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# MATHEMATICAL CREATIVE THINKING PROCESS OF MTS ISLAMIC BOARDING SCHOOL DARUL IHSAN STUDENTS IN SOLVING SOCIAL ARITHMETIC PROBLEMS

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**Abstract**

Mathematics learning is one of the learning that leads to problem solving so it requires creative thinking, creative thinking is a very important thing for students to have, especially in the learning process. The thinking process in learning activities is a good way to see how students think. Teachers must be able to recognize and foster their students' creative thinking processes in order to produce creative mathematical thinking. Social arithmetic was chosen as the material in this research because social arithmetic is open which allows students to find several solutions and the form of the problem can be connected in the real world so that cognitive processes can be formed. This research aims to describe the creative mathematical thinking process in solving social arithmetic problems in class VIII MTs Islamic Boarding School Darul Ihsan Modern. The research method uses descriptive qualitative research, the data sources used are the results of creative thinking tests, interview guides and documentation. Researchers used three subjects taken from two classes, namely VIII-A and VIII-B, who were selected based on their level of ability, namely high, medium and low ability. Based on creative thinking tests on social arithmetic material and interviews, the research results show that high-ability students are able to fulfill all the indicators of Wallas's theory of creative thinking stages. Students with moderate abilities are able to pass the Wallas creative thinking stage, but are hampered at the verification stage. Students with low abilities cannot meet the indicators of Wallas' theoretical thinking process, being constrained at the preparation, illumination and verification stages.

**Keywords**: thought process, creative thinking process, social arithmetic

**Abstrak**

Pembelajaran matematika salah satu pembelajaran yang menuju pada pemecahan masalah sehingga membutuhkan pemikiran yang kreatif, berpikir kreatif menjadi hal yang sangat penting untuk dimiliki siswa terkhususnya pada proses pembelajaran. Proses berpikir dalam kegiatan pembelajaran adalah cara yang baik untuk melihat cara berpikir siswa. Guru harus mampu mengenali dan menumbuhkan proses bepikir kreatif siswanya agar menghasilkan pemikiran kreatif matematis. Aritmatika sosial dipilih sebagai materi dalam penelitian ini dikarenakan aritmatika sosial bersifat terbuka yang memungkinkan siswa menemukan beberapa penyelesaian dan bentuk soalnya dapat dihubungkan dalam dunia nyata sehingga proses kongnitifnya dapat terbentuk. Penelitian ini bertujuan untuk mendeskripsikan proses berpikir kreatif matematis dalam menyelesaikan soal aritmatika sosial pada siswa kelas VIII MTs Pesantren Modern Darul Ihsan. Metode penelitian menggunakan jenis penelitian kualitatif deskriptif, sumber data yang digunakan adalah hasil tes berpikir kreatif, pedoman wawancara dan dokumentasi. Peneliti menggunakan tiga subjek yang diambil dari dua kelas yaitu VIII-A dan VIII-B yang dipilih berdasarkan tingkat kemampuan yaitu berkemampuan tinggi, sedang dan rendah. Berdasarkan tes berpikir kreatif materi aritmatika sosial dan wawancara, hasil penelitian menunjukkan bahwa siswa berkemampuan tinggi mampu memenuhi seluruh indikator tahapan berpikir kreatif teori Wallas. Siswa berkemampuan sedang mampu melewati tahapan berpikir kreatif Wallas, namun terkendala pada tahap verifikasi. Siswa berkemampuan rendah tidak dapat memenuhi indikator proses berpikir teori Wallas, terkendala pada tahap persiapan, iluminasi dan verifikasi.

**Kata kunci:** proses berpikir, berpikir kreatif matematis, aritmatika sosial

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## INTRODUCTION

In the 21st century, science and technology are developing rapidly, causing changes in various aspects of life including the field of education. Education has an important role in creating a generation that is able to keep up with the development of science and technology (Rachmantika & Wardono, 2019). Education is a forum to improve human quality in accordance with the national goal of education, which is to produce creative students (Rukiyati, 2019). One of the abilities that students must have is creativity or creative thinking. Creative thinking is a very important thing for students to have, especially in the learning process. Mathematics learning is one of the learning that requires creativity or mathematical creative thinking because mathematics learning is learning that leads to problem solving.

This is in line with the opinion of Walton and Kemmelmeirer who stated that mathematical creative thinking plays an important role in solving problems both in school and even in college (Ferdiani, Sujadi, Fitriana, & Susilo, 2022). Creative thinking as a must-have skill for students has become a key competency to apply in the classroom (Juniarso, 2020). The learning process that takes place in the classroom must pay attention to the student's ability, this will allow the student to be creative, which is the result of their thinking.

Siswono stated that creative thinking is the embodiment of high-level thinking, luthfiyah (2019) Stating that the ability to think at a higher level is a component of thinking ability, namely the ability to process the mind to produce new ideas. Creative thinking is an activity that involves the emergence of ideas, solving difficulties, and identifying patterns in situations in order to provide answers to given problems, so free and stress-free thinking is necessary. The thinking process of students in learning activities is a good way to see their way of thinking. Thus, in the learning process, it is very important to know the thinking process of students which aims to find out the mathematical thinking ability of students.

Students' thinking processes are in fact still rarely noticed in mathematics learning. Faridah stated that teachers need to know the thinking process of students in solving mathematical problems so that teachers are able to find the location of errors and the types of mistakes made by students in solving mathematical problems (Farib, Ikhsan, & Subianto, 2019). However, in reality, students' thinking processes are still rarely noticed in mathematics learning. Because every student has a different way of learning, it is therefore important to understand their way of thinking and give them a wider space to think creatively. This is in line

with the statement (Ardianto et.al., 2019) which states that mathematics is still considered by students as a relatively difficult subject to study. Teachers as the main actors in the world of education must be able to recognize and cultivate the creative thinking process of their students.

Students' ability to solve problems can be used as a marker to further study their creative thinking skills. This is because in solving problems, students will try to explore various kinds of ideas/ideas that they think are appropriate. This is in line with the statement from Thomas, Thorne and Small from *the Center for Devolepment and Learning*, that creative thinking includes, having or making innovations, having an image or conception, estimating, having alternatives, realizing something and getting solutions to the problems faced (Nurlaela Dkk,. 2019). According to Munandar (2012), one of the theories used to know the stages of creative thinking of students is the theory put forward by Wallas (Nurjannah, 2020). According to Wallas, there are four stages of the creative thinking process, namely: 1) Preparation, at this stage students collect information or data to solve the problems they face, 2) Incubation, at this stage students seem to temporarily detach themselves from the problems they face and can be said to be the stage of maturation and processing of ideas or called 'incubation of ideas', 3) Illumination, this stage is referred to as the stage of 'insight' giving rise to new ideas or ideas; and 4) verification, this stage is the stage of critically testing and examining the results of the work.

Creative thinking can be seen in the process of solving mathematics. One of the materials that can be used to see students' creative thinking processes is social arithmetic material. There are several things that are the reason why social arithmetic material is used in this study is because this material is open-ended or open which allows students to find several ways to solve and the form of problems in this material can be connected in the real world so that the conclusive process experienced by students during the transition period from real to abstract processes can be supported (Tadjamawo, et al., 2024).

Previous research (Zaiturrahmah, Mirza, Siregar, Sugiatno, & Rustam, 2024) stated that the creative thinking process of high, medium and low ability students each had differences in solving problems. The stages of creative thinking in each student certainly have differences from each other. The differences that exist can certainly be influenced by several factors such as skills, inspiration, interests, teachers in educating, the surrounding environment and others.

The researcher has conducted a joint interview with a mathematics teacher of Madrasah Tsanawiyah at the Darul Ihsan Modern Islamic Boarding School, he said that students can be said to be lacking in solving problems. There are still many students who answer the same problems as their friends, some only cheat with their friends because they already think the problem is very difficult to solve, there are also students who write only answers without a solution process, and not a few of them answer questions carelessly and blank the answer paper.

Based on the background, this study focuses on the creative thinking process of students in solving problems related to social arithmetic material. Wallas' theory is the foundation used to analyze how students' mathematical thinking processes in solving mathematical problems. This can increase the understanding of the theory of applied psychology in the context of mathematics learning. This research was carried out as an effort to understand the creative thinking process, identify students' ability to think creatively. This study aims to analyze and find out the description of the mathematical creative thinking process of MTs students of the Modern Islamic Boarding School Darul Ihsan in solving problems related to social arithmetic material. In addition, this research is expected to be a reference for an overview of the thinking process and can help identify students' creative thinking skills so that in the future they can determine what learning model is right to hone creative thinking skills.

## METHODS

This research is a descriptive qualitative type of research. According to (Sugiyono, 2022) Qualitative research is more descriptive in that the data collected is in the form of words or pictures so that it does not emphasize numbers, the data collected after the next analysis is described is easier for others to understand. This research was conducted at the Darul Ihsan Modern Islamic Boarding School. The address is on Jl. H. Mustafa Kamil, Selemak Village, Hamparan Perak District, Deli Serdang Regency, Prov. North Sumatra 20374. This research will analyze the picture of how students use their creativity in solving mathematical problems of social arithmetic materials. Students' creative thinking processes are analyzed through four stages of Wallas theory, namely, the preparation stage, the incubation stage, the illumination stage and the verification stage. The goal is to understand in depth how the creative thinking process of students in solving the mathematical problems asked.

(Suggestion, 2022) yaitu siswa kelas VIII-A dan VIII-B yang dipilih melalui nilai rapot terakhir siswa. Pemilihan partisipan disini menggunakan teknik purposive sampling. Menurut purposive sampling adalah Teknik pengambilan sampel sumber data dengan pertimbangan tertentu. Peneliti disini berperan sebagai pengumpul data, pewawancara, dan (Sugiyono, 2022) Compile research reports. The data in this study uses three main techniques, namely the written test, which is a creative thinking test which contains five questions about social arithmetic material. The preparation of test instruments goes through several steps, including the preparation of question grids, answer keys, writing question items, and instrument validation. The second technique, namely direct communication, is an interview guideline used to get more information. The documentation technique where the researcher collects documents according to the researcher's needs, namely data from the school including student report card scores. Data analysis techniques are carried out by reducing data, presenting data and drawing conclusions.

## RESULTS AND DISCUSSION

### RESULTS

The researcher involved 3 participants consisting of one student and two female students who were selected from two different classes, namely classes 8.1 and 8.2. The selection of participants is based on the recommendation of the mathematics subject teacher and the final report card score of high, medium and low ability students**.**

**Table 1. Research Participant Data**

| Name | Participant | Class | Report card Value |
|---|---|---|---|
| BWD | S1 | 8.1 | 92 |
| KAS | S2 | 8.2 | 84 |
| VA | S3 | 8.2 | 79 |

***High Ability Students (S1)***

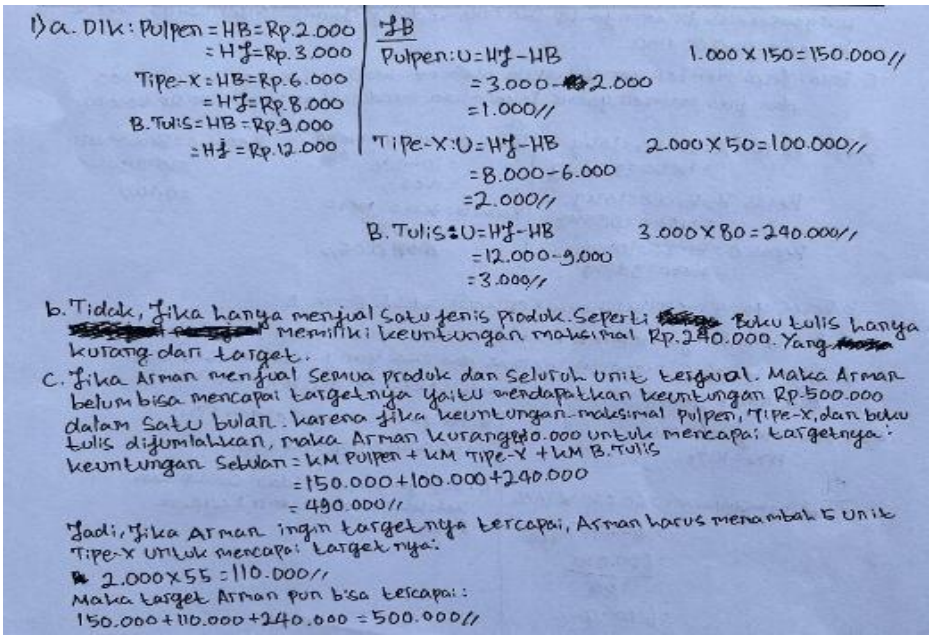
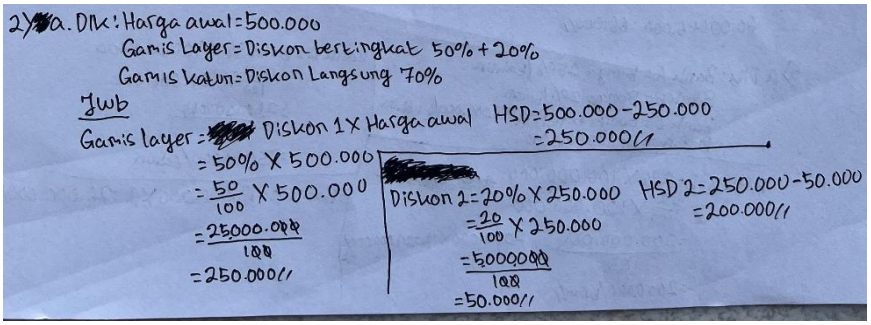



**Figure 1. S1 answer to question no 1**

Based on the results of the test and interview, it can be seen that S1 in question number one is able to pass all stages of the student's mathematical creative thinking process. Starting from the preparation stage, S1 understands and writes down the information in the questions in detail in the elements of knowing and being able to explain the process he understands well. At the incubation stage, students do not take long to think of the right idea or formula to solve the problem. At the illumination stage, immediately work on the problem using the formula that he has obtained correctly and without obstacles. At the verification stage, students understand and re-check the results of their answers and answer several questions that use their own language with relevant and accurate answer results as seen in the answers to question part C.



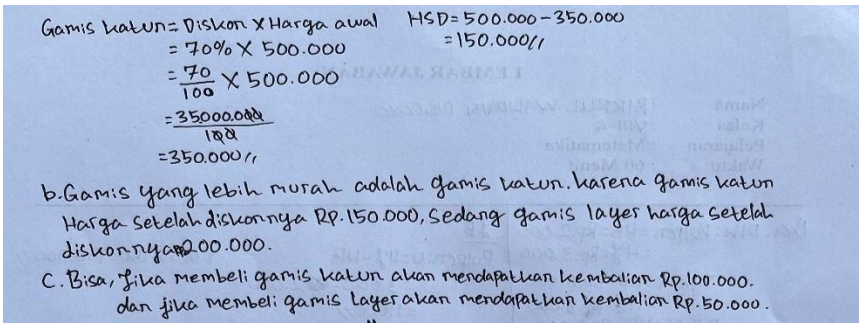



**Figure 2. S1 answer to question number 2**

Based on the results of the test and interview, it can be seen that S1 is able to go through all stages of the creative thinking process according to the wallas stage, starting from the preparation stage, namely S1 understands and writes in detail the information in the questions he writes in known elements. At the incubation stage, the students do not need a long time to think of solutions in solving problems while opening their notebooks and remembering problems that have been discussed before. At the illumination stage, S1 got ideas to apply in solving the problems given. At the verification stage, S1 understands what the question wants and then starts working on it and rechecking and can provide other answers relevant to the question.

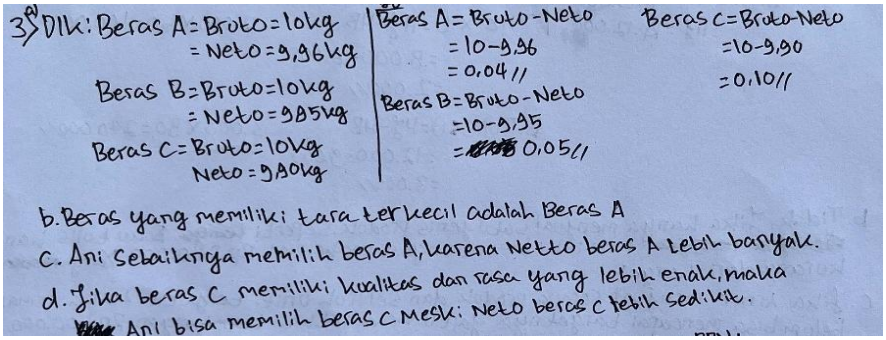



**Figure 3. S1 answer to question 3**

Based on the results of the test and interview in question number 3, it can be seen that S1 is able to go through all stages of the creative thinking process according to the wallas stage, starting from the preparation stage, namely S1 understands and writes in detail the information in the questions he writes in known elements. At the incubation stage, the students do not need a long time to think of solutions in solving problems while opening their notebooks and remembering problems that have been discussed before. At the illumination stage, S1 got ideas to apply in solving the problems given. At the verification stage, S1 re-understands what are desired by the problem and then start working on it and rechecking. In

addition, S1 can also give their opinion in their own language to answer questions in parts C and D.

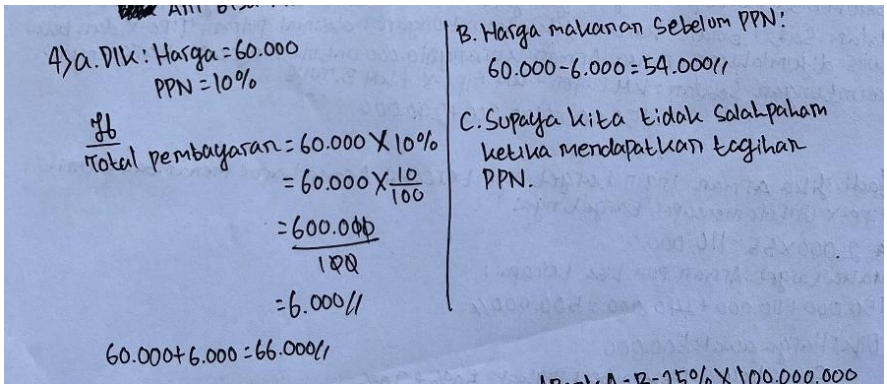



**Figure 4. Answer to S1 question number 4**

Based on the results of the analysis of the answers to question number 4, it can be seen that S1 is able to go through all stages of the creative thinking process according to the wallas stage, starting from the preparation stage, namely S1 understands and writes in detail the information in the questions he writes in known elements. At the incubation stage, the students do not need a long time to think of solutions in solving problems while opening their notebooks and remembering problems that have been discussed before. At the illumination stage, S1 got ideas to apply in solving the problems given. At the verification stage, S1 understands what the problem wants and then starts working on it and re-checks. However, there is one mistake, namely in writing the VAT formula which should use a percentage but S1 can provide relevant conclusions from the given questions.

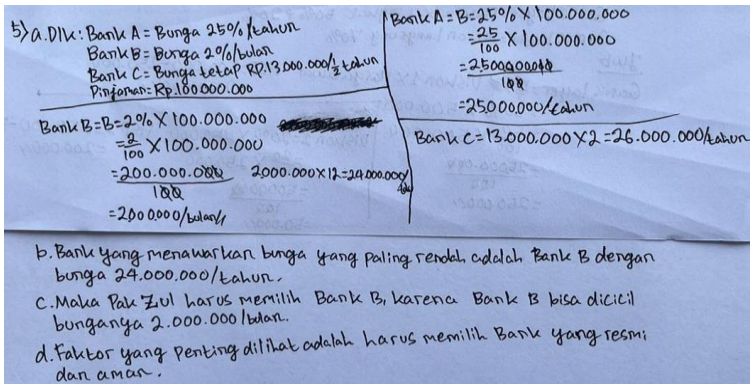



**Figure 5. Answer to S1 question number 5**

Based on the results of the analysis of the answer to question number 5, it can be seen that S1 is able to go through all stages of the creative thinking process according to the wallas

stage, starting from the preparation stage, namely S1 understands and writes in detail the information in the question that he writes in known elements. At the S1 incubation stage, it does not take a long time to think about solutions and remember the problems that have been discussed before. At the illumination stage, S1 got ideas to apply in solving the given problems and did not experience obstacles. At the verification stage, S1 understands what the question wants and then starts working on it confidently through rechecking.

***Medium-Ability Students (S2)***

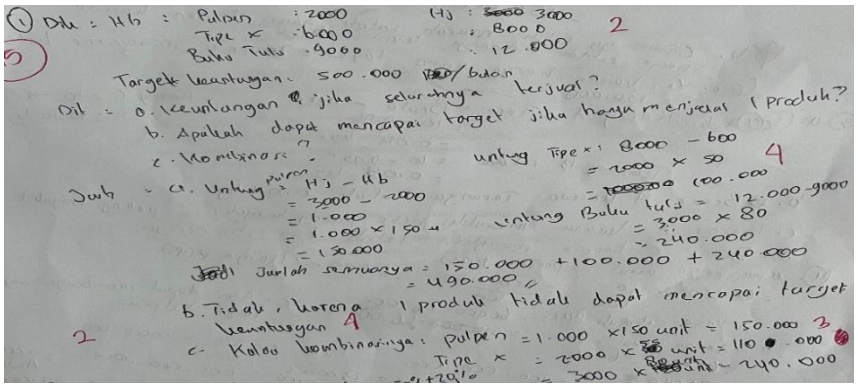



**Figure 6. S2 answer to question number 1**

Based on the results of the analysis of the test and interview in question number 1, it can be seen that S2 is able to go through all stages of the creative thinking process according to the stages of S2 wallas. However, at the S2 verification stage, they were not perfect in answering questions by not thinking of their own way to improve the answers. S2 goes through the preparation stage of understanding and writing in detail the information in the questions he writes in known elements. At the S2 incubation stage, it does not take long to think of solutions in solving problems while opening the notebook and remembering the problems that have been discussed before. At the illumination stage, S2 got ideas to apply in solving the given problems. At the verification stage, S2 began to look for a solution to the problem using the formula he had obtained and then he wrote it down. But at this verification stage, S2 cannot be completed completely because he does not have his own answer, only the answer he gets from the formula he gets.

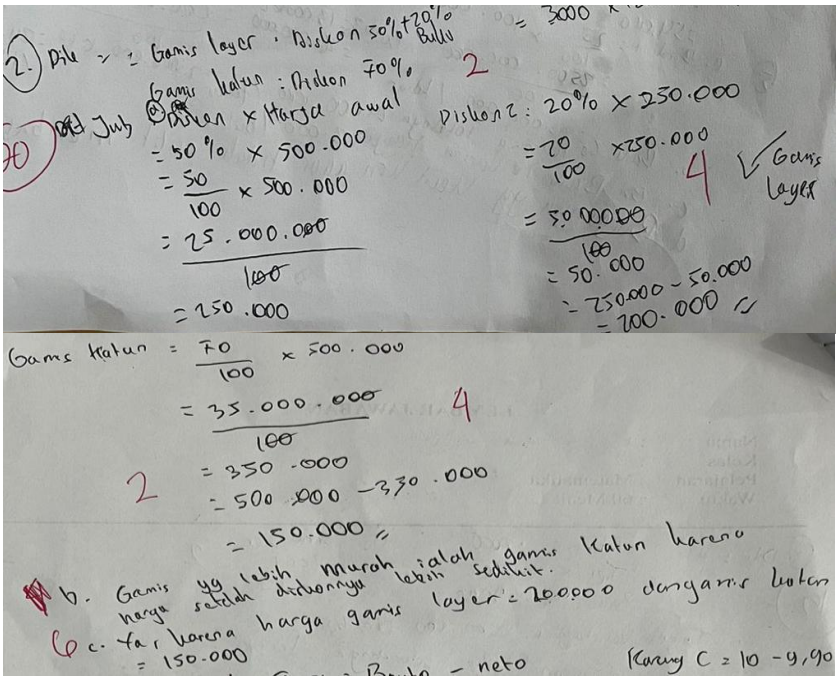



**Figure 7. S2 answer to question number 2**

Based on the results of the analysis of the test and interview in question number 2, it can be seen that S2 is able to go through all stages of the creative thinking process according to the stages of S2 wallas. The preparation stage where S2 understands and writes in detail the information in the questions he writes in known elements. At the S2 incubation stage, it does not take long to think of solutions in solving problems while opening the notebook and remembering the problems that have been discussed before. At the illumination stage, S2 got ideas to apply in solving the given problems. At the verification stage, S2 began to look for a solution to the problem using the formula he had obtained and then he wrote it down but he did not recheck.

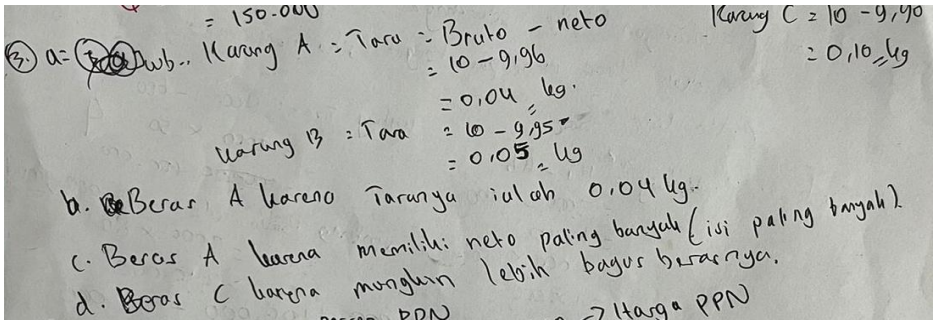



**Figure 8. S2 answer to question number 3**

Based on the results of the analysis of the answers to question number 3, it can be seen that S2 does not go through all stages of the creative thinking process according to the wallas

stages. S2 skips the preparation stage by not making any information in the question with known elements. S2 goes directly to the incubation stage by immediately thinking about how to solve it by remembering the problems that have been studied. At the illumination stage, S2 got ideas to apply in solving the given problems. At the verification stage, S2 began to look for a solution to the problem using the formula he had obtained and then he wrote it down but did not re-check.

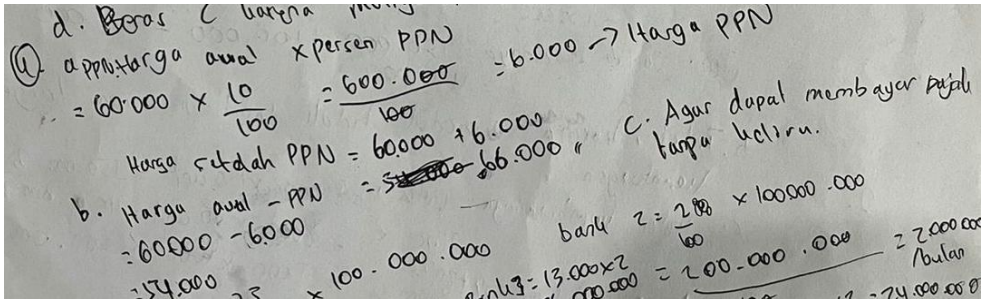



**Figure 9. S2 answer to question number 4**

Based on the results of the analysis of the test and interview from the answers to question number 4, it can be seen that S2 does not go through all stages of the creative thinking process according to the wallas stages. S2 skips the preparation stage by not making any information in the question with known elements. S2 goes straight to the incubation stage by immediately thinking about how to solve it by remembering the problems that he has discussed and learned. At the illumination stage, S2 got ideas to apply in solving the given problems. At the verification stage, S2 began to look for a solution to the problem using the formula he had obtained and then he wrote it down but he did not check the answer again.

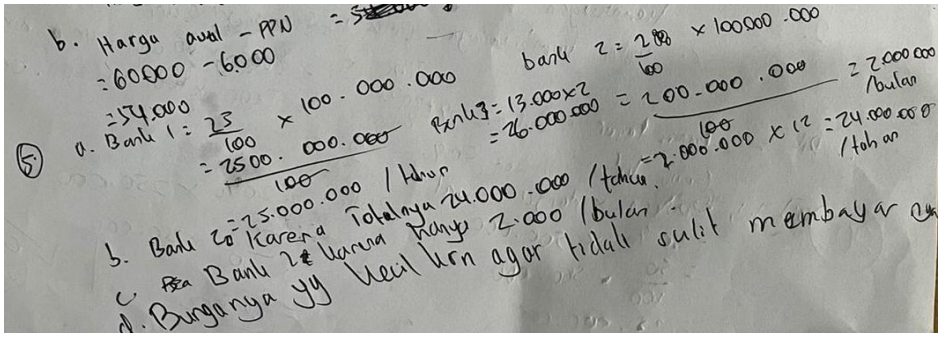



**Figure 10. S2 answer to question number 5**

Based on the results of the analysis of the answer to question number 5, it can be seen that S2 does not go through all stages of the creative thinking process according to the wallas

stages. S2 skips the preparation stage by not making any information in the question with known elements. S2 goes straight to the incubation stage by immediately thinking about how to solve it by remembering the problems that he has discussed and learned. At the illumination stage, S2 got ideas to apply in solving the problems given by experiencing a few obstacles. At the verification stage, S2 starts working on solving problems using the formula he has obtained and then he writes it down and does not double-check the answer.

***Low-Ability Students (S3)***

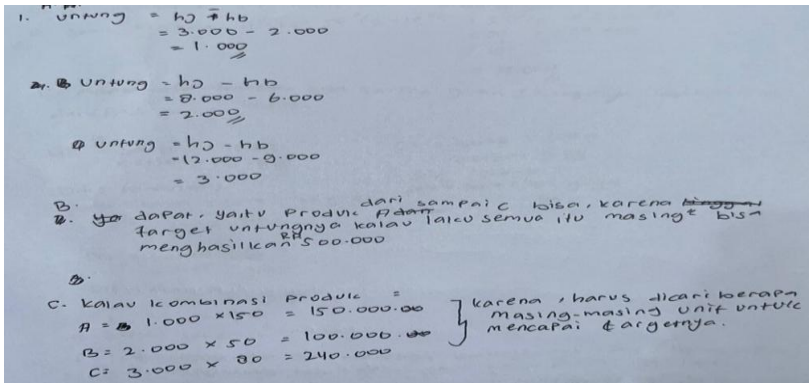



**Figure 11. S3 answer to question number 1**

Based on the results of the analysis of the test and interview on question number 1, it can be seen that S3 cannot go through all stages of the creative thinking process according to the wallas stages. S3 can only pass the incubation and illumination stage, even though in the illumination stage S3 does not understand in answering problems that require their own thinking. at the S3 preparation stage cannot write down the information in the problem, the S3 incubation stage students need a little longer to be able to think about how to solve the problem, the S3 illumination stage produces ideas but is incomplete because S3 does not really understand the information in the problem. The S3 verification stage tests the results of the answers to answer the questions afterwards but the answer is wrong.

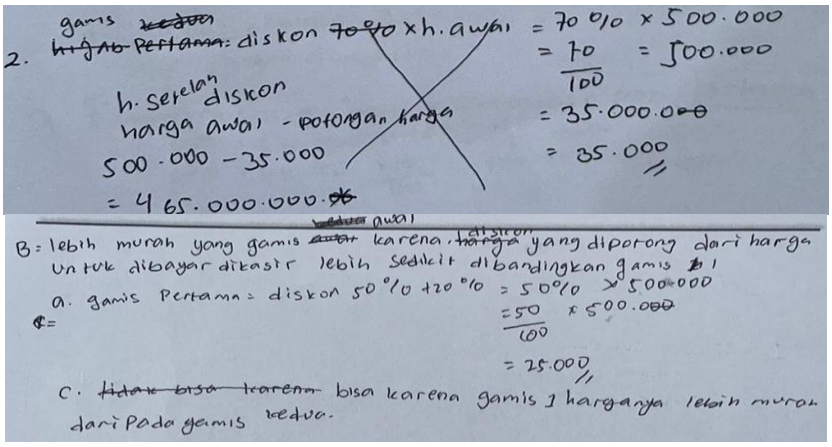



**Figure 12. S3 answer to question number 2**

Based on the results of the analysis of the test and interview on question number 2, it can be seen that S3 experiences many obstacles in doing the questions. S3 cannot go through all stages of the creative thinking process according to the stages of wallas. S3 cannot collect information at the preparatory stage. then at the incubation stage S3 could not think of a way to solve it, at the illumination stage S3 only guessed the formula that he remembered before and at the verification stage S3 was unable to test the results of his idea, in the end the results of the S3 answer were all wrong.

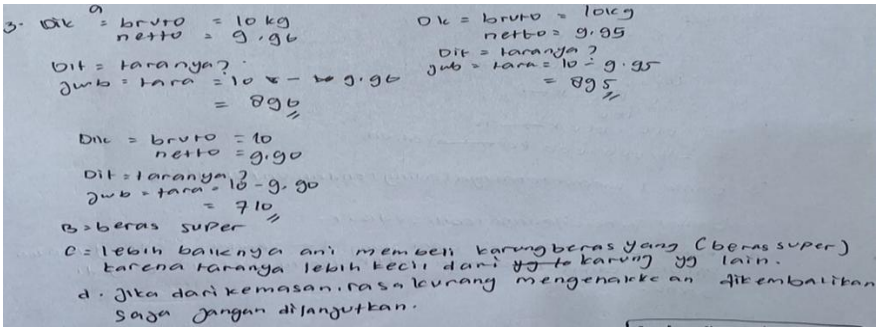



**Figure 13. S3 answer to question number 3**

Based on the results of the analysis of the test and interview in question number 3, it is clear that S3 cannot go through all stages of the creative thinking process according to the stages of wallas. S3 can only pass the preparation stage completely, namely writing down all the information available in the question. At the S3 incubation stage, there is no difficulty in finding a way to solve it. In the illumination stage, S3 can find the formula or the way to solve it, but S3 cannot complete the calculation and he miscalculates the reduction. The S3 verification stage tests the results of the answers to answer the questions but the answers are incorrect.

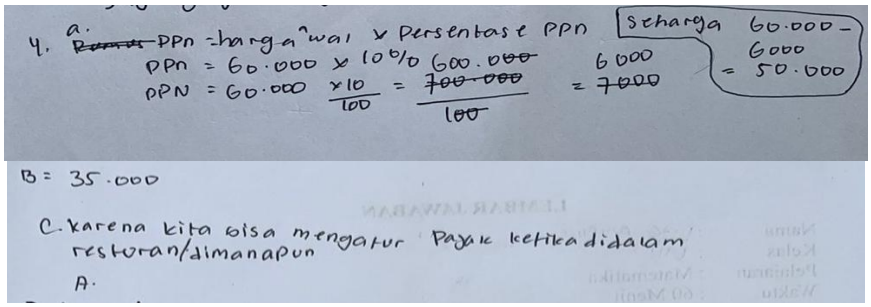



**Figure 14. S3 answer to question number 4**

Based on the results of the analysis of tests and interviews in question number 4, S3 experienced a lot of difficulties, it can be seen that S3 cannot go through all stages of the creative thinking process according to the Wallas stages. At the preparation stage, he did not collect all the information in the question. The S3 incubation stage succeeded in thinking of a way to get a way to solve it. In the illumination stage, students can find a formula to solve the problem and in the S3 verification stage, they cannot draw conclusions and produce incomplete ideas and answers that are not precise and clear.

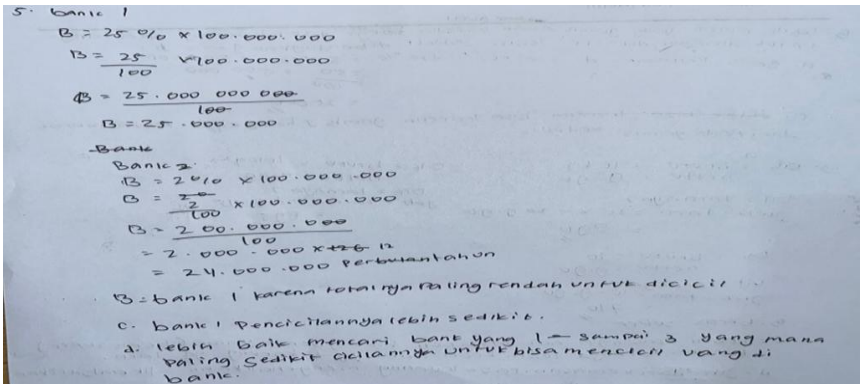



**Figure 15. S3 answer to question number 5**

Based on the results of the analysis of the test and interview in question number 5, it can be seen that S3 cannot go through all stages of the creative thinking process according to the wallas stages. S3 skipped the preparation stage where he did not write down any information contained in the questions. At the incubation stage, he had little difficulty in thinking of a solution. At the illumination stage, he did not list the formula used in solving the problem and was also incomplete in answering every question asked. At the verification stage, S3 could not write down the conclusion and the results of the test of the idea were wrong because S3 was not thorough.

**Discussion**

Based on the results of the research, it can be concluded that each student shows a different level of ability. The diverse abilities are divided into three levels, namely, high, medium and low ability.

In the preparation stage, high-ability students can write down the information in the questions well from question number one to number 5 and there are no errors. In line with the theory of thought processes put forward by Wallas (Fitriana & Rahaju, 2020) which states that this preparation stage is that students collect all information and data to solve problems. Students with medium ability can write down the information in the questions, however, there are some questions that do not write information, questions number 1 and 2 students write the question information well. However, in numbers 3 to 5 he did not write down the information in the question, after being asked at the interview stage the student replied that he forgot and was afraid that his time was up. This is in line with research (Nurwahyuni et al., 2020) that students with moderate abilities seem hesitant and in a hurry in the preparation stage. Low-ability students are less able to understand what information is in the questions so they do not write down the information that is known and asked. Students with low abilities also have a long thinking process in remembering lessons so that it also takes a long time to solve the problems given. In line with the results of Deftriani's research in (Sari, Ikhsan, & Saminan, 2017) conclude that students are not creative trying to understand the problems they are facing, but their understanding is not correct.

At this incubation stage, high-ability students do not need a long time to remember what material they have obtained before by being silent and thinking for a moment to find solutions to the problems they will face. This is in accordance with the results of tests and interviews and in line with the research (Nurwahyuni et al., 2020) which said that high-ability students have good understanding and knowledge and easily remember the learning that has been taught. Medium-ability students carry out the incubation stage by reading the questions repeatedly, medium-ability students take longer to get ideas by focusing more on reading and remembering previous material. In accordance with research (Zaiturrahmah et al., 2024) which says that the incubation stage is the stage of remembering how to solve problems that have been taught. Low-ability students take a long time to think of solutions to the problems

given and from the results of student research tend to answer carelessly and find it difficult in the incubation process. However, in some questions, students with medium ability can pass the incubation stage well and generate ideas from their thoughts. In line with research (Amalia, Surya, Syahputra, & Surya, 2017) that low-ability students cannot necessarily be said to be uncreative.

In the illumination stage, the high-ability student is able to get ideas to solve problems that he writes directly on the answer paper and all the answers he gives all result in correct and sequential answers. However, there is a slight lack of formula in number 4 but it does not change the content of the answer. According to the interview, high-ability students only forgot to write down their VAT percentage, it happened as a result of chasing the deadline for work. This is in line with the results of Saefudin's research in (Sari et al., 2017) which states that when applying the ideas obtained, high-ability students do not make mistakes in solving problems, and they feel challenged to solve problems in various ways and answers. Medium-ability students get ideas that they generate from the incubation stage and are written directly on the answer sheets that have been provided, the overall work of medium-ability students can answer the questions properly and correctly. Low-ability students give simple answers according to their understanding, but the answers produced tend to be wrong, they can find the solution formula but they are wrong in doing the calculation operation and cannot draw conclusions from the questions given. In line with research (Febriani & Ratu, 2018) who said that low-ability students can understand the problem but do not know how to do the problem.

At the verification stage, high-ability students test and re-check the results of the completion process systematically so as not to get errors. In accordance with the results of tests and interviews, students with high abilities can conclude and make decisions appropriately, because each question on the test sheet has questions that require answers on their own and students can answer questions in a relevant and appropriate manner. This is in accordance with the statement (Zaiturrahmah et al., 2024) that students write the conclusion of the answer in their own language and check the answer again. Students with medium ability do not recheck all the answers they are working on, this results in some of the answers they give are not accurate, such as the answer in number 1, students have questions that they do not understand and cannot answer questions in their own way. Low-ability students do not recheck the answers they are working on, it is due to the lack of understanding of students in

doing question. This is in line with research (Amalia et al., 2017) which states that low-ability students are sometimes less careful in writing answers, so they are not sure of the questions they are working on and tend to produce wrong answers.

## CONCLUSION

Based on the results of the research and discussion of the creative thinking process of students in solving Wallas stage social arithmetic problems, we can conclude that there is a very clear difference between students and the level of creative ability they have. Students with high abilities are more prominent and ready to face challenges or solve complex problems, characterized by being able to meet all indicators of the stages of the creative thinking process properly and correctly. Students with medium ability also showed their creative thinking skills even though they still experienced obstacles at the verification stage and forgot at some stages of preparation. On the other hand, low-ability students still tend to have difficulties in solving problems and still experience obstacles that result in incorrect answers they get. Low-ability students often experience obstacles in the preparation and verification stages.

The suggestion given by the researcher is that teachers should provide appropriate learning approaches and can hone their creative thinking skills so that students who have low thinking skills can increase their potential in creative thinking.

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**REFERENCES**

Amalia, E., Surya, E., Syahputra, E., & Surya, E. (2017). The Effectiveness Of Using Problem-Based Learning (PBL) In Mathematic Education View Project The Effectiviness so. Ijariie, 3(2), 3402-3406. https://www.researchgate.net/publication/318982082

Ardianto, A., Mulyono, D., Handayani, S. (2019). Pengaruh Model Discovery Learning Terhadap Hasil Belajar Matematika Siswa Kelas VII SMP. Jurnal Inovasi Matematika (Inomatika), 1(1). https://doi.org/10.35438/inomatika.v1i1.136

Farib, P. M., Ikhsan, M., & Subianto, M. (2019). Proses Berpikir Kritis Matematis Siswa Sekolah Menengah Pertama Melalui Discovery Learning. Jurnal Riset Pendidikan Matematika, 6(1), 99–117. https://doi.org/10.21831/jrpm.v6i1.21396

Febriani, S., & Ratu, D. N. (2018). Profil Proses Berpikir Kreatif Matematis Siswa dalam Pemecahan Masalah Open-Ended Berdasarkan Teori Wallas. Mosharafa. 7(1). 39-50 http://e-mosharafa.org/index.php/mosharafa

Ferdiani, R. D., Sujadi, I., Fitriana, L., & Susilo, D. A. (2022). Proses Berpikir Kreatif Mahasiswa dalam Mengajukan dan Memecahkan Masalah. AKSIOMA: Jurnal Program Studi Pendidikan Matematika, 11(1), 464. https://doi.org/10.24127/ajpm.v11i1.4215

Fitriana, N., & Rahaju, E. B. (2020). Proses Berpikir Kreatif Siswa SMP Berdasarkan Tahapan Wallas dalam Memecahkan Masalah Matematika ditinjau dari Tipe Kepribadian Ekstrovert-Introvert. MATHEdunesa: Jurnal Ilmuah Pendidikan Matematika, 9(1), 1-8. file:///C:/Users/acer3/Downloads/admin,+15030174013_Nurul+Fitriana-1(1).pdf

Juniarso, T. (2020). Model Discovery Learning Terhadap Kemampuan Berpikir Kreatif Mahasiswa. ELSE (Elementary School Education Journal) : Jurnal Pendidikan Dan Pembelajaran Sekolah Dasar, 4(1), 36-43. https://doi.org/10.30651/else.v4i1.4197

Luthfiyah nurlela, dkk.(2019). Strategi Belajar Berpikir Kreatif. Jakarta: PT Media Guru Digital.

Nurjannah. (2020). Proses Berpikir Kreatif Siswa SMP Berdasarkan Tahapan Wallas dalam Memecahkan Masalah Matematika ditinjau dari Adversity Quotient (AQ) . JTMT: Jurnal Tadris Matematika. 1(1), 7-13. http://journal.iaimsinjai.ac.id/index.php/Jtm

Nurwahyuni, Sugianto, & Ahmad. (2020). Potensi Berpikir Kreatif Peserta Didik dalam Pemecahan Masalah Matematis Berdasarkan Teori Wallas di SMP. Jurnal Pendidikan dan

Pembelajaran Khatulistiwa, 9(7), 1-12. https://jurnal.untan.ac.id/index.php/jpdpb/article/view/41152

Rachmantika, P. (2019). Peran Kemampuan Berpikir Kritis Siswa Pada Pembelajaran Matematika dengan Pemecahan Masalah. Prosiding Seminar Nasional Matematika, 2, 439–443. https://journal.unnes.ac.id/sju/index.php/prisma/

Rukiyati. (2019). Tujuan Pendidikan Nasional dalam Perspektif Pancasila. Humanika : Kajian Mata Kuliah Umum, 19(1), 56-69. file:///C:/Users/acer3/Downloads/30160-77716-1-SM-1.pdf

Sari, A. P., Ikhsan, M., & Saminan, S. (2017). Proses Berpikir Kreatif Siswa dalam Memecahkan Masalah Matematika Berdasarkan Model Wallas. Beta Jurnal Tadris Matematika, 10(1), 18. https://doi.org/10.20414/betajtm.v10i1.102

Sugiyono. (2022). Metode Penelitian Kualitatif. Bandung: ALFABETA.

Sukmawati, S., Ali, A., S, C. Y., & Ristiani, R. (2024). Efektivitas Penerapan Model Problem Based Learning (PBL) pada Mata Kuliah Kajian Matematika Sekolah Dasar. Jurnal Cendekia : Jurnal Pendidikan Matematika, 8(3), 2064–2075. https://doi.org/10.31004/cendekia.v8i3.3267

Zaiturrahmah, Z., Mirza, A., Siregar, N., Sugiatno, S., & Rustam, R. (2024). Proses berpikir kreatif siswa dalam menyelesaikan soal kontekstual pada materi perbandingan berdasarkan teori Wallas. JPMI (Jurnal Pembelajaran Matematika Inovatif), 7(4), 599–610. https://doi.org/10.22460/jpmi.v7i4.20349