Devi Nur Afifah - UM .docx

by Devi Afifah

Submission date: 07-Jan-2025 09:16AM (UTC+0530)
Submission ID: 2560220909
File name: Devi_Nur_Afifah_-_UM_.docx (2.25M)
Word count: 4517
Character count: 23788

PRISMA
Volume ..., No. ..., ... 2025
https://jurnal.unsur.ac.id/prisma
p-ISSN
e-ISSN

Students' Creative Thinking Process in Solving Open-Ended Problems on Flat Shapes

Devi Nur Afifah[1,*], Sudirman[2], Swasono Rahardjo[3]
[1,2,3] Universitas Negeri Malang, Malang
*devi.nur.2203118@students.um.ac.id

Submitted : DD-MM-YY	*Revised: DD-MM-YY*	*Accepted: DD-MM-YY*	*Published:DD-MM-YY*

ABSTRACT

Mathematics learning at school plays a significant role in developing students' logical, analytical, and creative thinking skills. Mathematics learning has one of the goals of encouraging students to find various ways to solve problems, especially on open-ended problems. The open-ended approach geometry material allows students to explore a variety of unique and diverse solution strategies. This research is a descriptive qualitative to describe the creative thinking process of students in solving open-ended problems on flat shape material based on theory from Wallas (1926). The thinking process according to the theory has four stages; preparation, incubation, illumination, and verification. The number of students involved was 32 students, but the data taken were 3 students who already represented each creative category (very creative, fairly creative, and not creative). The results showed that highly creative students went through all four stages of the thinking process according to Wallas' theory and produced good solutions. Errors in fairly creative students occur at the illumination stage, the subject incorrectly uses the required formula. In addition, the subject experienced errors at the stage of understanding the concept of combined flat shapes. The subject looked for the perimeter of the combined flat shape by adding up all sides including the inner side. Furthermore, the thinking process of students is not creative at the initial stage, namely preparation. The subject is unable to understand the problem in depth. Thus, it causes the subject unable to solve the problem properly.

Keywords: creative thinking, flat Shape, geometry, thinking process, Wallas

INTRODUCTION

Creative thinking is an important 21st century skill to be developed for success in education, career and life. Creative thinking in mathematics learning is one of the aspects that must be mastered by students (Yenti et al., 2023). Mathematics learning at school plays a significant role in making students think logically, analytically, and creatively. Mathematics learning has one of the goals of encouraging students to find various ways to solve problems, especially on open-ended problems. Open-ended problems provide opportunities for students to explore various possible solutions, thus honing their creative thinking (Pratiwi et al., 2023). In addition, according to research by Kurniawati (2018), creative thinking is the skill of students in generating new ideas to create a product.

Creative thinking is very relevant to geometry material that teaches the concept of space and mathematizes spatial situations that require deep understanding and open thinking (Gravemeijer et al., 2016). Geometry is one of the math topics that is considered important because it connects mathematical concepts with applications in everyday life (Putri et al., 2023). Geometry materials, such as flat shapes, have direct application in everyday life, thus helping students understand the properties of flat shapes and apply them in solving

appropriate problems. Flat shapes not only focus on mastering formulas, but also teach the analysis of relationships between geometric components, such as length, area, and angle, in real contexts. The *open-ended* approach to this material allows learners to explore a variety of unique and diverse solution strategies (Wulandari et al., 2021). Research by Schoevers et al. (2022) shows that creativity is a significant predictor of student performance on geometry problems, especially in non-routine and *open-ended* problems, where students with higher levels of creativity perform better.

The level of creativity or creative thinking ability can be observed by paying attention to indicators of *fluency flexibility*, and *originality*. The ability to think creatively is certainly inseparable from the creative thinking process. The creative thinking process refers to the stages or steps that students go through to produce original ideas, solutions, or works. The thinking process, according to Wallas (1926), the theory has four stages, namely preparation, incubation, illumination, and verification. In the preparation stage, students consciously collect information relevant to the problem presented. The information is analyzed using logical rules, so that students can understand the problem thoroughly. In addition, students begin to formulate initial strategies to solve the problem. The second is the incubation stage. At this stage, it involves settling or resting from the activity of thinking consciously about the problem. Students can turn their attention to other things or take a break to give the unconscious process room to work. Incubation is often necessary for more complex types of problem solving, where interruptions or constant thinking can inhibit the creative process. At the Illumination stage, there is a sudden "flash" of an idea or insight often referred to as an "aha!" moment. This flash of ideas is preceded by a psychological process called intimation, which is the feeling that a solution is approaching. This process involves an interaction between the conscious and subconscious mind, which can be triggered or amplified by paying attention to intuitive signs or initial ideas that arise. The last is the verification stage. It is the evaluation of the idea or solution that emerged during the illumination stage. The individual consciously re-examines the idea with logical rules and compares it with the original problem to ensure the validity and effectiveness of the resulting solution.

However, studies show that students' creative thinking skills in Indonesia still need to be improved. According to the 2018 *Program for International Student Assessment* (PISA) data, only 24% of Indonesian students reached the minimum level in mathematics skills (OECD, 2019). The results of the *Trends in International Mathematics and Science Study* (TIMSS) survey in 2015 also showed that Indonesia was in the bottom six positions, which showed the low level of students' higher order thinking skills, including creative thinking. This condition indicates a serious challenge in mathematics education in Indonesia. One of the contributing factors is learning methods that tend to be oriented towards a single solution and provide less space for exploration of ideas. Previous research, entitled *"Students' Creative Thinking in Solving Open-Ended Problems in Junior High School Flat Building Materials"*, showed students' thinking abilities without paying attention to the creative thinking process that occurs during the process. Therefore, in this context, it is important to explore more deeply how the students' creative thinking process works in solving *open-ended* mathematics problems, especially on flat building materials (Vitara et al., 2022).

The research aims to describe students' creative thinking process in solving *open-ended* problems on flat shapes based on Wallas' theory. The results of this study can be the basis for designing learning strategies that are more effective in improving creative thinking skills in mathematics.

RESEARCH METHOD

This study used descriptive qualitative method to describe students' creative thinking process in solving open-ended problems on flat shapes. The number of students of SMP Negeri 1 Puri class IX is 32 students, but the data taken were from three students who represented each category of creativity level, namely very creative, quite creative, and less creative. Students were considered very creative if they met all the indicators of creative thinking, namely fluency, flexibility, and originality. Students were considered fairly creative if they met one or two of these indicators. Conversely, students were categorized as non-creative if they did not meet any of the creative thinking indicators (Siswono, 2010). Creative thinking tests and interviews were the data collection techniques for this study. Data analysis techniques, according to Miles & Huberman (1994), consists of data reduction, presenting data and conclusions and verification. Data reduction is the process of selecting, focusing, simplifying, abstracting, and transforming data obtained from written field results. Data presentation is a structured and concise collection of information, making it easier to draw conclusions and take action. Conclusions also need to be verified as the researcher continued the analysis process while verification is an important process in analysis and writing that ensures the accuracy and credibility of the information. The creative thinking process instruments used are test questions and interviews. The test questions consisted of one problem of flat building material related to the perimeter of flat buildings. The following is the research test question:

Draw a variety of flat shapes (as many as possible) that have a perimeter equal to the perimeter of the flat shape drawn on the sheet!

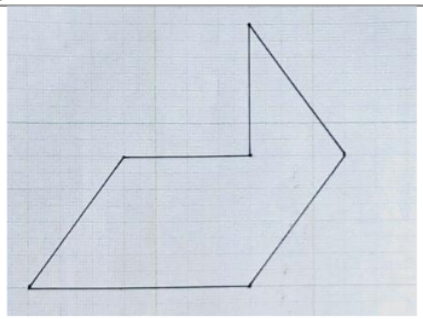


Figure 1 Creative Thinking Test

The creative thinking process, according to the theory from Wallas (1926), has four stages, namely preparation, incubation, illumination, and verification, which are presented in Table 1.

Table 1 Indicators of Creative Thinking Process

No	Creative Thinking Process Stages	Indicators
1	Preparation	Able to identify important relevant information, able to understand the problem, and able to formulate initial steps; or strategies to solve the problem.
2	Incubation	Able to take a break from immediate thinking on the problem without forgetting the goal and showing signs of subconscious reflection, such as the emergence of new ideas after a rest period.
3	Illumination	Able to come up with original new ideas or solutions and able to identify "aha!" moments that provide new directions in problem solving.
4	Verification	Able to evaluate ideas or solutions to ensure their correctness and Able to provide logical explanations to support solutions.

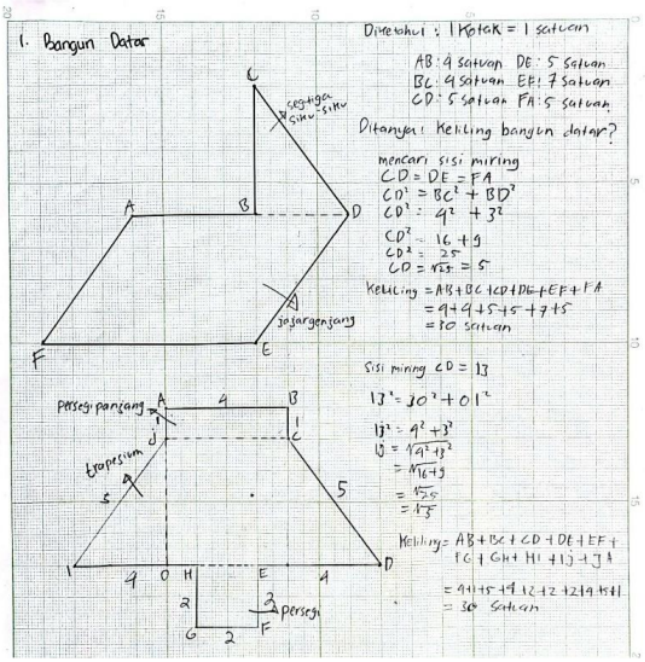
Source : Wallas (1926)

RESULTS AND DISCUSSION

Based on the results of the study, three subjects representing each creative thinking category were selected to describe the creative thinking process.

a. Creative Thinking Process of Highly Creative Students

The results of research on highly creative students on creative thinking questions can be seen in Figure 2.



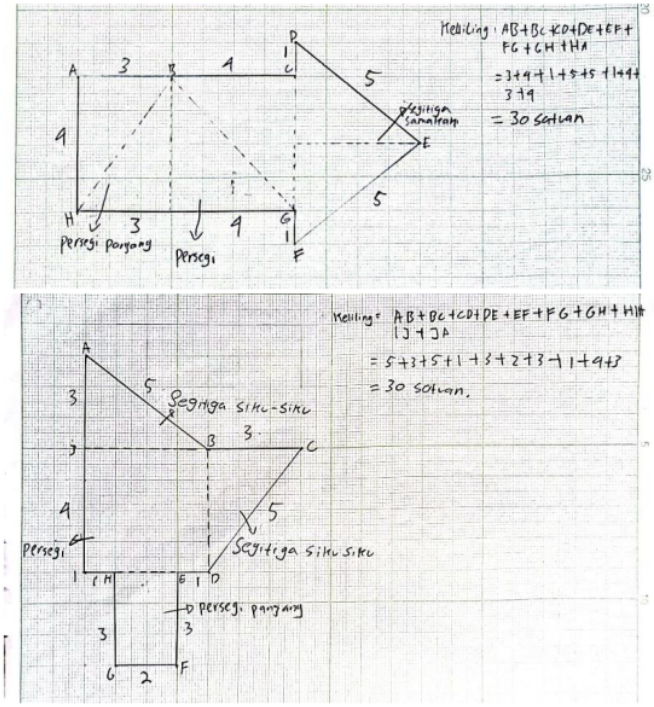


Figure 2 Student Answer Very Creative

Based on Figure 2, subjects with very creative categories were identified as being able to work on problems well. It can be seen from his thought process at each stage, in the first stage, namely the preparation stage, the subject understands the information in the problem provided properly which is shown through the results of the subject's answer by knowing what is known and inquired. In addition, the subject understood that the flat figure was a combination of several geometric figures, such as right triangles and parallelogram. The second stage is incubation. The subject paused for about three minutes to think about the right strategy in solving the problem of the perimeter of the flat shape. Furthermore, at the illumination stage, the subject began to compile the steps of the solution. Each point on the flat shape is given a name, such as $A, B, C,$ and so on. The subject used the Pythagorean Theorem to determine the length of the hypotenuse of the triangle. The subject wrote the side lengths are: $AB = 4$ unit, $BC = 4$ unit, $CD = 5$ unit, $DE = 5$ unit, $EF = 7$ unit, and $FA = 5$ unit. The subject then calculated the perimeter of the flat shape by adding up all the outer sides: $4 + 4 + 5 + 5 + 7 + 5 = 30$ units. The subject rechecked the calculation result to ensure its correctness in the verification stage. Although the results were correct, there were some small parts that were not considered during the verification process.

When making the first alternative of the flat shape, the subject re-read the result of the perimeter of the flat shape given in the preparation stage. The process at the incubation stage took place faster than before. At the illumination stage, the subject made a drawing by combining flat shapes in the form of a rectangle, trapezoid, and square. Although the size made is different from the initial drawing, the perimeter result remained the same, which is 30 units. In the second alternative, the subject performed similar steps in the preparation and

incubation stages. At the illumination stage, the subject combined flat shapes in the form of a rectangle, square, and isosceles triangle. The result of the perimeter of the flat is still 30 units. In the third alternative, the subject again made a combination of flat shapes. At the illumination stage, the subject combines flat shapes in the form of a rectangle, square, and two right triangles. The final result is a perimeter of 30 units, consistent with other alternatives.

The following is an interview transcript as an attachment to verify the results of the observation of the creative thinking process that has been written previously:

P : Do you understand the information in the problem? What was the first step before you drew the flat shape?

SK : Yes, I understand the problem. First, you have to know the perimeter of the given flat shape, then you can draw other flat shapes. I made a drawing of a flat shape of an arbitrary size and then combined it with other flat shapes until the perimeter of the flat shape I made was the same as the given flat shape.

P : How long did it take you to come up with a picture of a flat shape that was different from the one given? What do you do when you haven't found an idea to make another picture?

SK : About 3 minutes but each picture is different, the longest when making the first picture because I was still figuring out how to make it. After that, the second and third pictures were quite fast because I already knew how to do it. I just stayed quiet while thinking.

P : Tell us how you came up with the idea to draw the flat shapes and came up with 3 alternatives!

SK : I started by drawing the first flat shape, a rectangle with a length of 4 units and a width of 1 unit. The second building is a trapezoid with an upper side of 4 units, a lower side of 10 and a height of 4 units. I added up all of them and added a square with a side of 2 units. I added the square with a side of 2 units and the sum of the sides turned out to be the same as the perimeter of the flat shape in the example, which is 30. Then I looked for more flat shapes and sizes in trial and error, I thought of an arrow so I drew a rectangular shape with a length of 3 units and a width of 4 units and a square with a size of 4 units and the last is an isosceles triangle with a base size of 6 units and a height of 4 units. Finally, I took a right triangle with a base of 4 units and a height of 3 units and combined it with a square whose size was 4 units, combined it again with a right triangle of the same size as the previous one, then I looked for the circumference and it was still lacking, I added a rectangle with a length of 2 units and a width of 3 units, so that the circumference of this flat shape was accurate.

P : Did you check your work again and when was the verification time?

SK : Yes, I checked again when the time was tight but there was still time left, so I checked again at the end.

b. Creative Thinking Process of Fairly Creative Students

The results of research on fairly creative students on creative thinking questions can be seen in Figure 3.

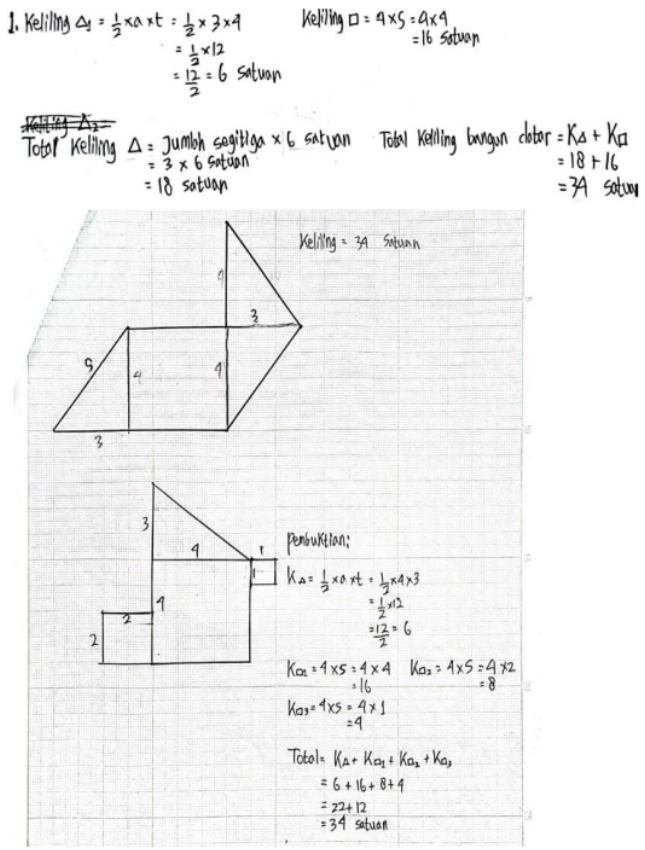


Figure 3 Students' answers are fairly creative

Based on Figure 3, subjects with fairly creative category (CK) were identified as able to understand the problem. The subject showed an understanding of the image of a flat shape consisting of a combination of three right triangles and one square. At the incubation stage, the subject paused and thought for about five minutes to find a way to solve the problem about the perimeter of the flat shape. At the illumination stage, the subject tried to find the length of each side of the given flat shape. The subject then applied the perimeter formulas learned at school to calculate the combined perimeter of the flat shapes. However, several errors occurred, such as; the subject incorrectly used the perimeter formula by replacing it with the triangle area formula and the subject misunderstood the concept of the combined perimeter of a flat by adding up all sides, including the inner side, which should only be the outer side of the flat. After completing the calculation, the subject did not re-examine his work so that the errors that occurred in the previous stage were not identified, but the subject only verified the image visually. Next, the subject made an alternative drawing combining flat shapes consisting of a triangle and three squares of different sizes. The subject tried to calculate the perimeter of this alternative drawing, but the errors in the previous stage still existed, especially related to the concept and formula of perimeter.

The above analysis was obtained from the results of class analysis and supported by subject interviews. The following is a transcript of the CK subject interview:

P : Did you understand the information given in the problem and did you experience any difficulties?
CK : Yes, I understood the question and I didn't have any difficulties.
P : How many pictures did you make?
CK : Just one picture
P : What is the first step before you draw the flat shape?
CK : Finding the length of the sides of the shape, if it is known, finding the perimeter of the flat shape.
P : How long did it take you to find a flat shape that is different from the given shape?
CK : I found the perimeter to be about the same, but it took me about 7 minutes to draw the different flat shapes.
P : What did you do while you weren't coming up with ideas for other images?
CK : Yes, I just stay quiet while thinking, other than that, I play with pencils and doodles.
P : In this alternative, tell us how you came up with the idea to draw the flat shape?
CK : First, I drew a triangle with a height of 3 and a base of 4, then I made a square with 4 sides and added them up, but it still didn't fulfill my need to make a square with size 2 and another square with size 1.
P : Did you check your work again?
CK : Yes, I went back to look at the drawing I made

c. Creative Thinking Process of Non-Creative Students

The results of research on uncreative students on creative thinking questions can be seen in Figure 4.

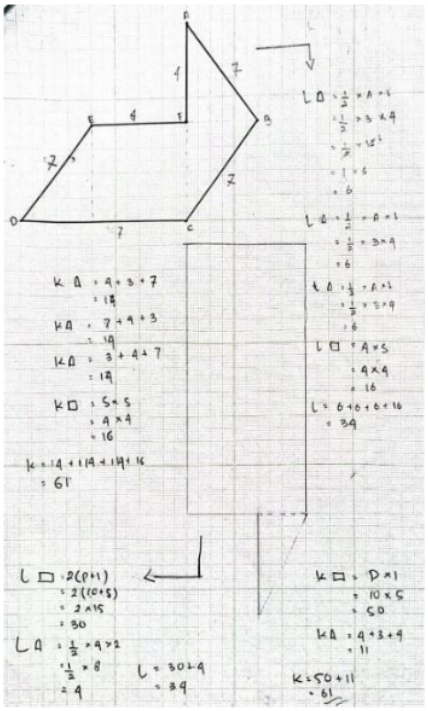


Figure 4 Students' Answers Not Creative

Based on Figure 4, subjects with the non-creative category (TK) were identified as having difficulty in working on problems. At the preparation stage, the subject did not understand the problem given. The subject seems confused in distinguishing between perimeter and area, as well as finding both in the flat shape. The subject also realized that the flat figure was a combination of three right triangles and a square. At the incubation stage, the subject took about five minutes to think about how to solve the perimeter problem. The subject seemed to have difficulty finding the right solution, so it took longer to consider various possibilities. At the illumination stage, the subject began to look for the length of each side of the flat shape. However, at this stage of illumination, the subject experienced errors in understanding the concept of the combination of flat shapes. After completing the calculation, the subject did not re-examine the problem given. It caused the errors that occurred in the illumination stage not to be detected and corrected.

The following is a transcript of the subject's interview as the verification of the observations above:

P : Did you understand the information given in the problem?

TK : Actually, no, because I was still confused so I calculated the perimeter and area of the flat shape.

P : Did you have difficulty understanding and writing down the information in the problem?

TK : Yes, Mam.

P : How many figures did you make?

TK : Just one figure

P : What was the first step before you drew the flat shape?
TK : Finding the length of the sides of the shape, if it is already known, finding the perimeter and area of the flat shape.
P : How long did it take you to find a picture of a flat shape that is different from the given picture?
TK : It took me about 10 minutes to come up with the idea because it's hard to have the same perimeter and area. Sometimes the perimeter is the same but the area is different.
P : What did you do while you haven't come up with an idea to create another image?
TK : Yes, just keep silent while thinking, besides playing with pencils and making scribbles.
P : In this alternative, tell us how you came up with the idea to draw the flat shape?
TK : First, I drew a rectangle with length 10 and width 5, then I drew a triangle with base 2 and height 4. Then I find the perimeter and area and the results are the same.
P : Did you check your work again?
TK : No, because the time is up

Based on the exposure of the research results, the creative thinking process of creative students met the indicators of *fluency*, *flexibility* and *originality*. It was carried out completely through the stages of creative thinking, namely at the preparation, incubation, illumination, verification stages resulting in a good solution. In the preparation stage, the subject was able to understand the information in the problem. At the incubation stage, the subject carried out activities and did not take long to find a solution idea so that at the illumination stage the subject made a drawing of 3 different flat shapes. The subject also checked again even though the time was almost over. This finding is consistent with the research by Alimuddin et al. (2019) that students who are able to fulfill all indicators of creative thinking tend to provide answers based on their experience of similar problems that have been faced in the decision-making process.

Students with fairly creative categories have some deficiencies in their thinking process. The error occurred at the illumination stage. The subject incorrectly used the required formula. Not only that, the subject made an error at the stage of understanding the concept of a combined flat shape. The subject looked for the perimeter of the combined flat shape by adding up all sides including the inner side. Based on the research results found by Sari & Yuwono (2020), one of the mistakes that students often make is the lack of accuracy in understanding and solving problems.

Furthermore, the thinking process of students in the non-creative category showed many deficiencies in the thinking process. At the initial stage, namely preparation, the subject was unable to understand the problem in depth. Thus, it caused the subject unable to solve the problem properly. This result is in line with research by Kushendri & Zanthy (2019) which states that students often do not understand problems well. As a result, they have difficulty in applying strategies, performing calculations, and not double-checking correctly.

This study shows that there are differences in the creative thinking process among students with very creative, fairly creative, and non-creative categories in solving flat building problems based on Wallas' theory. This finding is in line with research by Khasanah & Sugiarti (2018) which states that differences in creative thinking processes can be seen from the way students understand initial information, plan solution ideas, and carry out

solutions in various ways. These differences can be influenced by the level of motivation, attitude towards learning, as well as students' responses to certain environments and classroom practices (Potur & Barkul, 2009).

CONCLUSION

Based on the results of the research and discussion, it shows that very creative students can successfully complete the four stages of the creative thinking process according to Wallas' theory, and produce optimal solutions. Fairly creative students have some shortcomings, especially at the illumination stage, such as using the wrong formula. In addition, there were errors at the stage of understanding geometry concepts, where students added up all sides, including the inner side, to calculate the perimeter of the combined flat. Meanwhile, non-creative students showed many obstacles in their thinking process. At the preparation stage, students were unable to understand the problem comprehensively, so they failed to solve the problem properly.

This research focused on students' creative thinking process in solving open-ended problems on flat shapes based on Wallas' stages. It is recommended for future research to develop a study on students' creative thinking process based on other theories in solving open-ended problems by considering their level of creativity in different content.

REFERENSI

Alimuddin, F., Daniel Chandra, T., Rahardi, R., & Artikel Abstrak, I. (2019). Kreativitas dan Proses Berpikir Kreatif Siswa Field Independent Dalam Pemecahan Masalah Matematika. *Jurnal Pendidikan: Teori, Penelitian Dan Pengembangan*, *4*(11), 1528–1533. http://journal.um.ac.id/index.php/jptpp/

Gravemeijer, K., Figueiredo, N., van Galen, F., Keijzer, R., & Munk, F. (2016). Measurement and Geometry in Upper Primary School. In *Measurement and Geometry in Upper Primary School*. SensePublishers. https://doi.org/10.1007/978-94-6300-746-7

Khasanah, U., & Sugiarti, T. (2018). Proses Berpikir Kreatif Siswa Dalam Memecahkan Soal Cerita Pokok Bahasan SPLDV Berdasarkan Tahapan Wallas Ditinjau Dari Gaya Belajar. *Kadikma*, *9*(2), 30–38.

Kurniawati, N. (2018). Mengakses Dan Memonitor Kemampuan Berpikir Kreatif Matematis Siswa Kelas V Sekolah Dasar Dalam Pembelajaran Matematika. *Jurnal Prisma*, *VII*(1). https://jurnal.unsur.ac.id/prisma

Kushendri, K., & Zanthy, L. S. (2019). Analisis Kemampuan Pemecahan Masalah Matematis Siswa SMA. *Journal On Education*, *1*(1), 94–100.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative Data Analysis : An Expanded Sourcebook* (Second Edition). SAGE Publications.

Potur, A. A., & Barkul, O. (2009). Gender and creative thinking in education: A theoretical and experimental overview. *Journal ITU A\Z*, *6*(2), 44–57.

Pratiwi, N. I., Susiswo, S., & Rahardi, R. (2023). Berpikir Kreatif Siswa dalam Memecahkan Masalah Open-Ended pada Materi Bangun Datar SMP. *Jurnal*

Cendekia : Jurnal Pendidikan Matematika, *7*(3), 2299–2312. https://doi.org/10.31004/cendekia.v7i3.2616

Putri, R. A., Viantasari, E., Khoirunnisya, M., & Fatah, Z. (2023). Konstruksi Rumus Luas Segiempat dan Segitiga Menggunakan Media Gospel Berbasis Konstruktivis-Metakognitif. *PRISMA*, *12*(1), 93. https://doi.org/10.35194/jp.v12i1.2770

Sari, S. J., & Yuwono, T. (2020). Kesalahan Siswa dalam Mengerjakan Soal Sistem Persamaan Linear Dua Variabel Berdasarkan Kriteria Watson. *Jurnal Tadris Matematika*, *3*(2), 219–228. https://doi.org/10.21274/jtm.2020.3.2.219-228

Schoevers, E. M., Kroesbergen, E. H., Moerbeek, M., & Leseman, P. P. M. (2022). The relation between creativity and students' performance on different types of geometrical problems in elementary education. *ZDM - Mathematics Education*, *54*(1), 133–147. https://doi.org/10.1007/s11858-021-01315-5

Siswono, T. Y. E. (2010). EJ1078595. *IndoMS. J.M.E*, *1*, 17–40.

Vitara, R. A., Prayito, M., & Kusumaningsih, W. (2022). Analisis Kemampuan Berpikir Kreatif Siswa SMP dalam Menyelesaikan Soal Open-Ended pada Materi Bangun Datar Segiempat. *Imajiner: Jurnal Matematika Dan Pendidikan Matematika*, *4*(3), 260–267. https://doi.org/10.26877/imajiner.v4i3.9859

Wallas, G. (1926). *The Art of Thought*. MCMXXVI.

Wulandari, D. P., Susiswo, S., & Sulandra, I. M. (2021). Proses Kemampuan Berpikir Kreatif Siswa Matematika Berdasarkan Masalah Open-Ended pada Materi Bangun Datar. *Jurnal Cendekia : Jurnal Pendidikan Matematika*, *5*(3), 2198–2207. https://doi.org/10.31004/cendekia.v5i3.847

Yenti, I. N., Fernando, E., & Afriyani, D. (2023). Analisis Kemampuan Berpikir Kreatif Matematis Siswa dalam Menyelesaikan Soal HOTS pada Materi Statistika. *PRISMA*, *12*(1), 139. https://doi.org/10.35194/jp.v12i1.3034

Devi Nur Afifah - UM .docx

ORIGINALITY REPORT

16%	11%	10%	4%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	R Auliasari, I Sujadi, Siswanto. "Junior High School Students' Creative Thinking Process on Equation of Straight Lines", Journal of Physics: Conference Series, 2021 Publication	1%
2	ummaspul.e-journal.id Internet Source	1%
3	www.grafiati.com Internet Source	1%
4	Submitted to Konsorsium Perguruan Tinggi Swasta Indonesia II Student Paper	1%
5	doaj.org Internet Source	1%
6	j-cup.org Internet Source	1%
7	Submitted to Kennesaw State University Student Paper	1%

8	Hera Oktadiana, Myrza Rahmanita, Rina Suprina, Pan Junyang. "Current Issues in Tourism, Gastronomy, and Tourist Destination Research", Routledge, 2022 Publication	<1 %
9	Submitted to Liverpool John Moores University Student Paper	<1 %
10	Y O Jagom, I V Uskono, S I Leton. "Students' creative thinking in solving geometry problems", Journal of Physics: Conference Series, 2020 Publication	<1 %
11	Wulan Patria Saroinsong, Muhamad Nurul Ashar, Irena Y. Maureen, Lina Purwaning Hartanti et al. "Reimagining Innovation in Education and Social Sciences", Routledge, 2023 Publication	<1 %
12	repository.upi.edu Internet Source	<1 %
13	download.garuda.kemdikbud.go.id Internet Source	<1 %
14	www.rainbowresource.com Internet Source	<1 %

15	Rahmiati Aulia, Diani Apsari, Sri Maharani Budi Haswati, Hana Faza Surya Rusyda et al. "Embracing the Future: Creative Industries for Environment and Advanced Society 5.0 in a Post-Pandemic Era", CRC Press, 2022 Publication	<1 %
16	Submitted to The University of Texas at Arlington Student Paper	<1 %
17	Submitted to Walden University Student Paper	<1 %
18	pubs.sciepub.com Internet Source	<1 %
19	un-pub.eu Internet Source	<1 %
20	www.ejournal.unma.ac.id Internet Source	<1 %
21	iopscience.iop.org Internet Source	<1 %
22	jiped.org Internet Source	<1 %
23	journal.ikipsiliwangi.ac.id Internet Source	<1 %
24	Maria Tzachrista, Evgenia Gkintoni, Constantinos Halkiopoulos. "Neurocognitive	<1 %

	Profile of Creativity in Improving Academic Performance—A Scoping Review", Education Sciences, 2023 Publication	
25	docplayer.info Internet Source	<1 %
26	ojs.fkip.ummetro.ac.id Internet Source	<1 %
27	Yulia Muliana, Abdillah Abdillah, Mahsup Mahsup, Syaharuddin Syaharuddin, Abdul-Lateef Olamide Ahmodu, Mohammed Muniru Iddrisu. "Analysis of Students' Errors in Solving HOTS Problems on Algebraic Materials Based on the Complexity Level of the Problem Based on Bloom's Theory", Euler : Jurnal Ilmiah Matematika, Sains dan Teknologi, 2023 Publication	<1 %
28	jurnal.unsil.ac.id Internet Source	<1 %
29	ouci.dntb.gov.ua Internet Source	<1 %
30	Aslihatul Fitriyyah, Lathiful Anwar, Mohammad Hafiizh. "Assessment of Creative Thinking Skills through Imitation, Modification, and Construction of Creative Thinking Models", PRISMA, 2024	<1 %

Publication

31	Ericka Darmawan, Serafica Btari Christiyani Kusumaningrum, Andira Yufita. "Booklet development based on identification of medicinal plants in cempaka lake and hill, kebumen regency", JPBIO (Jurnal Pendidikan Biologi), 2024 Publication	<1 %
32	Umi Muti'ah, St. Budi Waluya, Mulyono Mulyono. "Creative Thinking Skills based on Self-efficacy in Creative Problem Solving Learning with Scaffolding", IJECA (International Journal of Education and Curriculum Application), 2022 Publication	<1 %
33	dspace.library.uu.nl Internet Source	<1 %
34	educationdocbox.com Internet Source	<1 %
35	repository.ubn.ru.nl Internet Source	<1 %
36	www.mdpi.com Internet Source	<1 %

Exclude quotes On Exclude matches Off

Exclude bibliography On