TRANSFORMATIONAL LANGUAGE, LITERATURE, AND TECHNOLOGY OVERVIEW IN LEARNING (TRANSTOOL)

ANALYSIS OF MATHEMATICAL NUMERACY SKILLS ON LINE AND ANGLE MATERIAL IN CLASS VII IN TERMS OF EXTROVERTED INTROVERTED AND AMBIVERT PERSONALITIES

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Abstract

This research aims to analyze the mathematical numeracy abilities of class VII students with introverted, extroverted and ambivert personalities at SMP Negeri 2 Semarang. The method used was descriptive qualitative with research subjects consisting of 34 students, one student was selected from each personality category based on a questionnaire with 70 question items. The results of the questionnaire showed AAE (introvert), LPA (extrovert), and JRA (ambivert) students as research subjects. Mathematical numeracy ability tests and interviews were carried out to test the validity of the test results through technical triangulation. Indicators of mathematical numeracy abilities include the use of mathematical numbers and symbols, analysis of information in the form of tables, graphs and charts, as well as interpretation of analysis results for decision making. The results showed that introvert and ambivert students met allindicators of numeracy ability, while extrovert students did not. Introvert students can solve problems well, extrovert students tend to be in a hurry and lack details, while ambivert students show quite good results but there are still some answers that are less detailed. This research concludes that mathematical numeracy abilities vary based on student personality.

Keywords: *Numeracy Ability, Introvert, Extrovert, Ambivert*

1. INTRODUCTION

Education is the most important thing that affects life. Education will encourage humans to develop in their respective fields (Zulfah et al., 2021). Everyone should have access to a good education. Everyone must get learning according to their ability level. One of these abilities is math numeracy.

Numeracy is the ability to use numbers, data, and mathematical symbols, as well as knowledge and skills in making decisions related to real problems in everyday life (Zakaria et al., 2023). Numeracy skills can solve complex problems in life. This ability should not be underestimated. Therefore, math numeracy skills are very important for every student to have.

Based on observations and interviews with mathematics teachers at SMP Negeri 2 Semarang, many students lack numeracy skills. This is because students lack understanding of the information presented to be analyzed in making decisions. This problem often occurs in students which results in students thinking that math is a difficult subject (Tresnasih et al., 2022). This stigma must be immediately removed by the teacher by analyzing. In addition, student personality is also a factor in solving problems in students.

Student personality is divided into three parts, namely introvert, ambivert, and extrovert (Sulastri et al., 2021). Students who have an introverted personality are more often alone and closed and less social with other students. Meanwhile, the ambivert type is more often active, socializing, doing without thinking. For ambivert more inclined both. Each of these personalities will have an impact on student learning when understanding math problems, especially line & angle material. Each student will solve problems in different ways and strategies (Fitriyana & Sutirna, 2022).

Therefore, an analysis of the math numeracy skills of introverted, extroverted and ambiverted students in class VII SMP Negeri 2 Semarang was conducted. This study aims to determine the math numeracy skills of introverted, extroverted and ambiverted students in class VII of SMP Negeri 2 Semarang in the 2023/2024 school year.

2. LITERATURE REVIEW

Mathematical numeracy is one of the important basic competencies in mathematics education, especially in line and angle material in grade VII. This numeracy skill includes understanding, application, and communication of mathematical concepts in everyday life (Zakaria et al., 2023). Personality factors, such as introversion, extroversion, and ambivalence, are believed to influence how students understand and apply mathematical concepts. This review aims to analyze how personality differences can affect students' mathematical numeracy skills in lines and angles.

2.1. The Concept of Numeration in Math

Numeracy is the ability to use mathematics in a variety of everyday contexts, including the ability to understand concepts, apply problem-solving strategies, and communicate the results of mathematical thinking effectively (Schutz & Zembylas, 2009). In line and angle materials, numeracy involves students' ability to identify, measure, and calculate various types of angles as well as understand the relationship between lines in various geometric shapes.

2.2. Personality: Introvert, Extrovert, and Ambivert

a. Introverts: Students with this personality tend to prefer to work alone, think deeply, and are often more reflective in their approach to learning (Sulastri et al., 2021).
b. Extroverts: Extroverted students tend to be more open, active, and prefer interacting with others. They are more comfortable with group discussions and collaborative learning approaches (Pamungkas, 2020).
c. Ambivert: a combination of the above two personality types. Ambivert students may exhibit characteristics of both introverts and extroverts depending on the situation (Yukentin et al., 2018).

2.3. The Influence of Personality on Numeracy Skills

Some studies show that students' personalities can affect the way they learn and understand mathematics (Iman et al., 2021). For example, introverted students may be stronger at analyzing problems in depth, but may have difficulty in group discussions or

when required to think quickly. Conversely, extroverted students may excel in activities that require interaction and collaboration, but could lack depth in concept analysis.

Ambivert students, who have a balance between introversion and extroversion, may have an advantage in adaptability to various learning situations, so that they can be more flexible in overcoming various challenges in mathematical numeracy (Shams et al., 2011).

3. RESEARCH METHODS

The research used was descriptive qualitative. The research was conducted in class VII-H SMP Negeri 2 Semarang. The subjects of this study were 34 students who took one student from each personality. The determination of the subject is based on a questionnaire with the aim of getting the personality category. The questionnaire used is a student personality test with a total of 70 items. The following results of the student personality questionnaire are presented in the following figure.

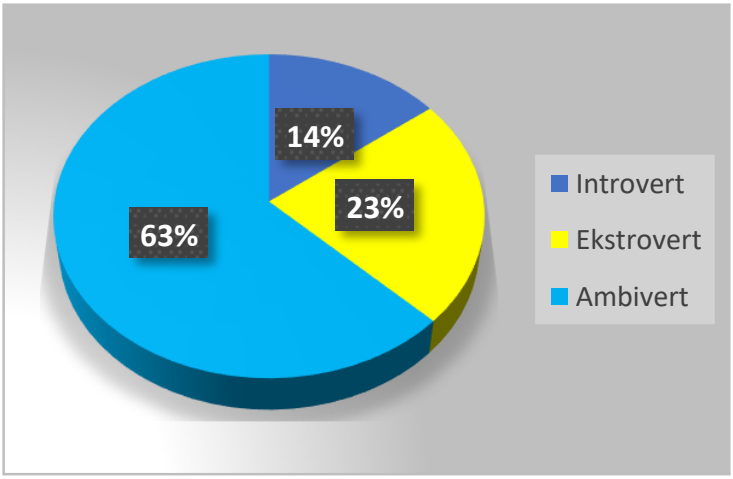

Figure 1. Personality questionnaire results

The test was used to determine the math numeracy skills of students with these personalities. The test results were analyzed and interviews were conducted to find out in detail about the validity of the test results. Data validity used is triangulation technique to test the credibility of data by verifying information from different sources. Indicators of math numeracy skills are as follows (Qoriyani & Widiyastuti, 2023).

Table 1. Indicators of math numeracy skills

No	Indicators
1	The use of numbers and math symbols
2	Analyze information presented in the form of tables, graphs and charts
3	Interpreting analysis results for a decision

4. RESULTS AND DISCUSSION

The results of the research subject selection are as follows.

Table 2. Research Subjects

No.	Student Code	Personality
1	AAE	Introvert
2	LPA	Extroverts
3	JRA	Ambivert

Based on table 2, AAE students with introverted personality, LPA students with extroverted personality and JRA students with ambivert personality were obtained. The selected subjects will be given a test of line & angle material to determine math numeracy skills. In addition, interviews were conducted with questions about indicators of math numeracy skills.

1. Introverted Subject

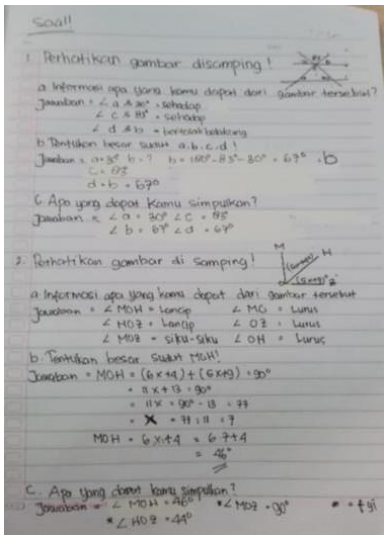

Figure 2. Written test result of introverted student (AAE)

Based on Figure 2, AAE students have good math numeracy skills. It can be seen that AAE students can solve problems using numbers and mathematical symbols appropriately. In addition, it can also analyze the information presented.

AAE students can also make predictions with the right decisions. This is because these students can remember and understand the material that has been delivered by the teacher with appropriate learning. This is in line with Faridah et al. (2022) learning that is done to suit the characteristics of students will foster deep understanding. Habibi (2016) also said that students who have introverted personalities have good memories so they can solve problems appropriately.

2. Extroverted Subject

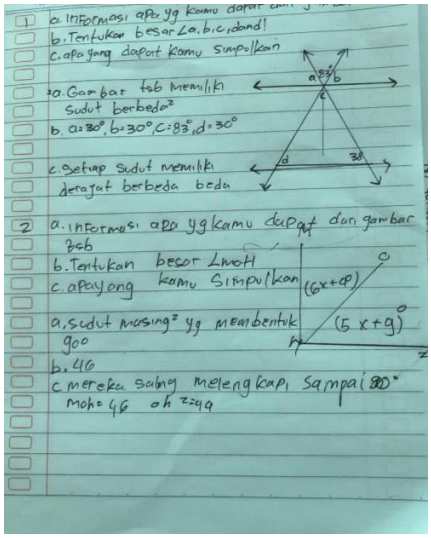

Figure 3. Written test result of extroverted student (LPA)

Based on figure 3, LPA students cannot fulfill all indicators. This can be seen from the 2 questions given, not answered in detail. Just directly answer the question without any analysis. This is in line with the opinion of Sulastri et al. (2021) that extroverted students have not been able to understand the problems given well, students are less confident in their own answers which makes students hesitate to write answers in detail. Zakaria et al. (2023) argue that students who have extroverted personalities will take action without thinking carefully. This causes LPA students to rush and not check back in detail the answers that have been written. In line with what was revealed by Prayitno & Ayu (2018) an extrovert often carries out activities spontaneously, does not think too long and does not analyze things much.

3. Ambivert Subject

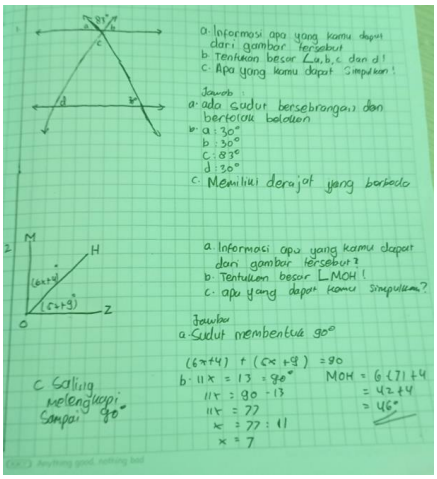

Figure 4. Written test result of introverted students (JRA)

Based on figure 4 ambivert personality students are good enough in completing thetest. In the indicator of using numbers and symbols from the information presented is good. It can be seen that JRA students write what they know such as being able to determine the size of the angle they are looking for, at the information analysis stage JRA students can do it well. However, there are some answers that are less to analyze. WhereJRA students immediately wrote the answer. Nevertheless, JRA students have written the answers well. The ambivert personality is indeed very unique because of the combination of introverted and extroverted personalities which are difficult to categorize because this trait can change over time and the situation of the heart towards the interlocutor (Sulastri et al., 2021).

5. CONCLUSION

Based on the results of the research, the discussion above can be concluded that math numeracy skills on line & angle material in terms of introverted, extroverted and ambivert personalities have differences. Introverted and ambivert students fulfill all indicators of math numeracy skills. Meanwhile, extroverted students do not meet all indicators of mathematical numeracy skills. Suggestions for other researchers can be used as references and develop research by analyzing other abilities.

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