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ANALYSIS OF STUDENTS' DIVERGENT THINKING SKILLS IN TERMS OF EXTROVERT-INTROVERT PERSONALITY TYPE

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ABSTRACT

This research aims to describe the divergent thinking skills of 8th-grade students of SMP Negeri 2 Purwokerto in terms of extrovert-introvert personality types. The research follows a qualitative descriptive approach, with a subject consisting of 29 students from class VIII at SMP Negeri 2 Purwokerto. The students were categorized into two groups, extroverts and introverts, with 3 students selected from each category using purposive sampling techniques. Data collection involved the use of questionnaires, tests, interviews, and documentation. The research data analysis technique encompassed data reduction, data presentation, and drawing conclusions.The research findings indicate that both extrovert and introvert personality types students written information to solve the given problems. However, in terms of fluency and flexibility aspects in question 1, extrovert students utilized a single problem-solving approach and provided one answer, whereas introvert students displayed the skills to present two problem-solving approaches and two answers. For question 2, both extrovert and introvert students demonstrated two answers and problem-solving methods. Introvert students were shown to require a conducive classroom atmosphere, while extrovert students were capable of adapting to varying classroom conditions.
Keywords: Divergent Thinking Skills, Extrovert-Introvert Personality Types

INTRODUCTION

Pristiwanti et al., (2022) education is an individual's way of developing himself. One of the important sciences in education is mathematics because learning mathematics emphasizes the ongoing teaching-learning process, not only on the orientation of the final result (Utami, 2020). According to Fathani (2009) states that mathematics is important as a tool, as a science (for scientists), as an attitude shaper and as a guide to mindset. According to Bennu (2011) states that the thought process is an activity that occurs in the human brain. The thinking process can also be defined as a process that begins with receiving data, processing and storing it in memory which is then taken back from memory when needed for further processing (Wardan & Muri'ah, 2021).

Divergent thinking according to Haqqoh (2016) is the skills of individuals to use their thinking process in looking at a problem from several points of view to find or produce an idea or idea that feels capable of solving the problem at hand. Divergent thinking is the skills to come up with many ideas/solutions to solve problems (Utami, 2016). According to Ahzan and Gummah (2014) divergent thinking is the skills of individuals to find various alternative answers to a problem.

Divergent thinking is an skills that a person has in finding many possible answers, solutions and ideas to solve a problem. The skills to think divergently according to Acar and Runco (2019)

consists of two aspects: 1) fluency, the skills to obtain many answers, 2) flexibility, the skills to find various ways of solving problems. According to Isroil et al., (2017) each individual has various characteristics and methods in solving his problems. These differences can be influenced by several factors, one of which is personality. In Dewiyani (2009) states that personality is an internal factor in humans that can cause behavior, so that differences in behavior can affect the way students think about things. Jung divided personality types into extroversion and introversion. The introverted personality type is an individual whose self-awareness attitude leads to him, usually has a shy, quiet, aloof nature. According to Fandini (2019) Introvert is a type of personality that tends to focus more on feelings and thoughts that come from within oneself while the extroverted personality type according to Harahap et al., (2021) is a personality that likes situations that involve many people, takes risks, acts without thinking first, shows feelings openly, acts rather than dreaming and inconsistent. Based on the description above, the researcher aims to describe the divergent thinking skills of grade VIII students of SMP Negeri 2 Purwokerto in terms of extrovert-introvert personality type.

RESEARCH METHODS

This type of research is descriptive qualitative. This study aims to describe the divergent thinking skills of grade VIII students of SMP Negeri 2 Purwokerto in terms of *extrovert– introvert* personality type. The subjects of this study were 29 students of grade VIII SMP Negeri 2 Purwokerto. The data collection techniques used were questionnaires, tests, interviews and documentation. Personality type questionnaires are used to group personalities into two categories, namely extroverts and introverts. Each category was taken by 3 students as samples with purposive sampling techniques. Data analysis used in this study using Milles & Huberman through the stages of data reduction, data presentation, and conclusions. The data obtained were analyzed using aspects of divergent thinking.

RESULTS AND DISCUSSION

Based on the results of the extrovert-introvert personality type classification questionnaire in class VIII SMP Negeri 2 Purwokerto, it was obtained that 23 students had extroverted personality types and 6 students had introverted personality types. Students as respondents by researchers were selected using purposive sampling techniques, namely based on the results of questionnaires of the most dominant personality types in the category.

Respondents with Extrovert Personality Type

Students with extroverted personality type in flexibility aspect number 1a have shown one way of solving.

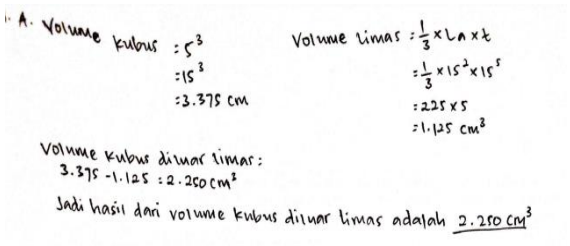

Figure 1. Work Results RE number 1a

In figure 1, it can be seen that RE students in the flexibility aspect have shown one way of solving the given questions. RE uses the solution method with the first stage, which is to find the volume of the cube space building first, the cube volume = S3 = 15 x 15 x 15 = 3,375 cm^3, the second stage is to find the pyramid volume = x La x t = x 15 2 x 152 = 1,125 cm3, then to determine the final result write the volume of the cube outside the pyramid = 3,375 - 1,125 = 2,250 cm^3. RE seems to have used a clear formula in solving the given problem. RE also writes down information that is fairly easy to understand.

Based on the interview, the flexibility aspect of RE stated that he already understood the problem given because he had encountered a form of question that was almost the same as the problem but RE had difficulty in determining other ways of solving. At the time of observation, extroverted students when doing the problem immediately ask the researcher about things that are not understood. This is in accordance with the results of research by Rindu et al., (2021) showing that students with extroverted personality types are able to understand problems by reading questions repeatedly and tend to ask researchers about things that are not understood.

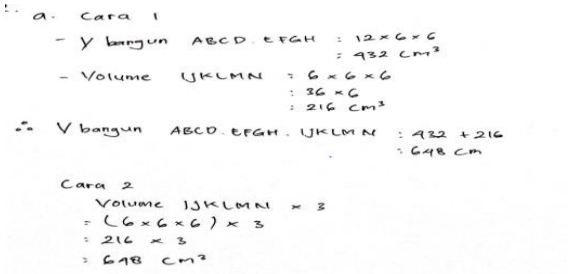

Figure 2. Work Results of RE number 2a

Based on figure 2 RE on the flexibility aspect number 2a has shown two ways of solving. The first way to write the volume is build ABCD. EFGH = 12 x 6 x 6 = 432 cm^3, then write IJKLMN wake volume = 6 x 6 x 6 = 216 cm^3, then the final volume of ABCD build. EFGH. IJKLMN = 432 + 216 = 648 cm^3. The second way subject RE 1 wrote the volume IJKLMN x 3 = 216 x 3 = 648 cm^3.

Based on interviews, RE respondents in the aspect of flexibility understand and have no difficulty in doing the questions given. This can be seen from the two ways of solving written by the appropriate and appropriate RE also using symbols according to the known spatial construct. Then the answer results are relevant to the statement given. have repeatedly read the question before working on it. RE also stated in answering the question of trying to adjust from what is known. Extroverted students have the skills to think divergently because they are able to complete all the statements given. Extroverted students also understand question statements by writing down

relevant answers. Extrovert students have also written down how to solve with calculations using several formulas and stages in answering. Extroverted students when doing the problem directly ask the researcher about things that are not understood. This is in accordance with the results of research by Rindu et al., (2021) showing that students with extroverted personality types are able to understand problems by reading questions repeatedly and tend to ask researchers about things that are not understood.

The extroverted personality type on fluency aspect number 1b has shown one answer. Figure 3 explains that.

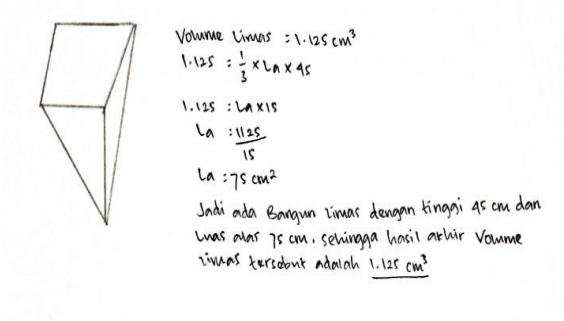

Figure 3. Results of Work RE number 1b

Seen in the aspect of fluency shows one answer, which is to write the pyramid space upside down. RE 1 writes the known measure i.e. pyramid volume = 1,125, height = 45, and the area of the base is unknown. Then the known numbers are included in the formula. In the interview, RE also stated that the way to solve the problem is to change the nominal but not change the final result by changing the question to find the base area because the height and volume are known. RE in the aspect of fluency stated that it had a little difficulty because it was confused when answering the statement given and wanted to finish quickly. This is in line with the results of research Qomariah (2016) which states extroverted students tend to be hasty in completing their work.

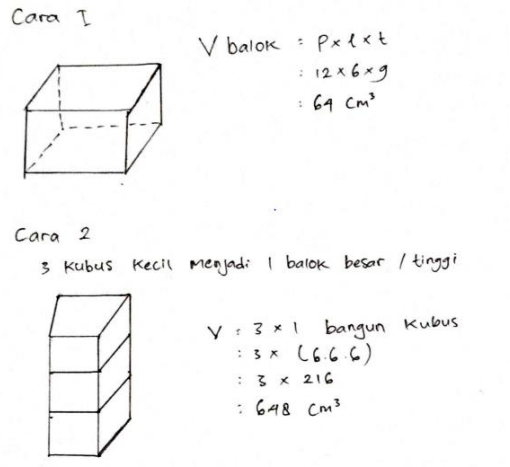

Figure 4. Results of Work RE number 2b

Based on figure 4, it can be seen, respondents on the aspect of fluency have shown two answers. First, the subject RE wrote the build of the beam space with the size of length = 12, width

= 6, and height = 9, so that the volume of the beam = 12 x 6 x 9 = 648 cm^3 corresponds to the volume of the ABCD build. EFGH. IJKLMN. Both RE subjects wrote a block-shaped combined space composed of three small cube shapes, the end result is 3 x 1 small cube build = 3 x (6 x 6 x 6) = 3 x 216 = 648 cm^3. RE has written different answers to others.

Based on the interview, the subject of RE, as in the aspect of fluency, had no difficulty and understood the statement of the question given, but RE stated that the question given was to build another combined space whose volume was equal to the final result of the question number so that RE made the answer. RE states the idea that arises from his mind is to make a combined build, so RE makes a cube compound shape because the number is easy to find from other buildings. This shows that RE has dared to make a different answer.

This shows that extroverted students dare to take risks and do not give up easily. This is in line with the results of research by Widyaningrum and Puspitadewi (2016) extroverted students, namely passionate and courageous students.

Respondents with Introvert Personality Type

Gambar 5. Results of Work RI

In the aspect of flexibility, it seems to have shown two ways of solving in answering the statement given. In figure 5, the first way to solve is RI using how to write each volume, the first stage RI writes the volume of the cube build = S3 = 153 = 3,375 cm^3, the second stage RI 1 writes the volume of the pyramid building = $\frac{1}{3}$ x La x t = $\frac{1}{3}$ x 225 x 15 = 1,125 cm^3, then to determine the final result RI writes the building space outside the pyramid which is = 3,375 – 1,125 cm $3. Vkubus - V. limas$ = 2,250 cm^3. RI has written clear information with calculations using easy-to-understand formulas.

Based on the interview, the RI subject understood the questions given and did not find it difficult, but only a little confusion on how to solve the second one. That is because RI feels that the second way is almost the same as the first way, but RI is right to write the answer carefully and little consideration and RI states that it has shown more than one way with appropriate results.

Figure 6. Job Result number 2

Respondents in the flexibility aspect have shown two ways of solving, namely the first way RI writes first Vbalok = p x l x t = 12 x 6 x 6 = 432 and write Vkubus = 6 x 6 x 6, so that is V Total = V balok + V kubus = 432 + 216 cm^3. The second way RI write the overall volume = V balok + $\frac{1}{2}$ Vbalok = (p x l x t) + $\frac{1}{2}$ Vbalok = 432 + $\frac{1}{2}$ x 432 = 432 + 216 = 648 cm^3. In figure 6, RI has written using a formula and has written down the information in sufficient detail.

Based on the interview, RI in flexibility stated that he had used two ways of solving the questions given. RI has understood the questions given. RI also stated that in working on the question, he felt anxious because his friends had collected.

Introverted students are able to show more than one way of solving, so students have high scores in this aspect. Introverted students are able to understand the questions given and do not find it difficult but are still confused about how to solve the second, but introverted students dare to write down the answers whose answers are appropriate. Introverted students also use calculations in answering the questions given. Introverted students are seen using formulas in their calculations. Introverted students are also able to use symbols and write down information clearly and with precise answers and according to what is commanded. This is in accordance with the results of Isdayanti (2020), which states that introverted students in solving problems determine the relationship of information contained in the given problem.

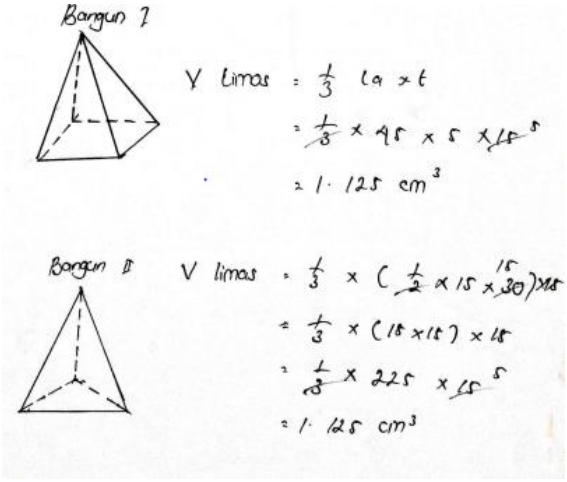

Figure 7. RI Work Results number 1

Figure 7 proves that RI respondents in the aspect of fluency have shown two correct answers, namely first, RI made a rectangular pyramid space with the size of the base area = 45 x 5 = 225 and height = 15. Then for the final result of the pyramid volume = $\frac{1}{3}$ x La x t = $\frac{1}{3}$ x 45 x 5 x 15 = $\frac{1}{3}$ x 225 x 15 = = 1.125 cm^3. The two RI 3 made a triangular base pyramid shape, which is with a widely known sizes = $\frac{1}{2}$ x 15 x 30 and height = 15. Then for the end result, which is volume = $\frac{1}{3}$ x $\left(\frac{1}{3} \text{ x } 15 \text{ x } 30 \right)$ x 15 = $\frac{1}{3}$ x (15 x 15)x 15 = 15 x 15 x 5 = 1.125 cm^3. RI seems to be able to write symbols, is able to write detailed information and has used formulas in its calculations.

Based on the interview, RI stated that in solving the problem by reading the question more than once to make sure, then trying several times to find the appropriate number and pondering for a moment while simultaneously writing down and adjusting the numbers he thought. RI in the aspect of fluency has understood the problem given but has difficulty in finding the number.

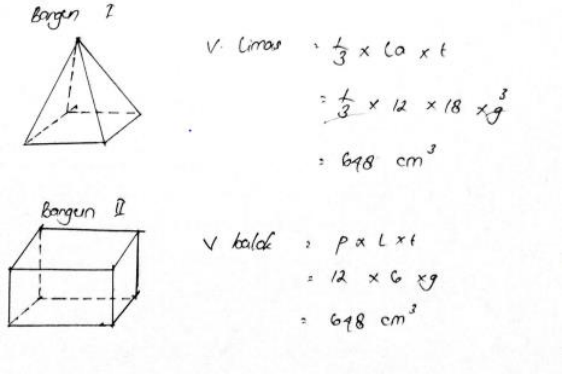

Figure 8. RI Work Results number 2

In the figure of 8 respondents in the aspect of fluency have made two answers, namely first make a pyramid space whose size is the size of the base = 12 x 18, height = 9, so that the volume of the pyramid = $\frac{1}{3}$ x La x t = $\frac{1}{3}$ x (12 x 18)x 9 = $\frac{1}{3}$ x (12 x 18)x 9 = $\frac{1}{3}$ x 216 x 9 = 216 x 3 = 648 cm^3. The two RI make a beam space with a length = 12, width = 6 and height 9, so that the volume of the beam = p x l x t = 12 x 6 x 9 = 648 cm^3. Both answers shown by RI 3 the final result is the same as the statement given. Then RI has also provided detailed information and used formulas in its calculations and has made the builds that have been made.

Based on the interview, RI in the aspect of fluency stated that he had no difficulty in solving the problem but RI felt uneasy because other friends had collected the results of his work. Then RI also stated that it made a pyramid and beam room, initially inspired by the building known in the existing problem.

Isdayanti (2020) stated that introverted students are quite careful in doing calculations. Introverted students also stated that at that time they did not focus on doing the questions because they were nervous to see that other students had collected the results of the answers. Introverted students do not find it difficult to determine different sizes because it can be seen from the answer. Introverted students are more careful in answering the questions given, by asking to confirm

statements to researchers when carrying out the test. This is in accordance with research Zainuddin (2016) which states introverts tend to be more careful and act more appropriately.

CONCLUSION

Based on the results of research related to the description of divergent thinking skills in terms of extrovert-introvert personality type, so the following conclusions can be drawn: Students with extroverted personality types, in the aspect of flexibility are able to show one way of solving the two questions given. Extroverted students are able to answer appropriate questions and use formulas in their calculations, even though there are students who have not written formula symbols in their work. Extroverted students are also able to convey information and understand the questions well even though they are still confused in determining other ways to answer the questions given. Then in the aspect of fluency, extrovert students are able to show one correct answer on both numbers, namely making a pyramid room that is of different sizes but the final result is the same. Extroverted students are able to write clear and easy-to-understand information, but extroverted students are easily rushed in answering questions and extroverted students are faster in doing and prefer to move.

Students with introverted personality types, in the aspect of flexibility have shown two different ways of solving correctly and precisely according to what is ordered, so that introverted students are able to write down the results of more than one answer and get a high score. Introverted students are able to answer questions with calculations and use appropriate formulas. Introverted students are also able to write down information clearly so that it is easily understood by readers. Students tend to be more careful in solving the questions given by reading repeatedly the results of the written answers, then introverted students also ask the researcher when experiencing confusion. Introverted students tend to be calmer when doing problems. In the aspect of fluency, introverted students have shown two answers, but there are students who are not right because they are less careful and nervous. Introverted students are able to write down more than one different answer and get a fairly high score.

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