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ANALYSIS OF STUDENTS' MATHEMATICAL SELF-ESTEEM

Heni Pujiastuti
Universitas Sultan Ageng Tirtayasa

Abstract

This study is motivated by the importance of mathematical self-esteem. The main purpose of this study is to describe students' mathematical self-esteem. This study involved 125 junior high school students in Serang City, Banten Province. The results of this study revealed that the mean scores of mathematical self-esteem obtained by the students is only 43 and the highest score is only 54, while the ideal maximum score is 80. Mathematical self-esteem mean score obtained by the students only 53.75% of the ideal maximum score and still classified as low.

Key words: Mathematical Self-esteem

INTRODUCTION

Rosenberg (1965) defines self-esteem as an overall positive or negative judgement of one's self. Rosenberg (Martin-Albo, 2007) also explains that self-esteem is one part of the self-concept that defined as a person's overall thoughts and feelings about the value and importance of his/her own. Coopersmith (Muijs & Reynolds, 2008) defines self-esteem as one's judgement of capability, successfulness, significance, and worthiness expressed in attitudes towards him/her self (Alhadad, 2010).

Baumeister (2003) revealed that a person with high self-esteem tend to be more attractive to have a good relationship with others and to make a good impression than someone who has low self-esteem. In a group, a person with high self-esteem tend to be more willing to show up and critical of the group. Although not directly affect, self-esteem can affect one's leadership qualities indirectly. This is because a person with high self-esteem tend to be more favored (a favorite) than those who have low self-esteem.

Students with high self-esteem looks more optimistic, confident, and always be positive about everything, also the failures they experienced. t the time of failure, students with high self-esteem do not look at failure as the end of everything, but the failure to make it as a valuable experience to move forward. They looked at the mistakes that have been made previously as a valuable lesson and preparation to achieve better results, because basically today's success is inseparable from the mistakes that have been made previously. Students with high self-esteem, able to appreciate themselves and see the positive things that can be done for success in the future.

Conversely, students who have low self-esteem, trust and saw himself as weak, unable to do anything, do not have the ability, tends to feel he always fails, unattractive, undesirable, and lose appeal against life. Students with low self-esteem tend to be pessimistic about life and opportunities there. They do not see a challenge as an opportunity, but rather as an obstacle, they easy to give up before trying and when it fails, blame themselves or blame others. Low self-esteem can negatively impact students' academic achievement. Therefore, the self-esteem of students needs special attention from parents and teachers.

As revealed Baumeister that teachers and parents should focus on developing self-esteem of students, due to the high self-esteem are many positive things that can come from the

students themselves. Baumeister also stated that high self-esteem is part of the results of both student achievement in school. According to Alhaddad, student who a low achievement in mathematics tends to make students frustrated. Students will assume that they will not always be able to achieve a good performance in mathematics. When confronted with a problem or mathematical problems, students already feel hopeless and think they could not finish, even before they make every effort to resolve it. This stance can certainly negatively affect the development of students in the learning process. Therefore, teachers as educators have an important role in building and developing the self-esteem of students.

In this study, self-esteem, especially studied in the field of mathematics and hereinafter referred to as mathematical self-esteem (MSE). Thus, mathematical self-esteem defined as a person's judgement of capability, successfulness, significance, and worthiness of him/herself in the field of mathematics. Mathematical self-esteem is essential for the students. Student with high mathematical self-esteem will always optimistic and not easily discouraged in the face of a variety of mathematical problems, even if the problem is new and complex. Conversely, students who have low mathematical self-esteem will view themselves weak, do not have a passion for life, helpless, and unable to do anything in the face of a variety of mathematical problems.

RESEARCH METHOD

The main purpose of this study is to describe students' mathematical self-esteem. This study used a descriptive method. In this study, a number of students were asked to give respond to the MSE scale that have been validated by expert. The results were then analyzed based on students' respond in each MSE aspect and indicator measured. This is to know in detail which indicators are the lowest and highest scores. Also calculated the percentage of scores on each MSE aspects and indicators from the maximum ideal score (MIS).

Subjects Research

The participants in this study included girl and boy students at eighth grade of Junior High School in Serang City, Banten Province, Indonesia. The subjects were taken from three of medium-level school group. School category has been determined based on school accreditation level which is valid until the year 2014. Medium-level school is schools that have accreditation B. In this study, three school was randomly selected from all of medium-level school. Furthermore, one class was randomly selected from each school. There are 125 students involved in this study consisting of 82 girls and 43 boys.

Instruments

The research instrument used is Mathematical Self-Esteem (MSE) scale. MSE scale is used to determine the judgement of students' capability, successfulness, significance, and worthiness him/herself in mathematics. The SEM scale used in this study is a modified from self-esteem scale used by Alhadad (2010). This scale consists of 25 items that are prepared statement with four possible answers (responses), namely Very Often (VO), Often (O), Rare (R), and Very Rare (VR). The statements on a MSE scale consists of positive statements (favorable) and negative statements (unfavorable). With the two types of statements, positive and negative, is expected to encourage students to read each item given statement carefully and respond in earnest, so the data obtained from the SEM scale is more accurate.

The scoring for each answer choice (VO, O, R, and VR) on each item statement of the

SEM scale using normal deviation. This means that scores on each answer (VO, O, R, and VR) on each item statement can vary widely depending on the distribution of students' answers given to each item statement. Based on the responses given student, maximum ideal score (MIS) of the MSE scale is 80. Furthermore, the achievement of students' MSE is obtained by MSE score. Criteria for achievement of students' MSE can be seen in Table 1.

Table 1. Category of achievement

Score (X)	Category
X ≥ 70%	High
60% ≤ X < 70%	Medium
X < 60%	Low

RESULT AND DISCUSSION

Mathematical self-esteem is students' judgement of capability, successfulness, significance, and worthiness of him/herself in the field of mathematics. Based on this definition, there are four aspects to be measured to determine how much students' mathematical self-esteem, namely: capability, successfulness, significance, and worthiness of student in the field of mathematics. The mean scores of students' MSE for each aspects is obtained based on students respond to MSE scale. Recapitulation of students' MSE score result can be seen in Table 2.

Table 2. Recapitulation of students' MSE

Aspects	Indicators	MIS	Mean Score	
			Indicators	Aspects
1	1a	10	7	22
	1b	16	10	
	1c	12	5	
2	2a	17	8	15
	2b	9	7	
3	3	6	3	3
4	4	10	3	3
Total		80	43	43

From Table 2 above it is known that the achievement of students' MSE is only 43, while the maximal ideal score is 80. The achievement of students' MSE for the first and second aspects are only 22 and 15, while the maximal ideal score is 38 and 26. For the third and fourth aspects, the achievement of students' MSE is only 3 with the maximal ideal score 6 and 10, respectively.

The achievement percentage of students' MSE for each aspects and indicators can be determined based on MSE scores. The achievement percentage of students' MSE for each aspects and indicators can be seen in Figure 1 dan Figure 2 below.
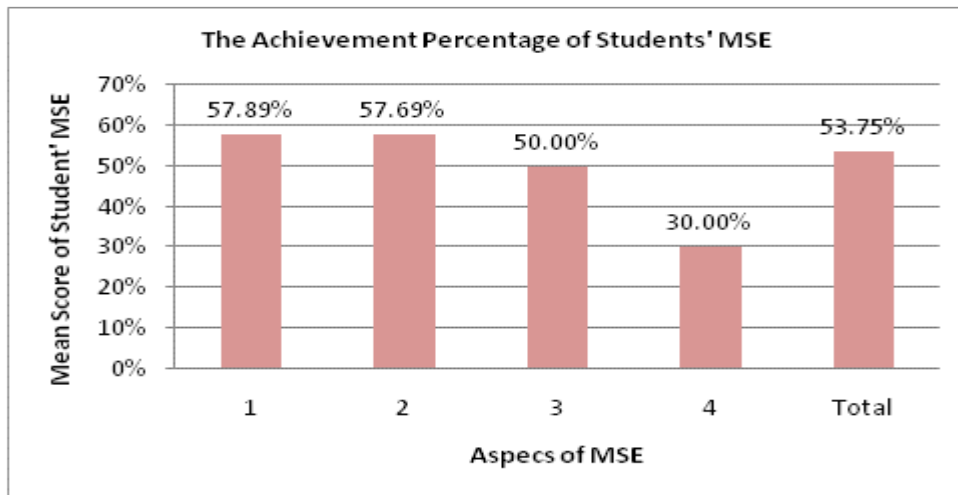
Figure 1. The Achievement Presentage of students' MPSA for Each Aspects

From the figure above it can be seen that overall students' MSE is still low. It can be seen from the achievement percentage obtained by student 53.75% which is less than 60%. Similarly, the achievement of students' MSE on each aspects is still low. Highest percentage achieved on the first aspect 57.89% and the lowest 30% in the fourth aspect of MSE.
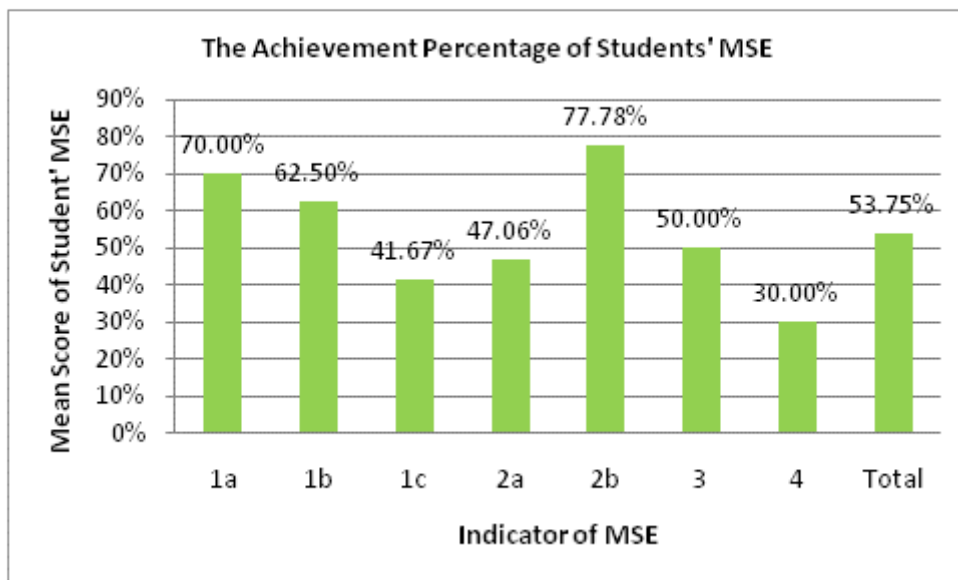

Figure 2. The Achievement Presentage of students' MPSA for Each Indicators

Figure 2 above describe the achievement percentage of students' MSE for each indicator measured. The achievement percentage of students' MSE for indicator 1a and 2b classified as high category, respectively is 70% and 77.78%. For indicator 1b, the achievement percentage of students is 62.50% and classified as medium category, but for others indicators of MSE classified as low category. Here is described the achievement of student' MSE on each aspects.

Capability

Overall, the mean score obtained by student on the first aspect of MSE is 22 or

approximately 57.89% of the maximum ideal score (classified as low category). This aspects measured through three indicators, namely: 1a) Indicates confidence in his/her ability in math; 1b) Indicates the confidence that he/she is able to solve mathematical problems; and 1c) Indicates the confidence that he/she is able to communicate mathematical ideas. The first indicator is measured through three-point statement and the mean score obtained by the students is 7 or about 70% of the maximum ideal score (classified as high category). These results showed that students have been known to have high confidence in the ability in mathematics.

The mean achievement obtained by students in the second indicator is classified as medium category with 10 score or approximately 62.50% of the maximum ideal score. This means that students' confidence in his ability to solve problems is quite high. However, confidence in the ability of students to communicate mathematical ideas are very low. It is evident from the mean scores on all three indicators are only 5 or 41.67% of the maximum ideal score is (classified as low category). This means that most of the students still afraid to solve mathematical problems in front of the class, not able to explain mathematical concepts to other friends, afraid to answer questions from teachers related to mathematics, and they are afraid to express opinions that differ with friends.

Successfulness

The mean scores obtained by students in this aspect is 15 or 57.69% of the maximum ideal score (classified as low category). This aspect of MSE measured by two indicators: 2a) Indicates awareness of the strengths and weaknesses of him/herself in mathematics; and 2b) Expressing proud of the results achieved in mathematics. The mean achievement obtained by student for the firs indicator is 8 or 47.06% of the maximum ideal score (classified as low category). According to these results is known mostly students feel weak in mathematics, feel like a failure in preparing to study mathematics, feel failed to elect a good way of learning mathematics, and they feel had no potential in mathematics. The different results obtained in the second indicator. The mean scores obtained by students in the second indicator is 7 or 77.78% of the maximum ideal score (classified as high category). The score results illustrate that the majority of students were satisfied with the results of learning mathematics achieved and proud of mathematics raport grades obtained.

Significance

In this aspect the students obtaining the mean score 3 or about 50% of the maximum ideal score and classified into the low category. This MSE aspect is measured through the indicator: indicates the confidence that he/she needed someone else in mathematics. Based on the score results illustrate that students feel not needed when they family members and friends have trouble learning mathematics.

Worthiness

The last aspect in the MSE is measured through indicator: indicates the confidence that he/she is worthy in mathematics. In this aspect of the students obtaining the mean score of 3 or 30% of the maximum ideal score and classified into the low category. The score results illustrate that students do not feel worthy get high scores in mathematics, feel far behind from other friends in mathematics, and not worthy to enter the competition in the field of mathematics.

CONCLUSION AND SUGGESTION

Based on result of the research, can be concluded that students' mathematical self-esteem is still low. This conclusion is seen from the the mean achievements obtained by students in each aspect of MSE measured. The highest score student is on capablity aspect dan the lowest score is on worthiness aspect. hese results illustrate that on the one hand, most students have quite high confidence on his/her ability in mathematics and indicates a sense of pride in the results obtained in mathematics. However, on the other hand, student felt he/she was not worthy of a high score and enter the competition in the field of mathematics.

Based on the result of study and the importance of mathematical self-esteem there must be a serious effort from teachers to develop students' mathematical self-esteem. One of way suggested by Muijs & Reynolds (2008) is to give responsibility to the students in learning process. Teachers can give them assignments in the form of challenging issues and provides confidence and convince them that they can accomplish those of tasks well. Teachers should give them rewards or appreciation for students' work. Anything as simple as ideas or opinions, questions, and the results obtained by students, teachers sholud give them appreciation wisely. When a student makes a mistake, teacher must ensure that mistakes are part of the learning process, not a failure. Through the learning process, students will feel appreciated, needed, and will slowly awaken confidence and pride to him/herself.

In addition, teachers must create a conducive learning environment. As revealed Tran (2012) that learning environment affects towards students self-esteem. Conducive learning environment can support and help students develop mathematical self-esteem. In this case, teacher has an important role to create a conducive learning environment that provides opportunities for students to contribute and actively involved in learning process. The involvement and participation of students in the learning process, will make students feel that his/her presence is needed and appreciated. Therefore, to develop students' mathematical self-esteem, teachers should pay attention to all self-esteem aspects in learning process in the classroom.

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