Assimilation and Accommodation Processes in Improving Mathematical Creative Thinking with Scaffolding According to Learning Style

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Abstract. This study aimed to describe the process of assimilation and accommodation in scaffolding according to learning style. The subjects were 33 first year pre-service primary teacher students from Senior High School and Vocational who were taking the Basic Mathematics Concept course. The research data were taken by questionnaire, test and interview. A qualitative triangulation was applied in this study. The results showed that subjects have different creative thinking abilities seen from the learning style. Two aspects of the ability of creative thinking that still low are flexibility and originality. Subjects with high creative thinking abilities of the assimilation process from the four aspects of creative thinking (fluency, flexibility, originality, and elaboration) work well. Subjects with medium and low creative thinking abilities in the assimilation process do not work well, they need guidance through scaffolding to link the concepts they have with the given problem and how to solve them. Scaffolding process improved the student concepts so that the accommodation process went well and finally they were able to solve the problem. Nevertheless, the four aspects of creative thinking did not automatically rise well. Guidance was required to produce diverse answers. It took a lot of practice and regular scaffolding.

1. Introduction

Creative becomes one of the competencies that must be possessed by everyone including learners. Creative is not only in producing objects, but creative in thinking, including mathematical thinking. The ability to think creatively grows from one's creativity. Creativity arises also because of the opportunity to do so. For that creativity into something that needs to be grown developed and familiarized in the learning process. This is similar to the results of research Dyers, et al [1] said that \( \frac{2}{3} \) of the ability of one's creativity obtained through education, the remaining \( \frac{1}{3} \) comes from genetics. In contrast to the ability of intelligence holds that \( \frac{1}{3} \) the ability of intelligence derived from education, \( \frac{2}{3} \) of the rest of the genetic. That means we cannot do much to improve one's intelligence but we have many opportunities to improve his creativity. Creativity is applicable to all areas of learning including in the field of mathematics, especially the ability to think creatively. Thus the ability to think creatively in the field of mathematics needs to be developed so that learners have high creativity in
solving math problems. In addition, this ability becomes a measure of the success of learners in learning [2].

The problem that arises is that not all mathematics learning provides opportunities for learners to improve their creative thinking skills. More learning is oriented towards the amount of material given. Seen from the Indonesian rank for the mathematics course in the Program International for Student Assessment (PISA) the last few years is still under other countries. Indonesia is ranked 64 out of 72 countries. It has improved, but still needs to be improved again. In addition to the ratings in PISA, Indonesia's education rankings are still lagging behind other countries, namely the 57th out of a total of 65 countries (World Education Ranking) published by the Organization for Economic Co-operation and Development (OECD). This organization determines in which position a developed country in terms of education, especially in terms of reading, mathematics, and science [3].

There needs a change on learning math for learners. Not only an active learning, but also provides opportunities for learners to think more with contextual conditions. Several studies have shown that the application of innovative learning has not provided an opportunity for learners to develop their creative thinking skills in the mathematics field [4]. For that required packing appropriate learning model.

To get the appropriate learning model is required study as a preliminary study that describes the ability to think creatively mathematically and how the process helps learners who still have difficulty in achieving such competence in the process of scaffolding. Scaffolding in a learning environment is a process of interaction involving the provision of assistance or guidance to learners by a teacher or a friend to understand knowledge or skills that cannot be achieved without help [5], [5]. Scaffolding is a strategy that teachers can use in teaching and fostering the ability of learners [7]. In mathematics learning, scaffolding is a help to solve problems, as well as help build concrete mathematical concepts and improve students' self-confidence [8]. This support or assistance is tailored to the characteristics and changes in learners' abilities [3]. Teachers should pay attention to the problems of each individual before providing scaffolding.

The success of learners in learning is influenced by several factors both internal and external. One such factor is learning style. Learning styles will determine how teachers teach and decide which media to use [9], [10]. This is a consideration when doing scaffolding. The scaffolding process can be done in group [11] and can be done with media tools [12], [13]. There is limited use of media in the scaffolding process [13], so it needs to be well prepared according to the learning style that the learners have. With this in mind, good cooperation between learners and teachers is needed in determining the media during the scaffolding process [13].

The results of initial research conducted by Wahyudi, Waluya, & Rochmad [14] with the subject of 50 students. The results obtained are similar to the first research, the ability to think subjectively mathematical creativity is still low. Aspects that have not been maximized are flexibility and originality. These results are then used as a reference for scaffolding based on learning styles. Scaffolding according to learning style can help improve the ability of mathematical creative thinking. The technique and duration of the scaffolding process depend on the learning style and the subject's ability to follow the scaffolding process. Scaffolding process should be done according to the response and needs of the subject and learning style. The scaffolding process begins with the provision of motivation, explaining, constructing the correct concept and problem solving. The speed of the subject in receiving assistance through scaffolding takes different times. Participants with visual and kinesthetic learning styles more quickly understand and solve problems. Although different learning styles, scaffolding process is maximized if using media, either in the form of props and simulated images [14].

The second study was a study of literacy studies and case studies with 29 students as participants. The results obtained by one's success in learning mathematics influenced by several factors. Cognitive psychology is one of the critical success factors in learning mathematics. With cognitive psychology can be understood what things affect the work of the brain so as to help learners use the ability of his brain well. High attention and awareness will help a person to receive and process and store
information in the brain well so as to solve the problems encountered. To solve a problem someone uses memory, representational abilities and manipulation. The length of information is stored in the brain so it can be represented and manipulated again depending on how the information is received. Mathematics often becomes information that is less interesting so forgotten, does not last long in the student's brain. In addition, mathematics is given in a way that is not interesting and not contextual to be something unpleasant. This is what makes the assimilation process does not work properly, the process of schema formation in the brain (schemata) does not occur correctly. Correct understanding of mathematical concepts is weak and tends to be momentary and ultimately forgotten. At the same time the same concept is asked again, then there is no information stored in the brain, forgot is the answer given the subject. This condition makes the subject has difficulty solving problems involving thinking including creative thinking. The ability to think creatively involves the work of the brain, memory, representation and manipulation [15], [16].

There are several interesting things from the three results of this study. Students of pre-service primary school teacher do not always have good mathematical thinking skills. Educational background and learning styles affect their mathematical creative thinking ability. This unfavorable condition can be overcome by scaffolding with the stages of motivation, explaining, and constructing the correct concept. Interviews show motivating with interesting, contextual, easy to imagine, not always formulas and numbers, getting them interested and willing to learn math. Once they are comfortable, their concept can begin to be built although not the same speed depending on the learning style and the subject response received scaffolding. This provides an illustration that mathematics teaching assistance in an interesting and correct way and using contextual problems can provide subject motivation to want to learn math. This is in line with some experts, mathematics close to humans; mathematics is part of human culture [17]. According to Ernest mathematics is part of social reality [17]. So that learning mathematics must be linked with human life and human life context so that math is easy to remember, imagine, represented, manipulated and assembled in cognitive map so as to enable learners to learn mathematics without having to burden with mathematical formula so much. The hope of mathematics learning will be fun, stored into beautiful and long-lasting memories in the learner's brain. The process of forming schemata is going well, so that when new information comes to the process of assimilation and accommodation goes well.

This paper will provide an overview of how the process of assimilation and accommodation occurs in the process of scaffolding according to the learning style. Scaffolding activities are conducted in order to improve the ability of mathematical creative thinking of first year primary school teacher candidate with flat geometry material.

2. Research Method
This research is a qualitative research with 33 students of pre-service Primary School teachers as the participants (19 from SMA and 14 Vocational). Currently the participants are taking a Basic Mathematics Concept course in Educational background of subject from High School and Vocational School. The research design used triangular qualitative research. The scope of this research includes the descriptions of the ability of mathematical creative thinking and scaffolding process according to the ability of mathematical creative thinking and learning style. Learning style data was taken through a questionnaire. The ability of mathematical creative thinking is taken with test and interview techniques which include four aspects of fluency, flexibility, novelty, and detail. Scaffolding process is done directly according to the problems of each student, observation of answers and interviews according to student answers until students understand the concept correctly. Problem test is made in the form of a description with the validity of mathematicians and practitioners (lecturers of mathematics).

The learning style indicator used was adopted a style questionnaire developed by De Porter [18] that includes visual, auditory and kinaesthetic learning styles. Indicators of creative thinking ability are described in four aspects: fluency, flexibility, originality, and elaboration. In detail the four aspects are described in the ability that must be owned by students as in Table 1 below.
Table 1. Description Aspects of Ability of Mathematical Creative Thinking.

| Aspect of Creative Thinking | Description                                                                 |
|-----------------------------|-----------------------------------------------------------------------------|
| Fluency                     | The ability of students to produce various answers correctly within a short of time. |
| Flexibility                 | The ability of students to generate various ideas and approaches to solve problems for each answer. |
| Originality                 | The ability of students to use a new, unique, or unusual strategy to solve problems correctly |
| Elaboration                 | The ability of the students to explain sequentially in detail and coherently based on certain mathematical procedures, answers, or mathematical situations. |

To analyse data used triangulation method that is data analysis process by comparing information or data obtained through test result and interview, and scaffolding process for student with creative thinking ability less. The steps used in this study are as follows: 1) provide a learning style questionnaire; 2) provide questions about the ability to think creatively; 3) analyze the results of tests obtained to see the ability of creative thinking, assimilation and accommodation processes; 4) interviewing some students with high, medium and low creative thinking skills to deepen the data of creative thinking ability, assimilation and accommodation process; 5) scaffolding and describe the process of assimilation and accommodation.

3. Results & Discussion
This research is a qualitative research with 33 students of pre-service Primary School teachers as the participants (19 from SMA and 14 Vocational). Currently the participants are taking a Basic Mathematics Concept course in Educational background of subject from High School and Vocational School. The research design used triangular qualitative research. The scope of this research includes the descriptions of the ability of mathematical creative thinking and scaffolding process according to the ability of mathematical creative thinking and learning style. Learning style data was taken through a questionnaire. The ability of mathematical creative thinking is taken with test and interview techniques which include four aspects of fluency, flexibility, novelty, and detail. Scaffolding process is done directly according to the problems of each student, observation of answers and interviews according to student answers until students understand the concept correctly. Problem test is made in the form of a description with the validity of mathematicians and practitioners (lecturers of mathematics).

3.1. Learning Style and Ability of Mathematical Thinking Subject
As the research design, the first step is to provide a learning style questionnaire and educational background form. Learning styles from 33 participants are categorized into 3 i.e. visual, auditory and kinesthetic. Based on learning style questionnaire, 9 students (27%) have visual learning style, 16 students (49%) have auditory learning style, and 8 students (24%) have kinesthetic learning style.

Before the test was given, the students get learning with problem-based learning method for one month (4 times meeting) with material of wake geometry. The results of the student test can be seen in Table 2 below.
| Category | Frequency | Percentage |
|----------|-----------|------------|
| High     | 6         | 18         |
| Medium   | 8         | 24         |
| Low      | 19        | 58         |
| Total    | 33        | 100        |

This data shows that most participants (82%) have medium and low mathematical creative skills. There are two aspects of creative thinking that are still low, namely flexibility and originality. In detail can be seen from Table 3 below.

### Table 3. Results of Ability of Student Mathematical Creative Thinking.

| Aspects of Mathematical Creative Thinking | Average | Category |
|------------------------------------------|---------|----------|
| Fluency                                  | 1.9     | Medium   |
| Flexibility                              | 1.2     | Low      |
| Originality                              | 1.2     | Low      |
| Elaboration                              | 2       | Medium   |

### 3.2. Assimilation and Accommodation Process before Scaffolding

The process of assimilation and subject accommodation is different for each category of creative thinking. Based on the answers given, students with high creative thinking ability, assimilation process goes well for the four aspects of creative thinking. They are very fluent in providing problem solving. The answer generated more than 2 alternative solutions, the strategy in solving problems also vary by linking other mathematical concepts. The resulting settlement also differs from the other subject. Here are some examples of solutions given for question 1 as shown in Figure 1 below.

**Figure 1.** Examples of solutions given for question 1 by high category.
The most interesting thing about completion 2, 4 and 5 is that the subject provides a solution that is not the same as other participants in general. This subject sees that the AKCO wake is not just a parallelogram, but can be composed of other flat wakes. He also considers that waking AKCO is not just one wake but is composed of two wakes that are composed of two wake triangles. This view shows that participants with high creative thinking ability are able to relate one concept with another concept, even elaborate from some equation of wake up area so that can be determined wake up AKCO.

This is also the same for questions 2 and 3, they also result in multiple solutions and more than two alternatives problem solving. The results of the interviews, the assimilation process going well because they have a good schematic of the concept of geometry, so when the concept was asked again they still remember it well. They also remember the broad equations of some of the wake ups concerning the parallelogram, triangles, and rectangles and their relationships. The interesting thing is that they are not fooled by the perpendicular KM and KO lines and the right brackets placed in the angles O and M, so they stay focused on the area that being asked. It was merely because the students with low creative thinking abilities focus on a given right bracket that focuses on Pythagoras equations and does not result in completion. The accommodation process also went well after the interview to find the parallelogram with square or rectangular approach to problem 1.

Participants were invited to think about why the parallelogram area of the parallelogram of the base x height. There were several steps taken. First, the participants were asked to cut the parallelogram of AKCO exactly on the KO and KC lines so that the KCO triangle would be formed. Second, they were required to attach the triangle KCO on the triangle ADO (the result obtained by both triangles is congruent and the parallelogram is changed to square because of the same length of 5 cm. Then, the participants were asked to find the relationship of square area and parallelogram. Thus, it is found that the square area is the side x side (e.g. DO x OK). From the picture shows that DO = OC = base parallelogram and OK is the parallelogram of parallelogram so it is found that the width of parallelogram of base x height.

In contrast to participants with medium and low creative thinking skills, participants with low-thinking skills have nothing at all to provide problem-solving solutions. They provide answers but not correct solutions. So also with the medium category, they provide one or two relatively similar problem solving with the correct answer of another subject. Here is an example of an answer from a subject with a medium and low category for question 1 as shown in Figure 2 and Figure 3.

![The answer to medium category participant](image)

**Figure 2.** Examples of solutions given for question 1 by medium category.
From the low category answers, it appears that the subject is too focused on the perpendicular lines of KM and KO as well as the right bracket at the corner of O and M. The subject seeks the length of the oblique side that has nothing to do with the question. Interview result, it is found that the schemata that exist in the subject memory about the geometry is not correct. They do not yet have a good understanding of the relationship between two-dimensional figures, so the schemes are incomplete. Though they have graduated from high school and have never learned before about the concept asked. The assimilation process did not go well, many things were forgotten so they could no longer call the concept ever given. Provide new solutions and elaborate, produce the correct answers and diverse are the difficulties they have.

Participants with medium categories give two the same true answers as other peers' answers. So from the aspect of novelty still needs to be improved. For the elaboration aspect, the interview result shows that they understand geometry partially (one-one) and have not understood the relationship between geometry in the problem so that they cannot find the connection. This shows the subject schemata is still simple so that their concept map of geometry is not complete and more memorize. This also occurs in answer 2 and 3. The answer given is still the same as another subject and some are still wrong shown in the figure 4, figure 5, and figure 6 below.

Figure 3. Examples of solutions given for question 1 low category.

Figure 4. Question 2 given to the participants.

Figure 5. Examples of solutions given for question 2 by medium category.
Based on the answer given, the subject of the low category cannot read the chart well so that it cannot identify the dimensional of whatever is in the chart. The answer given is not a true solution. The result of the interview, the participants did not understand the reading of the chart well. It is still difficult to pinpoint the scale correctly so that the elements in the chart are not exactly how long.

Two medium category answers are the correct answer. The answer is the same as the correct answer of another subject. The subject identifies that in the chart consists of a rectangular and triangular construct (answer 1), parallelogram and rectangle (answer 2). They remember well the relationship of builders in the chart so they can determine the area under the curve. The aspect of novelty and elaboration still needs to be improved. This is evident during the interview. Participants still see the geometry that is visible due to the auxiliary line provided. Participants have not dared to add another line to form new flat builds that can be used to determine the area under the curve so that they will find more settlement and a more varied pattern of flat relationships.

Question 3. See the following book cover!

a. How many square rectangles you can find from the cover of the book and name it!

b. Classify based on the properties it possesses!

Figure 7. Question 3 given to the participants.
Figure 9. Examples of solutions given for question 3 low category.

The subject's answer for both categories is still the same as the other subject's answer. The aspect of novelty and elaboration is not visible. Participants only see from angular, diagonal elements so that the correct geometry classification is not visible and the relationship between the rectangular builds is not found. The interesting thing is they come from different regions (Kalimantan, Papua, NTT and Java), but the way used is relatively the same. Interview results obtained, how they learn rectangular done partially so it is not taught the relationship between the rectangular. So when asked to draw a concept map in the form of diagrams and Venn diagrams they make each stand up alone. This result shows that the learning pattern is the same.

3.3. Interview, Scaffolding, Assimilation and Accommodation Process
Viewed from the learning style and educational background shows the subject of this pre-service elementary school teacher has the ability to think mathematically creative diverse. This data is used as a consideration to determine the subject chosen for the following stages of scaffolding and assimilation and accommodation processes. Participants selected only subject with low creative thinking ability. There are 6 participants selected at an early stage, 2 participants for each learning style.

The results of in-depth interviews of the 6 selected participants showed that all participants did not like mathematics. Five of them said that since the junior high school the teaching process is less interesting and more work on the book. Teachers are less motivating learners in an interesting way. They took a course of primary school teachers because they wanted to avoid mathematics.

This is incompatible with today's mathematical learning paradigm, where mathematics is close to humans, mathematics is part of human culture [17] and is part of social reality [17], [19]. So that learning mathematics must be linked with human life and human life context so that math is easy to remember, imagine, represented, manipulated and assembled in cognitive map so as to enable learners to learn mathematics without having to burden with mathematical formula so much. The process of the formation of the schemata does not work well so that the stored mathematical concept is incomplete and not an interesting event to remember. The assimilation process does not work because they only hear and eventually forget, so when asked to be issued again, the concept has been forgotten.

In addition to be contextual, the language aspect becomes something that is very important in learning mathematics. Because the wrong language will give the wrong understanding for example the mistake of learners in interpreting the word in the matter. Not because they do not know the problem because inappropriate language will give a different interpretation to what the teacher wants. So the process of mathematical communication in this case do not work well [19], [20], [21],[22]. Good language will make mathematics interesting information, easy to remember and stored long in the learner learners with a true and stable schemata. The scheme will be utilized to solve the given problem. Someone takes advantage of memory, representation and manipulation to solve a given mathematical problem. This ability is called problem-solving ability [23].
The problem solving process involves identifying problems, defining problems, formulating problem-solving strategies, organizing / gathering problem solving information, utilizing ability to solve problems, reviewing, and evaluating [38]. Judging from the demands of the activities undertaken in the problem-solving process it is seen that there is a creative activity of a person in managing and solving problems [20], [24],[19]. If someone has good problem solving skills then have good creativity so that he is a creative person.

But this is different from the results of this study. The interview results provide information that the subject is still lack of ideas in providing alternative solutions to problem solving. The problem-solving strategy is not as diverse (same as other peers), and the completion stage is incomplete and unbranded and not new. This happens because during learning mathematics, the subject more work on the memorizing problem, understanding the nature of routine. Opportunities to solve problems in various and new ways are rarely provided. Non-routine questions are rarely given. As Best & Thomas [25] has stated; Torrance [26] and McGregor [27] that to produce something creative as a result of creative thinking (in this case mathematics) required a process of producing something and new, original ideas, to solve existing problems in a good and cascading way. If one is unable to think of a solution not even understanding the problem given then he will not be able to create a solution to the problem let alone be guided by many new ways. Even to get creative thinking especially in mathematics, a high curiosity with exploration and observation is required, as well as the imagination and originality of Vale & Barbosa's high thinking [28]. If someone does not like what is being learned then their thinking process will be hampered moreover demanded to think creatively.

After the interview was conducted to strengthen the ability of creative thinking, the process of assimilation and accommodation next step is scaffolding. Deep scaffolding process is only done on 3 selected participants, 1 subject for each learning style. The other three participants are considered to have been able to solve the problem well after being mentored and reminded of the formulas used, because their problems just forgot the formula.

The first step in scaffolding is to build the motivation of the subject. The goal is to motivate the subject to have a learning commitment to the topic to be resolved. Participants need to be motivated and directed about the importance of the topics being studied and the benefits in their future work as prospective teachers. This is in line with Dennen's [8] thinking, that scaffolding gives cognitive and emotional influences, not only impacting skills and knowledge, but also motivation and build the confidence of learners in doing the task. The results of interviews from 3 selected participants, they have less good experience of mathematics even at the level of junior high school (SMP). So there needs to be a change in the subject's understanding of mathematics and learning. Thus the subject will have a positive attitude towards mathematics so that the scaffolding process runs smoothly and helps the subject solve a given math problem.

The second step is to explain and construct the correct concept and work on the problem. The goal is to provide reinforcement that the information in the matter is not unfamiliar and they can work on it. In the process of reinforcement, the subject is also directed to the formation of the right schemata so that the assimilation process goes well and the accommodation process can be done gradually. This is in accordance with the concept of learning constructivism Piaget enabling learners to make the process of adaptation to the environment [19], [20],[21]. Learners are given the opportunity to search, manipulate, experiment, ask questions, and seek their own answers to the various questions that arise resulting in the process of adaptation of assimilation and accommodation results. In the process of adaptation to the environment they will achieve a stable schemata. Stable in the sense of a balance between assimilation process and accommodation process to gain knowledge. Through assimilation the subject seeks to understand new things by applying the existing scheme, while accommodation occurs when the subject must change his or her thinking patterns to respond to new situations. Someone adapts to this increasingly complex situation by using a scheme that can still be considered worthy (assimilation) or by making changes and adding to the scheme something new because it is necessary (accommodation). With this concept, participants are able to think from what they already understand, so as to solve problems within their range of ability (Zone of Proximal Development
In the end the three participants were able to solve the problem with the help given. If this process succeeds then the learning process on the more complex will be successful [30].

These results suggest that scaffolding helps the subject in solving the problems they face even though each subject takes a different time. The interview results corroborate this result, where the subject is increasingly understanding the content of the question, and able to think how the solution of the problem in the matter. Participants also say the help provided leads them to a solution they did not have before. In addition explanation and props are used to provide simulation of the problems that exist in the matter so that the subject is able to think of the solution.

The scaffolding process of each subject takes different times according to the subject's ability to receive their help and learning styles. The results show that participants with visual and kinesthetic learning styles more quickly understand and solve problems. Participants with auditory learning styles require a longer scaffolding process. Participants with auditory learning styles require a detailed explanation, the need for media to guide problem solving. This indicates that the scaffolding needs of each subject are different and this must be recognized by the scaffold to provide assistance according to the needs of the subject. This is in line with the opinion Vygotsky [30] that the provision of assistance through scaffolding must be tailored to the needs of the subject. If the subject is able to solve their own problems then they are given independent work to solve the problems faced so that scaffolding will form the subject of being an independent person [31] and self-confidence subject [8].

The scaffolding process should be done according to the subject's response and the subject's needs according to the learning style. Participants with visual learning styles require visual aids to make it easier to understand and solve problems. Participants with an auditory learning style require detailed explanations and props to understand and solve problems. Participants with kinesthetic learning styles require image simulations to provide help with understanding and solving problems. Although different learning styles, scaffolding process is maximal if used media, either in the form of props and simulation drawings.

4. Conclusion

The process of assimilation and accommodation differs according to the level of creative thinking ability and subjects’ learning style. Participants with high creative thinking skills, the process of assimilating the four aspects of creative thinking (fluency, flexibility, Originality, and elaboration) goes well. Participants with medium and low creative thinking skills in the assimilation process do not work well, they need guidance through scaffolding to link the concepts they have with the given problem and how to solve them.

Scaffolding according to the learning style provides improved student concept so that the accommodation process goes well and finally they can solve the problem. Assistance given to the subject through scaffolding, contributes to explaining, reviewing and reconstructing concepts (assimilation and accommodation processes), so that participants gain clarity on concepts and be able to build those concepts correctly and be able to utilize in everyday life [33]. The technique and duration of the scaffolding process depend on the learning style and the subject's ability to follow the scaffolding process. A teacher in doing scaffolding should be able to provide correct instruction and should be careful according to the needs of the subject [7]. If these instructions are correct then will build and develop the subject knowledge.

The scaffolding process should be done according to the subject's response and the subject's needs according to the learning style. Participants with visual learning styles require visual aids to make it easier to understand and solve problems. Participants with an auditory learning style require detailed explanations and props to understand and solve problems. Participants with kinesthetic learning styles require image simulations to provide help with understanding and solving problems. Although different learning styles, scaffolding process is maximal if used media, either in the form of props and simulation drawings.
So that learning mathematics must be linked with human life and human life context so that math is easy to remember, imagine, represented, manipulated and assembled in cognitive map so as to enable learners to learn mathematics without having to burden with mathematical formula so much. The hope of mathematics learning will be fun, stored into beautiful and long-lasting memories in the learner's brain. The process of forming a schemata is going well, so that when new information comes the process of assimilation and accommodation goes well.

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