**Analysis of Strategic Competence Students Melancholy mode in Solving Problems in Mathematics in Comparative material**

**Abstract**, This study aimed to describe the strategic competence of students in solving the story on the material in class IX SMP Comparison Creative An-Nur. As for the aspects of the strategic competence of students of the subject in this study were students in formulating strategies, represent, and solve problems. This study uses descriptive qualitative research. The study participants were 20 students of class IX-A. Test subject selection is used personality test students who have a type of melancholy in a direct adaptation of the instrument which has been prepared by Florence Littauer. The sampling of the type of students it will be analyzed this melancholy strategic competence in solving a math problem on a comparison material. The results of personality tests in class IX-A is 2 students with the type of melancholy, 5 students who type koleris, 3 students of type pleghmatis, 5 students who type sanguinis. Two students (2 males) with a melancholy personality type selected as research subjects to be tested for strategic competence and continued with the interview based on indicators of strategic competence. The results of the strategic competency tests and interviews were analyzed based on three indicators of strategic competence, ie the ability to formulate the problem, the ability to present a problem, and ability to solve mathematical problems. The result showed that 2 students meet strategic competence indicator in solving mathematical problems in Comparison material. These findings suggest.

**1. Introduction**

Competition is a real thing and must be faced every nation in the world, including Indonesia. This era impact on the rapid development of science and technology. Mathematics is a science that underlie the development of modern technology, has an important role in a variety of disciplines and promote the power of human thought. By understanding the math, Indonesia is expected to be able to master the technology development. Mathematics as a social institution, the resulting from the post and solving human problems [1]. Educational experts strive to improve the quality and student learning outcomes. Mathematics education experts in particular, trying to do the activities and research in learning to reduce the notion that math is a subject that is scary. This is supported by the effort to introduce a variety of strategies, models and learning approaches in accordance with good variation primary education, secondary, even college so that students have a sense of pleasure in learning mathematics so that the view of many people that math is something scary thing, began to decrease , Mathematics as a study that starts from the assessment of the parts are very well known towards the unknown. Directions known structured (kostruktif) gradually toward the complex (complex), from the prominent round burst, the real numbers to the complex numbers, of addition and multiplication to differential and integral, and toward higher mathematics [2]. One of the main goals for students to learn mathematics is to accelerate math skills including conceptual understanding, procedural fluency, strategic competence, adaptive reasoning, and productive disposition [3, 12]. Strategic competence is the mental activity using a strategy of formulating issues, which represent a mathematical problem, and solving as well as choose the most effective solution to the problem [3, 4, 5]. Strategic competence is defined as ability to formulate, represent, and solve mathematical problems. This obviously implies heuristic strategies but Also aspects of cognitive [6]. and solving as well as choose the most effective solution to the problem [3, 4, 5]. Strategic competence is defined as ability to formulate, represent, and solve mathematical problems. This obviously implies heuristic strategies but Also aspects of cognitive [6]. and solving as well as choose the most effective solution to the problem [3, 4, 5]. Strategic competence is defined as ability to formulate, represent, and solve mathematical problems. This obviously implies heuristic strategies but Also aspects of cognitive [6].

The most effective teaching focuses on the involvement of children in solving problems [7]. Problem solving has special importance in the study of mathematics [8]. Problem solving happen when you want to reach A Certain goal, but the solution is not obvious Immediately imprtant Because information is missing, and obstacles are blocking your path [9]. To be a reliable problem solver, students must learn how to present a problem and find new solutions when needed. Students should also be used to practice doing routine problems [3]. Therefore, understanding each student's personality is one way to be used by teachers to understand and communicate to students. Personality grouped into four by body fluids, ie korelis, melancholy, plagmatis, and sanguitis. Differences in personality type affects the thinking process of students [10]. Personality is the dynamic organization within the indivual of Reviews those psychophysical system that determines his unique adjustments to his environment [11]. Not a lot of students that want to communicate and communicating matters which may make the students really feel difficulty because a teacher does not understand their students, and one of the personalities possessed by a student is a student with personality "Melancholis".

Students melancholis is a thinker, analytical, diligent, quiet, and born with the nature pessimistic, skeptical and critical. Students who know the material tends to determine the solvency appropriate to solve the problem. Students of this type then have the strategic competencies that are stronger and able to deal with various problems [13, 14]. But in fact learning, critical talent melancholis students are often not seen by the teacher because it is quiet and less able to express opinions or answer [15]. Based on the problems that occur in students melancholic and strategic competence to be possessed by students melancholy in solving mathematical problems as described above, hence the importance of this research is that teachers know how students' strategic competence melancholic type in a math problem on a matter of comparison. As an implication, we recommend further research to explore the strategic competence of students according to learning styles.

**2. method**

This qualitative study involved two of 20 students. Twenty students put into the classroom and given (1) the personality test to categorize the students who have the personality type melancholis (2) test in the form of a description to reveal strategic competence melancholy student in a math problem on a matter of comparison. Students who have a melancholy personality type that has completed tests of strategic competence that is the subject of research and then conducted interviews based on the indicators of strategic competence. Subjects selected for an interview is a subject that meets the following criteria: have studied the linear equation of one variable, able to communicate their ideas clearly and strategic competence of students is high. Interview data were analyzed in three stages: Data condensation, data presentation, and conclusion [12,16]. Condensing the data referred to the electoral process, focus, simplify, abstract, or change the data obtained which appears in the full corpus of field notes, interview transcripts, documents, and other empirical material. presentation of data in the form of a set of narrative text information / data are compiled regularly and systematically, which then shifts to draw conclusions [16]. Based on data obtained through tests and interviews, the researchers then create indicators for each aspect of strategic competence (see Table 1). presentation of data in the form of a set of narrative text information / data are compiled regularly and systematically, which then shifts to draw conclusions [16]. Based on data obtained through tests and interviews, the researchers then create indicators for each aspect of strategic competence (see Table 1). presentation of data in the form of a set of narrative text information / data are compiled regularly and systematically, which then shifts to draw conclusions [16]. Based on data obtained through tests and interviews, the researchers then create indicators for each aspect of strategic competence (see Table 1).

**Table 1.** Strategic Competence Indicators.

|  |  |
| --- | --- |
| Aspects of Strategic Competence | Indicator |
|  |  |
|  |  |
| Formulate | • Students can write and explain the information provided |
| problem | and questions. |
|  | • Students are able to explain the relationship between given |
|  | information and questions and the relevant prior knowledge. |
| Represent | • Students can represent a problem using charts / tables / |
| problem | drawing / mathematical model / equation / numeric / symbolic / |
|  | verbal / graphic / etc |
| Solve the problem | • Students can write and explain the plan to solve. |
| • Students solve problems correctly.• Students can explain the steps in solving  the problem correctly. |
|  |

Conversion reference value from the strategic benchmark competence in this study are categorized into 3 sections [17].

**Table 2.** Categories Strategic Competence Students Test Results

|  |  |
| --- | --- |
| **Category** | **Values ​​obtained** |
| Low | 0 ≤ value <30 |
| moderate | 30 ≤ value <70 |
| High | 70 ≤ value <100 |

**3. Results and Discussion**

*3.1. Formulate the problem Phase A*

*3.1.1 Students First Type of Melancholy*



**Figure 1.** S1 formulating the problem

*3.1.2 The second type of melancholy student*



**Figure 2.** S2 formulating the problem

*3.2. Representing the problem Phase A*

*3.2.1Students First Type of Melancholy 3.2.2 The second type of melancholy student*

  

 **Figure 3.** S1 represents the problem **Figure 4.** S2 represents a problem

*3.3. Resolving the problem Phase A*

*3.3.1Students First Type of Melancholy 3.3.2 The second type of melancholy student*

 

**Figure 5.** S1 resolve to solve the problem **Figure 6.** S2 resolve to solve the problem

The first subject interviews symbolized by (S1), the second subject interviews symbolized by (S2) and researchers symbolized by (P).

*R* *: Please describe steps to resolve that you will use!*

*S1* *: First, I see there are similarities in B, then I look for the Commission from the Commission B of 5 and 2. To find the value of A, I compare the A: B with its KPK. To find the value of B, I compared the B: C with its KPK. Then I total the A: B: C. Thereafter, x will be found and the result C is found.*

*S2 I multiply B in comparison later A: B = B: C is also my cross multiply. Add up all three. From the comparison, the number C can be found one by one.*

*3.4. formulate the problem phase B*

*3.4.1Students First Type of Melancholy*



 **Figure 7.** S1 formulating the problem

*3.4.2 The second type of melancholy student*



**Figure 8.** S2 formulating the problem

*3.5. represents a problemphase B*

*3.5.1Students First Type of Melancholy 3.5.2 The second type of melancholy student*

 

**Figure 9.** S1 represents a problem **Figure 10**. S2 represents a problem

*3.6. Solve the problemphase B*

*3.6.1Students First Type of Melancholy 3.6.2 The second type of melancholy student*

 

 **Figure 11.** S1 S2 resolve to solve the problem **Figure 12.** S2 resolve to solve the problem

*R* *: Please describe steps to resolve that you will use!*

*S1* *First, I make a symbol for each cake. I see there are similarities in the cake pukis with symbol B, then I look for the Commission from the Commission B of 3 and 4. To find the value of A, I compare the A: B with its KPK. To find the value of B, I compared the B: C with its KPK. Then I total the A: B: C. Thereafter, x will be found and the number of layer cake sold can be found.*

*S2 I created a symbol on each cake. I multiply the KP in comparison then KL: KP = KP: KB also my cross multiply. Add up all three. From the comparison, the number of layer cake that is sold can be found*

**4. Conclusion**

It can be concluded that the type of students in solving Comparison Melancholy has met three indicators of strategic competence is the ability to formulate the problem, the ability to present a problem, and ability to solve mathematical problems.

**5. Implications**

We suggest further research to explore the strategic competence of students according to learning styles.

**6. Appendix**

The following is an open issue that used in this study developed by researchers

 Problem A:

Known three numbers a, b, and c. Comparison between the numbers a and b are

*a: b* = 2: 5, while b: c = 2: 3. If the sum of the three numbers 87.

Discover how numbers c.

Write and explain your answer and the reason for this.

Problem B:

Mrs. Ruth stalls selling cakes. Today it is a comparison between a lot of layer cake and pastry pukis sold is 2: 3. Comparison between lots of cakes and pastries Bika pukis sold 4: 5. If the sum of the three types of cakes that are sold 210 pieces.

Please help Mrs. Ruth to count the number of layer cake sold.

Write and explain your answer and the reason for this.

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