THE LEVEL OF STUDENTS' CREATIVE THINKING THROUGH SOLVING OPEN ENDED MATHEMATICS FROM LEARNING STYLE

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ABSTRACT

Mathematics is a one of the scope that supporting the development of knowledge and technology, therefore the students must be increase the creative thinking. This study is aimed to explore and describe the level of students' creative thinking through visual, auditory and kinesthetic learning style in solving problem of *open ended* Math. The method is using descriptive qualitative approach and interview. The techniques of data collection were the questionnaire result of the most extreme

learning style the subject of the study was the ninth grade students of Senior High School, six students in which every two students became the representative of each learning style – visual, auditory and kinesthetic. The primary data of this study is the students' answer of the test and interviews. The result of this study showed that: (1) the level of students' creative thinking through visual learning style was in the level 4 (very creative), especially in solving Math problem of Scalene Triangle, (2) the level of students' creative thinking through auditory learning style was in the level 3 (creative), especially in solving Math problem of Scalene Triangle, and (3) the level of students' creative thinking through kinesthetic learning style was in the level 1 (poor creative), especially in solving Math problem of Scalene Triangle.

INTRODUCTION

One of the lessons to supporting students' knowledge and technology development is Mathematic. Every student has creative thinking, hence, in mathematics each student it must increase their ability. To face the global life which is full of challenge and competition, nowadays thinking creative is one of important skills for students. Thus, mathematics as the important role to developed creative thinking on students. Creative thinking in mathematic is far different from the other scope. In material and practice, the students must emphasize students' ability to be open-minded (Siswono, 2008; Richardo, 2014).

In Mathematics, not all of the students have good remembrance so that makes them only memorize the meaningful mathematics formulas. Hence, the students must have creative thinking makes so as not to depend on their remembrance but also improve their own thinking. In this case, the higher competency of someone is the highest thinking levels. It is including about someone ability to find many possible solutions to a problem that emphasizes on quantity, usability, and diversity (Ahmadi, et al., 2013, Komarudin, et al., 2014; Saefudin, 2011).

The students in mathematics learning method in the classroom still emphasizes on their understanding without including their creative thinking skills. Students not given a change to find the different solution from what the teacher' teach in the class. Thus, students are never able to develop their creative thinking (Siswono, 2011; Soemarmo, 2014; Faujiah, et.2013). It against The Ministerial Regulation No. 22 of 2006 as the basis of 2013 Curriculum (k13) development for the standards of Basic and Secondary Education Unit, it explained that Mathematics is given to all the students from elementary school to equip them with the ability to thinking with logically, systematically, critically, creatively, and cooperatively.

The student skills to have many solutions that possibly to solve the problem are creative thinking (Siswono, 2011). In this study, various thinking to solve the problem with various ways are the definition from creative thinking. Some indicators to identify the students' creativity to solved mathematic problems. Silver (1997) argued that creativity to solve the problem can show from fluently, flexibility, and novelty. Meanwhile, Endang (2012) mentioned other things that fluency aspect referred to various ways that taken, after it the novelty aspect

referred to new solution that implemented to the problems. That new ways it can be combination from implemented on that problem. That new way can be combinations from the previous knowledge.

The student creativity to solve the mathematic problem has some levels. This research using Siswono Theory that proposing about 5 levels' creative thinking about mathematic solving problem: (1) level 4 is (very creative), students are able to fulfill all indicator-eloquence, flexibility and novelty; (2) level 3 is (creative), students is only fulfill two indicator-fluency and novelty or fluency and flexibility, (3) level 2 is (creative enough), student is not able to fulfill all indicators, it is only one of indicators-novelty or flexibility, (4) level 1 is (creative), student is fulfill only fluency; and (5) level 0 is (not creative), students cannot meet all the indicators.

Creative thinking is a cognitive process to generate the new ideas about a form of problems and it is not limited to pragmatic results, which is always viewed according their usefulness (Solso, 2007; Suharnan, 2010; Ahmadi, et.2013). According to Davis (1984), learning to have creative thinking is important for some considerations, are:

1)   Mathematics is so complex and broad to be taught by memorizing because it weakens   students' motivation and ability
2)   Students can find genuine and surprising solutions
3)   Authenticity needs to be taught

Teacher as educators is definitely interacting with the learners who have the diverse potential. Hence, the process of the creative thinking through *open ended* mathematic problems which is formulated to the multi solutions of the learning style. Students that have various potential always interact with teacher. Thus, from open ended mathematic problem from learning style must be directed to creative thinking process to have multi solutions. An *open ended* problem is a problem that has more than one correct solving solution. In addition, this is also to lead the students to using various ways or methods to fulfill the target solutions (Islamiah, 2014; Kurniawati, et al. 2013; Saefudin, 2011). Through *open ended* problem solving, student is able to develop their creativity skills (Saefudin, 2011, Kinati, 2012).

Besides the students' creativity to solve the problems, in creative thinking process of the student has an important role of the students learning style. According to Ghufron and Risnawita, 2012; Priyatna, 2013; Subini, 2011, learning style is a preferred way for engage in thinking process and learning. Learning style is divided to three kinds there are: it including visual, auditory and kinesthetic learning styles. Richard (2014) explains that the internal factor and external are some factor that effect creative thinking student to solve the problems. Those factors were often inhibiting and supporting the students' success. Lutfiah (2011) based of their learning style implies that the students is learn based on their learning style. Each student has various ways to think creative to solving the problems. Thus, the

researchers needed to know the level of student-based creative thinking to solve the problem of *open ended* mathematics. The purpose of this study was to describe the level of students' creative thinking through visual, auditory and kinesthetic learning styles.

LITERATURE REVIEW

Creative thinking is often called a cognitive process to generate new ideas concerning problems (Solso, 2007; Suharnan, 2010; Ahmadi, et.al, 2013). It is an effort of someone to create new ideas from their information, concepts, experiences, and knowledge. The existing ideas linked can generate new ideas to solve a problem (Siswono, 2008). Indeed, thinking is a higher cognitive activity and involves lower cognitive processes. It is directed to create solutions of problem or difficulty. There are three indicators to determine students' creativity in solving mathematical problems. Silver (1997) argued that problem-solving creativity is indicated by fluency, flexibility, and novelty. In addition, Munandar (2009) suggested the indicators of creative thinking associated with the characteristics of creative thinking are listed in Table 1 below.

Table 1: Creative thinking Indicators

Creative thinking Characteristics	Details
Fluency	(1) Create ideas, responses, solutions and questions; (2) Create ways or suggestions to do many things; (3) Always provide more than one response
Flexibility	(1) Create opinions, responses, various questions, and analyze problems from different point of views; (2) Find many alternative and different thoughts; (3) Have innovative approach and thought
Novelty	(1) Create new and unique statements; (2) Have an uncommon way of introducing his/her self; (3) Able to relate uncommon things

The level of creative thinking is a hierarchical thinking level categorized as mathematical creative thinking seen based on the creativity component, including: fluency, flexibility, and novelty. This study used the Siswono's (2008) theory about the levels of creative thinking as displayed in table 2.

Table 2: Gaps in students' creative thinking

Level	Characteristics
Level 4 (very creative)	Students can show up their fluency, flexibility and novelty to solve problem
Level 3 (creative)	Students can only show up two indicators of problem solving
Level 2 (Creative)	Students can only show up their novelty or flexibility to solve problem
Level 1 (Less creative)	Students can show up their fluency to solve problem
Level 0 (not creative)	Students are not able to show up any of the problem solving indicators

Problem solving is a process to solve problem based on their knowledge and understanding. Siswono (2011) explained that problem solving is significant to encourage students' creativity through creative thinking products generated. Solso (2007) implied that problem solving is a direct thinking to find solution for specific issues. Suharnan (2010) defined problem-solving as an activity related to the choice of a way out or a suitable way for action and changing the present state to the expected goal.

Open-Ended is a learning approach started by giving non-routine problems. The type of problem given has many ways of correct answer. To deal with the Open-Ended problem, students are required to improvise developing methods, ways, or approaches to obtain the correct solutions. In addition, open-ended problems also lead students to use various ways or methods of answer (Islamiah, 2014; Kurniawati, et al 2013; Saefudin, 2011). In this study, the problem of open ended is a problem with various ways of solving yet still result one same correct answer.

Learning style is an individual consistent way to capture stimuli or information easily from his/her environment, remembrance, thoughts and problems solution (Nasution, 2013, Richardo, 2014, Ghufron and Risnawita, 2012). Learning styles are divided into three: 1) visual learning style, focusing on the visual acuity (seeing and reading) and meaning concrete evidence must be shown first so that they understand; 2) Auditory learning style, relies on hearing to understand and to remember; 3) The kinesthetic learning style, requires the individual to try and to touch something providing certain information so that he can remember it (Subini, 2011 and Priyatna, 2013).

METHODOLOGY

This study used descriptive qualitative approach. The subjects were six high school students of the ninth grade. Each of two students represents the test of visual, auditory, and kinesthetic learning styles. The subject was chosen based on the results of the questionnaire about visual learning style, auditory, and kinesthetic.

The data in this research were the students' answer in solving the open ended mathematics problem supported by the interview result. The interview result was used to describe the identification of students' creative thinking based on visual, auditory, and kinesthetic learning style in solving open ended Mathematics problems.

The data were collected through questionnaire, test, and interview. The questions of questionnaire focused on the style of students' learning. However, tests were used to collect information about the level of students' creative thinking in solving open-ended mathematical problems. In the end, interviews were conducted after the selected students do the questions test. The interview was used to dig up the data to clarify the test results.

In this study, the validity test of data was done by triangulation. Triangulation used in this research was source triangulation intended to compare and to check back the degree of information trust obtained from test and interview. Two data analyses used were: 1) analysis of written test result, and 2) interview result analysis through data reduction, data presentation, and conclusion (Moleong, 2015, Miles, 1984, Emzir, 2014, Sukmadinata, 2015).

RESULTS AND DISCUSSION

This study aimed to identify the level of creative thinking of the ninth grade students based on visual, auditory, and kinesthetic learning styles to solve the problem of open ended Mathematics, especially in case of Scalene Triangle.

The Level of Students' Creative Thinking with Visual Learning Style

The students met the fluency indicator although they did not write the question on the answer sheet. Yet, the interview result was quite clearer that the students already understood the question fluently using their own language. Students presented a triangle (PQR image) by completing the unknown sides obtained by linking previously learned concepts such as the concept of Pythagoras, sine and cosine concepts, comparisons and squares. Students could identify the unknown data from the known data so that they could make a problem-solving plan which eventually stimulated them to complete the plan of solving all the problems well and correctly. Furthermore, students met the indicators of flexibility if they could show alternative answers in more than one way (three ways) when calculating the value of Cos R and the area of triangle PQR with different solutions. Then, students met the indicators of novelty if they were able to demonstrate a deeper understanding of the unique and different concepts from other student's answers when calculating the value of Cos R and the area of the PQR triangle.

Indicator of Fluency

In this indicator on the first student is from the answering the question it written that the known are $\sin P = \frac{1}{2}$ and $\cos Q = \frac{3}{5}$, the interview result of the first student by seeing from the answer of triangle PQR, first student said:

"Yes mam, it is not yet to write but I directly write the answer because that question is clearly. So, the question is count the Cos R value and triangle PQR from the source that I know with various ways."

From that interview it is show that the first student can explain of what the question is with fluency and using own language. The first student able to explain resolution with clearly, so it is able to make a detailed based the known data. So, the first student can solve it. It shows that the student can solve the problem correctly and in a good way. It is show that the first student is fulfilling the indicator of fluency.

The second student can write the complete of the known and what the question is with smoothly and using the own language. The student can identify the relevant information to solve the problem correctly, and understanding the mathematic concept to fill the side of PQR triangle.

The second student is able to make a plan of solving problem, so the second student can solve it in a good way and correct. So the second student is fulfilling the indicator of fluency with open ended mathematic problem.

Indicator of Flexibility

In indicator of flexibility, the first students can write more than one idea to solve the problem, but not write the formula in completely, in scribble it detailed written in answer paper. The student is answering the question:

"yes mam, of course that ideas I associate by my experience that I did is almost the same with this problem, and remembering what the teacher' teach, I already read this question that it is the same with this problem and the resolution, like this (and shows the answer)."

From the result of interview, the first student think more than one ideas to solve the problem with smoothly that it shown in student' scribble paper answer sheet, and trying remembering to find a strategy that fit to result various answer with associate the experience before. The first student is able showing the answer from the area of PQR triangle with solve with different and trying to solve using the systematic steps that decipher of scribble on answer sheet, it means the first student is fulfill the indicator of flexibility.

The second student can write more than one idea to solve the problem with writing the numeric by remembering the knowledge that student accept before, it shown in the result of student' interview:

"yes mam, many ideas but when I remembering the knowledge that I accept before to associate it and it fits to solving that problem. For example, like this mam, to find

Cos R and I connected with counting angle in triangle is 180 degrees (with showing the result)". From this interview result the second student think more than one idea with smoothly and trying to find strategy that fit in the solving problem and remembering the knowledge from the student' scribble in the answer sheets, trying to think the different way. The student can give the alternate to answer it using three ways, the one is smoothly, and the other way is not smoothly.

The second student is showing the different way to count the Cos R values and area triangle to solving until completely correct. It shows that the student is tenacious and never give up, and have high motivate to solving problem, so both the students are fulfilling the indicator of flexibility and open ended mathematic solving problem.

Indicator of Novelty

The first student is able to show the unique way (different with the other student) in the student' scribble on the answer sheet, so the first student is fulfilling the indicator of novelty (the way that never use by the other student). The first student makes a unique concept through to systematic way in coherently that not using by the other student. It shows that the first student is fulfilling with indicator of novelty.

The second student show using unique way (different from the other), able to show the deep understanding with different unique concept with other subject when calculate Cos R values. The student is able remembering cosines values in quadrant, through the systematic ways in coherently. In the end the result of the answer and the strategy to solve the problem that the student uses is correct. This is the explanation of the student:

"With checking back, correcting one by one both formula and calculating to find Cos R values and finds the triangle. I check it again because I check my answer, the signs, counting ways and checking the other ways in the end it is the same from this way and the other way, if it is the same and correct it means the resolution strategy that I used is already right."

From the result it is show that the second student is able to check back step by step on solving problem with the other way and unique way, so it means that second student is fulfill the indicator of novelty. From that explanation the first student and the second student are the same with fulfill the indicator of novelty to solve the open ended mathematic problem solving.

From the above description, students could fulfill an indicator of fluency, flexibility, and novelty in solving open ended Mathematics problems through visual style learning. In other words, visual style learning helps students to achieve level 4 of creative thinking (very creative). It is in line with Soenarjadi's (2015) and Masriyah's (2014) study implied that visual learning facilitates students to understand the problem by reading multiple times, being able to plan problem

solving using prior knowledge, carrying out problem-solving regarding the plan and coherence, drawing problem situations to execute the plan and to solve the problem easily, and re-examining the results of his work to ascertain whether the steps done concerning the plan.

The Level of Students' Creative Thinking with Auditory Learning Style

The concept of this learning style testing was the same with the visual learning style. Students met the flexibility indicator because students could show more than one alternative answers to count Cos R value and more than one way to calculate the area of PQR triangle with different solution. The auditory student did not meet the novelty indicator because the student was unable to show a deeper understanding to different concepts of other students' answers.

Indicator of Fluency

In this indicator, the first student writes what student known, but not writes what the question is asking. It shows that the students explain in interview:
"I am not written the question because the answer that I directly write the first question Cos R value and the second asking the area of triangle PQR with various ways, in my opinion this area of triangle PQR is arbitrary triangle."
The first student can answer the question with smoothly and telling what the interviewer ask using student' own language. The first student is able to make a solving plan with detail in the data that not yet known based on the known data. So the first student can solve the problem in good and correct, so it is fulfilling the indicator of fluency.
Based on the interview result with the second student from the question, explain what student know and what it asks from the question with using student own language, and the students answer:
"In PQR triangle it known is $\sin P = \frac{1}{2}$ and $\cos Q = \frac{3}{5}$, I do calculating to find the Cos Q value and area PQR triangle in many ways"
From this result it shown that second student can explain the question with smoothly and it shows in interview can tell using the own language without seeing the question. The second student is able to explain the solving step with clearly, so it is able to make a solving plan in good and correct. It means that the second subject is fulfilling the indicator of fluency. From all of the explanation that both the first student and the second student are fulfilling the indicator of fluency to solve the open ended mathematic solving problem.

Indicator of Flexibility

In this indicator the first student is able to write more than one idea with smoothly in answer sheet. It shown in the result interview explaining the answer and the problem of your own thinking that show to illustrate various ideas to solve the problem, tell me, and the student answer is:

"yes, I think many ideas to solve the problem, while remembering the previous material, in that time it appears three ways to find the Cos R values, like what I have been done written in this answer sheet (while showing the answer). To count triangle area, it appears three ideas, but this one is not finish, like this (while showing the answer)."

From this result the first student is able to think more than one idea to solve the problem by remembering the knowledge from various strategies to solving problem. From this result interview, the first student is able to think more than one idea to solving the problem by remembering the knowledge that previously, trying to find various solving strategy with consisting subject that learn before. How to check back the formula is correct and the result it is true, this is the student' answer:

"I do checking to what I did mam, step by step I check it, both the calculation and the concept that I used. Because I used more than one way, so I can compare the result using the other way. And accidentally from many ways that I used the result is still the same. I also make sure the data that I used in that formula it is correct or not"

From this interview it seems that the first student is able to check step by step in resolving problem or the last result, it is also show that the students fulfill the indicator of flexibility.

The second student is able to decipher and checking back the resolution one by one coherently with carefully, like what the student said in interview to answer how is to check back the steps that you used is correct and the result is correct:

"I check back the steps, checking the formulas and also the calculation and read it again so "I am sure that the result is correct. And the I compare it using another formula, check it again one by one, and comparing with the answer from this step and another step is still the same or not, if it is the same so it is correct."

And continue the other question, for Cos R values but why the result is like this, the student answer:

"Oh yes mam, it is correct I am not carefully when I calculated it"

From this result interview, the second student is already checking back step by step from the solving, but it is not carefully in calculating the result. This means that the second student is fulfill the indicator of flexibility. From that explanation that both the first student and the second student is the same fulfill the indicator of flexibility to open ended mathematic solving problem.

Indicator of Novelty

The first student is not able to show the unique way (different with the other student) that decipher in student' scribble paper to calculating Cos R values or count area PQR triangle. It is not able to understand the concepts and cannot show the unique concept while calculating the Cos R values.

The second student is not able to show the unique way (it is different from the other student) that decipher in the scribble paper to calculating Cos R values or calculating area PQR triangle. It is not able to show deeper understanding that related to solving the problem. In the question why solving problem it is appears the unique idea, the student answer:

"yes mam because it is the same way that the teachers teach and I think this way it is the easiest way to understand, while I using two ways to calculate Cos R values and counting area of triangle with three ways but the one is not finish yet just I write the formula (while showing the answer sheet) but the time is not enough"

From the interview result is shows that the second student to solve the problem using the same way from teachers teach before and not find another unique way. It is not able to showing deep understanding. This is showing the second student is not fulfilling the indicator of novelty. From it the first student and the second student are the same and not able to fulfill indicator of novelty to open-ended mathematic solving problem.

The description above shows that the auditory style learners could fulfill the indicators of fluency and flexibility in solving open ended Mathematics problems so that auditory style learning students were identified in level 3 (creative). It is similar to Soenarjadi's (2015) and Masriyah's (2014) research who mentioned that the auditory students understand the question by reading the question sheet with a little voice and occasional silence while concentrating to look at the question sheet, planning problem solving using prior knowledge, drawing a problem situation to facilitate the implementation of the plan to solve the problem, and re-examining the results to make sure the steps are relevance with the plan and answered question.

The Level of Students' Creative Thinking with Kinesthetic Style

Students were able to fulfill the indicator of fluency although the student did not write down the question. However, the interview result was clear enough that the student had understood the question even though it was not formed in their first language. Students could present a triangular PQR image by completing the unknown sides obtained by linking previously learned concepts, such as the Pythagoras concept, the Sine concept, the Cosine concept and the comparison. Unfortunately, students could not understand a quadratic form. Students could understand detail unknown data from the known data, but were less able to make problem-solving plans. Through this learning style, students solved problems using

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only one idea. In other words, students did not meet the indicator of flexibility. The kinesthetic student did not think of a unique way to get more coherent solution. Thus, kinesthetic learning style was unable to facilitate students to meet the novelty indicator.

Indicator of Fluency

In this indicator, the first student understood the question that written of what the known and what the asking is not smoothly. What the question is and answer it using your own language, the student answer:
"The known is PQR triangle with $\text{Sin}\, P = \frac{1}{2}$ and $\cos Q = \frac{3}{5}$, the question is how to count Cos R values and calculating area PQR triangle with various ways"
From this interview it can conclude that the first student can named it what the known and what the question is with smoothly, and can telling by the own language clearly. The first student is fulfilling the indicator of fluency.
The second student cannot write what the known and what the question is and directly complete the sides of PQR triangle that not yet known. As the interview result, with giving the understanding and the reason why not write what it known and the question:
"I'm not written it, because the question is already written clearly and not wasting time. So I directly draw the triangle and count the sides that ask like in this answer"
Continuing the question, explain what the known and what the question is by using own language, the student answer:
"The known from the question is the first PQR triangle and the second student is already known what the known and what the question is $\text{Sin}\, P = \frac{1}{2}$, and $\cos Q = \frac{3}{5}$, the question is how to count the Cos R values and decipher with various ways to count area PQR triangle"
From the result, the second student is understanding what the known and what the question is with smoothly, and can telling with using the own language while interviewing.
From that result both of the students are fulfill the indicator of fluency in open ended mathematic solving problem.

Indicator of Flexibility

In this indicator is the first student while solving problem calculating Cos R values only showing one way and only show one answer. While calculating the show two ideas and able show two answer with two solving different way.

"I have many ideas that actually I can apply it, but I forget it and I only remember that idea that my teacher teaches and already I learn, so it is not yet solving problem correctly"

From this interview it shows that first student, not trying to develop own idea and only rely what the teacher teach, it shows that the first student with low motivate to solve the problem.

Continue to another question why this wrong, student answer is it:

"yes mam I not carefully and forget the steps to calculate the quadrant and I am forgetting the formula area triangle so it is not complete to write it."

From this interview it proofs that the first student is not able to calculate concept of quadrant while counting Cos R values. This is show that the first student is not fulfilling the indicator of flexibility. And this is the student give an explanation:

"yes mam, I am not carefully and forget the way to count the quadrant, and I am forgetting the formula area triangle so it is not complete to write it"

From the result of interview, it is proof that the first student is not dominate to calculate the concepts quadrant and wrong while write the concept formula of area triangle. The first student has a one way that not yet finished in completely because the false in written formula.

From the result of interview with explanation from the question s what is your thought in illustrate various ideas to solve the problem, can you explain it:

"honestly I have many ideas but while I do, I only remember what the teacher' said, in the end only one idea that I get, and I think my idea is easy to understand and easy to follow it"

From that result it proof that the second student, not trying to develop the idea and only rely on what the teacher' teach, it shows that the second student is low motivate to solve the problem, and show the explanation of why only one solution to solve the problem.

"yes mam I only remember one formula, and the formula I already used to solve the question that the teacher' gives to me"

This is show that the second student is not fulfilling the indicator of flexibility. From that it is show that the first student and the second student are not fulfilling the indicator of flexibility to open ended mathematic solving problem.

Indicator of Novelty

The first student is not thinking the unique way (it is different with another student) it deciphers in scribble while calculating Cos R values or counting area PQR triangle and only able to show one answer in one solve, not showing the deeper understanding with the problem, the first student is not showing the deep understanding that make a unique concept. The first student can solve the problem not using the unique way with another student, it is show that the first student not

understanding that related with calculating the Cos R values and area triangle, the first student is not fulfill the indicator of novelty.

The second student is not thinking the unique way (different with other student) to find the Cos R values or area PQR triangle that decipher in scribble and only show one answer with one solving, because the second student is not having more understanding, so it cannot make a unique concept that related to solving problem. The second subject in solving problem not using unique way that related to calculate Cos R values and area triangle, this is show that the second student is not fulfill the indicator of novelty. From that it can conclude that the first student and the second student are the same, it is not fulfilling the indicator of novelty to open ended mathematic solving problem.

From the above description it can be said that kinesthetic style learning style students could only fulfill the fluency indicator in solving open ended Mathematics problems. Hence, kinesthetic learning style students are identified in level 1 (less creative). This is supported by Soenarjadi (2015) and Masriyah (2014) research who implied that kinesthetic subjects understand the problem by reading several times while pointing their fingers to the questions, mention the question, plan problem solving, draw the situation of a problem to ease carrying out solution plan.

CONCLUSION

Referring to the results of open ended Mathematics test and interviews, it can be concluded that students with visual learning styles were better than students whose learning style was auditory and kinesthetic. The factors that cause visual learning styles better were about 70% of the human sensory receptors are located in the eye (Rose & Nicholl, 2002). It is possible that the information data or concepts related to solving Mathematics problems can be absorbed optimally with visualization.

The level of creative thinking in visual learning style in Mathematics problems, especially the f scalene triangle, was identified as level 4 (very creative), because it met the three indicators of creative thinking, including: fluency, flexibility, and novelty. Meanwhile, the level of creative thinking in auditory style students was identified in level 3 (creative), because it only met two indicators of creative thinking, fluency and flexibility. Then, the level of students' creative thinking in kinesthetic learning style was identified in level 1 (less creative), because it only met one indicator of creative thinking, which is fluency.

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