



Creative Thinking Ability of Visual-Dominant and Visual-Kinesthetic Students in Solving Statistics Problems

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Abstract

Creative thinking ability is a personal ability to carry out mental activities to produce an innovative new product. This study aims to analyze the level of creative thinking ability (LCT) of students with visual-dominant and visual-kinesthetic learning styles in solving statistics problems. Participants of this qualitative research are two junior high school students in 8th grade. The participant selection using purposive sampling technique, namely subjects who have a visual-dominant and visual-kinesthetic learning style. The instrument consisted of a learning styles questionnaire, the statistical problem-solving test, and task-based interviews. The indicators used to assess creative thinking products include fluency, flexibility, and originality. The data collected to be analyzed using the data source triangulation technique (reducing, presenting, verifying, and conclusions). The results showed that students who had a visual-dominant learning style met the indicators of fluency and originality. So, he was categorized at LCT 3 (creative). Meanwhile, students who have a visual-kinesthetic learning style only meet fluency indicators, so that he was categorized at LCT 1 (almost not creative).

Keywords: Creative thinking ability, statistical problem solving, visual-dominant learning style, and visual-kinesthetic learning style

Abstrak

Kemampuan berpikir kreatif adalah kemampuan pribadi untuk melakukan aktivitas mental untuk menghasilkan suatu produk baru yang inovatif. Penelitian ini bertujuan untuk menganalisis tingkat kemampuan berpikir kreatif (LCT) siswa dengan gaya belajar visual-dominan dan visual-kinestetik dalam menyelesaikan soal statistik. Partisipan penelitian kualitatif ini adalah dua orang siswa kelas VIII SMP. Pemilihan partisipan menggunakan teknik purposive sampling, yaitu subjek yang memiliki gaya belajar visual-dominan dan visual-kinestetik. Instrumen terdiri dari angket gaya belajar, tes pemecahan masalah statistik, dan wawancara berbasis tugas. Indikator yang digunakan untuk menilai produk berpikir kreatif meliputi kelancaran, keluwesan, dan orisinalitas. Data yang terkumpul dianalisis dengan menggunakan teknik triangulasi sumber data (reduksi, penyajian, verifikasi, dan penarikan kesimpulan). Hasil penelitian menunjukkan bahwa siswa yang memiliki gaya belajar visual-dominan memenuhi indikator kelancaran dan orisinalitas. Jadi, dia masuk kategori LCT 3 (kreatif). Sedangkan siswa yang memiliki gaya belajar visual-kinestetik hanya memenuhi indikator kelancaran, sehingga dikategorikan pada LCT 1 (hampir tidak kreatif).

Kata Kunci: Kemampuan berpikir kreatif, pemecahan masalah statistika, gaya belajar visual-dominan, dan gaya belajar visual-kinestetik.

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Introduction

Everyone is born with their creative thinking abilities (Macleod, 2009). The ability to think creatively is one of the important skills needed to support professional success and self-development in the future (Besancon & Lubart, 2008). In addition, creative thinking abilities are needed to change lives,

such as sustainable technological innovation, educational environment (Siswono, 2018), and social perspectives (Oztop & Gummerum, 2020). Therefore, the National Curriculum seeks to develop the creative thinking abilities of each individual through learning (Ministry of Education and Culture, 2014).

Creative thinking is a combination of logical thinking and divergent thinking consciously based on intuition (Pehkonen, 1997). Creative thinking can be based on intuition, imagination, fresh, and unexpected ideas (Johnson & Johnson in Suripah & Retnawati, 2019). Erdogan, et. al. (2009) states that creative thinking is a thinking style that allows individuals to produce new and authentic products, find new solutions, and achieve synthesis. Another opinion states that creative thinking is a mental activity carried out by a person to produce a new product/innovative work (Siswono, 2018). Based on the description above, it can be concluded that creative thinking is a mental activity carried out by a person to produce innovative and diverse new products/works consciously based on his intuition.

Creative thinking consists of two main approaches, process, and product (Haylock, 1997). Creative thinking in terms of the process is the response of students to solving problems using appropriate methods. Meanwhile, seen as a product or result consists of three indicators, namely: fluency, flexibility, and originality. Fluency is solving a problem with a variety of interpretations, methods of solving or answering various problems. Flexibility is solving a problem in another way that is different from the first method produced. Novelty is solving a problem with a different and unique solution or answer method from the others (Siswono, 2008).

Each different individual has a different level of creative thinking ability. Hurlock states that creativity has various levels and various levels of intelligence in humans (Hurlock, 1999). Because creativity is a manifestation of the creative thinking process, creative thinking also has levels. Liljedahl & Sriraman (2006) divide the level into two, namely the professional level and the school level. Meanwhile, Kaufman & Beghetto (2009) state that a person's creativity can be divided based on certain broader domains, namely the Four Cs of Creativity. Siswono (2010) states that a person's creative thinking level is categorized into five levels. The Creative Thinking Ability (LCT) level consists of several levels, namely LCT 4 (very creative), LCT 3 (creative), LCT 2 (quite creative), LCT 1 (almost not creative), and LCT 0 (not creative).

A person's LCT categorization needs to be identified according to the indicators of creative thinking ability. Identification of creative thinking ability can be done with a creative thinking test (Siswono, 2004). The creative thinking test includes mathematical problems that contain divergent thinking. Divergent has many answers or many ways (Silver, 1997). So that to solve a problem in the creative thinking test one can solve the problem by involving fluency, flexibility and novelty. Haylock (1997) states that problem solving can encourage students' creative thinking ability. In addition, problem solving supports the development of creativity (Laine, et.al., 2012). So that the problem solving given to students will encourage them to think creatively and can be used as a guide for teachers in determining the mathematics learning process. Problem solving is an individual's cognitive process that aims to solve by overcoming obstacles when there is no clear solution method for problem solvers (Mayer & Wittrock in Rott, 2012; Siswono, 2018). There are several steps in problem solving, namely understanding the problem, making plans, implementing plans, and looking back (Polya, 1957).

Statistics is one of the mathematical materials that can be used in problem-solving. At the junior high school and senior high school levels, students study statistics. Statistics material becomes the core material in the curriculum because statistics are considered important in everyday life. Statistics is the science of processing numbers, data, and how to analyze data (Wulansari, et.al., 2019). However, some studies show that statistics is one of the most difficult subjects to learn. Based on the results of research by Febrianti & Chotimah (2020) it was stated that students had difficulties in solving statistics problems. As many as 83% of students are still unable to connect mathematical ideas into diagrams, and the indicators explain mathematical ideas, situations, and relationships orally or in writing with graphs and algebra. Students have difficulty understanding statistics because students' learning tendencies only focus on memorizing/remembering formulas without understanding statistical concepts (Broers & Imbos in Ismail and Chan, 2015) and only relying on mastery of statistical computing so that their conceptual understanding is static (Saidi and Siew, 2019). As a result, there are many misconceptions that occur in data centering materials such as median (Cooper and Shore, 2009), mode (Huck, 2008) and mean (Olani, et. al., 2011). Students had difficulty determining the median and mode from the frequency table. This happened because students were confused in understanding words about mode and median. Students often experience errors in determining the arithmetic mean due to calculation errors (Saidi and

Siew, 2019). Solving statistical problems is still a problem for students so it is necessary to optimize students' abilities in solving statistical problems. The development of statistical problems with many ways and answers can be one way to improve students' creative thinking ability in solving statistical problems.

In addition, mistakes in determining the right way of learning can cause students' creative thinking ability to be low. Every individual has a different way of learning. Everyone cannot be forced to follow the same way of learning. But in reality, many students do not know the learning style that suits their personality. Learning styles that are not in accordance with the student's personality can cause students to feel difficult when facing complex and non-routine problems. Learning style is a way that is owned and preferred by individuals to receive, absorb, process, and retain the new information obtained (Hatami, 2013; Widayanti, 2013). Knowledge of determining the learning styles of students can help teachers to determine the right mathematics learning process so that students can have better learning achievement development (DePorter, et al., 2010). There are many types of learning styles proposed by experts. DePorter & Hernacki formulate the type of learning style based on how information is received. The types of learning styles are divided into three, namely visual, auditory, and kinesthetic learning styles (DePorter & Hernacki, 2002). Each student has his uniqueness. The uniqueness of students allows them to have a combination of learning styles. One of the combinations of learning styles is the visual learning style which consists of visual-dominant, visual-auditory, and visual-kinesthetic learning styles (Kurniawan & Hartono, 2020).

In the current visual era, more information and knowledge is presented in visual formats such as images, infographics, diagrams, videos, simulations, graphics, cartoons, powerpoint shows, posters, films, and games. In fact, some studies state that 75% of all information found by the brain comes from visual formats. What's more, visual information can be mapped better in students' minds (Raiyn, 2016). To get the right level of understanding and mastery, students who have a visual learning style can learn by seeing, paying attention and observing. Meanwhile, students who have a kinesthetic learning style can learn by moving their bodies (Moussa, 2014). However, in online learning or hybrid learning as a result of the Covid-19 pandemic, students who have a kinesthetic learning style cannot obtain optimal and new information (Drago & Wagner, 2004; Yuniarti et al., 2021). The results of research by Richardo, et.al. (2014) and Mukti & Soedjoko (2021) state that students with visual learning styles have LCT 3. While kinesthetic learning styles have lower LCTs than visual learning styles (LCT 2) (Mukti & Soedjoko, 2021) and (LCT 1) (Richardo, et.al., 2014). However, the results of Octaviana & Kurniasih (2020) research show that students' creative thinking abilities with kinesthetic learning styles have LCT 4 because they meet all the indicators of creative ability assessment. Based on this description, it is very important to know the results of the analysis of students' creative thinking ability with visual-dominant and visual-kinesthetic learning styles. Thus, the purpose of this study is to analyze the ability to think creatively in solving statistics problems in terms of visual learning styles.

Method

Type of research

The study used qualitative research. Qualitative research is a study that understands and interprets naturalistic phenomena with research procedures that produce descriptive data (Siswono, 2019). The research subjects were taken from two 8th grade junior high school students. The selection of research subjects used a purposive sampling technique, namely subjects who had a visual-dominant and visual-kinesthetic learning style. In addition, the research subjects have relatively the same mathematical ability and can communicate well.

Data collection and Analysis

The instrument in this study was a learning style questionnaire that was useful for knowing the learning style of the subject, a test sheet in the form of a statistical problem-solving question to measure the level of creative thinking ability, and interview guidelines. The learning style questionnaire used is an adaptation of the learning preference channel questionnaire (O'Brien, 1985). The questionnaire consisted of 30 questions with ten statements each representing scores for visual learning styles, auditory learning styles, and kinesthetic learning styles. The creative thinking ability test given to the subject is

in the form of a statistical problem-solving test. Both the questionnaire and the creative thinking ability test have been declared feasible after the validation test has been carried out. Then to strengthen the truth of the results of the statistical problem-solving test, a task-based interview was conducted on the subject. Figure 1. shows the statistical questions tested for 8th grade junior high school students:

<p>Soal: Pemecahan Masalah Statistika</p> <p>Berapa usia mereka?</p> <p>Sebuah keluarga beranggotakan 5 orang. Rata-rata usia mereka 17 tahun, median dan modusnya 9 tahun. Tentukan kemungkinan-kemungkinan usia setiap anggota keluarga tersebut? Jelaskan minimal dengan 2 cara penyelesaian.</p>	<p>Translate</p> <p>Question: Statistical problem solving</p> <p>How old are they?</p> <p>A family has five members in the home. Their average are 17 years, the median and mode are 9 years. What are the possible ages of each member of the family? Explain in at least two ways of solving!</p>
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Figure 1. Statistical problem-solving test

The data analysis used in this study is a qualitative descriptive analysis using the Milles and Huberman model which consists of data reduction, data presentation, verification, and drawing conclusions (Siswono, 2019). The researcher analyzed the student learning style questionnaire by calculating the highest total score for each learning style. If a student gets the highest total score for more than one learning style, it can be categorized as having a combined learning style. Then, the researcher analyzed the creative thinking ability of visual-dominant and visual-kinesthetic students with indicators of fluency, flexibility, and originality. Then, the researcher categorizes the level of creative thinking ability (LCT). After that, task-based interviews were conducted with the two subjects to strengthen the truth of the statistical problem-solving test results. The last step is triangulation in the form of data sources by reducing, presenting, verifying, and drawing conclusions based on the data sources obtained.

Result and Discussion

Each individual has a different learning style so that to find out their learning style an assessment needs to be done. Based on the data obtained that both subjects have a visual learning style. Therefore, both ED (subject has visual-dominant learning styles) and FK (subject has visual-kinesthetic learning styles) subjects were given creative thinking ability test questions in the form of statistical problem solving to measure their level of creative thinking ability. Table 1 shows the results of the assessment of learning styles in two subjects for 8th grade students of junior high school.

Table. 1 Assessment score of the learning styles.

Initial name	The Score of The Learning Styles			The Learning Style
	Visual (V)	Auditory (A)	Kinesthetic (K)	
ED	24	19	23	Visual-Dominant (VD)
FK	24	22	24	Visual-Kinesthetic (VK)

The coding of interview subjects and interview sequences were used to facilitate the presentation of interview transcript data. Table 2 shows the codes used to represent research subjects and Table 3 shows the codes used to sort the order of the interviews.

Table 2. Subject code

No.	Code	Information
1.	P	The researcher
2.	ED	The subject has a visual-dominant learning style (VD).
3.	FK	The subject has a visual-kinesthetic learning style (VK)

Table 3. Transcript code of interview.

No.	Code	Information
1.	P-0n	The n^{th} question asked by the researcher to the research subject.
2.	ED-0n	The n^{th} answer from the subject who has a visual-dominant learning style (VD) to the researcher's n^{th} question.
3.	FK-0n	The n^{th} answer from the subject who has a visual-kinesthetic learning style (VK) to the researcher's n^{th} question.

Creative Thinking Ability of Visual-Dominant

Figure 2 shows the results of problem-solving from ED subjects who have a VD learning style:

<p>Diket: Jumlah anggota = 5 orang Mean / rata rata = 17 tahun Modus = 9 tahun Median = 9 tahun</p> <p>Many: Masing masing umur</p> <p>Jawab</p> <p>Modus: ada 2 kemungkinan \rightarrow 2 orang 9 tahun / 3 orang 9 tahun</p> <p>2 orang 9 tahun = $\frac{a + 9 + 9 + d + e}{5} = 17$</p> <p>$= a + d + e = 67$</p> <p>$a = 8$ $b = 9$ $c = 9$ $d = 29$ $e = 30$</p> <p>3 orang 9 tahun = $\frac{9 + 9 + 9 + d + e}{5} = 17$</p> <p>$= d + e = 58$</p> <p>$a = 9$ $b = 9$ $c = 9$ $d = 29$ $e = 29$</p>	<p>Translate:</p> <p>Information for question: family members = 5 people. Mean = 17 years Mode = 9 years Median = 9 years.</p> <p>Question: Each old member of the family?</p> <p>Solution:</p> <p>Mode: There are two possible \rightarrow two old member have 9 years or three old members have 9 years. Two old member have 9 years</p> <p>;;;;</p> <p>Three old member have 9 years</p> <p>;;;;</p>
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Figure 2. The result of problem-solving from the ED subject.

The following are the results of interviews between researchers and ED subjects:

- P-01 : "What do you understand from the given statistics problem?"
- ED-01 : "From the problem, I understand that the median is the value in the middle of the data, the mode is the data that occurs frequently, and the average is the sum of all data and divided by many data".
- P-02 : "Okay, What strategy did you use to solve this statistical problem?"

- ED-02 : "In this question, there is the mean, mode, and median, so before working on this question I need to know the meaning of the mean, mode, and median. After knowing the meaning of the word, I looked at the question itself to find the answer and I also had to know the question factors such as mode, median, average, and others. If I already know, then I look for other formulas or development patterns to get answers to these questions. If I have found the formula, I will calculate and I will find the answer."
- P-03 : "From your answer, there are two different answers. Is there a difference in the method you used to get the answer?"
- ED-03 : "In my answer I only use the method I wrote, because the only way I know to solve the problem is like that."
- P-04 : "Okay. Is there any other way or answer other than the one you answered?"
- ED-04 : "I think there are other answers besides the one I answered, but I don't know how to solve the problem except in my way."

From the solution given by the subject of ED, it shows the presence of an Fs indicator. This is indicated by the presence of two different correct answers. ED subjects found a solution that the ages of five family members in a row from the youngest to the oldest were 8 years, 9 years, 9 years, 29 years, 30 years in the first answer and 9 years, 9 years, 9 years, 29 years, 29 year on the second answer. Figure 3. shows the results of problem solving from DE subjects which show the Fs indicator.

$a = 8$	$a = 9$
$b = 9$	$b = 9$
$c = 9$	$c = 9$
$d = 29$	$d = 29$
$e = 30.$	$e = 29$
First Answer	Second Answer

Figure 3. The result of problem-solving from the ED subject which shows the Fs indicator.

Furthermore, the results of the task-based interviews submitted to the ED subject also showed the Fs indicator. This is indicated by the answer of the subject ED with codes ED-02 and P-03. The following is an interview excerpt from the subject of ED which shows the Fs indicator:

- ED-02 : "..., I looked at the question itself to find the answer.... If I already know, then I look for other formulas or development patterns to get answers to these questions. If I have found the formula, I will calculate and I will find the answer."
- P-03 : "From your answer, there are two different answers."

From the solution given by the subject of ED, it shows the presence of the Br indicator. ED subjects made many different data from information about the mode so that two different answers were obtained. For the first answer, the ED subject took as many as two 9-year age data modes which were located in the second and third data sequences. For the second answer, the ED subject took as many as three 9-year age data modes which were located in the first, second, and third data sequences. Figure 4. shows the results of problem solving from DE subjects that show the Br indicator.

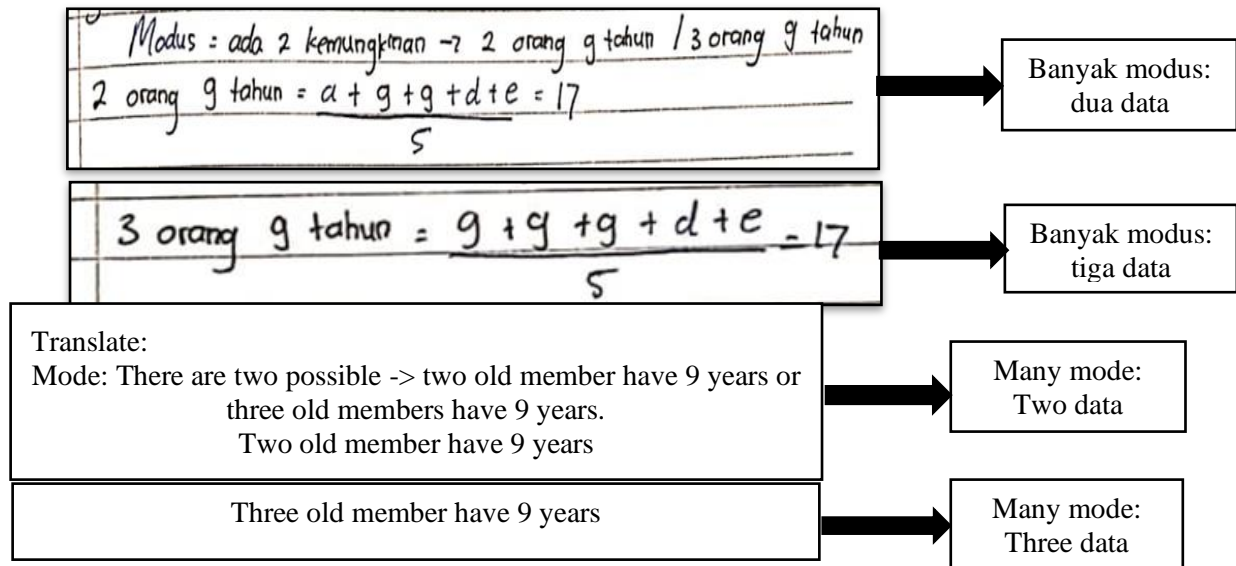


Figure 4. The result of problem-solving from the ED subject with the Br indicator.

Furthermore, the results of the task-based interviews submitted to ED subjects also showed indicators of Br. This is indicated by the answers of ED subjects with codes ED-01 and ED-02. The following is an interview excerpt from the subject of ED which shows the Br indicator.

ED-01 : "..., the mode is the data that occurs frequently"

ED-02 : "... After knowing the meaning of the word, I looked at the question itself to find the answer and I also had to know the question factors such as mode, median, average, and others. If I already know, then I look for other formulas or development patterns to get answers to these questions. If I have found the formula, I will calculate and I will find the answer."

From the solution given by the subject of ED, it does not show any indicator of Fb. This was indicated by the absence of other events that used ED subjects. Furthermore, the results of the task-based interviews submitted to the ED subject also did not show the Fb indicator. This was indicated by the answers of the ED subjects with codes P-03, ED-03, P-04, and ED-04. The following is an interview excerpt from the subject of ED which shows the Fb indicator.

P-03 : "From your answer, there are two different answers. Is there a difference in the method you used to get the answer?"

ED-03 : "In my answer, I just use the method, because the only way I know to solve the problem is just like that."

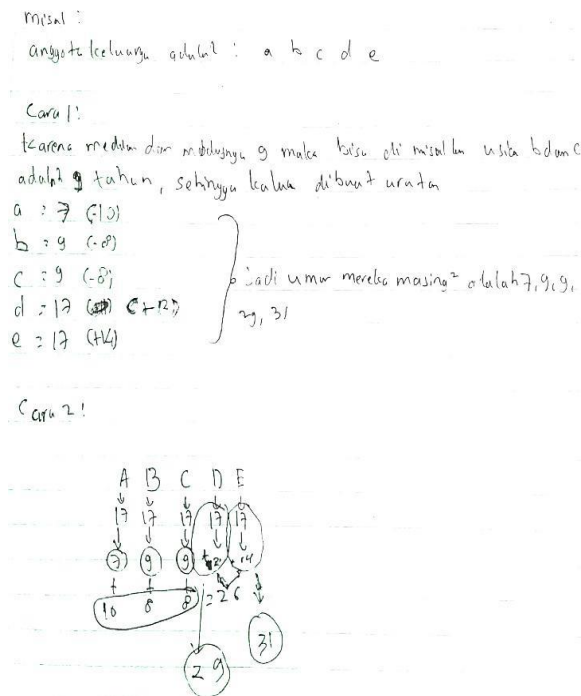
P-04 : "Okay. Is there any other way or answer other than the one you answered?"

ED-04 : "I think there are other answers besides the one I answered, but I don't know how to solve the problem except in my way."

Therefore, the results of the statistical test of problem-solving given by the ED subject and the results of task-based interviews. It shows that the ED subject can think creatively in the form of fluency and novelty. Therefore, ED subjects are included in LCT 3 or creative.

Creative Thinking Ability of Visual-Kinesthetic

Figure 5 shows the results of problem-solving from FK subjects who have a VK learning style:



Translate:

Suppose:

The members of family is:

One Ways:

Because the median and mode is 9 years, then we can assume for b and c old is 9 years. So, we can series data:

; (-10)

; (-8)

; (-8)

; (+12)

; (+14)

Therefore, their respective ages are years.

Two ways:

A	B	C	D	E
17	17	17	17	17

7	9	9	29	31
(+10)	(+8)	(+8)	(+12)	(+14)

Figure 5. The result of problem-solving from FK subject.

The following are the results of interviews between researchers and ED subjects:

P-01 : "What do you understand from the given statistics problem?"

FK-01 : " This statistical problem has more than one solution and asks me to find their ages."

P-02 : "Okay, What strategy did you use to solve this statistical problem?"

FK-02 : "My strategy is to find their age from what is known in the problem. Then I made some assumptions based on the mean 17, median and mode 9.

P-03 : "From your answer, there are two different answers. Is there a difference in the method you used to get the answer?"

FK-03 : "It's the same, basically if it is known that the average age is 17, it can be assumed that each family member is 17. If the mode is 9 out of 5 family members, then we assume the second and third ranks are 9 years each. So, it is easiest for us to assume that the age is 7 years (2 years difference) so that for all three it is less than 10 years, 9 years, and 9 years. Etc."

P-04 : Okay. Is there any other way or answer other than the one you answered?"

FK-04 : "There is no other way but there is another answer. For example the other answers are 5, 9, 9, 25, 27. For example the other answers are 3, 9, 9, 26, 28, and so on."

From the solution given by the subject of FK, it does not show any indicator of Fs. This is indicated by the presence of two identical answers. FK subjects obtained the ages of five family members in a row from the youngest to the oldest, both the first and second answers, namely 7 years, 9 years, 9 years, 29 years, and 31 years. Figure 6. shows the results of problem solving from FK subjects which show the Fs indicator.

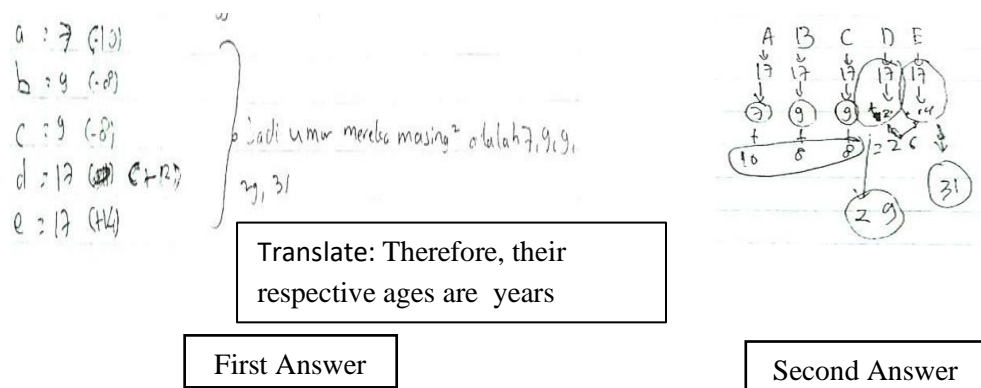


Figure 6. The result of problem-solving from the FK subject which shows the Fs indicator.

Furthermore, from the results of the task-based interviews that were submitted to the FK subject, the FK subject was able to meet the Fs indicator. This was indicated by the answers from the FK subjects with the codes P-04, and FK-04. However, although the subject of the FK can meet the Fs indicator, the other two answers from the interview results are not correct. The following is an interview excerpt from the subject of ED which shows the Fs indicator:

- P-04 : Okay. Is there any other way or answer other than the one you answered?"
 FK-04 : "There is no other way but there is another answer. For example the other answers are 5, 9, 9, 25, 27. For example the other answers are 3, 9, 9, 26, 28, and so on."

From the solution given by the subject of FK, it does not show any indicator of Br. This can be seen in Figure 5. The results of the completion of the FK course with the Fs indicator and interview quotes with the codes FK-03 and FK-04. FK subjects did not show a different answer, because the solutions found have the same pattern, namely using as many as two data modes. The following is an interview excerpt from the subject of FK which shows the Br indicator.

The solution is given by the subject of FK, it does not show any indicator of Fb. This is indicated by the two other methods used by the FK subject, but the first and second methods have the same interpretation. Furthermore, the results of the task-based interviews submitted to FK subjects also did not show the Fb indicator. This is indicated by the answer from the subject of FK with the codes P-03, FK-03, P-04, and FK-04. The following is an interview excerpt from the subject of FK which does not show the Fb indicator.

- P-03 : "From your answer, there are two different answers. Is there a difference in the method you used to get the answer?"
 FK-03 : "It's the same, basically if it is known that the average age is 17, it can be assumed that each family member is 17. If the mode is 9 out of 5 family members, then we assume the second and third ranks are 9 years each. So, it is easiest for us to assume that the age is 7 years (2 years difference) so that for all three it is less than 10 years, 9 years, and 9 years. Etc."
 P-04 : Okay. Is there any other way or answer other than the one you answered?"
 FK-04 : "There is no other way but there is another answer. For example the other answers are 5, 9, 9, 25, 27. For example the other answers are 3, 9, 9, 26, 28, and so on."

Therefore, the results of the statistical test of problem-solving given by the FK subject and the results of task-based interviews. It shows that the FK subject can think creatively in the form of fluency. Therefore, FK subjects are included in LCT 1 or almost not creative.

The results of the analysis of the two subjects are shown in Table 4 below:

Table 4. The result of research

Subject		ED		FK	
The Learning Style		VD		VK	
The Indicator of Creative Thinking Ability	Fs	Correct Answer	Incorrect Answer	Correct Answer	Incorrect Answer
		Two answers	Unavailable	One answer	Two answers
	Fb	Unavailable		Unavailable	
	Br	Available		Unavailable	
LCT		LCT 3		LCT 1	
Conclusion		Creative		Almost not creative	

From the results of the analysis of the two subjects, it is known that subjects with visual-dominant learning styles have higher creative thinking abilities than subjects with visual-kinesthetic styles. Visual-dominant subjects absorb information through sight, so that the information process can be better absorbed in the human mind. This is explained in Raiyn's research (2016) that 75% of information is absorbed better in the human mind through visual formats. Meanwhile, visual-kinesthetic subjects not only absorb information through sight but also body movements.

Visual-dominant subjects have the ability to think creatively on indicators of fluency and novelty. Visual-dominant subjects can find two answers that are diverse and different with their uniqueness in the difference in the number of modes chosen. Agree with the findings obtained by Richardo (2014), Octaviana & Kurniasih (2020), Mukti & Soedjoko (2021) which explain that visual-dominant subjects have creative thinking skills on indicators of fluency and novelty or fluency and flexibility. However, the visual-dominant subject did not have the ability to think creatively on the flexibility indicator. Because it cannot show other ways of finding solutions to statistical problems. Therefore, the visual-dominant subject has a creative thinking level of level 3 or creative.

Visual-kinesthetic subjects have the ability to think creatively on fluency indicators only. Visual-kinesthetic subjects can find more than one answer in a variety of ways. However, the visual-kinesthetic subject did not have the ability to think creatively on the indicators of flexibility and novelty. Although visual-kinesthetic subjects can find more than one answer, the answers are not different because they show the same pattern. In addition, visual-kinesthetic subjects also did not find other ways to solve statistical problems. Based on research by Richardo (2014) stated that kinesthetic students only have the ability to think creatively on the fluency indicator. So it is possible that the visual-kinesthetic subjects in this study are more likely to use their body movements to absorb information than their eyesight. Therefore, visual-kinesthetic subjects have creative thinking level 1 or almost not creative.

Conclusion

The creative thinking ability of each individual has different levels. The different learning styles of each result in differences in the level of creative thinking abilities. The results showed that the visual-dominant subject had the ability to think creatively on the indicators of fluency and novelty. Visual-dominant subjects can find two diverse and different answers with their uniqueness in the difference in the number of modes selected. Therefore, research subjects who have a visual-dominant learning style are on LCT 3 or creative. Meanwhile, the subject of visual-kinesthetic research only has the ability to think creatively on the fluency indicator. Visual-kinesthetic subjects can find more than one answer even though there are some wrong answers. Therefore, research subjects who have a visual-kinesthetic learning style are on LCT 1 or almost not creative.

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