ADOLESCENT DEVELOPMENT IN THE 21ST CENTURY: DEVELOPING CRITICAL THINKING SKILLS THROUGH EXPRESSIVE DRAWING TECHNIQUES

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Abstract

Adolescent is a formal operational stage of cognitive development. The development of an educational program prioritizes four skills to support success in meeting the challenges of the 21st century. One of the priority skills of the four skills is critical thinking skill. Critical thinking skill is a skill which shows the performance of individual cognition in interpreting, analyzing, and doing self-regulation regarding problems and information received. Critical thinking skill is closely related to problem-solving skill and decision-making skill. This study aimed to figure out the implementation of expressive drawing techniques to adolescents in sharpening and developing critical thinking skill in solving their life problems. In addition, this study was conducted to examine the relationship between problem solving strategies used by adolescents with their critical thinking patterns related to the problems they have. This research used a qualitative approach with descriptive data on exploring the implementation and impact of expressive drawing technique in stimulating adolescents' thinking skill as well as the form of adolescents' critical thinking pattern which is seen on the mapping pattern drawn after answering questions in interview. The data of the study were collected through interviews, documentation studies, and observation. The data collected in the form of documentation study of the image were analyzed to get the development result of expressive drawing technique toward adolescent development in critical thinking. Before the data were analyzed, the data were divided into 2 parts, namely the application in the early teens and the image data of the late adolescents. Data analysis techniques used were (1) data collection; (2) data reduction; (3) data interpretation; (4) perform data triangulation; and (5) drawing conclusions. The results of this study indicate that: (1) providing critical thinking skills materials through expressive drawing techniques can develop and stimulate the ability of adolescents in critical thinking to their problems; (2) the pattern of adolescent thinking on their problems through expressive drawing techniques can develop the critical thinking skills of adolescents in determining the action priority as decision-making to determine strategies and to make choices in life; (3) the average adolescents are able to think critically better in determining the priority of complex life problems to be solved systematically and more structurally when compared to early adolescents.

Keywords: Adolescent, 21st Century, Critical Thinking Skills, Expressive Drawing Techniques

1 INTRODUCTION

In the 21st century, Education is suppressed in adolescents sufficiently. Since 2014, Indonesia has experienced demographic bonuses and which becomes not only challenges, but also opportunities especially in the education field. Under these circumstances, the number of productive-aged populations is greater than non-productive age people. They can be developed as the foundation of capacity development in productive-aged people, especially in adolescents. It requires a critical thinking in designing he progress of ability to support Indonesia progress in 2045 by developing some aspects of education domain, including cognition, affection, and psychomotor. Therefore, the quality of adolescent competence needs to be improved in its terms of planning, implementation, and utilization as the result from demographic bonuses as a potential for progress and growth in some sectors of Indonesia, especially in the human resources sector. In the 21st century, critical thinking skill becomes one major concern of skill development, where this skill is closely related to the problem-solving skill and decision-making skill in individuals. Adolescents who is known as the age of having problems and vulnerable periods in the individual's life because they require adjustment and guidance, especially the problems in themselves, to resolved and determine appropriate solution in accordance with the problems they faced and their ability in solving problems need to be developed.

In 2016, Indonesia ranked 4th as the most country which have productive age population. This makes Indonesia called as one of the highest demographic bonus country. This condition becomes challenges and opportunities for Indonesian youth in planning Indonesia future towards developed countries from various fields. It needs to be planned and thought carefully, the utilization of youth who have productive age need to be prepared as an agent of Indonesia's development success. Currently in the future, it becomes educators' duty to think about the nation fate to transcend state visions and missions. In global competition, the ability of individual thinking in making decisions is the basic foundation of a goal in educational practice (Garrett, 2013: 303). The quality of individual thinking of adolescents is developed in the formal operational stage, so that in this phase an individual is able to think abstractly and plan a thing in a structured and systematic way. Adolescence is the age appropriate to receive learning or practice-based critical thinking skills to improve problem-solving skills and decision making skills to produce quality youth to support the nation's character building in the 21st century.

One of education purpose in the 21st century is developing critical thinking skills as well as implementation efforts in learning are particularly preferred (Dwyer, et al., 2014: 43). If it is not developed in accordance with potential and talents possessed, especially in academic and thinking ability, it will harm and bring fatal impact in education development and increase social problems in the community. Other impacts presented from relevant research results on low critical thinking skills will reduce adolescent creativity, as well as the quality of adolescent thinking about the problem and ability to behave very low (Pieterse, Lawrence, & Friedrich-nel, 2016). The development of adolescents' critical thinking skill in the 21st century is a challenge for educators to provide quality learning therefore they will produce qualified graduates even academically or socially with individual readiness in determining a strategy that suits their ability.

Currently, the measurement of critical thinking skills in Indonesia has not been standardized. Many relevant studies on the use of critical thinking skills have different indicators and aspects used and the subjects are in different ages, so some critical thinking skills tools such as CCTDI, CTTST, CCTT, CTSS, and other have many weakness if it is applied to adolescents in Indonesia. This problem requires educators, especially in the guidance and counseling area, to be more creative in generating ideas in developing the critical thinking skills of adolescents in learning process. One of the techniques proposed by the author in this article is expressive drawing techniques. Measurements taken to differentiate the critical thinking skills of adolescents in this article did through analysis of the projected by image results of expressive drawing according to qualitative. The critical thinking skills analysis was conducted through observation of the writing flow in letters of problem-solving planning related to critical thinking skills, so that the writer is able to conclude the level of critical thinking early adolescents and middle adolescents about the picture of what and how they are solving their problems. This analysis is subjective, because the assessment took only from a general point of view, not from clinical observation of the various aspects of the drawing and the resulting line.

This research aimed to find out the teenagers thinking plot in applying critical thinking skills in solving problems through expressive drawing techniques. This case can make the teenagers become easier to express their imagination in addressing their problems in accordance with their own creativity. Some scientific articles mentioned the critical thinking with creative thinking has a linkage, therefore in developing this critical thinking skill the researcher uses expressive drawing technique in its implementation. In addition, researchers will analyze differences in early adolescent thinking patterns with late adolescents in expressing problem-solving strategies with the quality and systematic that adolescents use in applying the ability to think according to ability.

2 EXPRESSIVE DRAWING TECHNIQUES FOR CRITICAL THINKING SKILLS

Expressive drawing technique is one technique in guidance and counseling whose function to stimulate the ability of individual cognition. In addition, expressive drawing technique is one technique that can stimulate the ability of cognition in mood reflection. This can be seen from the strategies used in the drawing, lines or patterns seen in the image, and the use of color combinations in images.

2.1 Critical Thinking Skills

According to Susar, Saygi, & Halil (2015) some students find problem-solving methods through the improvement of critical thinking skills. Critical thinking is often interpreted as a metacognition process, the process including analysis, evaluation and inference. These three things when used or applied will increase the probability of producing a logical conclusion on an argument or solution of a problem (Dwyer, Hogan, & Stewart, 2014). According to Sarigoz (2012) in the character of critical thinking explained that critical thinking is often interpreted as a metacognition process, the process includes analysis, evaluation and inference. These three things when used or applied will increase the probability of producing a logical conclusion on an argument or solution of a problem. According to Young (2015) Critical thinking has the sense that students who construct opinions or arguments, use logic as reasoning, provide facts or evidence to support their conclusions. In this paper is also discussed about the application of diagrams that show the critical thinking process that given through learning in the classroom. However, the application in research to develop adolescent thinking skill uses expressive drawing technique, so that the result is picture not diagram.

Critical thinking is interpreted as cognition proses, aimed to asses self regulation which has two components, including cognitive skill (interpretation, analysis, inference, evaluation, explanation, and self regulation) and the motivational component (placement of critical thinking use) (Rimiene, 2002) . Thaiposri & Wannapiroon (2015) stated that critical thinking skills based on some expert opinions can be summarized to include 6 elements: 1) clear interpretation of an observation source, 2) concluding and deductively concluding, 3) identifying assumptions, 4) planning treatment which are induced and define temporary consequences, and 5) Conclude inductively using a scientific sentence. According to Facione (in Abrami et al., 2008) critical thinking has a particular purpose, self-regulatory assessment resulting from interpretation, analysis, evaluation, and inference, as well as clear explanation, conceptual, based on methodological, having crteria or contextual decision. The ideal critical thinker usually has a high sense of knowing, a good informer, the reason can be guaranteed truth, broad thinkers, flexible, clear thinkers in the evaluation, have an honest personality, a wise assessment, willing to reconsider each decision and be consistent In the results of what was observed.

According to Kallet (2014), the advantages of critical thinking include clear understanding of the problem situation, a very quick and accurate conclusion to make quality decisions, enriching variations of problem explanations and solutions, recognition opportunities, minimizing errors, and broad thinking about strategy and eliminate problems quickly. These exercises can improve motivation and the spirit of discussion in a classroom environment by implementing critical thinking-based learning and managing effective learning (Ow, 2000). Research conducted by Anderson and Soden carried out that peer interactions can develop critical thinking skills that contain some of things that are done over and some tasks that are given in a structured manner will form explicitly different people views and into contrast and weighted contrast in Competition and this is included in the proof (Anderson, Tony and Soden, 2001). Critical thinking-based learning has stages of analysis, evaluation, and use of alternative sources of information that have been collected in the form of problems, especially encouraging students to form new knowledge through the exposure of possible solutions or the prognosis of a problem and some options for solving problems based on experience (Aun & Kaewurai, 2017).

According to Willingham (in Bensley et al., 2016), the assessment to measure critical thinking is comprehensive and very interesting also presents a special challenge for researchers, because critical thinking can construct several other aspects that includes reasoning, decision making, and breaking skills problem. The importances of developing tools for measuring critical thinking skills are 1) to evaluate students 'perceptions and critical thinking, 2) to identify students' needs in support of their critical thinking development, and to predict academic performance (Thomas, Kevin & Aimee, 2016).

2.2 Expressive Drawing Techniques

Picard & Boulhais (2011) conducted a research about the differences in expressive drawing results based on sex by using the subjects of adolescents aged 9-15 years. In this research, the image value of adolescent girls has a higher value than the male image. In the describing produced by adolescent girls fewer have independent strategy in solving problem than boys. In the research, it shows a linear relationship between

expressive drawings with divergent thinking (different). The results are consistent that the ideas shown by adolescent boys and girls differ in the expression of emotional components and gender differences extending the expressive drawing area. Divergent thinking can lead to the ability to draw expressively. Drawing is one activity which is loved by children in learning. From different perspectives presented by experts, it can be concluded that change knowledge conceptually; psychomotor skills; cognitive development and emotional aspects; also personality exercises, thereby this technique can be used to raise the problem on students' psychic functions that include cognition, affection, psychomotor, and individual perceptions (Picard & Gauthier, 2012).

According to Muthen (2006), expression in images is an important and special thing for children as a means of emotional development or conceptual perspective as a reflection of the true meaning in representing material that needs to be discussed further. Described in this article, divergent thinking arises because of expressive drawing done by children. It can be concluded from the results of the study that emotions in children comprehensively evolve the impact of expressive drawing in two alternatives; one of them is developing an abstract understanding of the causes and consequences of emotions as a reflection and increasing complexity in learning (Muthen, 2006). Jolley (2010, in Muthen, 2006) suggested 3 stages in the process of expressive drawing to children aged 7-10 years including, 1) having an initial idea to be expressed an image; 2) hold the idea in memory during the drawing process (along with the interpretation of other information as planning and source of attention); And 3) utilizing drawing skills to manage expressive ideas in mind.

However, the expressive drawing technique also has weakness. This is supported by research conducted by Misalidi and Bonoti which indicated that the effect of expressive drawing technique is e mood reflection in children. The procedures used in this study to indicate the mood of the children; however it can be manipulated with future efforts to identify the strategies used to demonstrate mood in the picture (Misalidi & Bonoti, 2014). Here is a relevant study on the implementation of expressive drawing in adolescents (Jolley, Fenn, & Jones, 2004; Jolley, O'Kelly, Barlow, & Jarrold, 2013) in this article written that the relationship between student expression and the reality of drawing skills, shown from developed through patterns of expression and visualization of similar images, by age increasing then the individual will experience an weakness increasing on expression that shown in the picture, this occurs between the ages of 6-9 years. It can be concluded that the state of mind is affected by age, and this will affect the quality of the image to be produced. Consideration in providing high scores on images in terms of expressing creative ideas, demonstrating consistent techniques in expressing through images, and including striking expressions is needed. Lines, colors, and composition are the main benchmarks in the assessment of drawings in application of expressive drawing in autistic children (Jolley et al., 2013).

Expressive drawing techniques are often applied to children and adolescents. According to Picard and Gauthier (2012) explains that expressive drawing techniques can bridge the childhood into adolescence in which individuals will encounter some problems that will mature in the transitional period. One application of expressive drawing techniques is to distinguish individual creativity in terms of gender. In addition, it can be used to know the emotional picture comprehensively on the individual (Muthen, 2006). Implementation of expressive drawing techniques can be done with various systematics. Expressive drawing techniques in this study were performed on children in 9-12 years old who grouped 5 children in one group with a seating arrangement on a round table. The teenager was asked to draw 4 kinds of pictures in a blank sheet of unlined paper using a crayon or marker and was not allowed to copy the other friend. The theme of the picture is adjusted to the basic ability at the age of the child, in children in 9-12 years old will be very easy to understand if given instructions for drawing trees, houses, and so forth (Jolley, Fenn, & Jones, 2004). This picture can be adapted of the cognition development stage subjects of the study based on their age. Actually, in this study is given a thought-themed picture to solve the problem because the research subjects targeted are adolescents in 12-19 years old.

3 RESULTS

This study used qualitative approach with supporting data based on interviews, observation, and documentation study therefore the data produced is description of critical thinking skills in adolescents. This research was conducted in Samantabhadra Youth Studio, Madiun with population of 11 teenage which is grouped into two, early adolescence and middle adolescent based on classification division of stage of adolescent development. The selection of adolescents is determined based on several relevant studies that explain if the expressive drawing technique is appropriate to be applied to adolescents under 20 years of age. Subjects in this study had an age range of 12-19 years. The result of data analysis is descriptive report about critical thinking pattern in adolescent using problem solving strategy. In addition, the authors explain the implementation of the technique of expressive drawing on teenagers in the studio. Providing tasks by

asking teenagers in the studio to create images that reflect the problems they have will stimulate the ability of adolescents in critical thinking in interpreting the problems they have. At the stage of cognitive development in adolescence considered to be able to think abstract, so they are able to think critically in determining the priority of action as a decision to determine strategies in solving problems and determine the choices in life. It can be seen in Figure 1 which shows that adolescents have been able to determine the steps systematically in solving the problem. In a study conducted on July 25, 2017 that produced some images that reflect the critical thinking patterns of teenagers in solving the problems faced are reflected as follows.

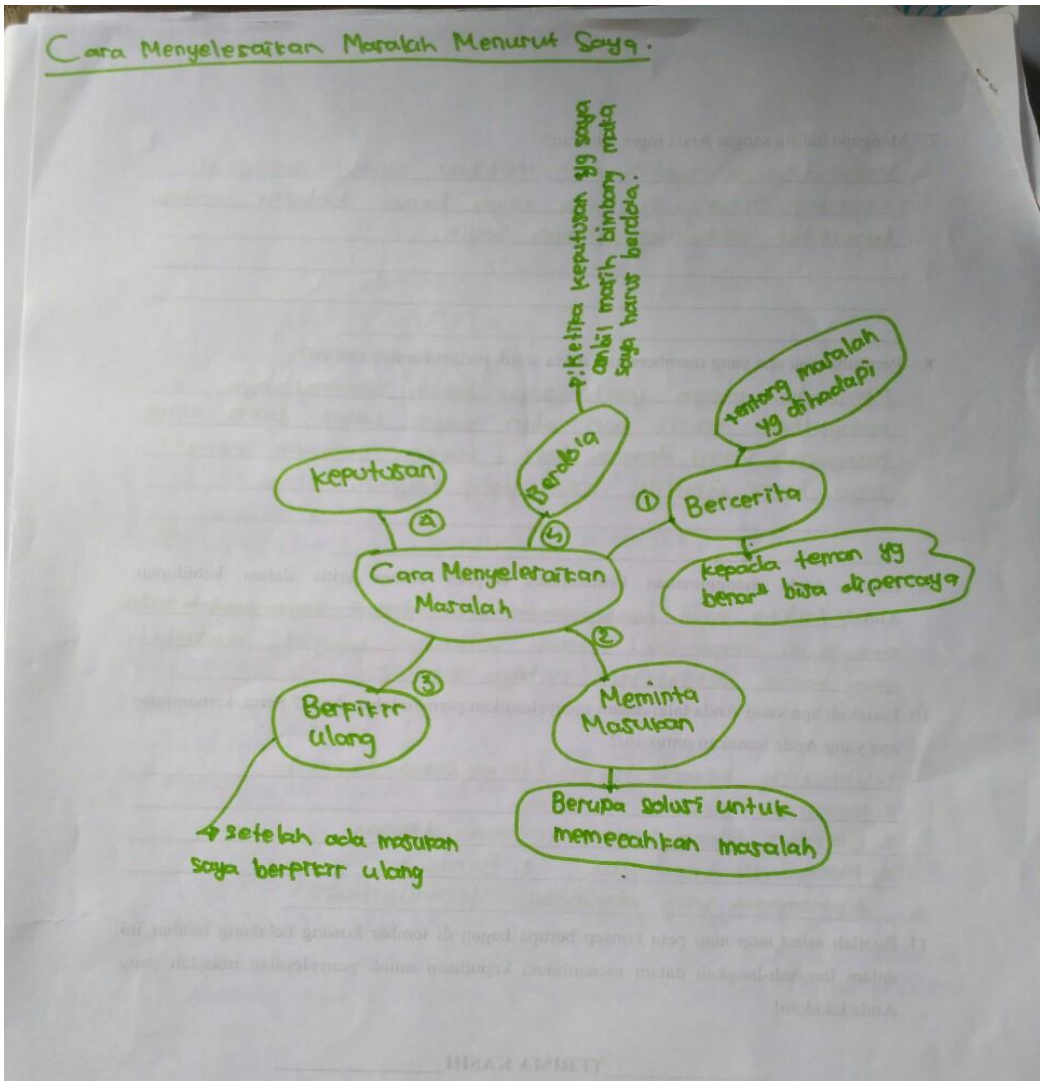

Fig. 1. Numbering in making the strategy plot to determine problem solving the problem decision in middle adolescents has been seen systematic in a certain order that made in accordance with the ability possessed in critical thinking application in their daily life. This case is in accordance with the theory of the stages of cognitive development that adolescents are able to think abstractly and think systematically. Critical thinking skills can be seen from the explanation of words within the circle and the determination of the choice of action when they solved the problem.

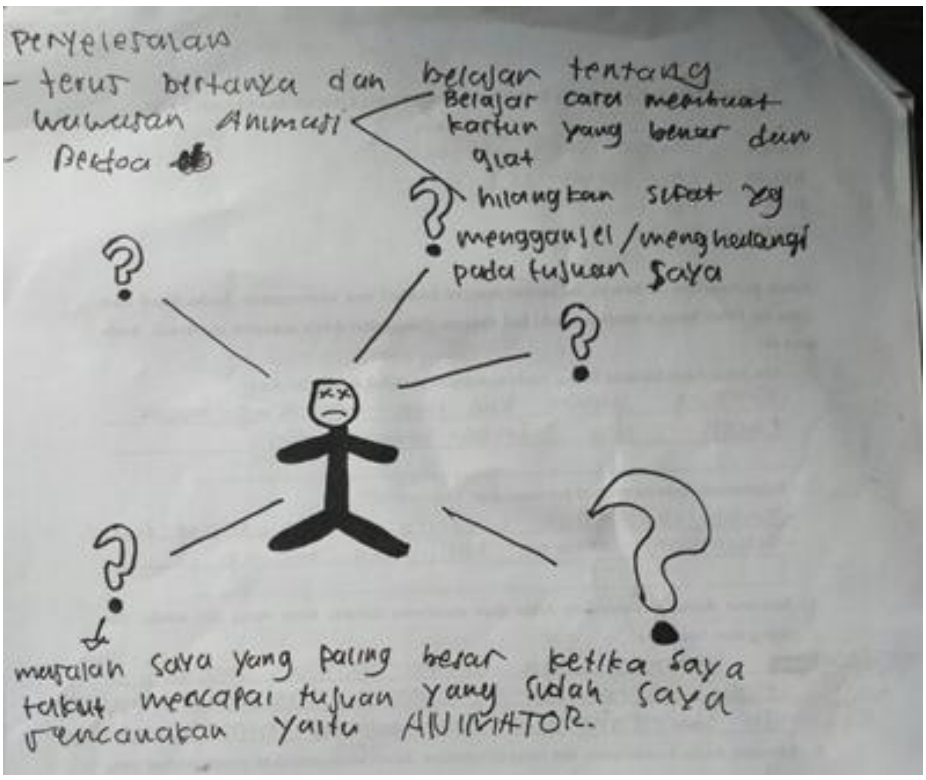

Fig. 2. The description of problems faced by early adolescents that the teenager experience some problems in themselves that they are difficult to determine the choice in determining priorities that must be completed first. In the work of image, the author helps the counselee in determining the priority of the problems in their life to be solved first with certain considerations.

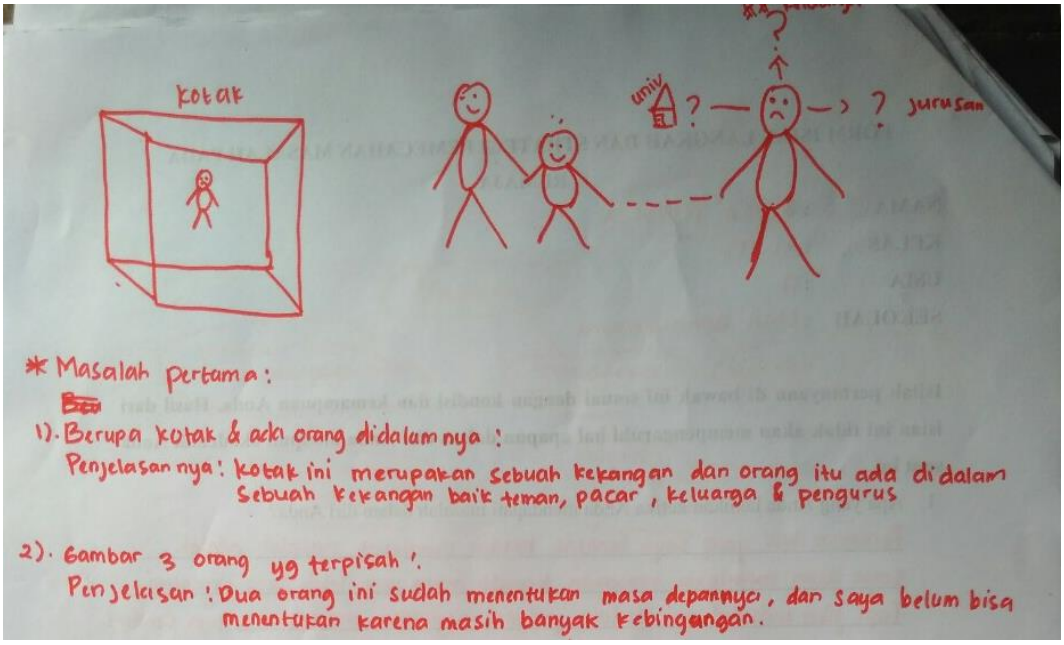

Fig. 3. The problem description of middle teenagers who have complex problems. Therefore, they describe many things on their paper to show that they have more than one problems. They tried to explain the picture by describing the meaning of the picture and then they determined the priority of the problems that must be solved first, so it can be concluded that middle teenagers have been able to think deductively in solving the problem.

Based on some images produced by the teenagers when describing the problems that they have in a paper can be distinguished between the early adolescent critical thinking patterns and middle adolescents in deciding as problem solving that will be described in the table below.

Table 1. The Description of Early Youth Critical Thinking with Young Adults Comparison

NO.	Critical Thinking of Early Adolescent	Critical Thinking of Middle Adolescent
1.	Determination of the steps in the solution of the problem has been seen systematic and structured clearly with the interpretation and analysis of the problem quite well. Letters and form letters are still not consistent.	Determination of the steps in the solution of problem has been seen systematic and structured clearly with the interpretation and analysis of the problem quite well. Lines and shapes are consistent.
2.	Have not been able to assess and decide the problem solving steps used right or wrong, and in determining decisions still require advice solving problems and others or need parental advice.	Already able to assess the correct and wrong decision taken. In determining the troubleshooting steps used and decisions can be determined and assessed on their own without the need for troubleshooting suggestions and others or need parental advice.
3.	Cannot determine priority of troubleshooting steps and priority on complex issues which must be solved first.	The priority of problem-solving steps and the selection of complex problem priorities can be clearly defined and they find immediate solution to the problem.
4.	When implementating expressive drawing techniques in determining problems and troubleshooting steps, they require direction in determining inference for problem solving.	When implementating expressive drawing techniques in determining problems and troubleshooting steps, they do not need direction in determining inference for problem solving.

4 CONCLUSION

This study was exploratory studies that produce descriptive data about the critical thinking patterns of adolescents in solving problems and decision-making. Some expressive drawings investigated were made by teenagers in learning studio named Samantabhadra Studio, Madiun. Some differences in critical thinking skills in early adolescents and middle teens can be seen the difference. In early adolescence, they show doubtful in determining the steps to resolve the problem, need others in determining alternative options, unable to determine priority issues that must take precedence to be resolved, and feel confused to conclude the problem solving. The middle teen shows no doubt in determining the steps to solve the problem, does not require others in determining alternative options, be able to determine priority issues that must be prioritized to be resolved, and has already convinced in determining the conclusions for solving problems encountered. In this research, it can be concluded some following results: (1) Giving of critical thinking skills materials through expressive drawing techniques can develop and stimulate the ability of adolescents in critical thinking to their problems. (2) The pattern of adolescent thinking on the problem itself through expressive drawing techniques can develop the critical thinking skills of adolescents in determining the priority of action as decision-making to determine strategies and make choices in life. (3) Middle-aged adults are more able to think critically in determining the complexity of complex problems in their lives to be solved systematically and more structurally when compared with early adolescents.

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