. This means that learning tools developed are not only useful for improving students ability but are useful for teachers to improve their teaching quality and professional development. But the reality of the field that there are still many teachers who have not designed a learning device properly. Often found learning devices are limited to "carelessly" for administrative completeness alone.

Based on the problems that arise in learning mathematics as described above, learning tools produced by teachers are still far from demands. Based on observations and interviews with teachers in the field of study mathematics class XI SMA Negeri 1 Peureulak, showed that during the learning is still using the method lectures, discussions and frequently asked questions. One of the rarely applied models of teachers in learning is the Contextual Teaching and Learning Model (CTL). So it is necessary for teachers or researchers to choose appropriate learning in learning. According to Simanungkalit (2015: 9) that: "Development of learning tools should be prepared based on appropriate learning model also the use of learning models that are not in accordance with the development of students will have an impact on student learning development that is always focused on the teacher will cause less students' centered on teachers causing passive students, accepting only material, learning activities will make students only remember and memorize."

The low quality of mathematics education as mentioned above should be fixed. Therefore, mathematics in schools should be able to strive for students to develop the ability to think, reason, communicate ideas and can develop creative and problem-solving activities. This is in accordance with the disclosed NCTM (2000) the standard capabilities that must be achieved in mathematics includeproblem solving, reasoning and proof, communication, connections and representation.

Based research result Saragih (2015) the students high order thinking ability especially in mathematical problem solving, mathematical understanding, and mathematical communication enhanced significantly. By analysis, the

reliability of instruments on mathematical understanding, mathematical problem solving, and mathematical communication ability was categorized good.

It is referring to one of the standard process, namely mathematical representation ability is an ability that must be owned by the students. Hasratuddin (2015) says representations are expressions of mathematical ideas shown students as a model or a substitute form of a problem situation that is used to find a solution to the problem at hand as a result of interpretation of mind. Therefore, mathematical representations are ability which is very important for students to understand mathematical problems and solve them in ways that they know and be able to express ideas or mathematical ideas he has in trying to find a solution to the problem at hand.

In fact, from the preliminary findings of researchers by asking questions to measure the ability of mathematical representations on the matter sequence and series to students of SMAN 1 Peureulak found that mathematical representation ability of students is still low, with only 2 students from 25 students or 8% are able to make mathematical model with full completion of the steps and the correct answers with either category, 9 students from 25 students or 36% were able to create a mathematical model with the completion of the steps was not complete and correct answer with enough categories, and 14 students from 25 students or 56 % of students cannot create a mathematical model altogether

In addition to the importance of mathematical representation ability, another thing that is considered important is the attitude of students in learning mathematics which one of them is student self-efficacy. According to Simanungkalit (2015: 5) says that: Self-efficacy is a psychological aspect that gives a significant effect on the success of students in completing tasks and problem-solving questions well. The ability to accurately judge herself is very important in doing the tasks and questions asked by the teacher, with confidence or self-confidence can facilitate students in the task, even more than that able to improve his performance.

The fact that is in the field based on the interview with SMA Negeri 1 Peureulak teacher shows that high school math teachers rarely give proportional attention in improving student self-efficacy. When the researcher asked directly to some students of class XI SMA Negeri 1 Peureulak, when the learning took place, the students still feel less confident to express their opinions and generally only answer the questions when appointed by the teacher only. When given the problem, students are generally still passive with waiting for answers from friends or from teachers

To develop learning tools that can develop mathematical ability, especially mathematical representation and self-efficacy ability through CTL, will be more effective if in the development of learning tools that integrate elements of local culture. Bishop (Tandililing, 2013) says that mathematics is a form of culture. Mathematics as a cultural form, actually has been integrated in all aspects of people's lives wherever they may be. Thus the mathematics of a person affected by their cultural background, because all they do is based on what they see and feel. Culture-Based Learning (ethnos-mathematics) is one alternative that can bridge the culture of mathematics. Pannen (Sutama, et al., 2013) says that a culture based learning strategies learning environment creation and design learning experiences that integrate culture as part of the learning process. Culture is integrated which kinds of cultural context on the ground in Aceh.

2. Literature

2.1. Mathematical Representation Ability

One of the mathematical abilities that students need to master is the ability of representation. According to NCTM (2000: 280) states that "representation is central to the study of mathematics" not only because the use of symbolic systems is also important in mathematics and rich in sentences and words, diverse and universal, but also important in conceptualizing the real world or attitude . Mathematics is an abstract thing, then to simplify and clarify in the solution of mathematical problems, representation is very important, that is to change the abstract idea into a real concept, eg with images, symbols, words, graphs and others. In addition, mathematics provides a broad picture in terms of the concept analogies of various topics that exist.

Based on the above description, the ability of mathematical representation in this research is the ability to express mathematical ideas in the form of tables, mathematical expressions and written text. The indicators of mathematical representation to be used in this research are: (1) Presenting data or information from a problem to the table representation, (2) Creating equations or mathematical models from other representations provided and solving problems involving equations or models mathematical; and (3) Write steps for solving mathematical problems with words, diagrams, graphs or tables.

2.2. Self-efficacy

Confidence is the positive attitude of an individual who can make himself able to develop positive judgments both to himself and to the situation / environment he faces. To foster a confidence that is proportional to the individual's beliefs or beliefs about his or her ability to organize a task to achieve a goal, to produce something and to implement an action, the individual must start from within himself. This is very important considering that only the individual concerned can overcome the lack of confidence he is experiencing. According to Bandura (in Noer, 2012: 3), Self-efficacy has three dimensions of magnitude, strength and generality. Each of these dimensions has important implications for one's performance.

Self-efficacy in this study is students' self-belief in their ability to organize and implement the actions chosen to achieve success in learning activities. There are 3 (three) dimensions of self-efficacy in this research that is magnitude, strength, and generality.

2.3. Contextual Teaching And Learning Based on The Context of Aceh Cultural (CTL-BKBA)

The learning model contextual teaching and learning on the cultural context of Aceh (CTL-BKBA) is a learning model that emphasizes the process of involvement of students in full by applying the cultural context of Aceh to be able to find the material studied and relate them to real life situations that encourage students to apply in real life. According Sinaga (2007) in philosophy, mathematics is the result of the construction of human thought. Therefore, the mathematical result of the reflection of human thinking and problem solving, then mathematics can be said to be the result of human ingenuity and effort.

It is asserted that mathematics is a cultural product developed as a result of various human activities. More Davis & Hersh (Ernest, 1991) reveals that: “Since mathematics is linked with all human knowledge, it is culture-bound and imbued with the values of its makers and their cultural contexts. Consequently, it pervades social and cultural life. This means that a basis for the cultural location of mathematics is needed”. Culture largely determines how the student perspective in addressing it, including in understanding a matter of mathematics. This means that when the material is so far from their cultural schemes such material would be difficult to understand. CTL-BKBA model is one alternative that can bridge the culture of mathematics.

The steps of CTL-BKBA learning model is similar to the steps of learning model CTL only in Aceh culture inserted into the syntax of CTL. Meanwhile, Rusman (2012) explains seven princciples in the development of contextual teaching and learning. They are: (1) constuctivism, (2) inquiry, (3) questioning, (4) learning community, (5) modelling, and (7) authentic assessment.

3. Research Methodologi

This research was the development by using 4-D model of development Thiagarajan, Semmel, and Semmel (1974) ich consists of four stages, namely stage define, design, develop and disseminate.

3.1 Subject an Object

Subjects in this study were students of class XI SMA Negeri 1 Peureulak academic year 2016/2017, where as the object of this research is the CTL-BKBA on the material sequence and series, mathematical representation and self-efficacy of students. The first trial was conducted in classes XI IPA 1 and a second test is done in class XI IPA 2.

3.2. Learning Tool Procedure Development

Learning tools developed are: 1) The implementation plan Learning Student Book, Student Activity Sheet, Learning Ability Test, in particular mathematical representation ability of the student questionnaire. Development of learning devices to use the 4-D model. Model of learning device development that will be done is Model Thiagarajan, Semmel, and Semmel is 4-D model consisting of four stages namely define, design, develop and disseminate

3.3. Instruments and Data Analysis Technique

Instruments and tools for collecting data in this study are the use test, questionnaire and observation sheet. For more details can be seen in Table 1 below:

Table 1. Instruments and Data Analysis Technique

Rated Aspect	Instruments	The Observed Data	Respondents
CTL-BKBA Validity Device	Validation Sheet	RPP validity, Student Book, Student Activity Sheet, Mathematical Ability Test Representation Questionnaire	Expert/Specialist
Effectiveness of CTL-BKBA Device	Test	Mathematical Representation Ability Test	Subject Test
	Observation Sheet	Students Activities	Observer
	Questionnaire	Response of Students	Subject Test

3.3.1. CTL-BKBA Validity Analysis Tools

CTL-BKBA device developed in validation by five validator. The criteria for the validity of the CTL-BKBA as follows:

Table 2. Level of Criteria Validity

Va or value of average total	Validity of Criteria
$1 \leq Va<2$	Invalid
$2 \leq Va<3$	Less
$3 \leq Va<4$	Enough
$4 \leq Va< 5$	Valid
$Va = 5$	Best Valid

Source:(Sinaga, 2007)

Annotation:

Va is the level validity of value determination of CTL-BKBA device.

Criteria states CTL-BKBA device has a good degree of validity, if the validity of the minimum level reached is valid level ($4 \leq Va <5$). If the level of achievement of the validity under valid, it is necessary to revise based on input (correction) experts. Furthermore, the re-validation activities. CTL-BKBA devices that have been revised based on input from experts outside the classroom later tested samples in order to get a decent learning device in order. Then, the test results are analyzed for validity and reliability. The formula used to calculate the validity is the product moment correlation namely:

$$r_{xy} = \frac{n\sum XY - \left(\sum X\right)\left(\sum Y\right)}{\sqrt{\left\{n\sum X^2 - \left(\sum X\right)^2\right\}\left\{n\sum Y^2 - \left(\sum Y\right)^2\right\}}} \quad \textit{(Arikunto, 2012)} \qquad (1)$$

Annotation:

X : score items r_{xy} : the correlation coefficient between the item score and total score

Y : total score n : the number of students who take the test (sample)

Then, to determine the coefficient of reliability of a test used in narrative form alpha formula (Arikunto, 2012) as follows:

$$r_{11} = \left(\frac{n}{(n-1)}\right)\left(1 - \frac{\Sigma\sigma_i^2}{\sigma_i^2}\right) \qquad (2)$$

Annotation:

r_{11} : reliability coefficient test $\Sigma\sigma_i^2$: the amount of variance test scores of each item

n : the number of test items σ_i^2 : the total of variance

3.3.2. The Effectiveness of CTL-BKBA Analysis Tool

a. Data Analysis of Mathematical Representation Ability Test

The first of effectiveness CTL-BKBA based on the achievement of students in the classical mastery learning. The criteria that states students have been able to communicate mathematically if there are 85% of students who took the tests of mathematical representation ability with at least a grade of 75 (Priswanto, 2013). The percentage can be calculated by the formula:

$$\text{Percentage of Agreement (R)} = \frac{Agreements\ (A)}{Disagreements\ (D) + Agreements\ (A)} x100\% \qquad (3)$$

b. Student Response Data Analysis

The effectiveness of the third CTL-BKBA device is based on student responses. Student questionnaire responses were analyzed by using the formula below, Borich (Herman,2012):

$$PRS = \frac{\sum A}{\sum B} \text{ x } 100\% \quad (4)$$

Annotation:
PRS : The percentage of students who leave a lot of positive responses to each category in question.
ΣA : The proportion of students who choose
ΣB : Number of students (respondents)
The criteria are set to say that the students responded positively to the learning media that was developed when the number of students who gave a positive response is greater than or equal to 80% of many subjects in the study for each field tests (Sinaga, 2007).

c. Data Analysis of Students Activity

The effectiveness of the CTL-BKBA device are both based on the activities of students meet the tolerance criteria predetermined time. Calculation formula is as follows:

$$Percentage\ of\ Students\ Activities = \frac{The\ Frequency\ of\ every\ aspect\ of\ observations}{The\ total\ of\ times\ all\ aspect\ of\ observation} \times 100\% \quad (5)$$

Criteria for the effectiveness of student activity based on the achievement of the ideal time applied are as follows:

Table 3. Percentage of Time Ideal for Students Activities

Aspect Catagory	Ideal Time	Tolerance Interval PWI	Kriteria Ideal
1. Listening / paying attention to the teacher's explanations	25% of WT	$20\% \leq PWI \leq 30\%$	Three of 1, 2, 3, 4, 5 achieved and 3, 4 have to achieved
2. Reading Books Student and LAS	15% of WT	$10\% \leq PWI \leq 20\%$	
3. Taking note of the teacher's explanations, notes from books or from friends, solve problems in the LAS, summarizes the work group	30% of WT	$25\% \leq PWI \leq 35\%$	
4. Discussing/ask between student and peers and between student and teacher, concluding a procedure or concept	30% of WT	$25\% \leq PWI \leq 35\%$	
5. Doing something that is irrelevant to learning	0% of WT	$0\% \leq PWI \leq 5\%$	

Annotation:
PWI is the ideal percentage of time
WT is the time available at each meeting

4. Result.

The results of the development of the CTL-BKBA is presented as follows:

4.1 Description of Learning Device Development Stage

The learning device development stage uses the 4-D (Four-D Model) development model proposed by Thiagarajan, Semmel and Semmel. The first stage starts from the define, the second stage of design, the third stage of develop and the last stage of disseminate. The results of each stage are described as follow

4.1.1. Difine

1) Front end analysis

Based on the observation of the learning media in senior high school, SMAN 1 Peureulak was found some weaknesses in the learning media used by teachers. Reviewing from the lesson plan, teachers have not developed of lesson plan that occupy the criteria that have a high validity. Next to the student book which is used mostly still very general and does not start with a problem but it starts with the concept so that students construct their

own knowledge and do not find yourself concept. Then the student book that is used does not contain a map of concepts, less presents a problem is not routine, does not contain questions contextually related to the diverse cultures that exist in the environment of students as well as the presentation of the questions still lacking in supporting the development of mathematical representation ability, where as student activity sheets untapped at the school. Similarly, the evaluation tool. Teachers designed the evaluation tools without regard to the ability of the indicators to be achieved. This is thought to be the cause of students mathematical representation and low student self-efficacy

2) Students Analysis

In general, the cognitive development of students of SMAN 1 Peureulak enters the formal operational stage. It is marked on the age of the students of SMAN 1 Peureulak is located in the age range 16-17 years, which if referred to the opinion of Piaget (Trianto, 2009), then the cognitive development of students at that age is the formal operational stage. Therefore, it is appropriate that mathematical learning begins with concrete or abstract objects that are close to their lives, so it is expected to help improve students mathematical abilities, especially the ability of mathematical representation ability

3) Concept Analysis

At this stage, the identification of the concept of the subject sequence and series, and then compile them into a form of hierarchy and detailing concepts to the individual in terms of critical and relevant. Analysis of concepts related to the analysis of student material. With the concept maps can be easier for students to understand the subject matter of sequence and series.

4) Task Analysis

Tasks performed by the students in the learning contained in student activity sheet is to find a concept or knowledge, applying concepts /knowledge found them to solve problems in everyday life. Further tasks performed by students in the study contained in the lesson plan and the Student Book is the same, which is carried out by students independently as an exercise at the end of the learning or used as homework

5) Formulation of Learning Objectives

Results obtained formulating learning objectives adjusted by the Core Competency and the Basic Competency which refers to the curriculum K-13.

4.1.2 Design

1) Results of Preparation Tests and Non-tests

The tests and non-tests are prepared based on the specification of the learning objectives and the measured capability indicators. The test is a mathematical representation test, and the non-test is a self-efficacy questionnaire. To design the tests and non-tests, a grid was prepared based on indicators of mathematical representation and self-efficacy. The test developed is tailored to the level of students cognitive abilities. Scoring of test results using an evaluation guide containing answer keys and scoring guidelines for each test item.

2) Results of Election Media

Teaching aids used are images embodiment sequence and series in the culture of Aceh, rulers, paperboard, scissors, glue/double tip, pens, pencils, erasers, and projector.

3) Result of Election Form

The results of the format selection in this study are adjusted to the curriculum of 2013. In accordance with the 2013 curriculum, the Lesson Plan contained Core Competencies, Basic Competencies, learning indicators, learning objectives, learning materials, learning activities, assessment and learning resources, learning models, methods, time allocation, tests, as well as key answers and scoring guidelines. Furthermore, the Student Book refers to the rules of BSNP and the student activity sheet is colored so that students will be interested and motivated to learn. For the mathematical representation test format, referring to indicators of mathematical representation ability and for questionnaire format student self-efficacy attitudes also refers to indicators of self-efficacy ability. All designed devices are tailored to the CTL-BKBA model in order to become one unity for the subsequent application is expected to have an impact on improving the ability of mathematical representation and self-efficacy ability students.

4) Results of Preliminary Design

At this stage, the initial design of learning tools in the form of Lesson Plans (Student Activity Plan), Student Book, and Student Activity Sheet for 2 (two) meetings, mathematical representation test, scoring guide, answer key, and questionnaire student self-efficacy.

4.1.3 Develop

The define and design stage produce the initial design of a learning device called draft I. The first phase of the development phase is to validate the draft I to the expert and then field trial. Expert validation focuses on the format, content, illustrations, and language of the developed learning tool. Expert validation results in the form

of validation, correction, criticism, and suggestion values used as a basis for revision and refinement of developed learning tools. Learning revision tool is a learning device that has met the valid criteria and hereinafter referred to as draft II.

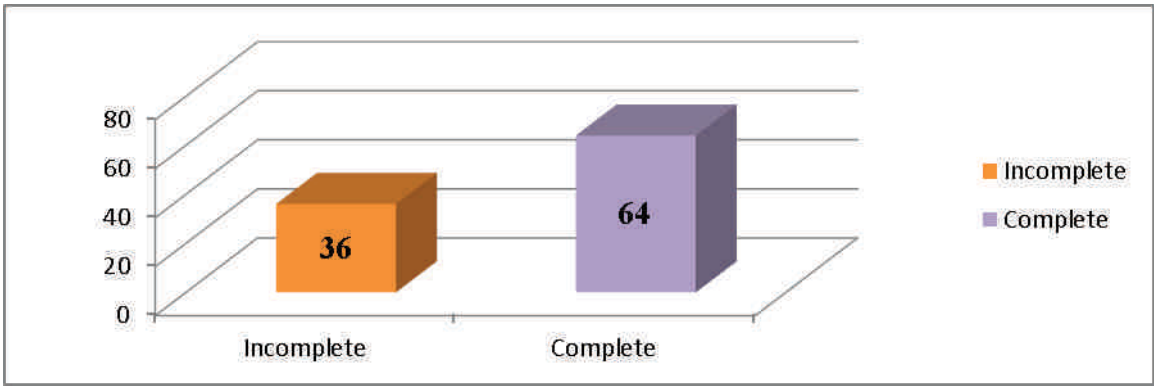
1) Validator and Validation Results of Learning Media

Before learning media tested on a trial class, first performed validation by 5 validators. The validation of the results can be found in the CTL-BKBA developed is "valid" and can be used with the "some revision". In addition, the research instrument tested on samples outside the classroom is a test of mathematical representation ability and self-efficacy questionnaire also "can be used or valid". To test the reliability of mathematical representation ability of 0.88 (very high category) and self-efficacy questionnaire attitudes of 0,79 (high category).

2) Result of Trial I

After learning tools developed have met the criteria of validity (second draft), then the next device in the form of draft II study was trialed in the study are SMAN 1 Peureulak, here in after referred to as the first trial held in XI IPA 2. Overall, the results of the analysis of trial data I is the CTL-BKBA developed yet meet all the criteria of an effective set, because they are indicators of the effectiveness of which has not been met and that the results of the posttest mathematical representation ability at the trial I do not meet the criteria for the achievement of mastery in classical.

Chart 1. The level of Completeness Classical Mathematical Representation Ability Trial I

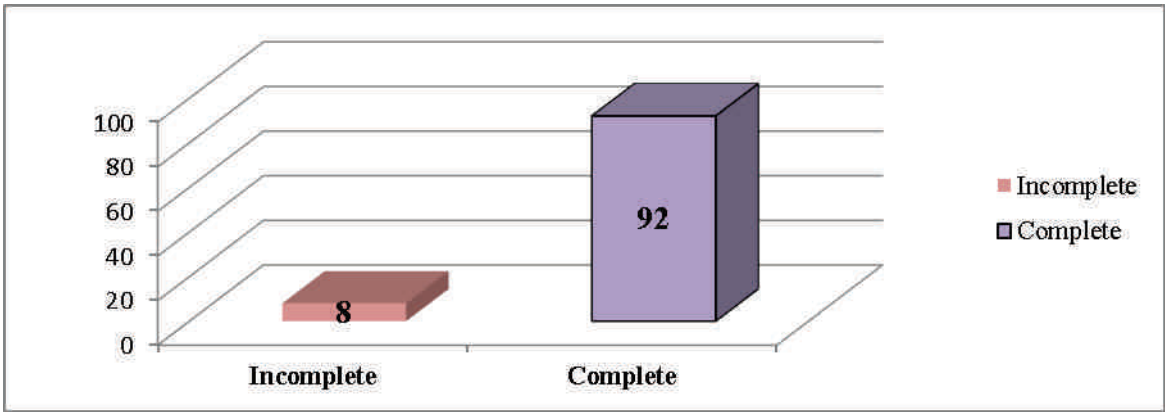


From Chart 1. indicates that, mastery learning students in the classical test results representation capabilities mathematics that students who passed were 16 students from 25 students or (64%) and the number of students who did not complete was 9 students, or (36%) of 25 students take the test mathematical representation ability. Based on the analysis of the trial I then need to revise some of the components of the learning device that was developed with the hope of CTL-BKBA device can improve mathematical representation ability of mathematics and self-efficacy of students.

3) Result of Trial II

After the test I in the draft II, further improvements to produce a learning device that meets all the criteria set forth effective. The results of revisions to the draft II to produce III which further draft will be tested in class XI IPA 2. Overall, the results of data analysis II trial showed the CTL-BKBA developed has met all the criteria set forth effective, namely: (1) The posttest results of mathematical representation ability have met the criteria of completeness in the classical achievement; (2) students in learning activities have met the ideal time specified; and (3) students respond positively to the device components CTL-BKBA developed.

Chart 2. The level of Completeness Classical Mathematical Representation Ability Trial II



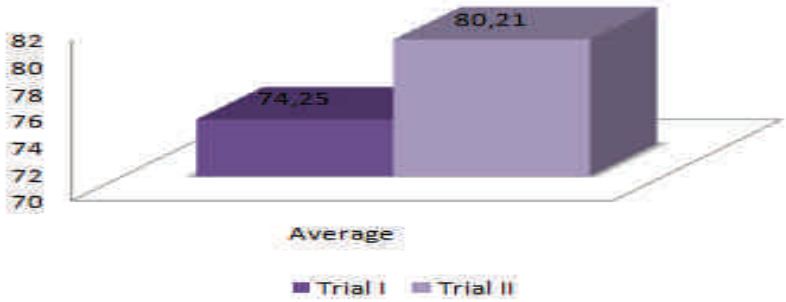
From Chart 2. indicates that, mastery learning students in the classical test results representation capabilities mathematics that students who passed were 24 students from 26 students or (92%) and the number of students who did not complete was 2 students, or (8%) of 26 students who took the tests of mathematical representation ability. Based on trial results II can be concluded that the CTL-BKBA developed has met all the criteria set forth effective.

4.1.4 Disseminate

The dissemination stage is the final stage in the 4-D development model. At this stage the researcher performs in a limited way that is by distributing the final device in the Subject Mathematics Teacher (MGMP) of SMA East Aceh, Aceh. The teachers who attended the event MGMP Maths as many as 25 people from different places of duty

4.2 Description of Students Mathematical Representation Ability Upgrades Use CTL-BKBA developed Tools
Description of student mathematical representation ability use CTL-BKBA developed tools at trial I and II are shown in Table 7 below.

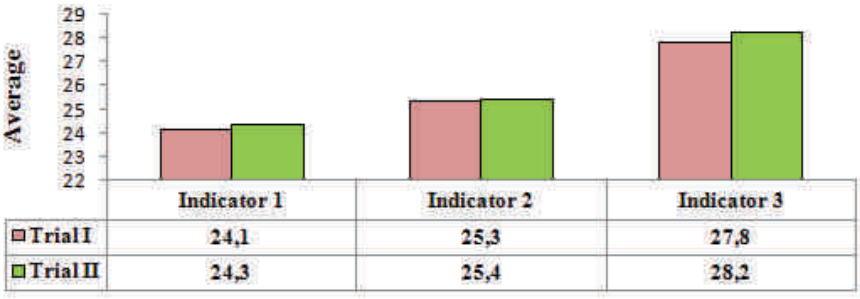
Chart 3. Description of Mathematical Representation Ability Results



Based on chart 3, the results of the improvement of students' mathematical representation in the first and second experiments showed that the average of mathematical representation of the students on the result of posttest test I was 74.25 increased to 80.21 in trial II. This is in accordance with the data analysis of the improvement of students 'mathematical representation ability, that is, the improvement of mathematical representation ability is seen from the average of posttest test result I and II, thus it is known that there is an increase in the average score of students' mathematical representation ability of 5.95.

4.1. Description of Improved Self-efficacy Students After Adoption of CTL-BKBA device developed
Description of Improved self-efficacy students after adoption of CTL-BKBA device developedare shown in Chart 3 below

Chart 3. Average Score Trial I and Trial II *Self-efficacy* Students



Based on the above results it can be concluded that student self-efficacy after application of developed CTL-BKBA device increased from trial I to trial I.

5. Discussion

Based on the results of trial I and trial II, the developed CTL-BKBA device has met the effective category in terms of: (1) students' learning mastery in a classical way; (2) students respond positively to components of CTL-BKBA developed device; and (3) student activity within the prescribed ideal time tolerance limits. Based on posttest analysis, the ability of mathematical representation in trial I and II test shows that students' mathematical representation ability is increasing. The improvement of the ability of this mathematical representation is seen from the average posttest result of the mathematical representation ability obtained by the students. The improvement of students mathematical representation capability is also seen in each indicator of representational ability, ie an increase in the indicator explaining the idea or situation of an image described in its own words in writing, stating a situation with the picture, and indicating the situation into the mathematical model. This suggests that the use of the developed CTL-BKBA tool has an impact on improving students' mathematical representation ability.

Thus, if thinking is an important thing in education, then must be found ways to help individuals build their ability. That is, in this learning students are expected to be able to communicate things that have been understood and that exist in his thinking to build a knowledge gained. This is reinforced through the research results Simamora (2014), namely through the development of learning tools CTL there is an increase in the ability of students' mathematical representation. The average score of students 'mathematical representation ability on trial I is 74.25 increased by 5.96 on trial II so that the average score of students' mathematical representation ability on trial II is 80.21. So it can be concluded that the developed CTL-BKBA tool has a positive impact on the improvement of mathematical representation ability.

Based on the results of questionnaire data analysis, students 'self-efficacy attitudes on the first test and II test showed that students' self-efficacy improved (preferably). This increase in self-efficacy is seen from the average self-efficacy questionnaire that students fill. Increased self-efficacy is also seen in each indicator of self-efficacy, namely: (1) Magnitude (2) Generality and (3) Stranght. This suggests that the use of developed CTL-BKBA tools has an impact on improving student self-efficacy. Based on the above description it can be concluded that working together provides students with motivation for continuous engagement in complex tasks and enhances opportunities for joint investigation and dialogue, and for developing self-efficacy. This is reinforced through Ming-Jang Chen (2016) learners with high mathematics self-efficacy display more positive views towards learning mathematics. So it can be concluded that the developed CTL-BKBA tool can improve student self-efficacy.

6. Conclution

Based on the findings, it can be concluded that: (1) Learning Devices Based on Contextual Teaching and Learning Model Based on the Context of Aceh Cultural (CTL-BKBA) on the effective sequence and series of materials used to improve the ability of mathematical representation; (2) Improving students 'mathematical representation using learning model based on learning model Contextual Teaching and Learning Based on Aceh Cultural Context on material sequence and series is the average achievement of students' mathematical representation ability on trial I of 74.25 increased to 80.21 in trial II.; and (3) Improving self-efficacy of students using learning tools based on learning model Contextual Teaching and Learning Based on Aceh Cultural Context on the material sequence and series is the average achievement of student self-efficacy in trial I of 77.2 increased to 77.9 on trial II . In addition, the average of each student self-efficacy indicator increased from trial I to trial II.

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