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Profile of Students' Creative Thinking Skills on Newton's Laws

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ABSTRACT
This study aims to provide a profile overview of the students' creative thinking skills on Newton's Laws. The research used was a descriptive quantitative method. The research was conducted on grade VIII students at one of the State Junior High Schools in Singkawang City. The subjects in this study were selected by purposive sampling totaling 36 students. The research data was collected using a creative thinking skills test totaling 8 essay questions. Data were analysed using descriptive percentages. The results of the study showed that (1) students who were at a medium level of creative thinking were 81%, students who were at a low level of creative thinking skills were 19%; (2) the percentage results of creative thinking skills per indicator, namely fluency 69.17%, flexibility 57.92%, originality 37.50%, and elaboration 50.83%. Thus, it can be concluded that students' creative thinking skills were still low.

INTRODUCTION

Science learning in junior high schools (SMP/MTs) requires students to demonstrate scientific attitudes, ask questions about the natural environment, observe the natural environment, and present and report observational data in a simple manner (Permendikbud, 2016). Therefore, a change in mindset and a strong commitment from educators are needed to change teaching habits from the old lecturing pattern (transfer of knowledge) to new patterns and strategies that encourage students to find out for themselves (Slameto, 2015). Thus, students are expected to become competent individuals, not only knowing and understanding but also being creative individuals. This is in line with the 2013 curriculum, which aims to produce productive, creative, innovative, and character-based students through strengthening integrated attitudes, skills, and knowledge (Ratnasari, 2015).

Life in the 21st century demands that every individual possess a variety of skills (Zubaidah, 2016). One of the skills needed in the 21st century is the ability to create new ideas or concepts derived from an individual's creative thinking skills (Humaeroh, 2016). If students are fixated on merely knowing and understanding lesson concepts, they will struggle to face global competition that demands creativity (Humaeroh, 2016).

Creativity or creative thinking is essential for solving unusual problems in everyday life (Muflikhah, 2017). Creative thinking skills are the ability to generate or develop something new and different from previously generated ideas (Saputra, 2018). Therefore, with creative thinking, it is hoped that students will be able to solve problems or questions with a broad range of ideas.

Five other abilities make up creative thinking skills, including: (1) fluency, the ability to produce many ideas, (2) flexibility, the ability to adapt to changes in the way of thinking, and be spontaneous, (3) originality, novelty and uniqueness in producing innovative products, (4) problem sensitivity, the ability to find problems and find methods to solve them, and (5) Elaboration, the ability to transform ideas (Al-Oweidi, 2013). Every individual has different creative thinking skills (Miyasari, 2018). This is evident in everyday life from the creative results of certain people in technology and knowledge, and some people can only use but cannot create, even do not have knowledge and skills at all (Siswono, 2011).

Creative thinking skills are needed by students to solve problems faced in everyday life. When students are faced with a problem, they must think, calculate and pay attention creatively in determining a solution plan, whether the plan can be used in accordance with known concepts (Susanto, 2011). This shows that understanding a concept in solving a problem will be able to give rise to creative thinking patterns in students (Susanto, 2011). Creative thinking patterns will stimulate the development of students' creative thinking skills (Trianggono, 2017). Students who have high creative thinking skills will more easily accept new concepts, so they have creative ways to understand a concept (Trianggono, 2017).

Furthermore, the importance of creative thinking skills in students is that they are in line with student learning outcomes (Nami et al., 2014). Creative thinking skills play a positive role in improving students' cognitive learning outcomes, where the higher the creative thinking ability, the higher the student's learning outcomes. However, in reality, students tend to be less trained in creative thinking. This is because student creativity is not given enough attention and appreciation, resulting in students being unwilling or even afraid to try something new (Humaeroh, 2016).

When students are faced with high-level problems, they tend to experience difficulties due to a lack of creative thinking skills in developing their thought patterns and expressing their ideas (Muflikhah, 2017). Students often simply memorise formulas to solve problems and tend to focus on understanding the information presented to them rather than developing it (Muflikhah, 2017). This can hinder students' creative thinking skills.

Each student has different abilities in responding to a problem. The differences in student abilities also affect their level of creative thinking skills (Septianingrum, 2015). According to research conducted by Fardah (2012), students with high levels of creative thinking skills in facing problems can understand the problem, and they can estimate the solution, make a plan, implement it, and evaluate if there are obstacles in obtaining the solution. Students with medium levels of creative thinking skills can understand the problem and can estimate the solution, make a plan, implement the plan, but when they encounter obstacles in carrying out the plan, they cancel the procedure that has been prepared (Fardah, 2012). Meanwhile, students with low levels of creative thinking have difficulty understanding the problem and estimating the solution (Fardah, 2012).

Based on relevant research studies, this study aims to provide a profile overview of the students' creative thinking skills on Newton's Laws. It is hoped that this study can provide an overview of students' creative thinking skills, especially on Newton's Laws.

RESEARCH METHOD

This research method was a descriptive quantitative method that was used to describe the data that has been collected as it is, without the intention of making conclusions that apply to generality (Sugiyono,

2016). The research was conducted on grade VIII students at one of the State Junior High Schools in Singkawang City. The subjects in this study were selected by purposive sampling totaling 36 students. The research data was collected using a creative thinking skills test totaling 8 essay questions. Data were analysed using descriptive percentages. In this study, the percentage value of students' creative thinking skills on the instrument was calculated using equation (1).

$$NP = \frac{R}{SM} \times 100\% \quad (1)$$

Information:
NP = Percentage value of creative thinking skills.
R = Raw score obtained by students
SM = Maximum score

The reference for changing percentages into categories can be seen in Table 1 (Mahmudi & Sumarmo, 2010).

Table 1. Creative Thinking Skills Percentage

Percentage Earned	Category
Score < 55%	Low
55% ≤ Score < 75%	Currently
Score ≥ 75%	Tall

RESULTS AND DISCUSSION

Based on the research that has been conducted, the following data was obtained.

General Levels of Creative Thinking
The level of students' creative thinking skills based on test results is presented in Table 2.

Table 2. Classification of Creative Thinking Skill Levels

Score Range	Creative Thinking Skills	Number of Students
Score < 55%	Low	29
55% ≤ Score < 75%	Currently	7
Score ≥ 75%	Tall	-

The presentation of the percentage of students' skill levels is presented in Fig. 1.

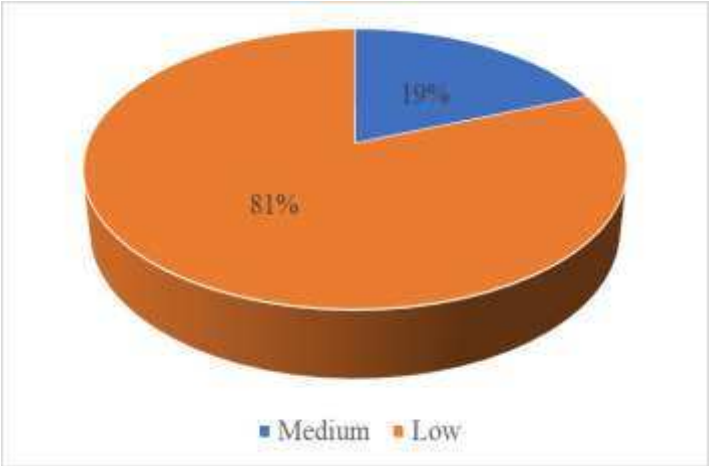

Fig. 1 *Diagram of Creative Thinking Skills Level*

Percentage of Creative Thinking Skills per Indicator
Students' creative thinking skills per indicator are presented in Fig. 2.

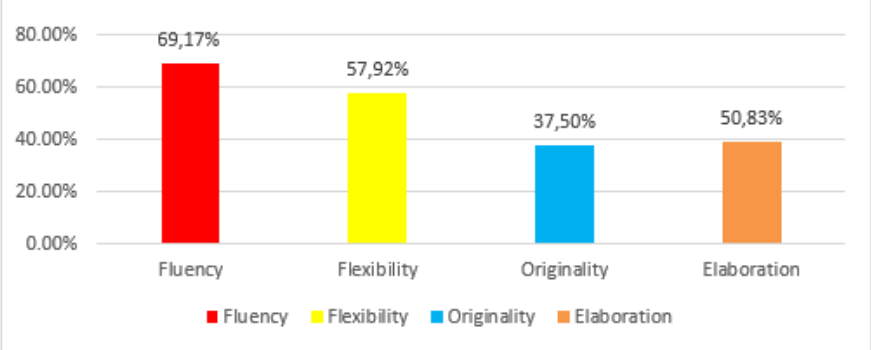

Fig. 2 *Diagram of Creative Thinking Skills Percentage per Indicator*

Fig. 1 shows that 81% of students are in the low thinking skills category, 19% of students are in the medium category. This shows that actually every student has creative thinking skills, but the levels are different (Kuspriyanto, 2013). Factors that are considered to influence the results of the data obtained, namely: (1) students have difficulty when using terms, concepts, and principles; (2) students forget the material formulated in the questions, so this factor is the cause of students experiencing difficulties in working on creative thinking skills test questions (Sulistiarmi, 2016). In addition, students who do not understand the material and do not like a certain subject can also cause low students' creative thinking skills (Sumarli et al., 2022b). To train students' creative thinking skills, it can be done by getting them used to working on problems that contain indicators of creative thinking (Putra, 2018). In addition, the designed learning should also focus on training students' ability to think divergently and minimise factors that can hinder students' creativity (Sumarli et al., 2022a). Murdani et al. (2024) stated that the Project-Based Learning (PjBL) learning model assisted by video media is one of the learning models that can train students' ability to think divergently, so that it can improve students' creative thinking skills.

In Fig. 2, the achievement of the creative thinking indicators of students with the highest percentage of the results of the creative thinking skills test is the indicator of Fluency. Meanwhile, the indicator of creative thinking skills with very low achievement is the indicator of Originality. This result is in line with Supriatin and Boeriswati (2019), where the indicator of Fluency achieves the highest results, and the indicator of Originality achieves the lowest results.

CONCLUSION

Based on the results and discussions conducted, it can be concluded that students' creative thinking skills were still low. This was evidenced by the results of the categorisation of creative thinking skill levels, where 81% of students were at a low level of creative thinking skills, and 19% were at a moderate level of creative thinking skills. If viewed from each indicator, creative thinking skills were still low in the originality and elaboration indicators. This was evidenced by the percentage results per indicator, namely fluency 69.17%, flexibility 57.92%, originality 37.50%, and elaboration 50.83%.

REFERENCES

Al-Oweidi. (2013). Creative Characteristics and Its Relation to Achievement and School Type Among Jordanian Students. *Creative Education, 4*(1).

Fardah, D. K. (2012). Analisis Proses dan Kemampuan Berpikir Kreatif Siswa dalam Matematika Melalui Tugas Open-Ended. *Jurnal Kreano, 3*(2).

Humaeroh, I. (2016). *Analisis Kemampuan Berpikir Kreatif Siswa Pada Materi Elektrokimia Melalui Model Open-Ended Problems*. Jakarta: Universitas Islam Negeri Syarif Hidayatullah.

Kuspriyanto, B. (2013). Strategi Pembelajaran dan Kemampuan Berpikir Kreatif Terhadap Hasil Belajar Fisika. *Jurnal Teknologi Pendidikan, 6*(2).

Mahmudi, A., & Sumarmo, U. (2010). Pengaruh Strategi MHM Berbasis Masalah terhadap Kemampuan Berpikir Kreatif Matematis dan Persepsi Terhadap Kreativitas. *Jurnal Cakrawala Pendidikan. Yogyakarta: UNY*.

Miyasari, H. C. (2018). *Analisis Kemampuan Berpikir Kreatif Siswa SMP pada Pokok Bahasan Pola Bilangan*. Jember: Universitas Jember.

Muflikhah, D. (2017). *Analisis Kemampuan Berpikir Kreatif Siswa SMP Kelas VIII dalam Menyelesaikan Soal Higher Order Thinking*. Purworejo: Universitas Muhammadiyah Purworejo.

Murdani, E., Afifullah, S., Sulistri, E., & Sumarli, S. (2024). Pengaruh Model Pembelajaran PjBL Berbantuan Media Video Pembelajaran terhadap Kemampuan Berpikir Kreatif Siswa Kelas IV SDN 14 Arung Kuang. *Jurnal Inovasi Sekolah Dasar*, *11*(2), 255-264.

Nami, Y., Marsooli, H., & Maral, A. (2014). The Relationship Between Creativity And Academic Achievement. *Procedia - Social and Behavioral Sciences, 114*, 36-39.

Permendikbud. (2016). *Standar Isi Pendidikan Dasar dan Menengah*, Pub. L. No. 21.

Putra. (2018). Kemampuan Berpikir Kreatif Matematika Siswa SMP di Cimahi. *Jurnal Matematika Kreatif Inovatif, 9*(1).

Ratnasari, D. (2015). *Proses Berpikir Kreatif Siswa Berdasarkan Tingkat Berpikir Kreatif dalam Memecahkan Soal Cerita Sub Pokok Bahasan Keliling dan Luas Segiempat Berbasis Tahapan Wallas*. Jember: Universitas Jember.

Saputra, H. (2018). Kemampuan Berpikir Kreatif Matematis. In *Prosiding Seminar Nasional Penelitian*, 521-526.

Septianingrum, M. F. (2015). *Analisis Tingkat Kemampuan Berpikir Kreatif Siswa dalam Mengajukan Masalah Matematika Berdasarkan Kemampuan Matematika Kelas VI MIA-G SMA Negeri 1 Probolinggo*. Jember: Universitas Jember.

Siswono, T. Y. (2011). Level of Students' Creative Thinking in Classroom Mathematics. *Educational Research and Review, 6*(7).

Slameto. (2015). *Rasional dan Elemen Perubahan Kurikulum 2013*. Scholaria.

Sugiyono. (2016). *Metode Penelitian Kombinasi (Mixed Methods)*. Bandung: Alfabeta.

Sulistiarmi, W. (2016). *Analisis Kemampuan Berpikir Kreatif Siswa Kelas XI IPA pada Mata Pelajaran Fisika SMA Negeri Se-Kota Pati*. Semarang: Universitas Negeri Semarang.

Sumarli, S., Rosdianto, H., & Buyung, B. (2022a). Correlation of Science Process Skills with Students' Creativity in Learning of Creative Problem Solving Model with an Inquiry Approach on the Simple Harmonic Motion. *JIPF (Jurnal Ilmu Pendidikan Fisika)*, *7*(1), 94-101.

Sumarli, S., Suwanto, I., & Wiwit, W. (2022b). Kemampuan Berpikir Kreatif Siswa Kelas V SD pada Tema Ekosistem Ditinjau dari Tipe Kepribadian. *Jurnal Ibriez: Jurnal Kependidikan Dasar Islam Berbasis Sains*, *7*(2), 207-224.

Supriatin, A., & Boeriswati, E. (2019, April). Mathematical creativity profile of elementary school students in solving mathematical problems by considering technology role. In *Journal of Physics: Conference Series*, *1211*(1), 012072. IOP Publishing.

Susanto, H. A. (2011). Pemahaman Pemecahan Masalah Pembuktian Sebagai Sarana Berpikir Kreatif. *Prosiding Seminar Nasional Penelitian, Pendidikan, dan Penerapan MIPA, Fakultas MIPA*.

Trianggono, M. M. (2017). Analisis Kausalitas Pemahaman Konsep Dengan Kemampuan Berpikir Kreatif Siswa pada Pemecahan Masalah Fisika. *Jurnal Pendidikan Fisika dan Keilmuan (JPFK), 3*(1).

Zubaidah, S. (2016, Desember). Keterampilan Abad Ke-21: Keterampilan yang Diajarkan Melalui Pembelajaran. In *Seminar Nasional Pendidikan dengan tema "Isu-isu Strategis Pembelajaran MIPA Abad 21"*, *10*, 1-17.