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Creative Thinking Skills of Elementary School Students: Is It Still Relatively Low?

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ABSTRACT

21st-century skills, especially creative thinking skills, are one of the skills that need to be developed starting from elementary school. Through creative thinking, you can create new ideas or ideas that are very useful as a provision for the world of work. This study aimed to diagnose creative thinking skills on indicators of fluency, flexibility, originality, and elaboration. The sample used by all populations was 53 class IV MI Muhammadiyah Gonilan students in October 2022. The exploration results showed an average of 42.45% of students at the creative level, as many as 25% at the moderately creative level, 21.70% at the non-creative level, at the less creative level as much as 9.91%, and very creative as much as 0.94%. Most students show at the creative level, and educators are expected to continue to innovate to optimize students' creative thinking skills until they can be at a very creative level.

INTRODUCTION

Creative thinking skills are competencies that need to be mastered by students because they can be useful in generating innovative ideas to create an original product, such as a new concept, new method, or a new system that is useful for overcoming various problems in their daily lives (Akinoğlu &; Karsantik, 2016). The characteristics of creative thinking are being able to understand an event, solve problems, generate various alternative interpretations and plan an action (Lee & Jun, 2015).

Creative thinking skills can be optimized through learning activities at school (Rosen et al., 2020). However, teachers still have not optimized students to think creatively so far. This condition is because not all teachers in Indonesia have implemented learning and evaluation activities following the existing curriculum in Indonesia (Anggrella et al., 2023). The

government has tried to revise the Indonesian curriculum to accommodate global competency needs such as critical thinking, communication, collaboration, and creative thinking (Sudarisman, 2015). However, so far, most teachers only develop cognitive competencies to understand concepts and pay less attention to the life skills students need following the curriculum demands (Hakim, 2021). The learning that has been applied has not been carried out properly, planned, and integrated to empower students' thinking skills (Leal Filho et al., 2018). In addition, teachers are also less innovative in applying learning models, learning media, and evaluating the following basic competencies in the curriculum (Al-Abdali &; Al-Balushi, 2016).

One of the learning subjects that can train students to optimize their thinking skills is science learning (Al-Abdali &; Al-Balushi, 2016). Science learning is part of thematic learning and refers to a scientific approach (Rhosalia, 2017). The scientific approach is learning that prioritizes observing, formulating problems, proposing hypotheses, collecting data, analyzing data and concluding (Murtini, 2018). Unfortunately, teachers still do not plan to learn using a scientific approach (Darmadi &; Putra, 2020; Meroni et al., 2015). Learning designed by teachers has not sought students' higher-order thinking skills (Anggrella et al., 2023). So based on these problems, it is necessary to identify students' thinking skills, one of which is creative thinking skills.

Research related to the exploration of creative thinking skills in science learning has previously been carried out at the junior high school (Qomariyah &; Subekti, 2021) and high school (Herlina et al., 2018) levels, while at the elementary school level, it has never been carried out. Students who have never been trained in their thinking skills will impact the next level of education and the world of work later (Siburian et al., 2019). This research is important to determine the category of creative thinking skills in elementary schools as a reference for educators and researchers to pay more attention to and optimize students' creative thinking skills.

METHOD

Identify creative thinking skills in this study using descriptive quantitative research types. The sample used in this study was the entire population of 53 students of class IV MI Muhammadiyah Gonilan, carried out in October 2022. This study was conducted to determine the extent of students' creative thinking skills. Instruments to measure creative thinking skills include essay tests in the form of diagnostic questions in the form of 4 questions, including

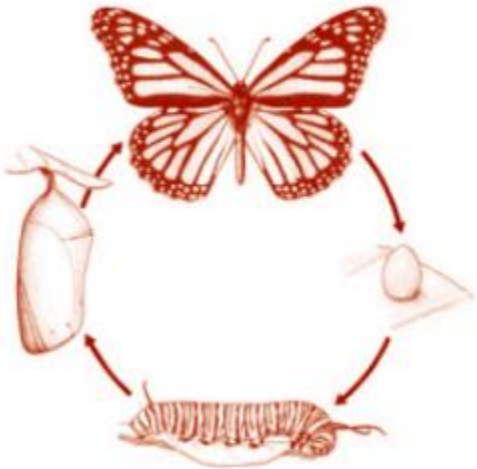
indicators of Fluency, Flexibility, Originality, and Elaboration (Treffinger et al., 2021). The instrument to measure creative thinking skills is adapted from Leasa et al. (2021), which has been tested for validity (Leasa et al., 2021). Data analysis techniques use descriptive statistics. The data that has been analyzed is then categorized based on the student's creative thinking skills in the form of percentages.

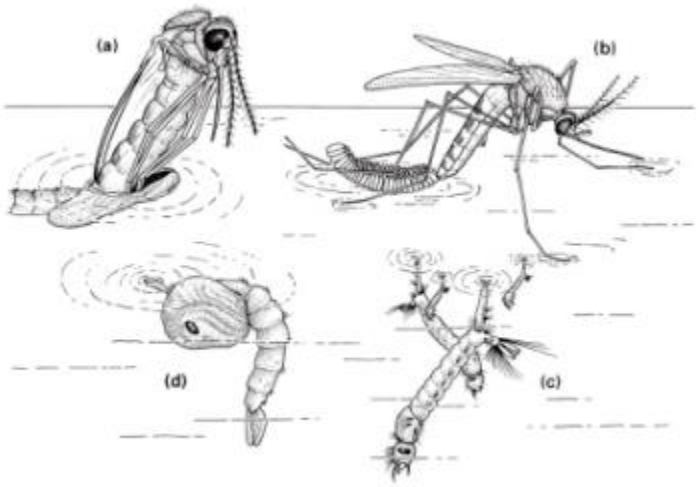
Table 1. Creative Thinking Skill Level

Creative Thinking Skill Level	Description
Very Creative	Students provide 3 or more alternative correct answers.
Creative	Students give 2 alternative correct answers.
Quite Creative	Students give 1 alternative correct answer.
Less Creative	Students give only one answer.
Not Creative	Students do not answer correctly.

Source: (Leasa et al., 2021)

Table 2. Creative Thinking Skills Instrument

Indicator of Creative Thinking Skills	Questions
Fluency	(1) Pay attention to the life cycle picture of the butterfly below  (Cranston, 2010) The life cycle of a butterfly can benefit or disadvantage farmers. Make 3–4 hypotheses or quick answers related to the development of the butterfly's life cycle to the development of plants or the existence of farmers!
Flexibility	(2) Mr Agus has several sago trees in his garden. Suddenly Mr Agus wanted to make new land right on the growth of sago trees, so Mr Agus had to cut down sago trees. After being cut down, Mr Agus plans to utilize the sago plant. What are the 3 parts or organs of the sago tree that can be used by Mr Agus, and explain what they are used for?
Original	(2) Consider the following mosquito cycle image

Indicator of Creative Thinking Skills	Questions
	 (Cranston, 2010) Notes: (a) Adult male mosquito; (b) Adult female mosquito with eggs; (c) Larvae; (d) Pupa Rina practices mosquito breeding by observing the life cycle of mosquitoes. Design 4 things Rina must do to get adult mosquitoes in large quantities!
Elaboration	Sago leaves can be used to make the roof of a house. Sort and write the steps (minimum 3) on how to make a roof in detail and accordingly!

Source: (Leasa et al., 2021)

RESULTS AND DISCUSSION

Creative thinking skills are one of the 21st-century skills that every individual needs to survive the influence of today's globalization, so these skills need to be optimized from elementary school. Based on the results of data analysis, essay tests to measure students' creative thinking skills show the following data:

Table 3. Results of Descriptive Statistical Analysis

Indicator	N	Minimum	Maximum	Mean	Std. Deviation
Originality	53	1	4	2.36	0.653
Flexibility	53	1	4	2.57	0.665
Fluency	53	0	3	2.19	1.257
Elaboration	53	0	3	0.53	0.823

The descriptive statistical analysis results show the largest standard deviation in the elaboration indicator and the smallest in the originality indicator. The average is lowest on the elaboration indicator and the highest on the flexibility indicator. Meanwhile, based on the

exploration of the level of creative thinking skills of students can be seen in Table 4.

Table 4. Results of Primary School Students' Creative Thinking skill level

Indicator	Not Creative (%)	Less Creative (%)	Quite Creative (%)	Creative (%)	Very Creative (%)	Average
Fluency	20.75	7.55	3. 77	**67.92**	0.00	20.00
Flexibility	0.00	7.55	30.19	**60.38**	**1.89**	20.00
Originality	0.00	7.55	**50.94**	39.62	**1.89**	20.00
Elaboration	**66.04**	**16.98**	15.09	1.89	0.00	20.00
Average	**21.70**	**9.91**	**25.00**	**42.45**	**0.94**	20.00

Based on Table 4. it is known that the percentage of students who answered incorrectly was more dominant in the elaboration indicator. Meanwhile, most of the average students are students at the creative level. Overall, it can be concluded that the higher the creative level, the greater the percentage value, but not to the very creative level.

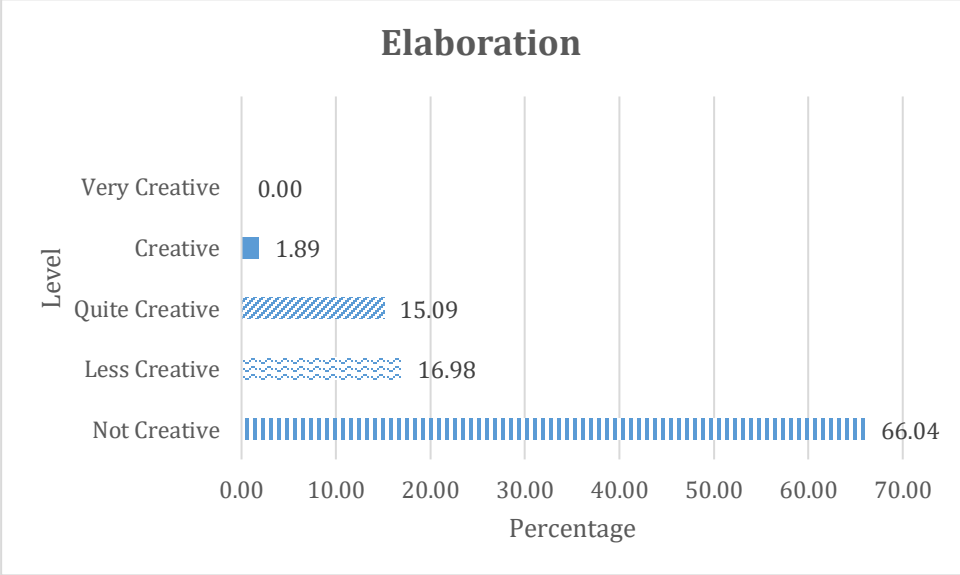


Figure 1. Analysis of Elaboration Skills

The average dominant student answer is wrong on the elaboration indicator, so 66.04% of students are at the non-creative level. The question requires idea development, not just remembering a concept. On the elaboration indicator, 16.98% of students are at a less creative level. Students are less creative because they do not understand the concept, so they cannot analyze the context of the questions given. This result proves that students' cognitive level is still at the level of remembering (C1). The common understanding of students is due to the lack of activeness of students in reading, writing, summarizing, practicum, and discussions with

friends related to learning material in the classroom (Ellis, 2016). Students with limitations in understanding concepts are less able to be creative and show their creativity in learning (Reid & Petocz, 2004). Most of the students at this less creative level answered the questions inaccurately because they could not solve the problem of how to make the roof of a house from sago leaves. In addition, students' lack of insight into the benefits of sago leaves can also be the reason students are not precise in solving problems. According to Dalman & Junaidi (2022), the cause of students' low ability to solve problems is that they do not understand the material, so they cannot solve problems and process them into creative ideas. (Dalman & Junaidi, 2022).

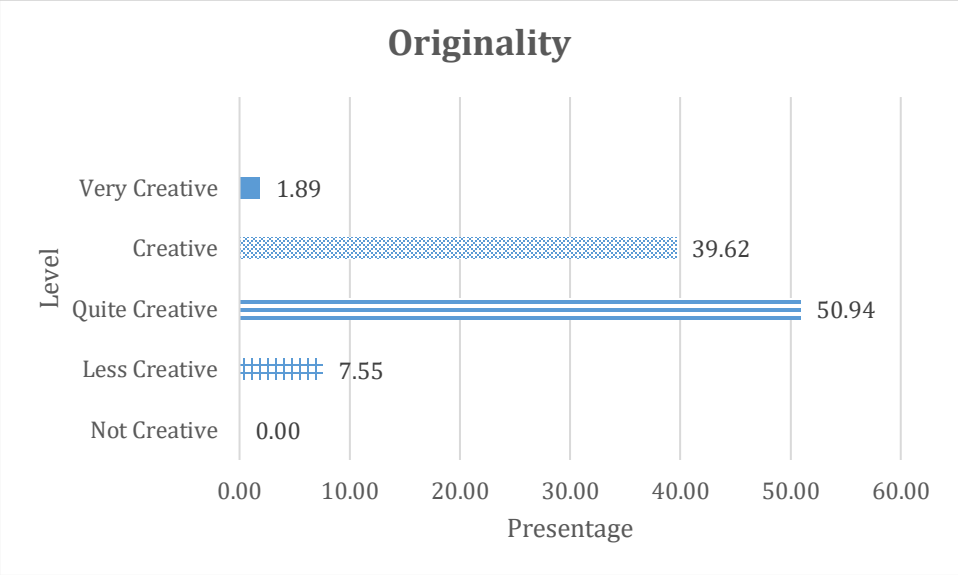


Figure 2. Analysis of Originality Skills

Students' creative thinking skills average 50.94% at a sufficient level on the originality indicator, namely finding unique combinations (different from the others). In this indicator, students are given the problem of how to get lots of mosquitoes based on the mosquito metamorphosis cycle. However, as many as 50.94% of students did not understand the problems in the questions. Based on the research of Dalman & Junaidi (2022) states that the cause of students' difficulty in answering higher-order thinking questions is that students cannot understand the problem or the question instructions. Hence, students are unable to solve the problem. (Dalman & Junaidi, 2022). Students were too focused on the mosquito life cycle image and misunderstood the problem. This condition caused the average student to answer by mentioning the mosquito's metamorphosis cycle stages. According to Martz et al. (2017), the beginning of the emergence of creative ideas is being able to recognize problems, not just

focusing on solving problems. Dominant students answered the wrong questions because they did not understand the problem. If students can find problems, it will be very easy to collect facts, sort facts, and solve problems (Martz et al., 2017). The process of solving these problems will be processed into creative ideas. In addition, the lack of contextual student learning experience also affects students in creative thinking (Aprisa & Mahendra, 2021). The lack of contextual learning about the mosquito life cycle also affects students' wrong answers to questions. Most students at this creative level answer by remembering pictures of the mosquito life cycle.

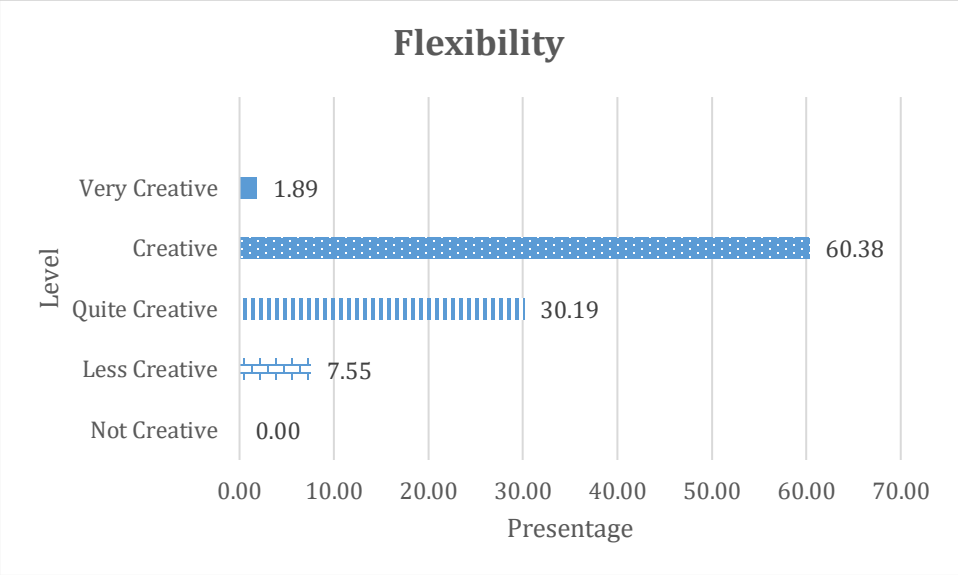


Figure 3. Flexibility Skills Analysis

The creative level of students averaged 60.38% on the flexibility indicator. High flexibility is achieved because students can use various approaches to developing ideas (Santi et al., 2018). One approach that students can use is a contextual approach that is relevant to everyday life (Dianatarsi & Sthephani, 2021). This approach trains students to test hypotheses (Klassen, 2006). Students who do not know the parts of the sago tree cannot answer the question perfectly. Most students only know the benefits of the sago tree for consumption. Meanwhile, it turns out that parts of sago can be used as well. This is the reason why students cannot answer perfectly.

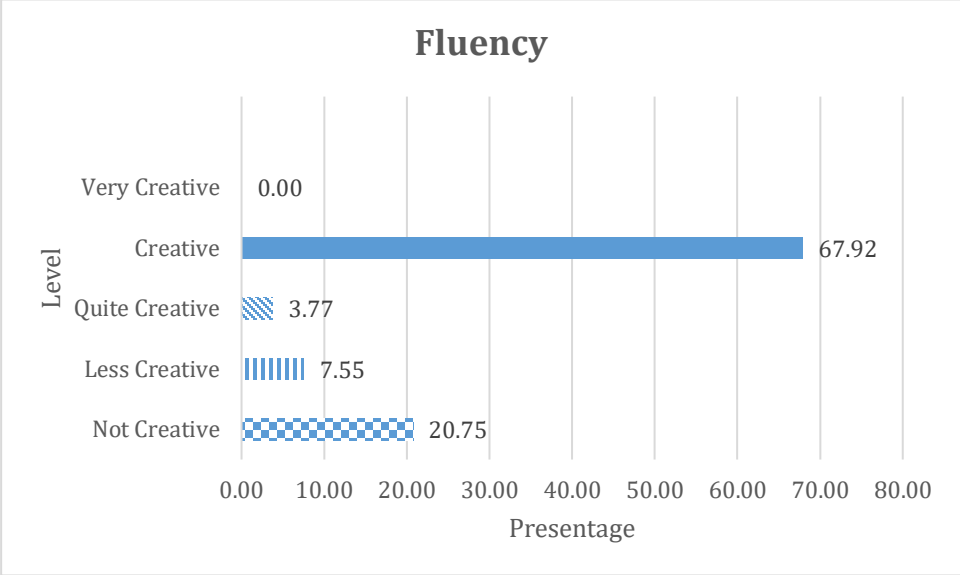


Figure 4. Analysis of Fluency Skills

Figure 4. shows an average of 67.92% of students at the creative level, with the largest percentage on the fluency indicator, with the question of the detrimental and beneficial impacts of the butterfly life cycle. Most students can answer almost perfectly. This condition is because most students understand butterflies' life cycle and generally encounter them in everyday life. This indicates that students are at a creative level in expressing an idea precisely and logically. The ideas given to the problems are original, unique and logical (Herlina et al., 2018). Students still have great potential to develop thinking at a very creative level (Leasa et al., 2021).

Some students could be very creative, although only a small proportion, namely 1.89% of students, could achieve it on the flexibility and originality indicators. Several students answered questions correctly and perfectly on the indicators of flexibility and originality, namely by asking questions about the benefits of sago palms and the life cycle of mosquitoes. Students who can understand the concept can then solve the problem. Besides that, pictures make it easier for students to remember (Moore et al., 2015) and user experience or a contextual approach to solving problems to be able to think at a very creative level (Maya & Ruqoyyah, 2021). Students who can answer perfectly at this very creative level can already generate new and unique ideas.

Based on the results of the category of creative thinking skills, teachers have an important role in developing students' creativity, such as providing learning experiences and scientific understanding. In addition, teachers must have pedagogic skills in designing learning that can challenge students to train and develop students to think creatively (Kariyev et al.,

2018). Based on research by Anggrella et al. (2023), teachers have not been able to make their learning designs, and lesson plans made have not been implemented

The learning plan that has been implemented needs to be evaluated periodically so that the teacher can reflect on the implementation of the lesson. Not only sufficient to design learning, but the teacher must also master the content of teaching materials. Based on Luzyawati's research (2015), teachers have relied only on teaching materials (student books) such as learning steps and evaluations. Teachers are less creative and innovative in developing learning designs according to the characteristics and needs of students. The learning steps are not under the learning model suggested by the curriculum. Besides, the evaluation is not yet able to develop students' 21st-century competencies (Luzyawati, 2015). The potential of students to be able to develop their creative thinking skills is determined by the teacher. So that the competence of teachers in schools needs to be improved, especially their pedagogic and professional competence in science learning which is oriented toward empowering life skills into the 21st century. In addition, the role of the government, education authorities, and higher education institutions is needed to produce prospective teachers to improve the professional and pedagogic competence of teachers and prospective teachers.

CONCLUSION

The creative thinking skills of elementary school students in science learning are mostly at the creative level. This shows that students can still have potential up to a very creative level. Learning innovations are needed that can improve students' creative thinking skills. The teacher's role is very important to optimize students' competence in creative thinking, especially on the elaboration and originality indicators. In addition, in solving a problem, it is not enough to focus on finding the answer. You must first understand the problem, and then through the process of solving the problem, new ideas that are unique and original are formed. Students need insight into knowledge related to everyday life and strengthening concepts to solve problems. So, learning needs to be strengthened with a contextual approach so that students can train students in solving problems.

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