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Analysis of Mathematical Creative Thinking Skill in Student with Kinesthetic Learning Style

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Abstract

Creative thinking skill is important as a high-level thinking ability as a provision for students in the era of the industrial revolution 4.0. The creative thinking skill is an individual's ability to provide possible ideas or logical answers based on the information provided. The purpose of this study was to describe students' mathematical creative thinking skills with kinesthetic learning styles in transformation material. This type of research is a qualitative descriptive. The sampling technique used the snowball sampling technique. The results show that of the three subjects, there are two subjects at level 2 or less creative in mathematical creative thinking abilities.

Keywords: *Creative Thinking Skill; Kinesthetic Learning Style; Transformation.*

1. Introduction

Mathematics education has a strategic role in preparing individuals in the revolutionary era 4.0, Individuals are required to have high-order thinking skills, one of which is the creative thinking skill. Permendiknas number 22 of 2006 explains that mathematics needs to be given to students starting from elementary school to equip students with the ability to think logically, critically, creatively and to work together. (Machromah & Usodo, 2015) states that one of the goals of learning mathematics is to develop creative thinking skills. According to Government Regulation Number 17 of 2010 concerning Management and Implementation of Education, the purpose of implementing education is to build a foundation for the development of potential students to become knowledgeable, capable, creative, critical and innovative human beings. This is in line with the objectives of learning mathematics in the Ministry of National Education in 2004 which states that mathematics learning is expected to have the ability to think logically, systematically, analytically, creatively, critically, and the ability to work together. Therefore, the creative thinking skill is important in the 2013 curriculum.

Creative thinking is a cognitive sequence that a person uses to follow certain objects, problems and conditions or one's efforts to solve certain problems according to the individual's capacity(Yazar Soyadı, 2015). Creative thinking is an ability that is relevant in everyday life, such as school, art, sports and in overcoming problems (Rominger et al., 2018) According to (Dilla et al., 2018) the mathematical creative thinking skill is an ability that includes fluency, flexibility, authenticity and elaboration. The

creative thinking skill in this study is the individual's ability to provide possible ideas or logical answers based on the information provided.

Although it is known that the creative thinking skill is important in life, in fact the creative thinking skill in Indonesia is still low. According to data from Global creativity in terms of creativity, Indonesia is ranked 115 out of 139 countries.

One of the factors for the low ability of students to creative thinking skill is that students are accustomed to convergent thinking and teachers do not provide opportunities for students to develop their thinking skills according to their abilities(Machromah & Usodo, 2015) Students are also still fixated on the questions exemplified by the teacher and feel confused when given questions in different forms on the grounds that the questions have not been exemplified by the teacher. Students assume that the questions are done in the same way as exemplified without knowing the concept and meaning. Students often just memorize formulas to solve problems on the problem, lack of self-motivation to develop existing methods and lack of confidence in students expressing their creative thinking in learning mathematics is an obstacle to students' thinking abilities that cannot develop optimally. easy to measure in mathematics because mathematics requires higher-order thinking skills to manipulate information and ideas in various ways according to the context (YULIANTO et al., 2019).

Learning will run well if students interpret their needs from the personal side, including their character and culture (Leonard, 2018). One of the characteristics of these students is their learning style. Learning style is a combination of how a person absorbs and then organizes and processes information (DePorter et al., 2007). In line with (Sardiman, 2013) statement, students have characteristics that affect student learning activities, including: background knowledge and level of knowledge, learning motivation, learning styles, initial abilities, socio-economic environment, and others. The learning styles of students are divided into three types, namely visual, auditory, and kinesthetic. Visual type learning styles tend to use their sense of sight to facilitate the learning process. The auditory type of learning style tends to use the sense of hearing to facilitate the learning process. Kinesthetic type learning styles use physics as an instrument to optimize the learning process. The three types of learning styles are generally owned by students, but there is one that is the most dominant. According to (Gunawan, 2003) students who learn with their own learning styles while doing tests, will achieve much higher scores than if they learn in a way that is not in line with their learning styles, so knowing the learning styles of students is needed to determine how learning that is most suitable for each student in the learning process.

Kinesthetic learning style is a type of student learning style that tends to actively use parts or all of their bodies to communicate, receive information, and solve problems in learning activities. Some of the characteristics possessed by students with kinesthetic learning styles include: learning through manipulation and practice, memorizing by walking and seeing, using fingers as pointers when reading, using lots of body gestures, unable to sit still for long periods of time, etc. The purpose of this study was to describe students' mathematical creative thinking skills with kinesthetic learning styles in transformation material.

2. Methods

This type of research is descriptive qualitative, the data described is the creative thinking skill of class XI students in solving problems related to the set. The place of research was carried out at MA Negeri 2 Ngawi. The research implementation time was in December 2020. The subjects of this study were 3 students of class XI MIPA 1 in the academic year 2020/2021. The sampling technique is snowball sampling. This sampling technique is done by assuming that the subject knows best with the answer the researcher wants. This sampling technique is a technique in which the research data sources will increase in number over time(Budiyono, 2017). The object of research is the creative thinking skill of students with kinesthetic learning styles in the material of transformation at MA Negeri 2 Ngawi.

The instruments used to collect data in this study were instruments of test descriptions and interview transcripts.This test aims to determine students'creative thinking skills in solving transformation problems. Interview transcripts are used to determine the achievement of students' creative thinking abilities in the material of transformation. The test instrument consists of 3 item questions with an indicator of fluency, which is the student's ability to respond to a problem quickly and correctly, flexibility is the student's ability to provide problem solving in many ways and Originality is the ability of students to provide ideas / different ideas in solving problems.

The data analysis technique in this research is descriptive analysis technique. The data analysis used was to describe students' creative thinking skills in solving problems related to the matrix. Students' creative thinking abilities in this study were divided into 5 levels, from level 0 to level 4. The grouping of students was determined based on data obtained from previous tests.

Students will be measured by the level of creative thinking skills based on the results of the tests that have been done. The level of creative thinking skills is as follows (Siswono, 2008):

Table 1. Students' creative Thinking Skill

Level	Characteristics
Level 4 (very creative)	Students are able to show fluency, flexibility, originality, or flexibility and originality in solving problems.
Level 3 (creative)	Students are able to demonstrate fluency and flexibility, or fluency and originality in solving problems.
Level 2 (creative enough)	Students show flexibility or originality in solving problems.
Level 1 (less creative)	Students show fluency in solving problems.
Level 0 (not creative)	Students are not able to show fluency, flexibility, and originality in solving problems.

3. Results and Discussion

3.1 Results

The results of the written test and interviews for each subject are described as follows:

1) Subject 1 (SK1)

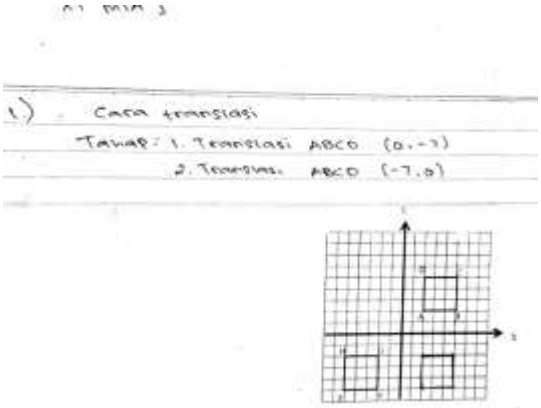

Figure 1. SK1 subject answers on the indicator of flexibility

In question number 1 regarding the flexibility indicator, it is known that the SK1 subject solves questions in one way, namely translation. However, the SK1 subject wrote the answer concisely and did not include a picture. Subject SK1 translated the ABCD square into 2 stages, the first stage SK1 subject translated the ABCD square as far as (0, -7) then continued the second stage, namely translating the results of the first translation as far as (-7,0).

Then an excerpt from the interview with the SK1 subject is presented regarding the flexibility indicators as follows:

P : "What information did you get from this question?"
SK1 : ”ABCD and EFGH square sis. The command looks for a way to transform square ABCD to EFGH. "
P : "How do you solve the problem and Can you explain?"
SK1 : "The translation as far as (0, -7) is the first or 7 boxes down, then the result is translated again as far as (-7,0) or 7 boxes to the left."
P : "I see you wrote your answer very concisely, why?"
SK1 : "I wrote to my understanding, the point is that."
P : "Why didn't you draw the translation on your answer sheet?"
SK1 : "It's the same as in the question sis."
P : "What do you mean?"
SK1 : "Yes, from the ABCD square it is translated into EFGH, the results have already been drawn in the questions, so I don't think it's necessary."
P : "Is there any other way besides what you wrote?"
SK1 : "No, in my opinion."
P : "Do you know the type of transformation?"
SK1 : "There is a translation and a reflection."

Based on the excerpt from the interview with the SK1 subject related to the flexibility indicator, it is known that the subject understands the questions quite well, but the subject has not been able to solve the questions correctly. Subject SK1 also only completed the transformation of the ABCD square to the EFGH square in one way, namely translation. Subject SK1 explained that the translation of the ABCD square to the EFGH square became two stages, namely the translation of ABCD as far as (0, -7) then the translation of A'B'C'D 'as far as (-7.0). The SK1 subject only knows two types of transformation, namely translation and reflection.

Then the results of the written test of the SK1 subject related to the originality indicator are presented as follows:

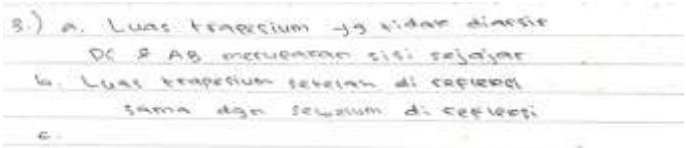

Figure 2. SK1 subject answers on the indicator of originality

Based on the results of the written test of the SK1 subject in solving the questions related to the originality indicator, it is known that the SK1 subject is not able to solve the question point a correctly. Subject SK1 did not answer the area of the trapezoid that was not shaded and subject SK1 solved the problem in point b by not looking for the area of the trapezoid that was not shaded after being mirrored, but answered with the answer that the area of the trapezoid before and after being mirrored was the same, and subject SK1 did not solve the problem in point c.

Then presented an interview excerpt related to the originality indicator on the SK1 subject as follows:

P : "What information did you get from this question?"
SK1 : "Trapezoid ABCD and triangle sis."
P : "How did you solve the problem in point a?"
SK1 : "I can't."
P : "What obstacles did you face?"
SK1 : "In the question, there were no side lengths of the traps and triangles, I can't find them?"
P : "Do you know the formula for the area of a trapezoid and a triangle?"
SK1 : "The base times the height divided by 2 feet and the base times the height divided by two feet."
P : "So the formula for the area of a trapezoid and a triangle is the same?"
SK1 : "As I remember it, Sis."
P : "Okay, how do you solve question b?"
SK1 : "I drew it first, The drawing was the same, so the area before and after was the same."
P : "Then what about point c?"
SK1 : "I don't know, the area can't be searched, so I don't know."

Based on the excerpt from the interview with the SK1 subject above, it is known that the SK1 subject is unable to solve the questions related to the originality indicator. Subject SK1 said that the area of the trapezoid could not be searched because the side lengths were not known, so the SK1 subject did not answer the question of point a. According to the SK1 subject, the answer to question b is obtained from the image that the SK1 subject has made, because the mirror image obtained is the same, the SK1 subject assumes that the area of the trapezoid is the same, but the mirror image of the trapezoid is also less precise. Subject SK1 did not answer the question in point c because SK1 subject could not find the area of the trapezoid before or after being mirrored.

Based on the results of written tests and interviews conducted by SK1 on questions related to fluency indicators, it was known that the SK1 subject was able to solve the questions correctly. Subject SK1 is able to explain answers fluently. Subject Sk1 draws the Konik route and reflects it and makes the reflection of the Konik route the Rere route and determines the final direction of Rere.

2) Subject 2 (SK2)

These are the results of the written test and interview from subject 3 with the kinesthetic learning style (SK2):

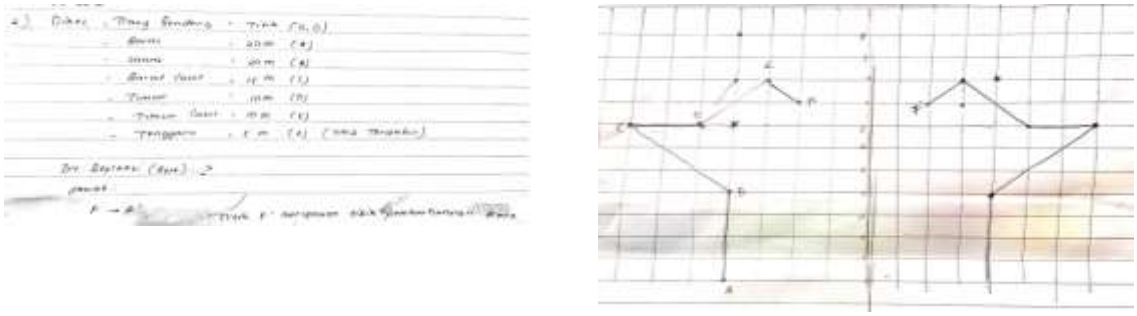

Figure 3. SK2 subject answers on the indicator of fluently

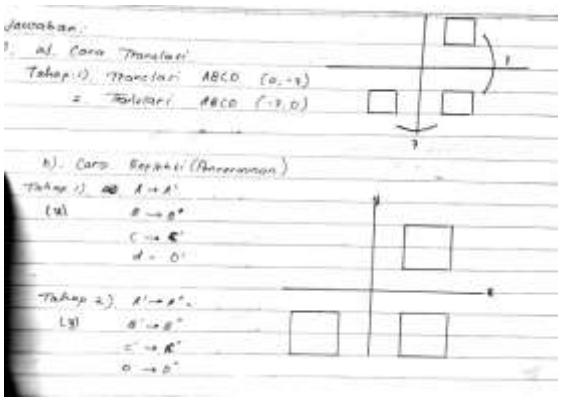

Figure 4. SK2 subject answers on the indicator of flexibility

Based on the results of the SK2 written test on the questions related to the fluency indicator, the SK2 subject is able to solve the questions correctly. SK2 subjects wrote down the information they knew on the questions before answering the questions. The SK2 subject drew the Konik route, reflected it and made the result of the reflection as the Rere route, so that the point and direction of Rere's stop could be known.

In questions related to flexibility indicators, the SK2 subject solved the questions in two ways. In the first method, subject SK2 translates the square ABCD as far as (0, -7) and translates it again as far (-7.0) to produce square EFGH. The second way, the SK2 subject uses reflection, the ABCD square is reflected about the x-axis and reflected on the y-axis to produce square EFGH.

Then presented an interview excerpt related to indicators of fluency and flexibility in the SK2 subject as follows:

P : "What information did you get from this question?"
SK2 :"The length of the Konik route, the one asked for a reflection of that route, and so the Rere route."
P : "Could you please explain how you solved the problem?"
SK2 : "First I wrote down what was known in the problem, the instructions in the question were asked to draw, then I drew a reflection of the Konik route, became the Rere route and determined the stop point from Rere."
P : "Did you have difficulty solving the problem?"
SK2 : "Nothing."

Then an excerpt from the interview with the SK2 subject is presented regarding the flexibility indicators as follows:

P : "What information did you get from this question?"
SK2 : "ABCD square and how to transform it into EFGH square."
P : "How do you solve the problem?"
SK2 : "I transformed it in two ways, namely translation and reflection. I translated the ABCD square 7 boxes down and I translated 7 more boxes to the left. The second way is reflection, I reflect the ABCD square on the x-axis and reflect again on the y-axis. "
P : "Did you have any problems solving the problem?"
SK2 : "Nothing."
P : "How many types of transformations do you know?"
SK2 : "There is translation, reflection, rotation and dilation sis."
P : "Is there no other way to solve the problem other than translation and reflection?"
SK2 : "In my opinion yes, there is, it looks like it can be rotated, but I forgot how to do it, so I only wrote two."

Based on the interview excerpt above, the SK2 subject is able to explain the answers related to indicators of fluency and flexibility smoothly. On questions related to fluency indicators, the SK2 subject understood the questions well, the SK2 subjects wrote down the information contained in the questions before working on the questions. The SK2 subject draws the Konik route, reflects on the route and makes it the Rere route, then determines the point and direction of the Rere stop from the Rere route image.

In the excerpt of the interview with the SK2 subject, it is known that the SK2 subject works on questions related to the flexibility indicator in two ways. The first method is translation, the SK2 subject translates the ABCD square as far as 7 units down or as far as (0, -7) and translates it again as far as 7 units to the left or as far as (-7,0). The second way is reflection, SK2 subject reflects ABCD square about the x-axis and reflects again on the y-axis. The SK2 subject knows the types of transformations and assumes that there is one more way to solve the problem, namely rotation, but the SK2 subject does not write in the problem because she forgets how to rotate an object.

Then to see the originality indicator on the SK2 subject, the written test results on question number 3 are presented as follows:

Figure 5. SK2 subject answers on the indicator of originality

Based on the written test results on the questions related to the originality indicator, it is known that the SK2 subject completed all the questions given. SK2 subjects can determine the area of an unshaded trapezoid. Subject SK2 finds the area of the trapezoid and the area of the triangle and reduces the area of the trapezoid to the area of the triangle, so that the area of the trapezoid is not shaded. Subject SK2 also draws a reflection of the trapezoid correctly, and also determines the area of the trapezoid that is not shaded after being mirrored. Subject SK2 found a trapezoidal area relationship before and after mirroring.

Then an excerpt from the interview with the SK2 subject is presented regarding the originality indicator as follows:

P : "What information did you get from this question?"
SK2 : "There was a trapezoid and a kak triangle, and asked to find the area of the trapezoid that was not shaded."
P : "How did you solve the problem in point a?"
SK2 : "I numbered each point and got the side length of the parallel line and the height of the trapezoid, the length of the base and the height of the triangle, I am looking for the area of the side length and the height that I got. Then I reduce the area of the trapezoid to the area of the triangle. "
P : "Then what about point b?"

SK2 : "After I drew the reflection of the trapezoid I knew that if the size did not change, only the position had changed, so I did not count it and immediately answered it."
P : "Then what about point c?"
SK2 : "Because what was being asked was the relationship between points a and b, I conclude that the area is the same between the shapes before and after being reflected."

Based on the excerpt from the interview conducted with the SK2 subject above, it is known that the SK2 subject understands the problem well. The SK2 subject can find the area of the unshaded trapezoid by using the auxiliary points on the x and y axes in finding the side lengths and heights of the known shapes. Subject SK2 determines the area of the unshaded trapezoid by reducing the area of the trapezoid to the area of the triangle. Subject SK2 describes the reflection of the trapezoid shape correctly and makes it the basis for answering the problem of point b, the SK2 subject does not recalculate the area of the trapezoid that is not shaded because after drawing the reflection of the trapezoid, the SK2 subject realizes that the shape of the trapezoid does not change size so that it only writes the area of the trapezoid without calculating it . The SK2 subject answered the question point c based on the previous finding that the area of the trapezoid before and after being mirrored was the same.

3) Subject 3 (SK3)

This is the written test results of the SK3 subject on the questions related to the flexibility indicator:

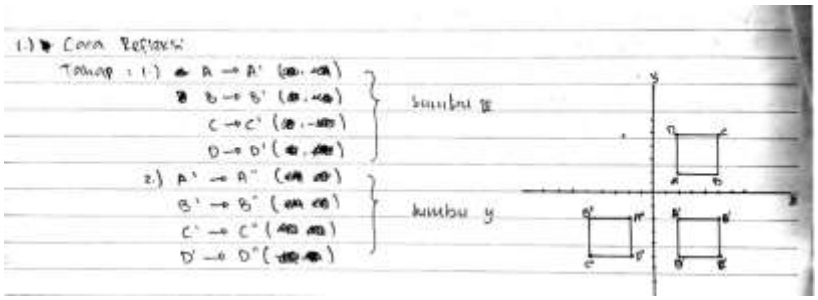

Figure . SK3 subject answers on the indicator of flexibility

Based on the written test results regarding the SK3 subject's flexibility indicator questions, it is known that the SK3 subject solves the questions in one way. The method used by the SK3 subject in transforming the ABCD square to the EFGH square is by means of reflection or reflection. Subject SK3 stated that the reflection carried out on the ABCD square was carried out in two stages, namely reflection on the x axis and then reflected on the y axis.

Then an excerpt from the interview with the SK3 subject is presented regarding the flexibility indicators as follows:
P : "What information did you get from this question?"
SK3 : "ABCD square, EFGH square and how to transform."
P : "How do you solve the problem?"
SK3 : "So the ABCD square is reflected on the x-axis and reflected again on the y-axis."
P : "I see there are some parts that you crossed out in your answer, what obstacles did you face while working on this problem?"
SK3 : "So I originally wrote the change in point, so for example point A to A 'moved as far as (0, -4), point C to C' moved as far as (0, -10), but I doubt it, why is it so like a translation, I just crossed it out. "
P : "Is there any other way than what you mentioned earlier?"
SK3 : "Looks like nothing."
P : "Earlier I heard you mention translation, is this problem not workable with translation?"

SK3 : "Yes, I think."
P : "Could you explain?"
SK3 : "So as I explained earlier, the answer I crossed out earlier, point A was moved as far as (0, -4), point B was moved as far as (0, -4), point C was moved as far as (0, -10) and point D is moved as far as (0, -10). But it seems wrong, right sis? "
P : "Why do you assume that it is wrong?"
SK3 : "Because I was just guessing, I was not sure about my answer, so I didn't mention it either,"
P : "How many types of transformations do you know?"
SK3 : "There is a reflection, the translation, and dilatation."

Based on the interview excerpt related to the flexibility indicator with the SK3 subject above, it is known that the SK3 subject can only solve questions related to the flexibility indicator in one way. The method used by the SK3 subject is the reflection method, namely the SK3 subject reflects the ABCD square on the x-axis and reflects it again on the y-axis. The SK3 subject was confused and mixed between reflection and translation, but the SK3 subject was finally able to complete the ABCD square transformation by reflecting correctly. The SK3 subject tried to work on the question by means of translation, but the answer to the SK3 subject by translation was still not quite right and the SK3 subject was also unsure of the answer and chose not to write it on the answer sheet. The SK3 subject also only mentioned 3 of the 4 types of transformations that the SK3 subject had studied before.

In the results of the written test questions related to the fluency indicator it was known that the SK3 subject could solve the questions correctly. Subject SK3 describes the conic route, reflects it, makes it the Rere route and correctly determines the last point and the last direction of Rere. SK3 subjects also wrote down the information contained in the questions on the answer sheet before working on the questions. Based on quotations from interviews with SK3 subjects related to fluency indicators, it is known that SK3 subjects understand the questions well. SK3 subjects are able to explain the answers to these questions fluently and correctly.

Then presented to see the indicators of originality in the SK3 subject, the written test results are presented as follows:

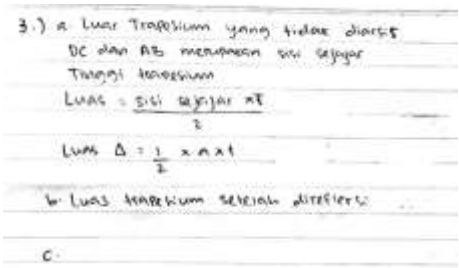

Figure . SK3 subject answers on the indicator of originality

Based on the results of the written test questions related to the originality indicator it is known that the SK3 subject has not been able to solve the question properly In point a, the SK3 subject writes the parallel side but does not continue the answer. In point b, the SK3 subject only writes what is asked in the question and does not continue and also the SK3 subject does not answer the question in point c.

Then an excerpt from the interview with the SK3 subject is presented regarding the originality indicator as follows:

P : "What information did you get from this question?"
SK3 : "Draw trapezoid and triangle, how to find the reflection, area of the trapezoid and also what is the relationship between a and b."
P : "How do you solve the problem?"

SK3 : "I can't solve this problem."
P : "What obstacles are you facing?"
SK3 : "I don't know the length and height of the foot, I know how to find it, the area of the trapezoid minus the area of the triangle, but I can't find the area because the length of the parallel side and the height is not known."
P : "Can you explain the trapezoidal reflection you made?"
SK3 : "The trapezoid is mirrored against the point (0,0)."
P : "It looks like you are reflecting the trapezoid using vertical lines. Could you explain? "
SK3 : "That's reflected on point O (0,0) sis, so I used an upward line parallel to point (0,0), like the question number 2 earlier."

Based on the interview excerpt with the SK3 subject regarding the originality indicator above, it is known that the SK3 subject knows the formula for the area of a trapezoid and a triangle, and how to find the area of a trapezoid that is not shaded, but cannot solve it because the SK3 subject cannot find the side length and height of the trapezoid and triangle. The SK3 subject also did not accurately describe the reflection of trapezium. Subject SK3 considers y-axis, lined up from point (0,0) as mirror in reflecting trapezoidal shape.

4. Discussion

Based on the results of written tests and interviews conducted with SK1 subjects, it is known that SK1 subjects are able to solve problems related to fluency indicators correctly and fluently, solve questions related to flexibility indicators in one way and do not solve questions related to originality indicators. This shows that the SK1 subject fulfills the indicators of fluency and does not fulfill the indicators of flexibility and originality in creative thinking skills. So that the SK1 subject is at level 1 or less creative because the SK1 subject only fulfills the indicators of fluency in the creative thinking skill.

Based on the results of written tests and interviews with SK2 subjects, it is known that SK2 subjects are able to solve questions related to indicators of fluency fluently and correctly, solve questions related to indicators of flexibility in more than one way, and are also able to solve questions related to originality indicators in ways that are not usually done by other students. This shows that the SK2 subject is able to fulfill the indicators of fluency, flexibility, and originality in creative thinking skill. It shows that the SK2 subject is at level 4 or very creative because SK2 subject is able to fulfill the three indicators of creative thinking skill.

Based on the results of written tests and interviews conducted with SK3 subjects, it is known that SK3 subjects are able to solve questions related to fluency indicators correctly and smoothly, solve questions related to flexibility indicators in one way and do not solve questions related to originality indicators. This shows that the SK3 subject fulfills the indicators of fluency and does not fulfill the indicators of flexibility and originality in creative thinking skills. So that the SK3 subject is at level 1 or less creative because the SK3 subject only fulfills the indicators of fluency in the creative thinking skill.

The low ability of student's creative thinking skill in mathematics with this kinesthetic learning style is due to the distance learning system that students have been doing for the past year. This distance learning system was caused by the Covid-19 pandemic which is still ongoing today. The distance learning process is carried out using *whatsapp* groups, and the teacher occasionally explains the material using voice notes and distributes material in *PDF* format. The COVID-19 pandemic that came unexpectedly resulted in students, teachers and schools being unprepared for online learning, this resulted in many obstacles that occurred during the learning process and resulted in a less than optimal learning process (Mailizar et al., 2020). The obstacles that occur result in less than optimal mathematics learning in achieving the goals of the curriculum(Kamsurya, 2020). This distance learning process results in students becoming less active in the learning process, especially for students with a kinesthetic type learning style

who tends to use their limbs to facilitate the learning process, this is thought to be the main reason students with kinesthetic learning styles have a level of creative thinking skill low. The learning process that takes place flat, usually students with a visual learning style have better performance followed by auditory, then kinesthetic (Permana, 2016).

In the creative thinking skill of the SK2 subject, it is known that the SK2 subject has the creative thinking skill at level 4 or is very creative in the creative thinking skill in mathematics. When the research process took place it was known that the SK2 subject was in a boarding school during the COVID-19 pandemic. The SK2 subject admitted that while in the Islamic boarding school, the SK2 subject always did group study with their peers who were also at the Islamic boarding school, including when they received transformation material from the mathematics subject teacher through the *WhatsApp* group. The SK2 subject admitted that he did not understand the material when he got the material in the form of a PDF and an explanation through voice notes. The SK2 subject admitted that he understood the material much better when studying in groups. If the SK2 subject still finds it difficult to understand the material, the SK2 subject usually asks questions and has a discussion with someone who is older at the boarding school. The active discussion process carried out by the SK2 subject is assumed to be a major factor in the high ability of the subject's mathematical creative thinking.

When the discussion process takes place, students with a kinesthetic learning style can freely use their limbs to facilitate information absorption. This is in line with research conducted by (Laksono & Yuniarti, 2019) which states that discussion has a positive impact on student achievement in mathematics. This happens because in the discussion process students are active in moving their limbs, asking, answering and digging up information related to the material being taught.

Conclusion

Students with kinesthetic learning styles have a fairly low level of creative thinking skills in the transformation material, namely at level 2 or less creative at the level of mathematical thinking skills. Of the three subjects, two of them could only show indicators of fluency on the mathematical creative thinking ability test. The low ability of student creative thinking skill with this kinesthetic learning style was caused by the COVID-19 pandemic which occurred suddenly and forced students to study at home online. This causes students, teachers, and schools to be not ready to maximize learning. The learning process that uses *WhatsApp* group as a learning tool also results in students with not optimal kinesthetic learning styles in using their limbs in the learning process, resulting in students with kinesthetic learning styles not understanding the learning material well.

The low ability in student creative thinking skill with this kinesthetic learning style can actually be improved with a discussion learning model, but the COVID-19 pandemic forces students who are at home to continue to study independently as a form of implementing health protocols to reduce the spread of the COVID-19 virus.

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