Fluency and Flexibility of Students in Solving Arithmetic Sequence Problems Based on Self Efficacy

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ABSTRACT

This research is a descriptive qualitative research that aims to describe students' creative thinking in solving arithmetic sequence problems in terms of self-efficacy. This research was conducted at SMK Kesehatan Dhermajaya. The subjects of this study were 3 grade XI students who were taken according to the aspects of self-efficacy, namely magnitude, strength, generality. Creative thinking indicators in this study are fluency, flexibility, and novelty. The results of this study indicate that the magnitude subject in the fluency aspect is that students can provide 2 possible jars needed. The flexibility aspect is that students can solve with 2 alternative solutions with the arithmetic sequence formula, and write an arithmetic sequence that is at odds with 2 and if added together the result is 90. The strength of the fluency aspect is that students provide 2 possible jars needed. At the same time, the aspects of flexibility and novelty have not been fulfilled. The subject of generality in the fluency aspect is that students can provide 3 possible jars. The flexibility aspect is that students can provide 2 different alternative solutions, namely using the arithmetic sequence formula and writing an arithmetic sequence that is 2 apart and then adding them up. The three subjects, still have not shown the uniqueness of the answer or used different strategies so that the novelty aspect has not been fulfilled.

Keyword: arithmetic series problems; flexibility; fluency; self-efficacy

INTRODUCTION

Thinking creatively is very important to students in learning mathematics. Mathematical creative thinking is the ability to generate ideas in solving mathematical problems with indicators of smoothness, flexibility, and originality (Kurniasih et al., 2022). Creative thinking is the process of thinking about something that breeds new ideas (Maskur et al., 2020; Munir & Awan, 2022; Ndiung et al., 2020; Sanusi et al., 2020). Moreover, creative thinking is understood as a process that produces a relatively new solution and idea than ever before (Willemsen et al., 2023). Thus, creative thinking is the skill that a person has in solving problems through a variety of different ideas or ideas to produce new or previously unexplored work. Silver (1997)provides indicators of creative thinking based on three components: fluency, flexibility, and novelty. Fluency (students can solve problems with a variety of solutions), flexibility (students can solve problems in more than one way), novelty (students can solve problems using different or new strategies in solving problems according to their ability).

Some previous studies have stated that creative thinking has a positive influence that is so necessary in the process of mathematical elaboration (Klau et al., 2022; Putri et al., 2022; Hooijdonk et al., 2020; Rindiantika, 2021). Creative thinking is reviewed as a process of solving problems in mathematics (Haylock, 1997). The problem-solving process of each

student has a wide variety of perspectives (Susiswo et al., 2022). Students can think creatively by coming up with a variety of new solutions in solving mathematical problems. (Mutiarawati, 2022). Then, learning mathematics will be more effective and beneficial if the pupils can think creatively.

Thinking creatively can enhance ideas in solving mathematical problems (Hormadia & Putra, 2021). Learning at school still prioritizes results and the problems given are still procedural, so students have difficulty solving non-procedural problems. Samuntya et al (2022) said teachers were more likely to give routine problems and formula application issues so that students tended to solve problems based on examples given by teachers. Students are more accustomed to routine than non-rutine, even sometimes students have difficulty working on ordinary matters (Septian & Rahayu, 2021; Setiawan et al., 2021; Sumartini & Safitri, 2022; Sumartini & Utami, 2023). That's why a lot of students still have difficulties in math problems. Hariyomurti et al (2020) said that students are still confused about solving issues related to arithmetic rows. Besides, Hartati (2021) students still make a lot of mistakes in solving problems of arithmetic rows.

Arithmetic row problems are usually presented in story matters where students are asked to transform mathematical problems into mathematical sentences so that they can solve them accurately. Arithmetic row problems can build students' creative thinking because there are heterogeneous solutions when solving them (Zarina et al., 2022) Setianingsih et al (2019) argued that arithmetic linear problems can develop student creative thinking because a given problem has more than one way or solution strategy. From some of these opinions then by solving the problem of arithmetic rows can test the student's creative thinking. The success of the students in solving the problem of the arithmetic is influenced by the psychological factor self-efficacy. Self-efficiency and creative thinking together have an effective impact on the student's learning outcomes. (Zarina et al., 2022).

Self-efficacy is a cognitive process of beliefs, decisions, or appreciation of the extent to which a person's ability to perform a task or action (Bandura A, 1997). According to Oktariani (2018) self-efficacy is the ability of a person to measure the skills he possesses, consisting of self-confidence, adaptability, and intelligence. Therefore, self-efficacy is the belief that one has in achieving a desired goal. The three dimensions of self-efficacy are magnitude, generality, and strength (Bandura A, 1997). Magnitude discusses the level or level of difficulty that everyone faces differently, generality discusses skills that each person shows different, and strength discusses about the strength that one has to believe in the ability that one possesses.

Self-efficacy in mathematics refers to a person's belief in his or her ability to understand and solve mathematical problems. Self-efficacy in mathematics plays an important role in influencing a person's ability to understand and solve mathematical problems. Self-efficacy has an important role and influence in student learning, skills, and academic achievement of mathematics siswa (Nurjanah et al., 2021; Stolz et al., 2022; Supandi et al., 2021). Besides, there is a positive influence between self-efficacy and creative thinking. Tuzzahra et al (2023) found that self-efficacy had a direct impact on creative thinking on learning mathematics. Someone who has a high self-efficacy can influence the effort, success, and achievement of the student. Students who have a higher self-efficacy will have greater consistency in solving a given problem, whereas students who have low

self-eficacy would affect the efforts and consistencies in resolving the problem given by the teacher. According to a study conducted by Agustiana et al (2021) the higher the self-efficacy, the higher is the creative thinking. So, self-efficacy is very important to students.

Some previous research has done a lot about student creative thinking. has undertaken research by raising the topic of student's creative thinking ability in solving problems of arithmetic rows reviewed from early students' abilities. The results show that students with high initial mathematical skills meet the HOTS level and meet the three creative thinking indicators of fluency, flexibility, and novelty. Students with early mathematics skills are currently meeting HOTS and are only able to meet two creative think indicators, fluency and flexibility. Meanwhile, students with low initial mathematical abilities can only meet one indicator of creative thinking that is fluency.

Based on previous research, no one has discussed the student's creative thinking in solving arithmetic rows and self-efficacy at the same time. Therefore, researchers need to undertake research that studies students' creativity thinking in resolving the problem of self-efficacy. Urgency in this study describes students' creative thinking according to the self-efficacy dimensions of magnitude, strength, and generality. In addition, observing how teachers can make teaching learning activities in line with the self-efficacy dimension so that creative thinking can emerge. The objective of this study is to describe the creative thinking of students in solving problems of arithmetic rows reviewed of self-efficacy. This research is expected to be able to provide benefits to cultivate the creativity of students reviewed from self-efficacy to solving problems of Arithmetics rows.

RESEARCH METHOD

This research uses a type of qualitative descriptive research. This study describes about students' creative thinking in solving problems of arithmetic rows reviewed from self-efficacy. Descriptive research with a qualitative approach is chosen so that researchers can reveal more carefully how students think creatively in solving problems of self-efficiency. The research was conducted at the SMK Kesehatan Dhermajaya. Subjects in this study are selected with purposive sampling techniques that consider self-effectiveness and student work results in solving arithmetic row problems. The researchers also considered the way students communicated and consulted with mathematics teachers in the selection of these research subjects.

The instruments of this research are self-efficacy questionnaires, written tests of arithmetic row problems, and guidelines for interviews. Self-efficacy tests are used to determine the subject of research and are tailored to the aspects of self-efficiency such as magnitude, strength, generality. The written tests are arithmetic problem rows and interview guidelines to identify and dig students' creative thinking. The aspects used in written creative thinking tests are fluency, flexibility, and novelty. The guidelines for interviews are semi-structured and in line with indicators of creative thinking. The validity result of the instrument belongs to the valid category and can be used as an instrument in this study. The type of question given is an open question where the question is a story that has a variety of solutions and alternatives to the solution. Table 1 below is the arithmetic sequence problem presented by the researchers.

Table 1. Research issues

Ela has 90 candy. The candy will be put into a cup where each cup contains 2 more candy than the previous one. Determine the possible number of cups Ela needs to put the candy in! (Use more than one way to solve the problem)

Data analysis techniques use the Miles and Huberman methods of data reduction, data presentation, and inference. The presentation of the data in this study is in the form of a description of the students' answers in solving problems of arithmetic rows reviewed of self-efficacy.

RESULT AND DISCUSSION

The results of this study focus on students' creative thinking in solving arithmetic sequence problems in terms of self-efficacy. The selection of subjects in this study was based on a self-efficacy questionnaire. Self-efficacy questionnaires are given to students and then analyzed, researchers take subjects according to aspects of self-efficacy, namely magnitude, strength, generality. Students' creative thinking tests were given to class XI students. The magnitude subject in this study was given the initials M, the strength subject in this study was given the initials S, and the generality subject in this study was given the initials G.

1. Subject Magnitude (M)

Students' creative thinking is represented through the magnitude subject (M) in solving the arithmetic sequence given by the researcher. The following Figure 1 is the work of M.

Figure 1. Result of Subject M's Work

Based on Figure 1, subject M was able to write down initial knowledge towards understanding the problem. Subject M expressed his initial knowledge through describing the things he knew. Subject M also described the adjacent jars and showed that each adjacent jar had a difference of 2 candies. Furthermore, subject M also wrote down information such as the initial term, difference, and S_n. This is evidenced by the interview conducted by the researcher (P) with subject M below.

P	:	What information did you use to solve the arithmetic sequence problem?
M	:	There are 90 candies, then put the jars in each jar with a difference of 2 ma'am. So I drew it according to my answer ma'am. Jar 1 to jar 2 is 2 apart, jar 2 to jar 3 is 2 apart, and so on.
P	:	What is the objective of the arithmetic sequence problem?
M	:	Find the number of jars needed to put Mom's candy in.
P	:	How did you come up with the idea to solve the problem?
M	:	Used the formula S_n ma'am, because the problem shows the number of candies. Then I initialized the first term or the number of candies put in the first basket. The first step I did was to suppose the first term is 1. But the result is not round ma'am, so I think it doesn't work. Then, I tried to normalize the first term 2 and got the result which is 9 jars ma'am.
P	:	Is it possible for Ela to put all the candies in one jar?
M	:	I don't think so ma'am
P	:	Why is it not possible?
M	:	Because the question explained that the candies would be put into jars where each jar contained 2 more candies than the previous jar. Then I concluded that the jar is more than one ma'am.
P	:	Okay, besides this method, do you have any other method to solve the arithmetic sequence problem?
M	:	There is mom, by making the row first and then adding the row.
P	:	Can you give an example?
M	:	44,46 ma'am. Because they are 2 apart and add up to 90. So, the first jar contains 44 and the second jar contains 46

Based on the results that have been presented, subject M can understand the arithmetic sequence problem. Subject M fulfills the fluency aspect because students can solve problems with more than one solution. Based on the student's answer, subject M visualized that the candy in the first jar contained one candy, but the result was not an integer. So, subject M re-mystified with the first jar filled with two candies. Thus, subject M got a solution of 9 jars. The flexibility aspect is seen where students are able to solve arithmetic sequence problems in two or more ways. The first alternative solution is using the formula S_n. subject M used a (first term) or the number of candies put in the first jar which was 1, because it got a non-integer result. Then, subject M tried to use a different initial condition or a (first term) and got the result of 9 jars. In addition, based on the interview conducted, subject M was able to provide a solution in another way, namely making the line (44,46) where the first jar contains 44 candies and the second jar contains 46 candies. Between the first jar and the second jar has a difference of 2. Then, it takes 2 jars to put 90 candies. The novelty aspect is still not seen in subject M because students are still unable to solve problems using different or new strategies in solving arithmetic series.

2. Subject Strength (S)

Students' creative thinking is represented through the strength subject (S) in solving the arithmetic sequence given by the researcher. The following Figure 2 is the work of S

① 44, 46
   ────
     2
44 + 46 = 90
Jadi, 2 toples yang dibutuhkan

② 2, 4, 6, 8, 10, 12, 14, 16, 18.
   ─ ─ ─ ─ ─ ─ ─ ─
   2 2 2 2 2 2 2 2
2 + 4 + 6 + 8 + 10 + 12 + 14 + 16 + 18 = 90
Jadi, 9 toples yang dibutuhkan.

Figure 2. The result of students' answers that have been corrected

Based on the results presented, Subject S can understand the meaning of the arithmetic sequence problem. The creative thinking aspect of fluency is seen when students can solve arithmetic sequence problems using more than one solution. The first solution, subject S makes a line, namely (44,46) where the first jar contains 44 candies and the second jar contains 46 eggs. This is in accordance with the requirements of the given arithmetic sequence problem where each jar contains 2 more candies than the previous jar. Thus, the candy if added up is 90 and requires 2 jars. The second solution, subject S made a line, namely (2,4,6,8,10,12,14,16) where the first jar is filled with 2 candies and the next jar always increases by 2. Thus, it takes 9 jars to put 90 candies. Subject S has not been able to bring up the aspects of flexibility and novelty because subject S can only solve with one alternative solution and is still unable to solve problems using different or new strategies in solving arithmetic sequence problems.

3. Subject Generality (G)

Students' creative thinking is represented through the subject of generality (G) in solving the arithmetic sequence given by the researcher. The following Figure 3 is the work of G.

Figure 3. Result of Subject G's Work

Based on Figure 3, Subject G showed creative thinking with the first step of writing down initial knowledge towards understanding the problem. Subject G poured out the initial knowledge through the exposure known from the information given from the arithmetic sequence problem. The information written is complete so that it makes it easier for students to solve problems. Subject G was also able to determine the goal to be sought or solved in the problem, namely finding the possible jars needed. According to the student's answer, subject G was able to provide more than one answer. So, subject G was able to fulfill the fluency aspect. Subject G provided 3 solutions, namely 9 jars, 6 jars, and 2 jars. Subject G wrote with 2 ways of solving. The first way to do this is to suppose that a (the first term) is 2. Then subject G wrote the number sequence $2 + 4 + 6 + 8 + \cdots$, it can be seen that students are able to understand the meaning of the problem given. Students suppose the first jar contains 2 candies, and the second jar contains 4 candies, and the next adjacent jar always increases by 2. Then, subject G uses the equation $S_n = \frac{n}{2}(2a + (n-1)b$ resulting in 9 jars. The second way, subject G used the method by adding up each of the terms of the row. The first arithmetic sequence is $2 + 4 + 6 + 8 + 10 + 12 + 14 + 16 + 18$ so that if you add them up, you get 90 candies. Therefore, 9 jars are needed. The second arithmetic sequence, subject G wrote down $10 + 12 + 14 + 16 + 18 + 20$ so it requires 6 jars. The third arithmetic sequence, subject G wrote by dividing the total number of candies which is 90. Then divided into 2, namely 45. Subject G looked for the number before 45 and after 45. Subject G wrote the arithmetic sequence, namely $44 + 46$, then it takes 2 jars. Thus, subject G fulfills the flexibility aspect because he is able to solve problems with more than one alternative solution. Subject G was able to see a problem from a different perspective, besides that the subject was able to change the direction of thinking spontaneously. This can produce different ideas and solutions. The novelty aspect was not seen because subject G still used a common strategy and still did not come up with something new in solving the arithmetic sequence problem. Based on the results of student work and interviews that have been conducted with magnitude, strength, and generality subjects, it appears that the three subjects have different creative thinking in solving arithmetic sequence problems. The following is a brief presentation of the creative thinking of students of SMK Kesehatan Dhermajaya in terms of self-efficacy.

Table 2. Comparison of Creative Thinking with Self-efficacy

Self-efficacy	Creative Thinking	Description
Magnitude	*Fluency*	Students are able to give answers or ideas more than one correctly
	Flexibility	Students can solve problems in a variety of ways or in more than one. Able to give many varied answers and the ability to see problems from different perspectives.
	Novelty	The alternative solution presented has not shown the uniqueness of answers that are unusual to other students. So the aspect of novelty has not yet appeared
Strength	*Fluency*	Students are able to give answers or ideas more than one correctly
	Flexibility	Students are unable to demonstrate the flexibility of both problems. Students tend to use one alternative solution in solving the issue. This is because students do not understand

		the command of the issue using at least two methods of solving it. So it hasn't met the aspect of flexibility	
	Novelty	The alternative solution presented has not shown the uniqueness of answers that are unusual to other students. So the aspect of novelty has not yet appeared	
Generality	*Fluency*	Students are able to give answers or ideas more than one correctly	
	Flexibility	Students can solve problems in a variety of ways or in more than one. Able to give many varied answers and the ability to see problems from different perspectives.	
	Novelty	The alternative solution presented has not shown the uniqueness of answers that are unusual to other students. So the aspect of novelty has not yet appeared	

CONCLUSION

Based on the results and discussion, it is concluded that the magnitude subject (M) in the fluency aspect is able to solve the arithmetic sequence problem by providing 2 possible jars needed by Ela to put 90 candies. The flexibility aspect is that students are able to solve arithmetic sequence problems with two different alternative solutions. The first method is using the arithmetic sequence formula. The second way is to write a row that is two apart and if added up the result is 90. The strength subject in the fluency aspect was able to provide two possible jars needed by Ela to put 90 candies. The subject of generality in the fluency aspect is that students are able to provide 3 possible jars needed by Ela to put 90 candies in. The subject of generality in the fluency aspect is that students are able to provide 3 possible jars needed by Ela to put 90 candies in. The flexibility aspect is being able to provide 2 different alternative solutions. The first alternative solution is using the arithmetic sequence formula. The second alternative solution is to make an arithmetic sequence with a difference of two and if added up the result is 90. The three subjects, have not raised the novelty aspect because they can only solve with one alternative solution and are still not able to solve problems using different or new strategies in solving arithmetic sequence problems.

REFERENCES

Agustiana, I. G. A. T., Tika, I. N., & Wibawa, M. C. (2021). Improving Creative Thinking Through Creative Responsibility Based Learning (CRBL) Model. *International Journal of Elementary Education*, 5(4), 547. https://doi.org/10.23887/ijee.v5i4.41277

Bandura A. (1997). *Self Efficacy; The Exercis of Contorol* (pp. 5–174).

Hariyomurti, B., Prabawanto, S., & Jupri, A. (2020). Learning Obstacle Siswa dalam Pembelajaran Barisan dan Deret Aritmetika. *JURING (Journal for Research in Mathematics Learning)*, 3(3), 283. https://doi.org/10.24014/juring.v3i3.10118

Hartati, S. (2021). Analisis Kesulitan Siswa Sma Dalam Memahami Materi Barisan Dan Deret. *SUPERMAT Jurnal Pendidikan Matematika*, 5(2), 85–95.

HAYLOCK, D. W. (1987). Mathematical Creativity in Schoolchildren. *The Journal of Creative Behavior*, 21(1), 48–59. https://doi.org/10.1002/j.2162-6057.1987.tb00452.x

Hooijdonk, M. van, Mainhard, T., Kroesbergen, E. H., & Tartwijk, J. van. (2020). Creative Problem Solving in Primary Education: Exploring the Role of Fact Finding, Problem Finding, and Solution Finding across Tasks. *Thinking Skills and Creativity*, 37(May), 100665. https://doi.org/10.1016/j.tsc.2020.100665

Hormadia, I., & Putra, A. (2021). Systematic Literature Review: Kemampuan Berpikir Kreatif Pada Pembelajaran Matematika. *Didactical Mathematics*, *3*(1), 1–7. https://doi.org/10.31949/dm.v3i1.914

Klau, Y. E., Garak, S. S., & Samo, D. D. (2022). Kajian Kemampuan Berpikir Kreatif dalam Pembelajaran Matematika di Sekolah Menengah Pertama pada Materi Geometri. *Fraktal: Jurnal Matematika Dan Pendidikan Matematika*, *3*(1), 1–11. https://doi.org/10.35508/fractal.v3i1.5635

Kurniasih, A. W., Purwanto, Hidayanto, E., & Subanji. (2022). Teachers' Skills for Attending, Interpreting, and Responding to Students' Mathematical Creative Thinking. *Mathematics Teaching-Research Journal*, *14*(2), 157–185.

Maskur, R., Sumarno, Rahmawati, Y., Pradana, K., Syazali, M., Septian, A., & Palupi, E. K. (2020). The effectiveness of problem based learning and aptitude treatment interaction in improving mathematical creative thinking skills on curriculum 2013. *European Journal of Educational Research*, *9*(1), 375–383. https://doi.org/10.12973/eu-jer.9.1.375

Munir, A., & Awan, O. A. (2022). Creative Thinking: Its Importance and How to Cultivate It. *Academic Radiology*, *29*(10), 1610–1612. https://doi.org/10.1016/j.acra.2021.06.001

Mutiarawati*, I. S. (2022). *Analysis of Mathematical Creative Thinking Skills in Terms of Self-efficacy in Creative Problem Solving Learning Models with an Open-ended Approach and Mind Mapping Assisted by Google Classroom*. *10*(8), 103–110.

Ndiung, S., Sennen, E., Helmon, A., & Jediut, M. (2020). Efektivitas Model Pembelajaran Treffinger dalam Menumbuhkan Keterampilan Berpikir Kreatif Peserta Didik Sekolah Dasar. *PRISMA*, *9*(2), 167–178.

Nurjanah, M. T., Sa'dijah, C., & Susiswo, S. (2021). Representasi Skematis Siswa dalam Menyelesaikan Masalah Trend in International Mathematics and Science Study (TIMSS) Ditinjau dari Self Efficacy. *Jurnal Pendidikan: Teori, Penelitian, Dan Pengembangan*, *6*(4), 622. https://doi.org/10.17977/jptpp.v6i4.14725

Oktariani. (2018). Peranan Self Efficacy dalam Meningkatkan Prestasi Belajar Siswa. *Kognisi Jurnal*, *3*(1), 45–59.

Putri, R. D. R., Ratnasari, T., Trimadani, D., Halimatussakdiah, Husna, E. N., & Yulianti, W. (2022). Pentingnya Keterampilan Abad 21 Dalam Pembelajaran Matematika. *Science and Education Journal (SICEDU)*, *1*(2), 449–459. https://doi.org/10.31004/sicedu.v1i2.64

Rindiantika, Y. (2021). Pentingnya Pengembangan Kreativitas Dalam Keberhasilan Pembelajaran Kajian Teoretik. *Jurnal Intelegensia*, *6*(1), 59.

Sanusi, A. M., Septian, A., & Inayah, S. (2020). Kemampuan Berpikir Kreatif Matematis dengan Menggunakan Education Game Berbantuan Android pada Barisan dan Deret. *Mosharafa: Jurnal Pendidikan Matematika*, *9*(September), 511–520.

Septian, A., & Rahayu, S. (2021). Peningkatan Kemampuan Pemecahan Masalah Matematis Siswa melalui Pendekatan Problem Posing dengan Edmodo. *PRISMA*, *10*(2), 170–181. https://doi.org/10.35194/jp.v10i2.1813

Setianingsih, L., Purwoko, R. Y., & Purworejo, U. M. (2019). *KEMAMPUAN BERPIKIR KREATIF SISWA SMP DALAM MENYELESAIKAN SOAL OPEN-ENDED*. *4*, 143–156.

Setiawan, E., Jusniani, N., & Sutandi, A. (2021). Analisis Kesalahan Mahasiswa Dalam Menyelesaikan Soal Interpolasi Berdasarkan Analisis Kesalahan Newman. *Prisma*, *10*(2), 221. https://doi.org/10.35194/jp.v10i2.1596

Silver, E. A. (1997). Fostering creativity through instruction rich in Mathematical problem solving and problem posing. *Zentralblatt Für Didaktik Der Mathematik*, *29*(3), 75–80.

https://doi.org/10.1007/s11858-997-0003-x

Stolz, R. C., Blackmon, A. T., Engerman, K., Tonge, L., & McKayle, C. A. (2022). Poised for creativity: Benefits of exposing undergraduate students to creative problem-solving to moderate change in creative self-efficacy and academic achievement. *Journal of Creativity*, *32*(2), 100024. https://doi.org/10.1016/j.yjoc.2022.100024

Sumartini, T. S., & Safitri, L. (2022). Analisis Kesalahan Siswa SMP dalam Menyelesaikan Soal Cerita Sistem Persamaan Linear Dua Variabel Berdasarkan Prosedur Newman. *Prisma*, *11*(2), 302. https://doi.org/10.35194/jp.v11i2.2193

Sumartini, T. S., & Utami, I. E. (2023). Analisis Kemampuan Penalaran Matematis Siswa pada Materi Relasi dan Fungsi. *Prisma*, *12*(2), 333. https://doi.org/10.35194/jp.v12i2.3062

Supandi, S., Suyitno, H., Sukestiyarno, Y. ., & Dwijanto, D. (2021). Creative Thingking of Prospective Mathematics Teacher Based on lLearning Barriers and Self-efficacy. *Journal of Southwest Jiatong Unoversity*, *3*, 91.

Susiswo, S., Rosyadi, A. A. P., Utami, O. R. P., Sudirman, S., Lestyanto, L. M., & Azizah, A. (2022). Eksplorasi Persepsi Calon Guru Dalam Menyelesaikan Masalah Kontroversial Matematika. *AKSIOMA: Jurnal Program Studi Pendidikan Matematika*, *11*(4), 2977. https://doi.org/10.24127/ajpm.v11i4.6163

Tuzzahra, R., Haji, S., & Susanta, A. (2023). Pengaruh Self Efficacy Terhadap Kemampuan Berpikir Kreatif Pada Pembelajaran Matematika SMA. *Jurnal Didactical Mathematics*, *5*(1), 11–19.

Willemsen, R. H., de Vink, I. C., Kroesbergen, E. H., & Lazonder, A. W. (2023). The role of creative thinking in children's scientific reasoning. *Thinking Skills and Creativity*, *49*(March), 101375. https://doi.org/10.1016/j.tsc.2023.101375

Zarina, Z., S, B., & Mailizar, M. (2022). Kemampuan Berpikir Kreatif Matematis Siswa SMA Negeri 1 Banda Aceh Tahun Ajaran 2020/2021. *Jurnal Ilmiah Mahasiswa Pendidikan Matematika*, *7*(2), 123–139.