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An analysis of mathematical connection ability viewed from students' questioning-skills through the educational tools in connected mathematics project learning model

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Abstract

This study aimed to determine the 7th grade students' mathematical connections ability through CMP learning models to achieve learning mastery; to know whether the 7th grade students' mathematical connections ability through CMP learning model was better than CMP learning model without educational tools; to know the student's questioning-skill factors; and to know the description of the ability of mathematical connections viewed from the 7th grade students' questioning-skills through the CMP learning model. The research method used was mixed method of the concurrent embedded model. The population in this research were all 7th-grade students of SMP Negeri 3 Semarang. The sample of research was taken from 7D and 7F classes. Subjects of this study were as many as 6 subjects with each of 2 subjects chosen from each category of questioning-skills. The results of the research showed that students' mathematical connection ability through the educational tools in CMP model learning achieved learning mastery; students' mathematical connection ability through CMP learning model was better than CMP learning model without the educational tools; the factors that influenced the students' questioning-skill were willingness within students, the use of educational tools, project-based learning/problem, and the response given by the teacher when students asked; and students' mathematical connection ability through CMP learning model viewed from questioning-skills indicated that students with high questioning-skill had best mathematical connection ability, followed by students with medium questioning-skill, and low questioning-skill.

1. Introduction

One of the objectives of mathematics in the "Kurikulum 2013" as contained in Appendix of Education Minister Regulation No. 58 of 2014 is to understand the mathematical concepts that are competence in explaining interconnectedness between concepts and using the concept and algorithm flexibility, accurate, efficient, and precise in problem solving it.

According to Suherman et al. (2003: 15), mathematics is a discipline that studies about the way of thinking and processing logic, both quantitatively and qualitatively. In mathematics laid the foundation of how to develop ways of thinking and act through rules called proofs (provable) and axioms (without proof). Furthermore, that basis is embraced and used by other fields of study or science. When a mathematical material is viewed as a collection of skills that are not related to one another, then the learning of mathematics is only as a mere skill development. Mathematics should be viewed flexibly and understood as the relationship between mathematical ideas with each other. To promote this view, the National Council of Teachers of Mathematics (NCTM) (2000) recommends 4 principles: (1) Mathematics as problem solvers; (2) Mathematics as a reason; (3) Mathematics as communication; and (4) Mathematics as a relationship.

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NCTM (2000) states that there are five basic mathematical skills that become standards in learning mathematics, those are problem-solving, reasoning and proof, communication, connections, and representation. Those five basic skills must be possessed by students in order to achieve maximum learning outcomes.

Considering that, mathematical connections become one of the basic skills that play an important role in the process of solving math problems. The ability of mathematical connections according to Ruspiani as quoted by Permana&Sumarmo (2007) is the ability to link the concept of mathematics both between concepts in mathematics, and relate the concept of mathematics with concepts in other fields. If students can connect mathematical concepts and procedures mathematically, then students can understand more deeply and achieve last longer knowledge. "When the student can connect mathematical ideas, their understanding is deeper and more lasting" (NCTM, 2000). Ideas, thoughts, procedures, and concepts that have been obtained will be easily understood by students if they are able to connect it well. They become easier to understand when given new material based on the previously known material.

Before the research was done, the first observation for pre-study was conducted in the form of interviews with students, teachers, and analysis of mid-semester assessment results. From the results of observations, it was found that the students' learning outcomes were low and the ability to connect math has not been good.

Unfortunately, the low level of students' learning outcome became one of the indicators that the ability of mathematical connections they lacked of. One of the factors that affected the mathematical ability of students was a method of learning. Method of learning done in the classroom still used expository model. In this model, the subject matter is delivered directly by the teacher. Students are not required to find the material with their own ability. The teacher becomes the centre of the learning process in mathematics. The teacher stands up in front of the class and deliver the materials which are informative in one-way direction only to the students. The interaction that occurs is one-way interaction where the students are not involved actively in the learning process. After that, the teachers ask the questions, while the students rarely ask the questions, even almost no questions that is delivered by the students. Students are only given an example problem then doing the exercise. This undertaken method made the students be passive, silent, and just be waiting for an answer or an order from a teacher. They will tend to be silent when there are things they don't understand. They don't want to ask the teacher. It can cause the students failed to gain the knowledge that should be acquired.

When the students fail to obtain one knowledge properly, then the whole knowledge is not accepted to be intact. This certainly affects the ability of students' mathematical connections. Students will be wrong in connecting math concepts. Based on the explanation above, it can be said that questioning skill affects the ability of mathematical connections.

Thus, it is important to establish the active involvement of students in the learning process. One of these activities is in asking actively. Through asking questions, students are trained to think because thinking is a part of the inquiries. Asking become a very important thing to be done so that a person can obtain information or knowledge clearly. According to Yuniarti (2009), if the questions are presented by the students, then the students learn to give good questions and receive feedback from those questions. It is based on the fact that they will think if they are confronted by a problem or question. When students learn and find a problem, they should show up the questions in theirselves to resolve the problem. In learning mathematics, students often encounter problems that make them do not understand. When students dare revealing the issue into a question that must be answered, then the problem may be resolved, either with the help of teachers, peers, or other media. The more questions answered, and expressed, the knowledge and mastery of the students' material are getting better.

In an effort to increase the ability of mathematical connections, students need to be developed on a model of proper learning. This should be facilitated so that teachers are to be able to stimulate students to act actively in the learning process in the classroom. A model of learning which is assessed mathematical connection capabilities can enhance students is a model able to develop indicators of the ability of mathematical connections students. One of the models that can be used is Connected Mathematics Project (CMP). Rohendi (2013) states that CMP study model emphasizes on the project mathematics that is provided for connecting of the mathematical ideas. By setting up a given project, the study was

expected to be focused on the important materials. In addition, students were expected to have a responsibility in completing a project given appropriate role within the group. Thus, math learning activities with the CMP were expected to stimulate students ' ability especially the ability of connection strings. Model CMP aims to help students and teachers develop their knowledge, comprehension, and math skills as well as their awareness and appreciation of the interconnectedness between the mathematics and mathematics with other subjects and also with the real world. Through this, the CMP model was hoped to improve students ' mathematical connections (Rohendi, 2013).

In addition, it also acts as a stimulus so that students want to engage actively in the learning process realized by activeness to ask. The use of media or educational tools which is utilized correctly will provide convenience for students to build their own knowledge. When students are able to understand thoroughly the particular subject matter, then the ability of the authorized capital to study another subject matter that relates to the subject matter is built (Sugiarto, 2013). Based on Sugiarto (2013) to build the bridge between the mathematical sciences and mathematics learning, learning media in the form of educational tools are needed. Based on the explanation, the lessons of mathematics without the aid of educational tools as a medium of instruction, would certainly hamper the achievement of learning outcomes to its full potential.

Based on the background of the problems that have been described above, then the outline of the issues that was examined in this study were (1) whether the ability of mathematical connection of grade VII on the model of learning the CMP educational tools could reach the limit standard of learning, (2) whether the average ability of mathematical connection grade VII on the learning model of CMP- aids was better than learning model CMP without educational tools, (3) what factors encouraged and inhibitted questioning-skill of the VII grader on the model of learning of CMP educational tools, and (4) how mathematical connection capability descriptions of the questioning-skill of the VII grader in the model of learning the CMP educational tools was realized.

As for the purpose, this study was attempted to (1) determine whether the ability of mathematical connection of the VII grader on the model of learning the CMP educational tools ould reach the limit standard of learning, (2) determine whether the ability of mathematical connection of the VII grader on learning model- the CMP educational tools was better than learning without educational tools, CMP (3) know the factors that encouraged and inhibitted the questioning-skill of the VII grader on the model of learning of CMP educational tools; and (4) to know the description of mathematical connection capability in terms of questioning-skill of the VII grader on the model of learning of CMP educational tools. The hypotheses in this study were (1) the ability of mathematical connection of the VII grader on the CMP learning model can reach the limit standard of learning and (2) the average mathematical connection of the VII grader on the CMP learning model was better than without educational tools.

2. Research Method

This research used mix method. According to Sugiyono (2015) mixed method is a research method used to examine the condition of natural and artificial objects (laboratory) where the researcher can be the instruments and use of instruments for measurement, data collection techniques can use tests, questionnaires and triangulation (combined), data analysis is inductive (qualitative) and deductive (quantitative), as well as the results of combinations of research can be used to understand the meaning and make generalizations.

The model of the research method used in this research was concurrent embedded design (unbalanced mixed model). According to Creswell (Sugiyono, 2015), a concurrent embedded design is a research method that combines qualitative and quantitative methods together with unbalanced method weights. This division is due to the qualitative method as the primary method and quantitative method as the secondary method which role to support the result of research so that data obtained become more accurate.

The population in this study were the 7^{th}-grade students of SMP Negeri 3 Semarang (academic year 2017/2018) consisting of class 7A - 7D. From the population, samples were taken with cluster random sampling technique, and resulted experimental class was put in 7D as the intervention class (treated with CMP learning model) and the control class selected was 7F (treated without CMP learning model). Meanwhile, 7C was used as a trial class of mathematical connection ability test. To analyze questioning-skills and mathematical connection

ability viewed from students' questioning-skills, ipurposive sampling technique was used. Purposive sampling was a technique for determining samples with certain considerations (Sugiyono, 2015).

The design used was posttest only control group design where two groups with one group received treatment, so called as experimental group and one group received no treatment called control group. The design of quantitative research that used in this research is presented in Table 1.

Table 1. Research Design Table of Posttest Control Design

Class	Implementation	Posttest
Treatment group	X	T_1
Control group	Y	T_2

X: CMP learning model with the educational tools
Y: CMP learning model without the educational tools
T1:test results of students' mathematical connection ability of the experimental class
(with the educational tools of CMP learning model)
T2: the test results of students' mathematical connection ability of the control class
(without the educational tools of CMP learning model)

Data collection techniques used in this study were (1) documentation used to obtain data related to the research, (2) interview conducted twice, first to know the condition of beginning and last to get students' answer data on mathematical connection ability test, (3) written test of mathematical connection ability in the form of posttest, and (4) observation using observation sheet to know questioning-skill, student activity, and teacher activity.

Quantitative data analysis techniques used were (1) preliminary data analysis of prerequisite test in the form of normality test, homogeneity, and average safety, (2) final data analysis in the form of prerequisite test which included normality test to find out the parametric or non-parametric statistic used, homogeneity test to find out what statistical test to use, t-test to test the achievement of actual average boundary and z test to test the achievement of actual limit proportionally and using t-test and z test to test the difference of mathematical connections ability with CMP learning model and without CMP learning model.

Qualitative data analysis technique was used to the data of interview result. Interview analysis in this study was done by reducing data, presenting data and drawing conclusions. The validity of data was tested by triangulation technique by comparing data test result of mathematical connection ability with data of interview result and triangulation of source compared to the results of the interview of the first subject and second subject in one category.

3. Result & Discussions

3.1. Initial Data Analysis

The initial data of the treatment class and the control class were obtained from the value of the mid-semester assessment of 7D class and &F class. The normality analysis using the Kolmogorov Smirnov test with a significance level of 5% indicated that the data were normally distributed. Homogeneity analysis showed homogeneous data. Analysis of the average similarity of two classes showed that all three classes had the same average. Based on these results, 7A class was decided as the treatment class and 7C class as the control class.

3.2. Mathematical Connection Test Results

The results of students' mathematical connection ability tests are presented in Table 2.

Table 2. Table of Mathematical Connection Ability Value

Class	Average	Highest Mark	Lowest Mask
Treatment Class	78.80	96	38
Control Class	72.56	100	22

3.3. Questioning-Skill Result

The questioning skills of the experimental class students were as follows.

Table 3. Table ofStudents' Questioning Skills

Students' Questioning Skill Category	F	%
High	15	42.86%
Moderate	11	31.43%
Low	9	25.71%
Total	35	100%

Most students were in the category of high questioning skills. Then followed by medium and low questioning skill.

3.4. Final Quantitative Data Analysis

Before the hypothesis testing of the final data was done, first prerequisite test in the form of normality test and homogeneity test was done. For hypothesis 1, data in the form of posttest result of mathematical connection ability of class with educational tools of CMP learning models showed the result of normally distributed data so that the data can be used for statistical parametric test. For the hypothesis 2, the data in the form of posttest results of the class with the educational tools in CMP model and without the educational tools in CMP showed were normally distributed, so it could use the parametric statistical test and the two data were homogeneous so that they could use t-test.

Hypothesis 1 test was performed using the right-handed completed test and the right side proportionality test. The data used were posttest class with CMP learning model. The calculation result for the mean test was $t_{\text{-count}} = 3.09 > 1.69 = t_{\text{-table}}$ and the right side proportion test showed the calculation result $z_{\text{-count}} = 4.04 > 1.64 = z_{\text{-tabel}}$. Based on the test criteria, the hypothesis 1 test showed that H_0 was rejected or the mathematical connection ability of the class using the educational tools in CMP model has reached the actual limit of mastery.

Hypothesis 2 test was done using a test of mean difference and test of difference of proportion. The data used were the class posttest with the educational tools in CMP model and without CMP educational tools. The calculation result for the mean difference test was $t_{\text{-count}} = 1.72 > 1.67 = t_{1-\alpha}$ and the calculation result for test of the proportion difference was $z_{\text{-count}} = 1.91 > 1.65 = z_{\text{-table}}$. Based on the test criteria, the hypothesis 2test showed that H_0 was rejected or the mathematical connection ability of the class with the educational tools inCMP model was better than the mathematical connection ability of the class without the educational tools of CMP model.

Based on the hypothesis test above, it was concluded that (1) the ability of mathematical connection by using the educational tools of CMP learning model has reached the actual limit and (2) the ability of mathematical connection using the educational tools of CMP learning model was better than without the educational tools of CMP learning model.

3.5. Results of Mathematical Connection Ability According to Questioning Skills.

These results are presented to confirm the ability of mathematical connections in each category in questioning-skills. The results are presented in Table 4 and Table 5.

Table 4. Average of Mathematical Connection Abilities in Each Category of Questioning Skills Test Results

Questioning Skill Category	Average of Mathematical Connection Test Result
High	85.47
Moderate	76.36
Low	64.22

Students with high questioning-skills achieved best average test of mathematical connection ability compared to students with moderate questioning-skills and students with low questioning-skills.

Table 5. Average Indicators of Mathematical Connection Ability According to Questioning Skills

Questioning Skill Category	Average Mathematical Connection Ability		
	1st Indicator	2nd Indicator	3rd Indicator
High	97.33	56.67	95.78
Moderate	85.46	42.73	81.97
Low	72.78	35.56	69.07

Students with high questioning-skills had better mathematical connection skills compared to students' mathematical connection ability with medium and low questioning-skills.

3.6. Factors that influence the questioning-skill

Based on the results of the interviews, the researchers obtained some of the factors that influenced the questioning-skill of the students. These factors included internal and external factors. Internal factor was a willingness within the students, while external factors were the use of educational tools, project-based learning, and also the response of teachers when the students ask.

3.7. Description of students' mathematical connection ability in terms of questioning skills.

There were three indicators of mathematical connection ability of the students being analyzed

included (1) between topic connection in mathematics, (2) mathematical connection with other sciences, and (3) math connection with daily life. The following descriptions and discussions are shown in more detail in Table 6.

Table 6. Description of mathematical connection capability in terms of questioning skills

Indicators of Connection Ability	Questioning Skill		
	High	Moderate	Low
1	Good	Good enough	Less
2	Good enough	Less	Less
3	Good	Good	Less

Based on the result of the research, students' mathematical connection ability through the educational tools CMP learning model could reach learning mastery. Students in the classroom who received the educational tools of CMP learning model were found to have a higher average mathematical connection ability test than students in the class who received CMP learning model without the educational tools. Many students who completed in the classroom with CMP learning model were also more numerous than the class without CMP learning model.

Based on the results of the study, students who received CMP learning model have been good at making connections between topics in mathematics and mathematical connections with everyday life, while the indicator of mathematical connections with other sciences was still not good. Thus, of the three indicators, the students were weakest in the indicators of mathematical connections with other sciences.

A similar study was conducted by Saminanto and Kartono (2015). The results of both of them showed that the indicator of the connection between mathematical concepts with other concepts of sciences and the indicator of the connection between mathematics with daily life is in a low category, while for inter-topic indicators in mathematics are in the high category. The results of research conducted by Saminanto and Kartono compared with the results of this study found similarities that students are good in the connection between topics in mathematics, but still not good in mathematical connections with other sciences.

The results of research conducted by Rohendi (2013) showed the result that students' mathematical connection ability in CMP learning model can develop better than the conventional model. According to Rohendi, the CMP model is a learning model that emphasizes the mathematical project given to connect mathematical ideas. Thus, through the CMP learning model, students are expected to connect the mathematical ideas they have learned. Based on the results of the mastery learning test, the ability of mathematical connections on the material triangle concluded that students have been able to connect mathematical ideas well. Thus, this CMP learning model was effective to assist students in improving their mathematical connection capabilities.

The CMP model aimed to help students and teachers develop knowledge, understanding, and mathematical skills as well as awareness and appreciation of the interrelationships between sections in mathematics, mathematics with other subjects, as well as mathematics with the real world (Rohendi, 2013). By successfully completing the test of mathematical connection ability, it can be said that the applied CMP model has succeeded in helping students to develop knowledge, understanding, and mathematical skills as well as awareness and appreciation of the interrelationship between parts in mathematics, mathematics with other subjects, as well mathematics with the real world.

The different learning model applied was the use of the educational tools in the experimental class. In this study, the educational tools were learning media expected to facilitate students in learning. In accordance with the theory written by Sugiarto (2013) that the learning media are everythin used to stimulate the thoughts, feelings, attention, and willingness of students to learn so as to encourage the learning process and make learning goals can be achieved easily. Proper use of educational tools in the experimental class allowed students to build their own knowledge that they were learning. If the student can comprehensively understand the certain subject matter, then that capability is a great basic to study the other subject matter related to that certain subject matter (Sugiarto, 2013). Therefore, the reasonable results of students who completed the limit of minimum score or mark (in Indonesia, it's called KKM), mathematical connection abilities in the classroom using educational tools CMP learning model was better than the class that does not use the educational tools.

This is in line with the results of research conducted by Rohaya (2016) stating that with the use of educational tools, students' learning of classical results is better than learning without educational tools, even 95% of students achieved the minimal passing grade individually. Based on these results, it was concluded that learning by using the educational tools can enhance the results of the study.

Other studies that support the results of this research is a research conducted by Pranata (2016). The results of this research show that the model of the Learning Group Investigation (GI)-with the educational tools can enhance the ability to understand the concept of mathematics for students. GI is a group learning model that engages students actively conduct investigations (Pranata, 2016). This tends to have in common with the model because the model of CMP CMP engaged students actively in learning.

Research conducted by Sa'adah (2017) showed the results of a mathematical connection that the ability of the students experienced a better improvement when using the educational tools. The increased ability of mathematical connection certainly makes students' learning results students better.

Based on the above discussion, it can be said that the problem/project-based learning and the use of educational tools can enhance the results of the study.

Hidayah (2018) states mathematics learning educational tools manipulatives can facilitate thinking towards high-level and low level (HOTs). Tran Vui, as cited by Rosnawati (2009) defines a high-level thinking ability as follows: "Higher-order thinking occurs when a person takes new information and information stored in memory and interrelates and/or rearranges and extends this information to achieve a purpose or find possible answers in perplexing situations." Thus, the ability of higher-order thinking will happen when one associates information with the new information that is already stored in the memory and reconnecting and/or rearranging the information and developing to achieve a goal or to find a settlement of a situation which is difficult to solve. Understanding HOTs is in line with the sense of mathematical connection capability which emphasizes on the capability of linking between topics in mathematics and outside mathematics. Based on the test results which stated that the average ability of mathematical connections in the classroom using the educational tools was better than the class that did not use the educational tools, it can be concluded that the ability of higher-order thinking students in class experiments using the educational tools was also better than a control class. On the other hand, the educational tools used also facilitated the students who were in low levels improved to the higher-order thinking. This is in line with the results delivered by Hidayah (2018). Uno (2010) showing that to improve the thinking ability of students questioning skills are the prominent one. Therefore, to help students improve the ability of his thinking, teachers need to stimulus so that the questioning skills of students can increase.

In this study, researchers used the educational tools and learning based issue/project with the hope of improving the skills of the students asked. On the learning process of the students the CMP educational tools were very active and enthusiastic in following the learning that's been designed by the teacher. It was apparent from the spirit of the students in tweaking the educational tools, bold expression, and was active in completing the project in accordance with the material to be learned. In line with the theories of Piaget, as quoted in the Rifa'i & Anni (2012), suggests that the process of learning is an active process because knowledge of the subject of the study covers cognitive development, to help the child, the need created the learning conditions that allow the child's own learning. The fact that support that is the improvement of students in each meeting.

The use of educational tools in learning is in line with the learning theory of Brunner stating that in the process of learning that the child should be given the opportunity to manipulate objects. Through the research on educational tools, children will see immediately how regularity and pattern structure contained in the object that is being watched. The regularity is then compared with intuitive information that has been attached to him. Furthermore, Bruner strongly suggests liveliness children in the learning process in full (Suherman et al., 2003).

The ability of mathematical connections in the CMP educational tools was better than learning without the educational tools. This happened because of treatment differences in manipulative experiments using educational tools, whereas in the control class did not. The educational tools as instructional media managed to push the onset of the learning process and made the learning objectives can be easily reached (Sugiarto, 2013). Educational tools as one of the media learning

successfully stimulated liveliness students, specifically in the questioning.

On the class with CMP educational tools admitted that this educational tool was firstly experienced by students. This made the students had great enthusiasm for tinkering with the educational tools available. When they didn't understand, they didn't hesitate to ask a teacher or friend. In addition, because the use of educational tools was new for them, they became easier to remember the concepts learned in math.

A research done by Hidayah et al (2016) showed the results that the use of educational tools has not reached its destination. Inversely proportional to the results, the research on educational tools successfully reaches its destination according to the Djahir, as quoted by (Hidayah, 2018) states some of the functions in the math learning educational tools, among others:

1. to realize a flexible learning situation, rather than a mere accessory. On a class of experiments, the function was successfully achieved by the use of educational tools. It was seen from the liveliness of the students when teaching-learning activities. Students were interested in tinkering with the existing educational tools so they could find and understand the math concepts being studied.

2. Students became happy to learn math. It was seen from the students ' interest in tinkering with the educational tools to discover math concepts.

In general the educational tools used in the study was stimulating the students to develop the questioning-skill. It encouraged questioning-skill as the occurrence process of fun learning for students and made learning objectives were achieved. The achievement of the purpose in this learning process was seen from the success of the experimental class in reaching the limit standard in attaining on average and the proportion, as well as the results were better than the class of the control.

These results are in line with the results of research conducted by Hendrian et al (2014). The study states that contextual learning and learning using mathematical manipulatives provide better results than the previous math skills, both on the achievement of mathematical connections or the ability the achievement of self-confidence. In this section can be said to use contextual learning model by giving students the project and aided by manipulative tools can impact both in the results of learning math students, namely the ability of mathematical connections and the skills asked.

A research conducted Rusmini and Surya (2017) showed results that contextual learning can make mathematical connections ability students better. The CMP model applied by the researchers in this study are also implementing contextual learning so that the results obtained can help students have a good mathematical connection capability.

The research which was done by Linda Puji Lestari (2006) states that learning with the use of educational tools and the students' worksheet (LKS) is more effective than the learning that uses only the educational tools on the results of learning math in the subject in the VII grader of the 2nd semester in SMP Muhammadiyah Margasari Tegal Regency in the academic year of 2005/2006. The use of educational tools is aimed for better student learning outcomes.

A research Royani and Muslim in 2014 showed that by applying active learning strategy in form of team quiz on the four skills, students questioning skills improve to highly skilled category. This brings a positive influence against the results of students' learning. The results showed that the learning outcomes of students included in the category of "good." In this study, the CMP model with the educational tools were used to enhance the questioning skills by students, and the resulted good result.

There was a difference in the treatments given to the experimental and control classes. The use of educational tools was accompanied by a series of questions presented through productive Worksheets students. The results of a research conducted by Hidayah (2018) showed that from some uses of a series of questions there is still found a weakness that one indicator does not appear in the learning, namely "evokes more questions from students "and this is one of the skills of the scientific approach. This is possible to happen because of unfamiliarity experienced by teachers as well as students.

In this study, the use of educational tools successfully stimulated students to question, covering high, medium, or low categories. The use of educational tools was something new in learning for the students. They responded spontaneously by asking questions. The questions posed by students made them able to understand the math concepts being taught better. This understanding resulted in a mathematical connection capability of the students became better. This was proved in the test of mathematical connections.

Based on the above discussion, the educational tools used were successfully to stimulated students

in asking. A good skill to ask can help students to progressively master math concepts well. Mastery of this good math concepts can improve students ' mathematical connections. A good mathematical connection will certainly result in good learning results anyway.

In general, the ability of mathematical connections are proved by the questioning skills. Students with good questioning skills had good ability. On the other hand, students with the low questioning skills had bad ability. This was supported by the results of the calculation of the average value of the test the ability of mathematical connections on each category of skill ask. The result showed that the groups of students with high questioning skills gain better average than other groups.

From the discussion above, the questions asked might indicate the extent to which students can use his thoughts, the extent of the understanding. This is in line with the opinion of Samatowa (2010), questioning skills by students can measure the level of understanding of the concept after learning. The more students asking questionins, the better their understanding will be. The better understanding of the students, the better mathematical connection ability of students.

Learning model of CMP educational tools in general managed to stimulate students to ask when the learning process took place so that they gained an understanding of mathematical concepts correctly. It can be said that the questioning-skill of students affected the ability of mathematical connections. The CMP model educational tools also managed to make students achieved an average of the limit standard of learning and the proportion in the ability of mathematical connections. In addition, the results of a mathematical connection capability of students who using CMP model with educational tools was better than CMP without educational tools. Thus, the educational tools gave influence on the ability of mathematical connections because the educational tools was stimulated through questioning skills of students.

4. Conclusion

Based on the results of the research, the following conclusions can be drawn.

1. The ability of mathematical connection of grade VII through learning model Connected Mathematics Project (CMP) the educational tools can be reached.
2. Learning results of the average grade of VII class in the aspect of mathematics through connection capability of learning model Connected Mathematics Project (CMP) with educational tools is better than learning model of Connected Mathematics Project (CMP) without educational tools on the material of the triangle Class VII.
3. Factors affecting students' questioning-skill are the willingness of the students to be able to understand the task, the use of educational tools and projects given in learning, as well as the response of the teachers who give responses in accordance with the questions of the students.
4. Mathematical connections students in terms of students' questioning skills to show that students with high category has good mathematical connections, students with moderate category have good enough skills, and students in low category skills have bad mathematical connections.

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