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Analysis of Creative Thinking Ability in View of Learning Style in Class IV Elementary School Science Learning

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Creative Thinking Ability, Elementary Science Learning Style

ABSTRACT
This research aims to describe students creative thinking abilities in terms of learning styles and to describe the factors that influence creative thinking abilities in terms of learning styles in the science material on changes in the shape of objects in class IV. This research method is qualitative descriptive research. The subjects in this research were all class IV of SDN 88 Singkawang which consisted of creative thinking abilities in terms of learning style, namely students with a visual learning style were able to carry out all indicators well and had an average of 63.04 with medium criteria, students with an auditory learning style able to carry out all indicators well and have an average of 54.34 with low criteria, students with a reading learning style are able to carry out all indicators well and have an average of 55.43 with low criteria, students with a kinesthetic learning style are able to carry out all indicators well and has an average of 76.80 with high criteria. The data's collection technique used is. The data analysis technique consists of stages of data reduction, data presentation, and drawing conclusions. From the research results it can be concluded that: students with high creative thinking abilities have a kinesthetic learning style, students with moderate creative thinking abilities have a moderate learning style, have a visual learning style, students with low creative thinking abilities have an auditory and reading learning style's.

INTRODUCTION

Education is very important for the life of every individual, apart from enriching knowledge, it can also be useful for the progress of a nation. Regarding the role of education, it is very important for human life. Education can influence human development in all aspects of personality and life (Nurkholis, 2013).

The ability to think creatively is important because students are able to be more independent when students have the ability to think creatively which must be instilled in students from an early age because the ability to think creatively equips students to develop ideas or thoughts needed for the world of work so that students are able to be more independent.

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According to Indayan (2019), creative thinking is thinking that tries to create new ideas. Creative thinking can also be interpreted as a mental activity that a person uses to develop new ideas, therefore creative thinking is included in the cognitive realm. Currently, education to develop creative thinking skills at elementary school level is carried out systematically and completely.

Referring to the importance of creative thinking skills, the Indonesian government has included creative thinking skills in the curriculum. This is stated in article 3 of the National Education Law No. 20 of 2003, which aims to develop students potential to become human beings who believe in and are devoted to God Almighty, have noble character, are healthy, knowledgeable, capable, creative, independent, and become democratic and responsible citizens.

The ability of students to understand subjects is certainly different for each student. Students are able to absorb lessons or make the learning process easier with their learning style. This learning style sees students thinking and understanding something as a whole or looking at the big picture and part by part. Meanwhile, students who study analytics tend to look at a problem in stages and focus on the parts that form a picture in sequence and detail (Medwell et al., 2016).

According to DePorter and Mike (2015), learning style is the way we prefer to carry out activities of thinking, processing and understanding a transformation. So that students can easily absorb, manage, store and apply information to prepare the attitudes, abilities and life skills needed by the students themselves. According to Rose (1987), one learning style known for its simplicity is VAK. The VAK learning style uses three main sensory receptors, namely visual, auditory and kinesthetic in determining a student's dominant learning style. As time progressed, the VAK learning style was formulated by Walter Burke Barbe and developed by Neil D. Fleming and Collen E. Maills (1992) into the VARK learning style, namely Visual, Auditory, Reading and Kinesthetic learning styles.

The objectives of this research consist of two, namely to describe creative thinking abilities in terms of learning styles and to describe the factors that influence creative thinking abilities in terms of learning styles. The novelty in this research lies in learning styles where other researchers only used 3 learning styles while this research used 4 learning styles consisting of Visual, Auditorial, Reading, Kinesthetic (VARK), so the researchers were in taking the title "Analysis of Creative Thinking Ability in View from Learning Styles in Class IV Elementary School Science Learning".

METHOD

This research is qualitative research with a descriptive approach. This research is for creative thinking skills by giving a creative thinking ability test in the form of an essay to all class IV students at SDN 88 Singkawang, totaling 4 questions. After that, the test results categorized creative thinking ability as

very high, high, medium and low using the criteria calculation formula for the level of creative thinking ability which can be seen in Table 1 below.

Table 1Criteria for Creative Thinking Ability Level

Category	The number of students	Average Test Scores	Test Average Criteria
Low	4	40	
Currently	7	70	Currently
Tall	6	80	
Very High	6	90	

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After that, 2 representatives were taken from each group representing the creative thinking ability test in the high, medium and low categories to fill out the learning style questionnaire. After that, an interview was conducted using an interview guide, where the results of the interview were used as a basis for obtaining deeper information regarding the learning style tendencies of fourth grade elementary school students in terms of creative thinking abilities. Testing the validity of the data was carried out using technical triangulation. Research data was analyzed using techniques developed by Miles and Huberman which consisted of data reduction, data presentation, and drawing conclusions (Sugiono, 2016).

RESULTS

1. Recapitulation of Creative Thinking Ability Categorization Results

Based on the results of the analysis of learning style tendencies for fourth grade elementary school students in terms of creative thinking abilities, it is known that in general students have moderate thinking abilities. Creative thinking abilities in each category are presented briefly in Table 2 below.

Table 2
Creative Thinking Ability Level Category

Category	Many Students	Number Of Subjects
Low	4	2
Currently	7	2
Tall	6	2
Very High	6	2

The table above shows that of all students in the very high creative thinking category, there were 6 students, 6 students in the high creative thinking category, 7 students in the medium creative thinking category, 4 students in the low creative thinking category. From Table 2 it is known that fourth grade elementary school students predominantly have moderate creative thinking abilities.

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2. Results of creative thinking abilities in terms of learning style

In this research, 8 students were selected as research subjects and each was further divided into 2 students with a learning style tendency towards very high creative thinking abilities, 2 students with a high learning style tendency, 2 students with a medium learning style tendency, 2 students with a tendency towards low learning styles. Of the 8 research subjects, their learning style tendencies were analyzed. Then interviews were conducted which aimed to obtain more in-depth information regarding student learning style tendencies.

1) Analysis of creative thinking abilities in terms of visual learning styles in science learning

The number of students with a visual learning style is 6 people with an average of 63.04, so the subject chosen to represent students who have a visual learning style is R-2. The results of the analysis per indicator of creative thinking ability of R-2 students will be presented as follows. .

Student R-2 answer to the creative thinking ability test with indicators of student fluency in expressing opinions in learning. It is known that R-2 students have mastered fluency in expressing opinions in learning well. This is proven by the test results, where to solve the problem, the steps taken are to create a structure for changing the shape of objects and giving different opinions regarding the material changing the shape of objects. This means that R-2

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students can present fluency in expressing opinions in the learning process correctly and completely. The results of Student R-2 work on question 2 can be seen in Figure 1 below.

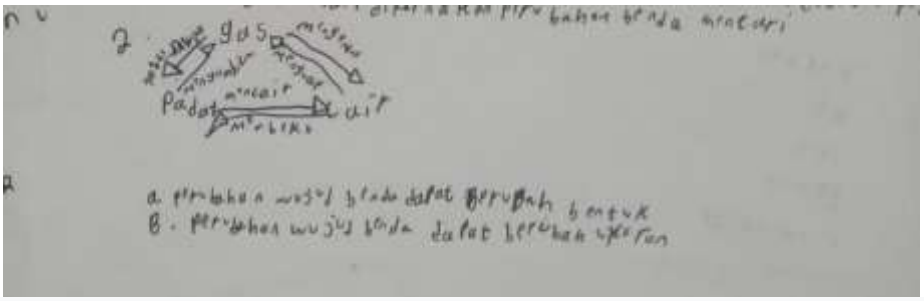

Figure 1 Snippet of R-2 Student Work Question Number 2

Answer R-2 in the second indicator of flexibility, namely a skill in searching for alternative answers in a varied manner. This is proven by the results of students' varied answers in providing answers regarding changes in the form of objects. The results of student work can be seen in Figure 2 below
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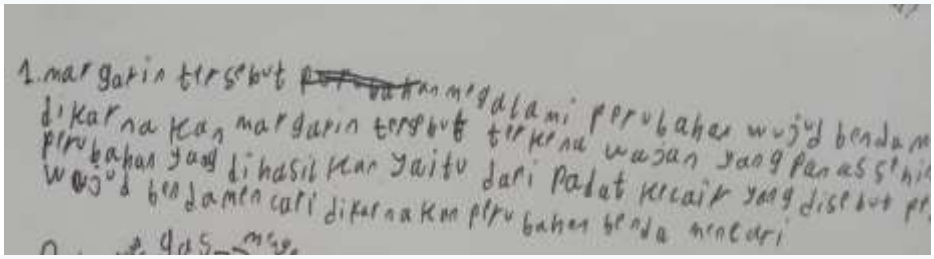

Figure 2 Snippet of R-2 Student Work Question Number

Answer R-2 to the third indicator of authenticity, namely students' skills in providing unique ideas. This is proven by the results of students' answers in providing unique ideas regarding question number 3 which can be seen in Figure 3 as follows.

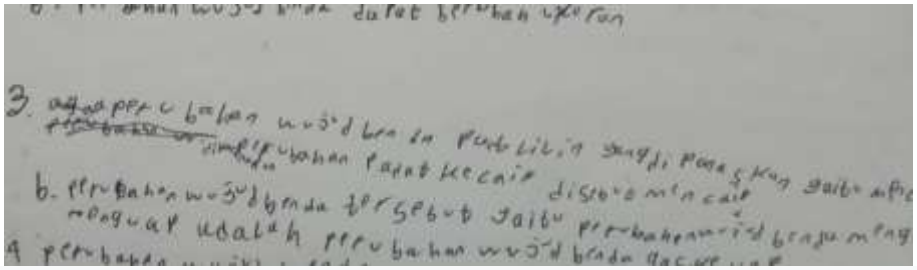

Figure 3 Student Work Snippet Question Number 3

Answer R-2 in the fourth indicator of detail is that students are able to develop an idea that they receive. R-2 students can develop or enrich ideas for answering questions correctly but incompletely about changes in the state of objects. The results of student R-2's work can be seen in Figure 4 as follows.

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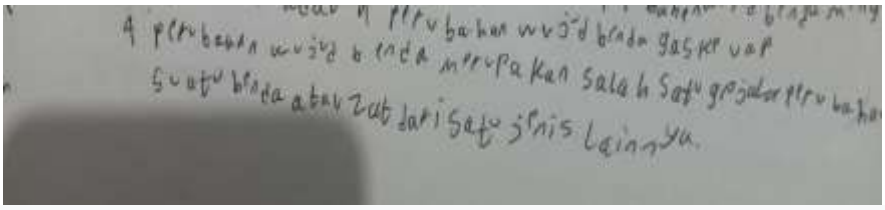

Figure 4 Snippet of Student Number 4's Work

2) Analysis of creative thinking abilities in terms of auditory learning style in science learning

The number of students with an auditory learning style is 6 people with an average of 54.34 so the subject chosen to represent students who have an auditory learning style is R-13.

R-13 results on indicators of student fluency in expressing opinions in learning. It is known that R-13 student have mastered fluency in expressing opinions in learning well. This is proven by the test results, where to solve this question, the steps taken are to create a structure for changing the shape of objects and giving different opinions regarding the material changing the shape of objects. The results of R-13 work on question 2 can be seen in Figure 5 below.

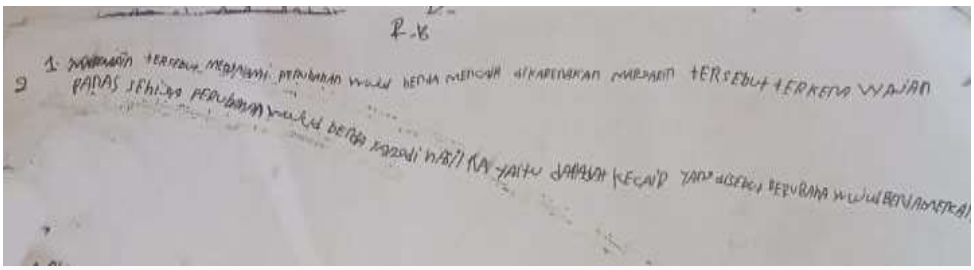

Figure 5 Student Work Snippet Question Number 2

The answer to R-13 results in the second indicator of flexibility, namely a skill in finding alternative answers in a varied manner. Based on answers R-13 on the creative thinking ability test on the skill indicator in finding alternative answers in a varied way, students can answer questions by giving more than one opinion regarding picture of the margarine. The results of R-13 work can be seen in Figure 6 as follows.

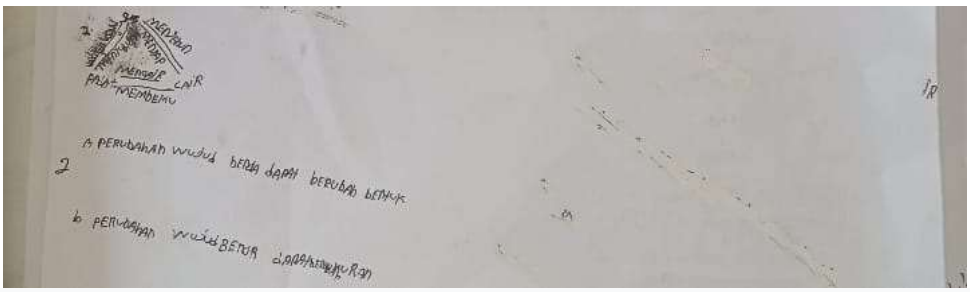

Figure 6 Student Work Snippet Question Number 1

The answer to R-13 results in the third indicator of authenticity, namely skills in providing unique ideas. This is proven by the results of students' answers in providing unique ideas regarding question number 3 which can be seen in the following picture.

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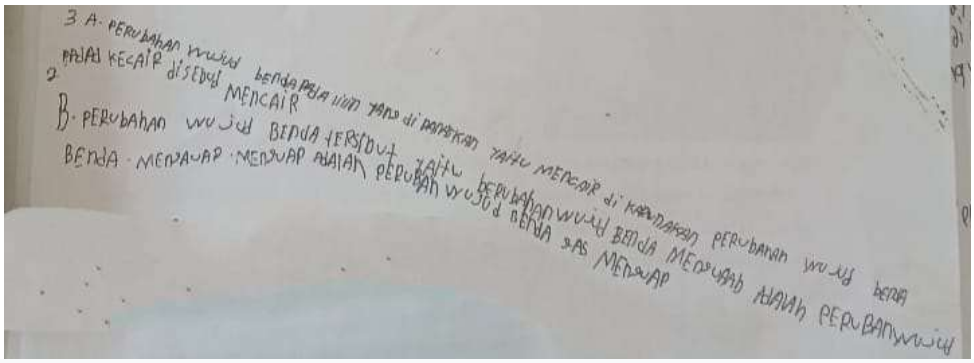

Figure 7 Student Work Snippet Question Number 3

The answer to R-13 results in the fourth indicator of detail is that students are able to develop an idea that they receive. R-13 students can develop or enrich ideas for answering questions correctly but incompletely about changes in the state of objects. The results of R-13 work can be seen in Figure 8 as follows.

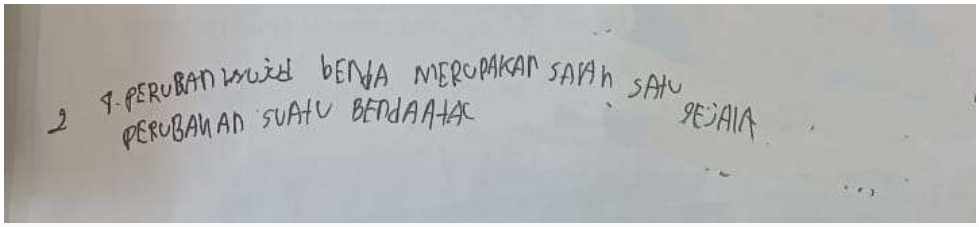

Figure 8 Student Work Snippet Question Number 4

3) Analysis of creative thinking abilities in terms of reading learning styles in science learning

The number of students with a reading learning style is 8 people with an average of 55.43 so the subject chosen to represent students who have a reading learning style is R-23.

Student R-23 answer to the creative thinking ability test with indicators of students expressing opinions in learning. Based on the results of R-23 answer, the indicator expresses opinions in learning by explaining what will happen when margarine is used for cooking and does not melt. This is proven by the results of students' answers in expressing opinions in learning regarding question number 4 which can be seen in Figure 9 as follows.

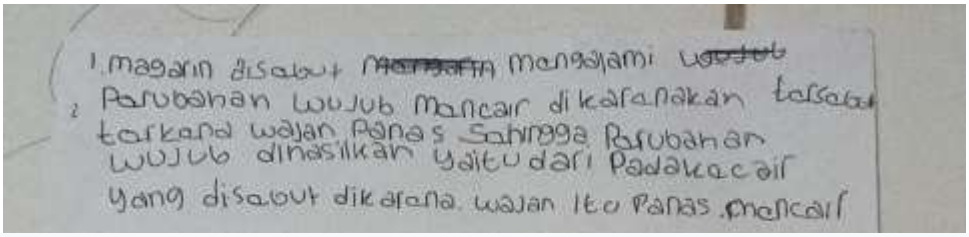

Figure 9 Snippet of Student Work on Question Number 2

The answer to R-23 results in the second indicator of flexibility, namely a skill in finding alternative answers in a varied manner. Based on Student R-23 answers to the creative thinking ability test on the skill indicator in finding alternative answers in a varied way, students can answer questions by giving more than one opinion regarding the margarine picture. The results of Student R-23 work can be seen in Figure 10 as follows.

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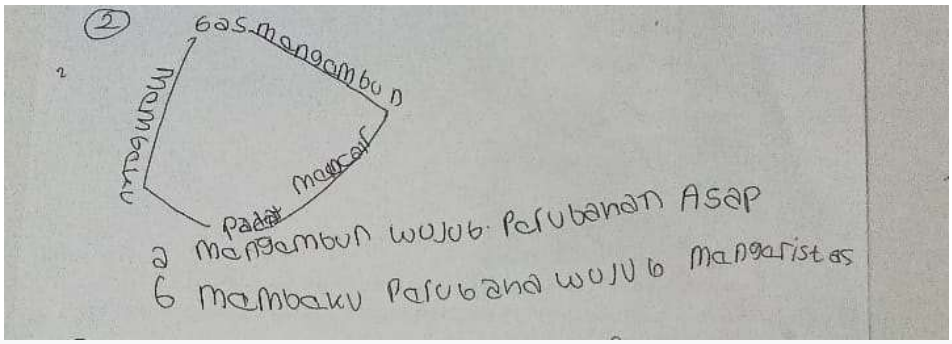

Figure 10 Snippets of student work on question number

The answer to R-23 results in the third indicator of authenticity, namely students' skills in providing unique ideas. However, in question number 3, student R-23 could not provide an opinion regarding the two pictures. This is proven by the results of students' answers who were unable to provide opinions regarding the two images in providing unique ideas regarding question number 3 which can be seen in Figure 11 as follows.

Figure 11 Excerpt of student work on question number 3

Answer R-23 in the fourth indicator of detail is that students are able to develop an idea that they receive. R-23 students can develop or enrich ideas for answering questions correctly about changes in the state of objects. The results of student R-23's work can be seen in Figure 12 as follows.

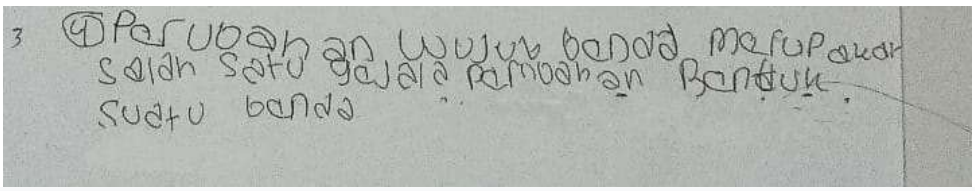

Figure 12 Snippet of student work on question number 4

4) Analysis of creative thinking abilities in terms of kinesthetic learning style in science learning
The number of abilities of students with a kinesthetic learning style is 3 people with an average of 76.80, so the subject chosen to represent students who have a kinesthetic learning style is R-1.
Student R-1 answer to the creative thinking ability test with the first indicator being the student's ability to express opinions in learning. Based on the results of R-23 answer, the indicator expresses opinions in learning by explaining what will happen when margarine is used for cooking and does not melt. This is proven by the results of students' answers being able to express opinions in learning regarding question number 2 which can be seen in Figure 13 as follows

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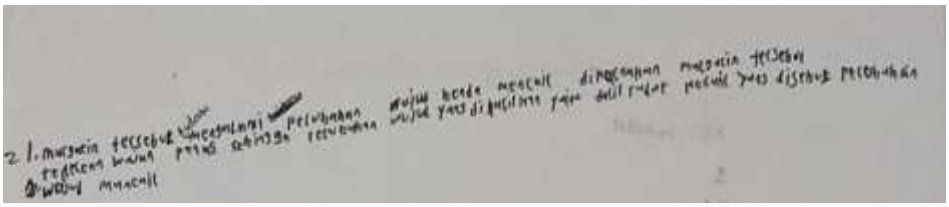

Figure 13 Snippet of student work on question number 2

Answer results R-1 in the second indicator of flexibility, namely a skill in searching for alternative answers in a varied manner. Based on student R-1 answers to the creative thinking ability test on the skill indicator in searching for varied alternative answers students can answer questions by giving more than one opinion about the margarine picture. The results of student R-1 work can be seen in Figure 14 as follows.

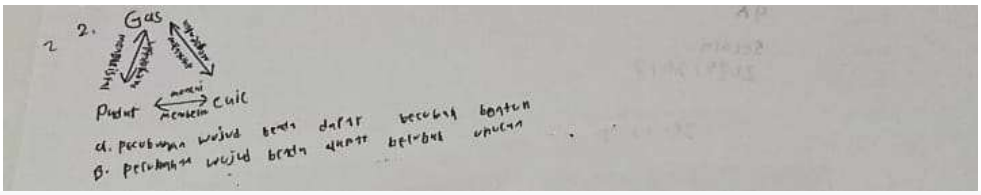

Figure 14 Snippet of student work on question number 1

The answer to R-1 results in the third indicator of authenticity, namely students' skills in providing unique ideas. This is proven by the results of students' answers which can provide unique ideas regarding question number 3 which can be seen in Figure 15 as follows.

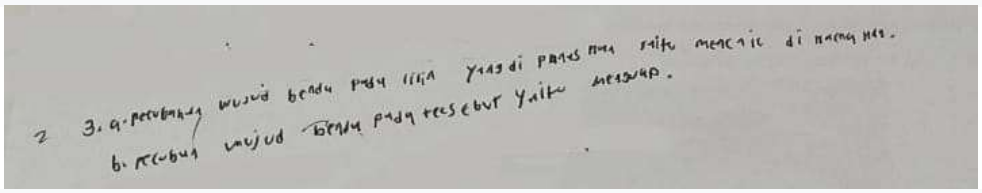

Figure 15 Snippet of student work on question number 3

Answer R-1 in the fourth indicator of detail is that students are able to develop an idea that they receive. R-1 students can develop or enrich ideas for answering questions correctly but incompletely regarding changes in the state of objects. The results of student R-1 work can be seen in Figure 16 as follows.

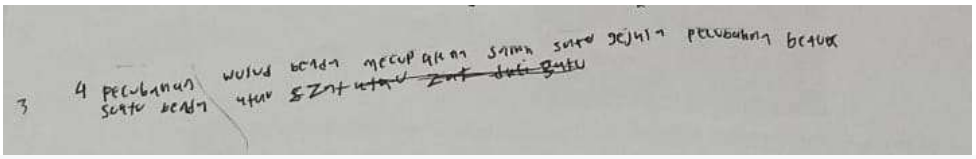

Figure 16 Snippet of student work on question number 4

Answer R-1 in the fourth indicator of detail is that students are able to develop an idea that they receive. R-1 students can develop or enrich ideas for answering questions correctly but incompletely regarding changes in the state of objects. The results of student R-1 work can be seen in Figure 16 as follows.

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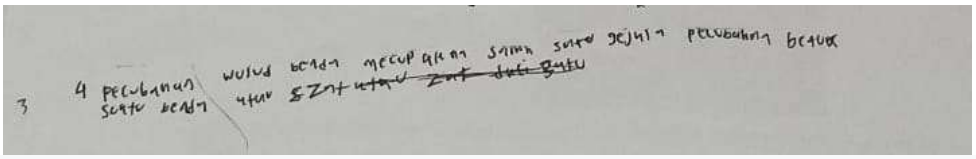

Figure 16 Snippet of student work on question number 4

DISCUSSIONS

1. Students Creative Thinking Ability Judging from Learning Style

   In the results of this research, data was obtained that students who have different learning styles show differences, different creative thinking abilities between students with kinesthetic learning styles and students who have visual learning styles, auditory learning styles, and reading learning styles. This difference can be seen from the difference in the average scores obtained by each learning style group. The average score of the kinesthetic learning style group (76.80) has better creative thinking abilities compared to the visual learning style group (63.04), auditory (54.34) and reading learning style (55.43). Differences in students' creative thinking abilities in each learning style can also be seen from the way they answer questions.

   a. The research subject for creative thinking abilities in terms of visual learning style is R-2. Based on the results of the analysis, the creative thinking ability of subject R-2 can be described as follows.

      At the indicator stage of students' fluency in expressing opinions in learning, subject R-2 was able to write down what was known and asked about the questions well. Subjects are able to express opinions completely. This is in line with research conducted by Dawi Ali Irbah, et al (2018), the results of which show that students with a visual learning style can give various answers correctly. In the flexibility indicator, namely a skill in searching for varied alternative answers, subject R-1 is able to provide varied answers. This is in line with research conducted by Zulfa Tri Astuti (2023), the results of which show that students with a visual learning style can provide varied answers. The authenticity indicator is the student's skill in providing unique ideas. This is in line with research conducted by Indri Winiarsih, et al (2021), the results of which show that students with a visual learning style can provide unique ideas. The detail indicator is that students are able to develop an idea that they receive. This is in line with research conducted by Dawi Ali Irbah, et al (2018), research results show that students with a visual learning style are able to develop their own thinking.

   b. The research subject for creative thinking abilities in terms of auditory learning style is R-13. Based on the results of the analysis, Student R-13 creative thinking ability can be described as follows.

      On the indicator of students' fluency in expressing opinions in learning, subject R-13 has mastered the fluency in expressing opinions in learning well. This is in line with research conducted by Zulfa Tri Astuti (2023), the results of which show that students with an auditory learning style can express opinions in learning. In the flexibility indicator, namely a skill in searching for varied alternative answers, subject R-13 is able to give varied answers. This is in line with research conducted by Zulfa Tri Astuti (2023), the results of which show that students with an auditory learning style can meet the flexibility indicators. The authenticity indicator is the student's skill in providing unique ideas. This is in line with research conducted by Ardianik (2017), the results of which show that students with an auditory learning style can provide unique ideas. The detail indicator, namely R-13, can develop or enrich the idea of answering questions correctly but incompletely regarding changes in the form of objects. This is in line with research conducted by Dawi Ali Irbah, et al (2018), the results of which show that students with an

auditory learning style are able to develop or enrich ideas for answering questions correctly but incompletely regarding changes in the shape of objects.

c. The research subject for creative thinking abilities in terms of reading learning style is R-23. Based on the research results, the creative thinking ability of subject R-23 can be described as follows.

On the indicator of students' fluency in expressing opinions in learning, subject R-23 has mastered the fluency in expressing opinions in learning well. This is in line with research conducted by Wahyuni (2022), the results of which show that students with a reading learning style are able to carry out fluency indicators well. In the flexibility indicator, namely a skill in finding alternative answers in a varied manner on subject R-23, students can answer questions by giving more than one opinion regarding the margarine picture. This is in line with research conducted by Dwijanto, et al (2019), the results of which showed that students with a reading learning style were able to provide more than one opinion regarding the margarine picture. The authenticity indicator is the student's skill in providing unique ideas. However, student R-23 could not provide an opinion regarding these two images.

d. The research subject for creative thinking abilities in terms of kinesthetic learning style is R-1. Based on the results of the analysis, the creative thinking ability of subject R-1 can be described as follows.

In the fluency indicator, students can express opinions in learning, subject R-1 can express opinions in learning regarding question number 2. This is in line with research conducted by Evadatul Mussaidah, et al (2020), kinesthetic learning style students are able to express opinions fluently. In the flexibility indicator, namely a skill in finding alternative answers in a varied manner, subject R-1 can answer questions by giving more than one opinion regarding the margarine picture. This is in line with research conducted by Nurul Avivah (2023) which shows that research results show that students with a kinesthetic learning style are able to meet fluency indicators. In the authenticity indicator, namely students'

skills in providing unique ideas, subject R-1 students can provide unique ideas regarding question number 3. This is in line with research conducted by Wulandari (2021) which shows the results of research on students with learning styles kinesthetics are able to fulfill indicators of authenticity. In the detail indicator, R-1 students can develop or enrich ideas for answering questions correctly but incompletely regarding changes in the form of objects. This is in line with research conducted by Muhammad Rizqi (2023) where students with a kinesthetic learning style meet the detailed indicators but are incomplete.

2. Factors that influence creative thinking abilities in terms of learning style

Based on the results of interviews conducted with 4 students, including 1 student with a visual learning style, 1 student with an auditory learning style, 1 student with a reading learning style and 1 student with a kinesthetic learning style. Factors that influence the ability to think creatively with a visual learning style in question number 1, students can express opinions in learning smoothly. However, there were some students who experienced errors, this was due to students not being careful in reading and understanding the questions.

Students with an auditory learning style in question number 2 were able to answer the question by making structures that change the shape of objects and gave varied answers and got a score of 2. However, there were some students who experienced difficulty in making structures that changed the shape of objects, this was due to the lack of student factors. pay attention when the teacher is explaining the material on changes in the form of objects.

Students with the reading learning style in question number 3 are fluent in expressing opinions, flexible in thinking to give varied answers, can develop accepted ideas but are less skilled in expressing new ideas. This can be seen from the results of the student's work by getting a score of 0 on question number 3, the factor caused by this is that students are not yet able to think spontaneously.

Students with a kinesthetic learning style in question number 4 are fluent in expressing opinions, flexible in thinking to give varied answers, skilled in expressing new ideas but lacking in developing accepted ideas. So students with this kinesthetic learning style get a score of 3 on question number 4. This is caused by students who only focus on the contents of the book so they are less able to develop the ideas of what is conveyed with what the student receives.

Students with a kinesthetic learning style in question number 4 are fluent in expressing opinions, flexible in thinking to give varied answers, skilled in expressing new ideas but lacking in developing accepted ideas. So students with this kinesthetic learning style get a score of 3 on question number 4. This is caused by students who only focus on the contents of the book so they are less able to develop the ideas of what is conveyed with what the student receives.

CONCLUSION

Based on the results of the research and discussion in the previous chapter, the research conducted in class IV at SDN 88 Singkawang can be concluded as follows.

1. Creative thinking abilities in terms of student learning styles include:
   - **a.** Creative thinking ability in terms of visual learning style in science learning material on changes in the shape of objects in class IV SDN 88 Singkawang has an average of 63.04 which is in the medium criteria. Students' abilities in the visual learning style are students' fluency in expressing several opinions in learning, students' flexibility in finding alternative answers in a variety of ways, students' authenticity in generating unique new ideas, and students' detailed ability to develop an accepted idea.
   - **b.** The creative thinking ability of students with an auditory learning style in science learning material on changes in the shape of objects in class IV SDN 88 Singkawang has an average of 54.34 which is in the medium criteria. Students with an auditory learning style are fluent in expressing opinions, flexible in thinking to provide varied answers, authentic in generating new, unique ideas, and detailed in students being able to develop an accepted idea.
   - **c.** The creative thinking ability of students with a reading learning style in science learning material on changes in the form of objects in class IV SDN 88 Singkawang has an average of 55.43 which is in the medium criteria. Students with a reading learning style are fluent in expressing opinions, flexible in thinking to provide varied answers, and detailed students who are able to develop an accepted idea.
   - **d.** The creative thinking ability of students with a kinesthetic learning style in science learning material on changes in the shape of objects in class IV SDN 88 Singkawang has an average of 76.80 which is in the high criteria. Students with a kinesthetic learning style are fluent in expressing opinions, flexible in thinking to give varied answers, authentic in generating new, unique ideas, and detailed in students being able to develop an accepted idea.
2. Factors that influence the ability to think creatively in science learning on material changing the shape of objects in class IV SDN 88 Singkawang

   The influencing factors include students' lack of accuracy in reading and understanding the questions, students' lack of paying attention to the teacher's explanation so that students cannot describe the structure of changes in the form of objects and are mistaken in giving more than one opinion. Apart from that, students have not yet accustomed themselves to thinking quickly or spontaneously and students only focus on the contents of the book when answering questions.

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