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Analysis of Students' Creative Thinking Skills Viewed from Learning Styles in Problem-Based Learning Assisted by *Nadhom Risalah Fi Ilmi Hisab*

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Abstract

This study aims to analyze students' creative thinking skills on integer material viewed from their learning styles in problem-based learning assisted by *Nadhom Risalah Fi Ilmi Hisab*. This study employs a qualitative research approach. The research subjects consisted of 6 students of class VII C of SMP Tahfidh Ma'had Yasin in the 2024/2025 academic year, namely 2 students with visual learning styles, 2 students with auditory learning styles, and 2 students with kinesthetic learning styles. Data collection techniques include tests, questionnaires, and interviews, with instruments such as a creative thinking skills test, a learning style questionnaire, and interview guidelines. The results of the study show that students with a visual learning style successfully meet the indicators of flexibility, originality, and elaboration well but are still lacking in fluency. Students with an auditory learning style successfully meet the indicators of fluency, flexibility, originality, and elaboration well. Meanwhile, students with a kinesthetic learning style successfully meet the indicators of fluency, originality, and elaboration well but still fall short on flexibility.

1. Introduction

The refinement of the educational curriculum has been carried out through the development of the 2013 Curriculum into the Independent Curriculum (*Kurikulum Merdeka*). The Independent Curriculum (*Kurikulum Merdeka*) emerged as a solution to address the increasingly intense global competition in human resources in the 21st century. In this era, there are three main competencies: the ability to think, act, and adapt in a global context (Amalia, 2022). The thinking competency includes critical thinking, creative thinking, and problem-solving skills. Meanwhile, the acting competency encompasses skills in communication, collaboration, digital literacy, and technological literacy. On the other hand, the competency for living in the global era includes initiative, self-direction, an understanding of global issues, and social responsibility (Haka et al., 2022). In the 21st century, the importance of implementing these competencies in education is immense, as this era demands innovative and creative individuals who can adapt quickly.

Creative thinking is a key element in the processes of design, problem-solving, change efforts, improvement, and generating innovative ideas (Suardipa, 2019). Therefore, creative thinking skills are essential for students to possess (Meika & Sujana, 2017). It is crucial to nurture creative thinking skills from an early age, considering their significance. Consequently, creative thinking is regarded as a fundamental skill that needs to be instilled within the school environment (Harahap et al., 2022). The importance of creative thinking for students lies in its role as a critical skill that must be enhanced to meet future demands (Florentina & Leonard, 2017). Research by Dilekçi & Karatay (2023) indicates that creative thinking is a highly needed skill in the 21st century. Cultivating creative thinking in students from an early

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age is essential, as this ability will help them address problems with innovative ideas and serve as a valuable asset for their future endeavors.

Many factors influence students' creative thinking skills, which teachers must pay attention to (Anastasya et al., 2021; Ulfa et al., 2018; Wahyu et al., 2017). Learning styles significantly affect students' understanding of the material being taught (Rahmi & Samsudi, 2020). To ensure the effectiveness of the learning process and student participation, teachers need to understand students' learning styles (Hafizha et al., 2022). It is essential for teachers to recognize the differences in students' learning styles. By understanding these differences, teachers can provide education, instruction, guidance, and direction that align with each student's learning preferences (Abdurrahman & Kibtiyah, 2021). This approach will create an optimal teaching and learning environment. Understanding students' learning styles enables teachers to create an environment that accommodates diverse learning preferences. This aims to enhance the effectiveness of learning and foster students' creative thinking skills.

Innovative student-centered learning approaches are necessary to enhance student engagement and enable them to discover mathematical concepts independently. Problem-Based Learning (PBL) fosters students with critical, creative, and innovative thinking skills, as well as the ability to solve real-life problems (Hattarina et al., 2022). PBL shifts the learning paradigm from teacher-centered to student-centered and has the potential to improve students' creative thinking skills (Effendi et al., 2021). PBL utilizes real-world problems as contexts for students to develop problem-solving skills. In this model, contextual problems are presented to stimulate students to engage in learning (Wardono et al., 2018). PBL places the primary responsibility for learning and skill development on students. It encourages them to think independently, build self-confidence, and value the learning process (Fristadi & Bharata, 2015). Creativity must be nurtured and practiced in every individual (Familia & Ismail, 2019). Thus, PBL creates an environment that stimulates the development of students' thinking skills, particularly in fostering creative thinking.

In reality, students' creative thinking skills in the field are still considered low. This is evidenced by the results of the Programme for International Student Assessment (PISA), a global study conducted by the Organisation for Economic Cooperation and Development (OECD) to evaluate the abilities of students at the end of their basic education. One of the aspects assessed is competence in mathematics. Between PISA 2018 and PISA 2022, Indonesia experienced a 13-point decline in performance. The primary reason for students' failure to solve PISA problems, which focus on change and relationships, is their low ability to think logically and creatively when addressing these issues (Auliya et al., 2020).

SMP Tahfidh Ma'had Yasin is a boarding school that integrates formal education with a *pesantren* system, employing memorization methods to study rhythmic nadhom poems such as *Alfiyah* and *Imriti*. This method is effective as the rhythmic nature of the poems facilitates memorization, enhances understanding, and strengthens students' memory (Annisa & Surana, 2022). In practice, students repeatedly review the material until it is firmly embedded in their memory. This approach aligns with the principles outlined in *Ta'lim Muta'allim*, which emphasizes that memorizing knowledge or lessons requires repetition (*lalaran*) until the material is deeply ingrained and not easily forgotten (Sazalii et al., 2022). *Nadhom*, such as *Risalah Fi Ilmi Hisab*, which discusses mathematical concepts, is incorporated as an additional tool in Problem-Based Learning (PBL). This combination not only aids in understanding mathematical concepts but also enhances students' creative thinking skills.

Based on the explanation above, the purpose of this study is to analyze students' creative thinking skills in relation to their learning styles within the framework of Problem-Based Learning assisted by *Nadhom Risalah Fi Ilmi Hisab*.

2. Methods

This study employs a qualitative research approach. Qualitative research was designed to describe and analyze phenomena, events, social activities, attitudes, beliefs, perceptions, and thoughts of individuals or groups. The qualitative research method was grounded in the philosophy of positivism and was used to study objects in their natural conditions (Sugiyono, 2016). The location of this study was SMP Tahfidh Ma'had Yasin in Kudus. The population for this research consists of all seventh-grade students at SMP Tahfidh Ma'had Yasin Kudus. The sampling technique used was purposive sampling, a method where samples were selected based on specific considerations. Data collection techniques include tests,

questionnaires, and interviews, with instruments such as a creative thinking skills test, a learning style questionnaire, and interview guidelines. The research subjects were selected based on purposive sampling techniques. Learning style determination aims to group students into their preferred learning styles: visual, audio, and kinesthetic. Six students, two students each with visual, audio, and kinesthetic learning styles, were selected as subjects. The selection of these six students was based on their dominant learning style tendencies, as seen from their highest scores. Furthermore, these students were also willing to be interviewed. Their creative thinking skills were observed and interviews were conducted.

3. Results & Discussions

The creative thinking skills test consists of essay-type questions. The indicators of creative thinking skills used in this study are (1) fluency, (2) flexibility, (3) originality, dan (4) elaboration (Nurjamilah et al., 2017). The learning styles used in this study are (1) visual learning style, (2) auditory learning style, dan (3) kinesthetic learning style. The results of the learning style questionnaire are shown in Table 1.

Table 1. Results of the Students' Learning Style Questionnaire

Learning Style	Number of Students	Presentation
Visual	5	27.77%
Audio	5	27.77%
Kinesthetic	6	33.33%
Visual-Audio	1	5.55%
Visual-Kinesthetic	1	5.55%

3.1 Students with Visual Learning Style

The students with a visual learning style, after receiving the treatment, are five in total: S-1, S-6, S-7, S-14, and S-15. The percentage of students with a visual learning style is 27.77% of the total number of participants. In this study, two subjects, S-1 and S-14, were selected for interviews and analysis. Subject S-1 is represented as Subject V-01, and Subject S-14 is represented as Subject V-02.

The results of Subject V-01's work on the fluency indicator are shown in Figure 1

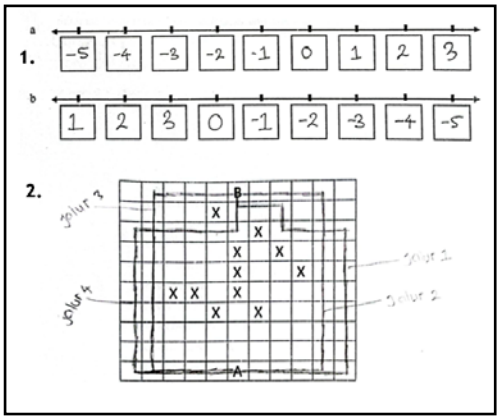

Figure 1. The Results of Subject V-01's Work on the Fluency Indicator

Subject V-01's response to question number 1 included two answers, but the second one was incorrect as Subject V-01 placed a negative number to the right of zero. For question number 2, Subject V-01 provided a correct answer by presenting four distinct paths that adhered to the rules: they did not cross the 'x' sign and only created vertical or horizontal paths. The first path involved moving from point A to the right for 5 boxes, up for 7 boxes, left for 3 boxes, up for 1 box, left for 2 boxes, and finally up for 1 box. The second path moved from point A to the right for 4 boxes, up for 9 boxes, and left for 4 boxes. The third path went left for 4 boxes, up for 9 boxes, and then right for 4 boxes. The fourth path started at point A, moving left for 5 boxes, up for 7 boxes, right for 5 boxes, and up for 2 boxes.

The results of Subject V-01's work on the flexibility indicator are shown in Figure 2

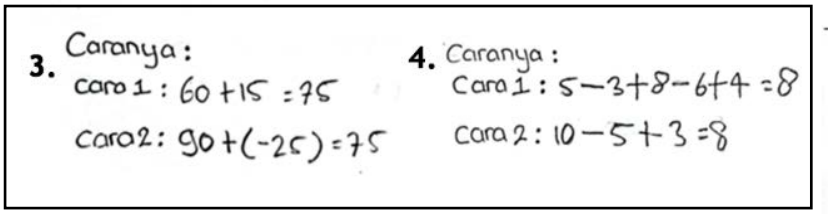

Figure 2. The Results of Subject V-01's Work on the Flexibility Indicator

For question number 3, Subject V-01 provided two answers. The first answer involved adding 60 and 15, while the second answer added 90 and negative 15. For question number 4, Subject V-01 also provided two answers. The first answer described moving from the 5th floor by descending 3 floors, ascending 8 floors, descending 6 floors, and ascending 4 floors. The second answer involved moving from the 10th floor, descending 5 floors, and then ascending 3 floors.

The results of Subject V-01's work on the elaboration indicator are shown in Figure 3

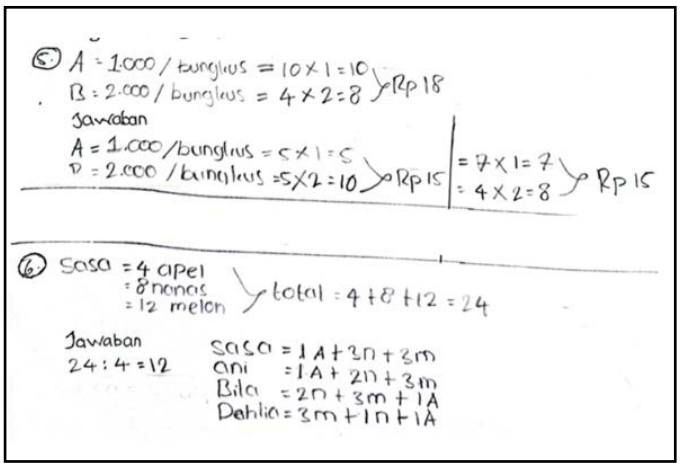

Figure 3. The Results of Subject V-01's Work on the Elaboration Indicator

For question number 5, Subject V-01 provided two answers. Before answering, Subject V-01 first calculated the total price of buying 10 pieces of candy A and 4 pieces of candy B. The first answer was to buy 5 pieces of candy A and 5 pieces of candy B, resulting in a total of 15,000. The second answer involved buying 7 pieces of candy A and 4 pieces of candy B, also totaling 15,000. For question number 6, Subject V-01 first summed all the candies, totaling 24. The 24 candies were then divided equally among 4 people, ensuring each person received all the available flavors.

The originality indicator is found in questions 2, 3, and 4. The results of Subject V-01's work on the originality indicator are the same as shown in Figures 1 and 2.

The results of Subject V-02's work on the fluency indicator are shown in Figure 4

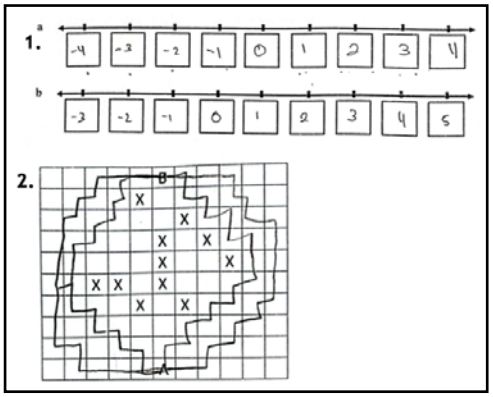

Figure 4. The Results of Subject V-02's Work on the Fluency Indicator

For question number 1, Subject V-02 provided two correct answers and accurately placed both positive and negative integers on the number line. For question number 2, Subject V-02 answered by drawing 4 paths, with a unique approach by creating zig-zag paths, which was an innovative solution.
The results of Subject V-02's work on the flexibility indicator are shown in Figure 5

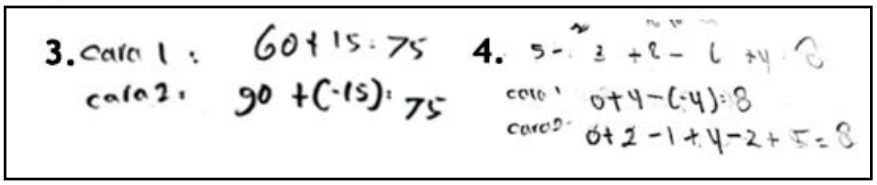

Figure 5. The Results of Subject V-02's Work on the Flexibility Indicator

For question number 3, Subject V-02 provided two answers. The first answer was to add 60 and 15, while the second answer was to add 90 and negative 15. For question number 4, Subject V-02 first calculated the answer before providing their response. Subject V-02 gave two answers for question number 4: the first answer involved moving from the 0th floor and ascending 4 floors twice, and the second answer involved moving from the 0th floor, ascending 2 floors, descending 1 floor, ascending 4 floors, descending 2 floors, and then ascending 8 floors.
The results of Subject V-02's work on the elaboration indicator are shown in Figure 6

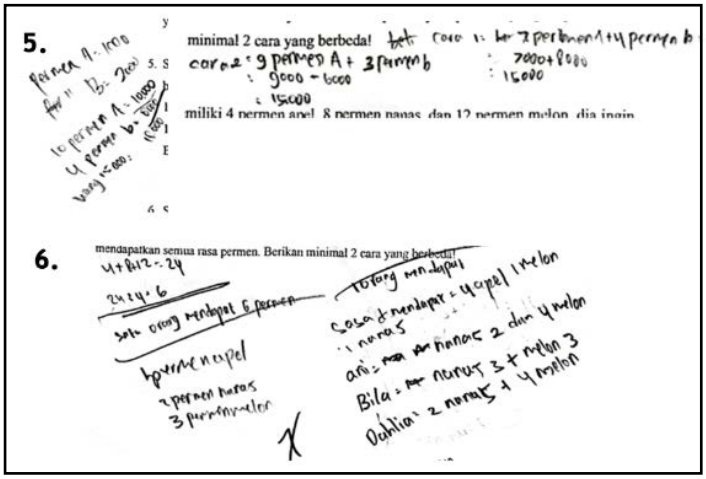

Figure 6. The Results of Subject V-02's Work on the Elaboration Indicator

For question number 5, Subject V-02 first calculated the total price of buying 10 pieces of candy A and 4 pieces of candy B, which resulted in 18,000. Subject V-02 provided two answers: the first involved buying 9 pieces of candy A and 3 pieces of candy B, totaling 15,000, and the second involved buying 7 pieces of candy A and 4 pieces of candy B, also totaling 15,000. For question number 6, Subject V-02 first divided the 24 candies equally among 4 people, so each person received 6 candies. Subject V-02 then provided two methods to distribute the candies. The first method involved each person receiving 1 apple candy, 2 pineapple candies, and 3 melon candies. The second method involved distributing the candies as follows: Sasa received 4 apple candies, 1 melon candy, and 1 pineapple candy; Ani received 2 pineapple candies and 4 melon candies; Bila received 3 pineapple candies and 3 melon candies; and Dahlia received 2 pineapple candies and 4 melon candies.

The originality indicator is found in questions 2, 3, and 4. The results of Subject V-02's work on the originality indicator are the same as shown in Figures 4 and 5.

3.2 Students with Auditory Learning Style

Students with an auditory learning style, after the intervention, consisted of five individuals: S-2, S-5, S-10, S-18, and S-19. The percentage of students with an auditory learning style was 27.77% of the total participants. For this study, two subjects were selected for interviews and analysis: S-10, represented as Subject A-01, and S-18, represented as Subject A-02.
The results of Subject A-01's work on the fluency indicator are shown in Figure 7.

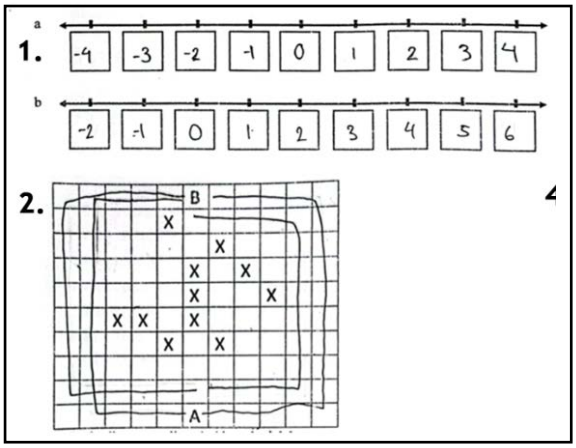

Figure 7. The Results of Subject A-01's Work on the Fluency Indicator

For question 1, Subject A-01 provided two correct answers. For question 2, Subject A-01 gave four different paths. The first path started from point A, moving 5 squares to the right, then 9 squares up, and finally 5 squares to the left. The second path began at point A, moving 1 square up, 4 squares to the right, 8 squares up, 4 squares to the left, and 1 square up. The third path started from point A, moving 1 square up, 5 squares to the left, 8 squares up, and 5 squares to the right. Lastly, the fourth path began at point A, moving 4 squares to the left, 9 squares up, and 4 squares to the right.

The Results of Subject A-01's Work on the Flexibility Indicator as Shown in Figure 8

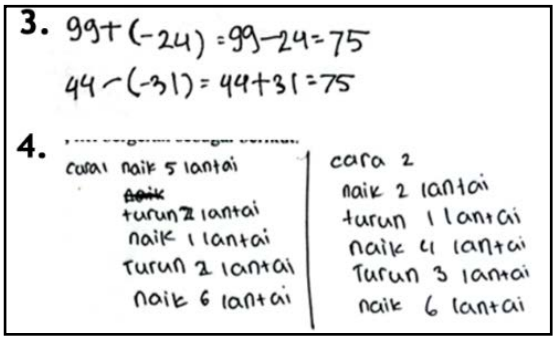

Figure 8. The Results of Subject A-01's Work on the Flexibility Indicator

Subject A-01 provided two answers for question number 3. In the first answer, the subject added 99 and negative 24. In the second answer, the subject subtracted 44 from negative 31. For question number 4, Subject A-01 also provided two answers. In the first solution, the subject moved from floor 0 up 5 floors, down 2 floors, up 1 floor, down 2 floors, and finally up 6 floors. In the second solution, the subject moved from floor 0 up 2 floors, down 1 floor, up 4 floors, down 3 floors, and finally up 6 floors.

The Results of Subject A-01's Work on the Elaboration Indicator as Shown in Figure 9.

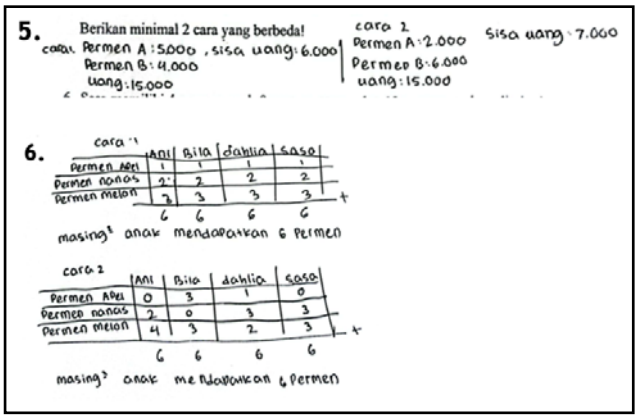

Figure 9. The Results of Subject A-01's Work on the Elaboration Indicator

Subject A-01 provided two different approaches to answering question number 5. In the first approach, the subject purchased 5 candies of type A and 2 candies of type B for a total price of 9,000, leaving a remaining amount of 6,000. In the second approach, the subject purchased 2 candies of type A and 3 candies of type B for a total of 8,000, leaving 7,000 remaining. For question number 6, Subject A-01 answered with two methods. In the first method, each person received 1 apple-flavored candy, 2 pineapple-flavored candies, and 3 melon-flavored candies. In the second method, for the apple-flavored candy, Ani and Sasa did not receive any, Bila received 3 candies, and Dahlia received 1 candy. For the pineapple-flavored candy, Ani received 2 candies, Bila received none, while Dahlia and Sasa each received 3 candies. For the melon-flavored candy, Ani received 4 candies, Dahlia received 2 candies, and Bila and Sasa each received 3 candies.

The originality indicator is contained in items 2, 3, and 4. The work results of subject A-01 for the originality indicator are the same as shown in images 7 and 8.

The Results of Subject A-02's Work on The Fluency Indicator as Shown in Figure 10.

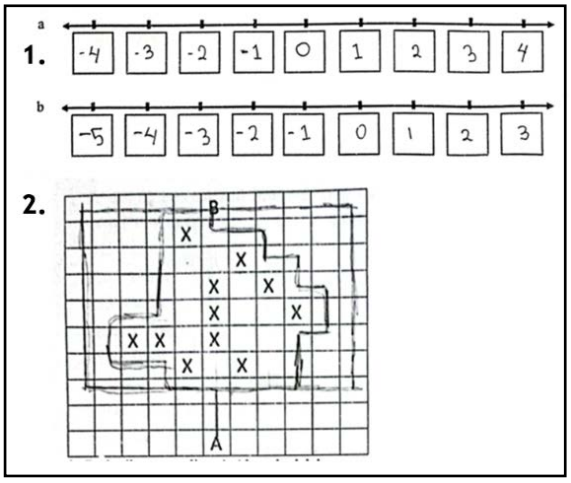

Figure 10. The Results of Subject A-01's Work on the Fluency Indicator

The results of subject A-02's work on the fluency indicator show that for question 1, the subject provided two correct answers. For question 2, subject A-02 answered by providing four paths, with two paths in a zig-zag pattern and the other two with straight lines (horizontal and vertical).

The Results of Subject A-02's Work on The Flexibility Indicator as Shown in Figure 11.

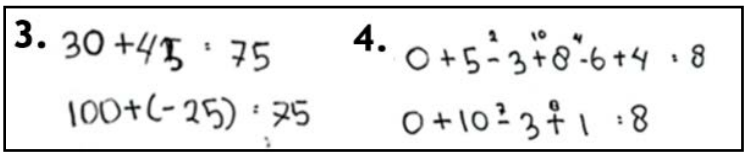

Figure 11. The Results of Subject A-01's Work on the Flexibility Indicator

Subject A-02 provided two answers for question number 3. The first answer involved adding 30 and 45, while the second answer involved adding 100 and negative 25. For question number 4, subject A-02 also provided two answers. The first answer involved starting from the 0th floor, going up 5 floors, down 3 floors, up 8 floors, down 6 floors, and up 4 floors. The second answer started from the 0th floor, going up 10 floors, down 3 floors, and then up 1 floor.

The Results of Subject A-02's Work on The Elaboration Indicator as Shown in Figure 12

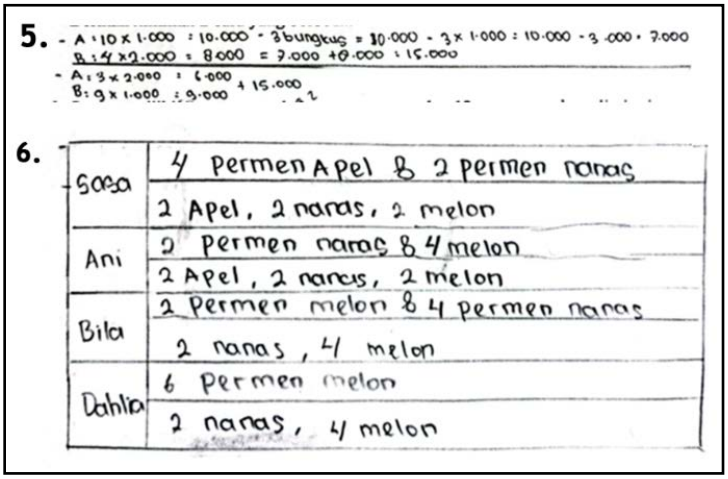

Figure 12. The Results of Subject A-01's Work on the Elaboration Indicator

Subject A-02 provided two methods for question number 5. The first method involved adding the total number of candies to be bought, which was 10 pieces of candy A and 4 pieces of candy B, giving a total of 18,000. Since there was an excess of 3,000, 3 pieces of candy A were reduced, bringing the total to 15,000. The second method involved buying 9 pieces of candy A and 3 pieces of candy B, which also resulted in a total of 15,000. For question number 6, the 24 candies were evenly divided among four people, with each person receiving 6 candies. For Sasa, the first method involved 4 pieces of candy apple and 2 pieces of candy pineapple, while the second method involved 2 pieces of candy apple, 2 pieces of candy pineapple, and 2 pieces of candy melon. For Ani, the first method involved 2 pieces of candy pineapple and 4 pieces of candy melon, while in the second method, Ani received 2 pieces of each flavor. For Bila, the first method involved 2 pieces of candy melon and 4 pieces of candy pineapple, and the second method involved 2 pieces of candy pineapple and 4 pieces of candy melon. For Dahlia, the first method involved 6 pieces of candy melon, while the second method involved 2 pieces of candy pineapple and 4 pieces of candy melon.

The originality indicator is contained in items 2, 3, and 4. The results of Subject A-02's work for the originality indicator are the same as those shown in Figures 10 and 11.

3.3 Students with Kinesthetic Learning Styles.

The students with kinesthetic learning styles, after the treatment, were six students: S-3, S-4, S-8, S-9, S-11, and S-17. The percentage of students with kinesthetic learning styles is 33.33% of the total number of students. In this study, two subjects were selected, namely S-11 and S-17, to be interviewed and analyzed. Subject S-11 was represented as Subject K-01, and Subject S-17 was represented as Subject K-02.

The Results of Subject K-02's Work on The Fluency Indicator as Shown in Figure 13

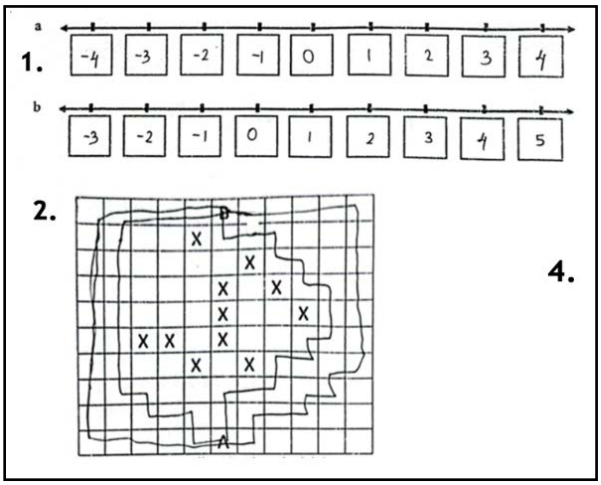

Figure 13. The Results of Subject K-01's Work on the Fluency Indicator

Subject K-01 answered question number 1 by providing 2 correct answers. For question number 2, Subject K-01 answered by providing 4 paths, where 3 paths were zig-zag, combined with straight lines (vertical and horizontal).

The results of Subject K-01's Work on the Flexibility indicator are shown in Figure 14.

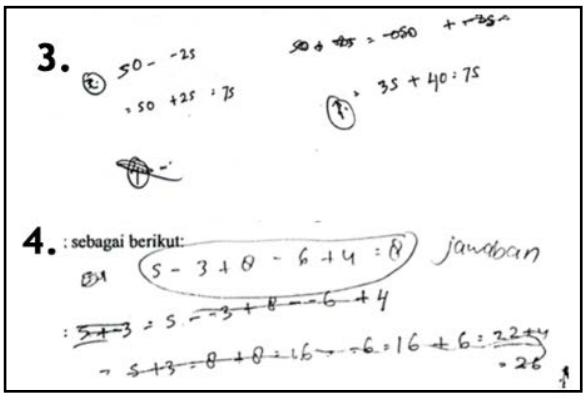

Figure 14. The Results of Subject K-01's Work on the Flexibility Indicator

Subject K-01 in question number 3 provided two answers. The first answer involved subtracting 50 by negative 25, while the second answer involved adding 35 and 40. For question number 4, Subject K-01 only provided one answer: starting from the 5th floor, then descending 3 floors, ascending 8 floors, descending 6 floors, and finally ascending 4 floors.

The results of Subject K-01's work on the Elaboration indicator are shown in Figure 15.

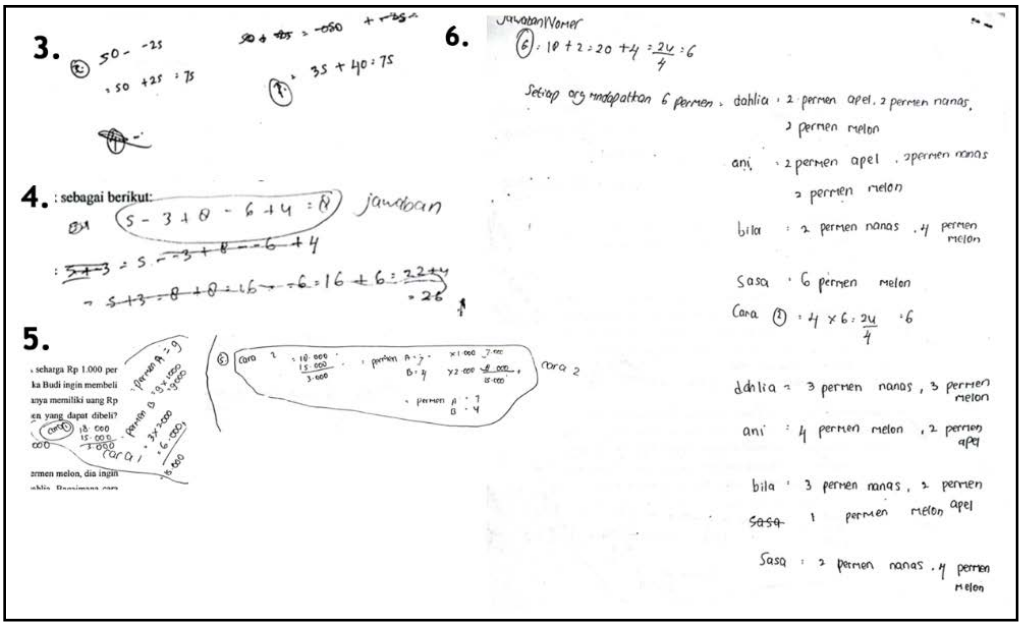

Figure 15. The Results of Subject K-01's Work on the Elaboration Indicator

For number 5, Subject K-01 provided 2 methods. The first method involves buying 9 pieces of candy A and 3 pieces of candy B, totaling 15,000. The second method involves buying 7 pieces of candy A and 4 pieces of candy B, totaling 15,000. For number 6, Subject K-01 divided the 24 candies equally among 4 people, giving 6 candies to each person. Subject K-01 provided 2 methods for number 6: the first method is as follows: Dahlia and Ani each receive 2 pieces of apple candy, 2 pieces of pineapple candy, and 2 pieces of melon candy; Bila receives 2 pieces of pineapple candy and 4 pieces of melon candy; Sasa receives 6 pieces of melon candy. The second method is as follows: Dahlia receives 3 pieces of pineapple candy and 3 pieces of melon candy; Ani receives 4 pieces of melon candy and 2 pieces of apple candy; Bila receives 3 pieces of pineapple candy, 2 pieces of apple candy, and 1 piece of melon candy; Sasa receives 2 pieces of pineapple candy and 4 pieces of melon candy.

The originality indicator is found in items 2, 3, and 4. The results of Subject K-01's work for the originality indicator are the same as shown in Figures 13 and 14.

The results of Subject K-02's work on the fluency indicator are shown in Figure 16.

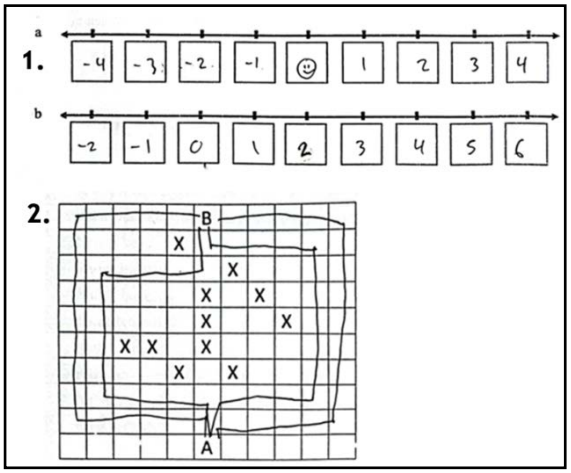

Figure 16. The Results of Subject K-01's Work on the Fluency Indicator

Subject K-02 gave two correct answers for question 1. For question 2, Subject K-02 provided four different paths. The first path started from point A, moved up 1 square, then to the right 5 squares, up 8 squares, and left 5 squares. The second path started from point A, moved up 2 squares, then to the right 4 squares, up 6 squares, left 4 squares, and up 1 square. The third path started from point A, moved up 2 squares, then to the left 4 squares, up 5 squares, to the right 4 squares, and up 2 squares. The fourth path started from point A, moved up 1 square, then to the left 5 squares, up 8 squares, and to the right 5 squares. The results of Subject K-02's work on the flexibility indicator are shown in Figure 17.

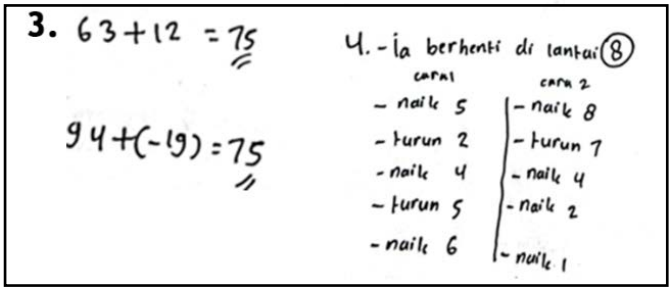

Figure 17. The Results of Subject K-01's Work on the Flexibility Indicator

Subject K-02 provided two methods for answering question number 3. The first method involved adding 63 and 12, while the second method involved adding 94 and negative 19. For question number 4, Subject K-02 provided two solutions. The first solution involved starting at floor 0, going up 5 floors, down 2 floors, up 4 floors, down 5 floors, and then up 6 floors. The second solution involved starting at floor 0, going up 8 floors, down 7 floors, up 4 floors, up 2 floors, and then up 1 floor.

The results of Subject K-02's work on the Elaboration indicator are shown in Figure 18.

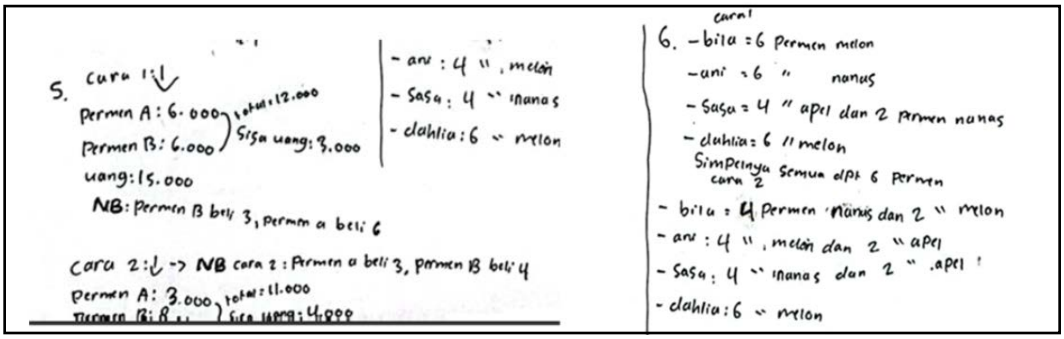

Figure 18. The Results of Subject K-01's Work on the Elaboration Indicator

Subject K-02 answered question number 5 by providing two solutions. The first method involved buying 6 pieces of candy A and 3 pieces of candy B, with a total cost of 12,000, leaving 3,000 remaining. The second method involved purchasing 3 pieces of candy A and 4 pieces of candy B, with a total cost of 11,000, leaving 4,000 remaining. For question number 6, Subject K-02 also provided two solutions. In the first method, from the 24 candies divided among 4 people, Bila received 6 pieces of melon candy, Ani received 6 pieces of pineapple candy, Sasa received 4 pieces of apple candy and 2 pieces of pineapple candy, and Dahlia received 6 pieces of melon candy. In the second method, Bila received 4 pieces of pineapple candy and 2 pieces of melon candy, Ani received 4 pieces of melon candy and 2 pieces of apple candy, Sasa received 4 pieces of pineapple candy and 2 pieces of apple candy, and Dahlia received 6 pieces of melon candy.

The originality indicator is contained in questions 2, 3, and 4. The results of Subject K-02's work for the originality indicator are the same as shown in Figures 16 and 17.

3.4 Creative Thinking Skills of Students with Visual Learning Style

Based on the analysis of the creative thinking skills of students with a visual learning style, the fluency indicator is very well met by subject V-02, while subject V-01 still falls short in this indicator. Subject V-01 made mistakes in answering question number 1. V-02 did not experience any difficulty in solving the problems, was confident that their answers were correct, and was able to provide multiple possibilities for a problem. However, subject V-01 struggled to understand the question, which led to some errors in answering. In terms of flexibility, both subjects V-01 and V-02 performed very well. Both were able to mention two solutions with consistent results. Subject V-01 was also able to answer the researcher's questions clearly. For the originality indicator, both subjects met the criteria excellently. During the interview, they were able to explain their answers based on their own thoughts. The elaboration indicator was also well-met by V-01 and V-02. Both were able to explain their answers in detail when solving the problems.

Subjects V-01 and V-02 successfully met the indicators of flexibility, originality, and elaboration well, but still lacked in the fluency indicator. Students with a visual learning style are able to solve problems using various approaches and their own thinking. These findings align with the research by Wahyuni et al., (2022) where the results showed that out of two samples of students with a visual learning style, one met the fluency indicator and the other did not. Research by Musaidah et al., (2020) states that students with a visual learning style provide more than one correct answer to a problem based on their own thinking.

3.5 Creative Thinking Skills of Students with Auditory Learning Style

Based on the analysis of the creative thinking skills of students with an auditory learning style, subjects A-01 and A-02 successfully met the fluency indicator very well. They solved questions 1 and 2 according to the instructions and provided more than one idea in answering the questions. The flexibility indicator was also very well met by A-01 and A-02. Both were able to provide different methods with the same results for questions 3 and 4 accurately. For the originality indicator, A-01 and A-02 demonstrated a good level of achievement. They solved the problems correctly using their own thinking without help from their peers. Meanwhile, for the elaboration indicator, A-01 and A-02 were able to explain the process of solving the problems and the methods used in detail.

Based on the discussion, subjects A-01 and A-02 successfully met the fluency, flexibility, originality, and elaboration indicators. Students with an auditory learning style demonstrated good problem-solving skills through various methods and were able to present alternative solutions based on their own thinking. This finding aligns with the research by Musaidah et al., (2020) which states that students with an auditory learning style can solve problems well and provide several ideas in detail when answering questions. Furthermore, the auditory learning style affects students' understanding of lessons. Nadhom, in the form of sound or audio, helps students who have an auditory learning style in their learning. When nadhom is presented or read aloud and listened to by others, an externalization process of a value occurs, which will eventually be accepted by the other party (Annisa & Surana, 2022). Research by Fatima et al., (2023) indicates that students with an auditory learning style meet all creative thinking indicators with a good category.

3.6 Creative Thinking Skills of Kinesthetic Learning Style Students

Based on the analysis of the creative thinking skills of kinesthetic learning style students, indicators of fluency were very well met by subjects K-01 and K-02. In the creative thinking test, both successfully completed questions 1 and 2 and were able to provide several ideas in their answers. During the interviews, K-01 and K-02 were also able to provide clear explanations. The flexibility indicator was very well met by K-02, but not fully by K-01. Subject K-01 was only able to provide one solution for question 4 and two solutions for question 3. However, during the interview, K-01 was still able to explain their answers well. On the other hand, K-02 showed excellent performance on questions 3 and 4 by providing two methods of solving. For the originality indicator, K-01 and K-02 met the criteria quite well, as both answered the questions based on their own thinking. Meanwhile, on the elaboration indicator, K-01 and K-02 demonstrated good ability by explaining their answers in detail when solving the questions.

Based on the discussion, K-01 and K-02 successfully met the fluency, originality, and elaboration indicators well, but were still lacking in the flexibility indicator. Students with a kinesthetic learning style are able to solve problems through various approaches and demonstrate alternative solutions using their own thinking in detail. These findings align with the study by Fatima et al., (2023) which shows that kinesthetic learners fall into the "fairly good" category for the flexibility indicator. This is also consistent with the research by Musaidah et al., (2020) which states that kinesthetic learners can solve problems fluently using their own thinking in detail.

4. Conclusion

Students with a visual learning style have the ability to provide various correct answers. Students with visual learning styles V-01 and V-02 are able to provide many answers in different ways to solve problems, are able to solve problems in questions with their own thoughts, are able to answer problems in questions in detail. V-02 is able to provide answers fluently and correctly, while V-01 is not able to provide answers fluently and correctly. Students with auditory learning styles A-01 and A-02 are able to provide answers fluently and correctly, are able to provide many answers in different ways to solve problems, are able to solve problems in questions with their own thoughts, are able to answer problems in questions in detail. Students with kinesthetic learning styles K-01 and K-02 are able to provide answers fluently and correctly, are able to solve problems in questions with their own thoughts, are able to answer problems in questions in detail. K-02 is able to provide many answers in different ways to solve problems, while K-01 is not able to provide many answers in different ways to solve problems.

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