

Affective Aspect of Junior High School Students Viewed from Self Efficacy

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Abstract. The relevance of this research is the growth of character values for students in Indonesia. Mathematics is a subject that builds character value for students. This can be seen from how students view mathematics from their perspective. Students' perspective can be seen as a student's assessment of the mathematics such as from the attitudes, interests, self-concepts, values, and morals shown in the learning process of mathematics with the students' willingness to act positively or negatively. In mathematics learning, this is called the affective aspect (AA). One of the factors influencing students' AA is self-efficacy (SE). SE is a belief that is someone has to complete a given task or problem. There are three categories of SE that owned by students, that is high, medium, and low. The purpose of this study is to determine which ones provide better mathematics AA than students. The research subjects are 294 students in Karanganyar Regency. Data is obtained by questionnaire. Based on the results of data analysis, the conclusion is students with high SE have better mathematics AA than students with moderate and low SE, while students with moderate SE have better mathematics AA than students with low SE.

1. Introduction

The quality of human resources is an main factor in the development effort of the State. The higher quality of human resources owned, the more easily the country will go forward. Good human resources, need to be raised early in the education world. Therefore, education is the main basis for the establishment of quality human resources. In line with the vision of Indonesia's national education that empowers all Indonesian citizens, so that it can develop into a quality human who able to compete and simultaneously compete in answering the challenges of the times [1].

One of the efforts to achieve the quality of education is to improve the quality of mathematics education. Mathematics can build a logical and systematic mindset that enhances the ability to deal with problems. One must have good mathematical reading skills to interpret data, solve daily problems, provide numerical, graphical, and geometric explanations, and communicate using mathematics [2].

To improve the quality of human resources, in learning mathematics not only focus on knowledge alone. The currently curriculum demands of 2013, that education should focus on the four core competencies, namely spiritual and social attitudes, knowledge, and skills [3]. Therefore, the attitude of students in learning mathematics should not be ignored because it has an important role to the achievement of student learning mathematics achievement. In learning, students' knowledge and skills are very important, but if attitudes in learning are ignored, then student achievement will be affected [4].

Students' attitudes can be seen how students look at mathematics. Student's view of mathematics (positive or negative) can be an assessment of the attitudes, interests, self-concepts, values, and morals shown during the learning process. In mathematics learning, this is called the affective aspect (AA). AA is one of the learning domains in addition to the cognitive and psychomotor domains that show the quality of a person in expressing his feelings or emotions [5], especially in mathematics learning. He still considered mathematics as a difficult, scary, and boring subject is one of the reasons why AA is needed in mathematics learning. The use of affective domains gives a powerful influence in learning and knows how students perceive and assess math from the student's point of view. At the same time, students will know the key elements that influence their learning habits [6]. If the better way students look at mathematics, it is expected the better achievements it gets.

One of the factors that can affect AA students is self-efficacy (SE). SE is a belief that an individual has to complete every task assigned to him [7][8]. In this research, SE is divided into three categories, namely high SE (HSE), medium SE (MSE), and low SE (LSE) . If it is associated with learning math, self-efficacy has been assessed as individuals' judgments of their math capabilities in solving specific problems, performing math-related tasks, or succeed in math related courses [9]. SE can not be separated from mathematics learning. HSE students will have an optimistic attitude, positive mood, which can improve their ability to process information more efficiently, but the LSE student will have the opposite attitude [10]. Therefore, the level of SE owned by the student will determine how the student's AA view towards mathematics. Thus, it is important for educators not to override SE in mathematics learning so that AA mathematics students become more optimal and ultimately obtained optimal learning achievement as well.

1.1. Affective Aspect (AA)

AA is one of three domains of learning according to Bloom's taxonomy, in addition to cognitive and psychomotor. In the last decade, affective aspects of mathematical learning have been evolving [11]. Affective learning is learning related to what students feel when learning, such as how the experience is illustrated so as a guide and direct the student's attitude, opinions and habits in the future [12]. AA can be seen as indicative of learning outcomes or predictive of future success [13]. When associated with mathematics learning, AA can be regarded as a dislike or a positive-negative attitude toward mathematics [14]. According to [6], the number of students who still regard

mathematics as a difficult lesson to be one cause. For most pupils, the subject is not a source of satisfaction, but rather one of frustration, discouragement, and anxiety [6]. Many of them, even some of the most-able, find mathematics to be just a tiresome chore.

Still considers mathematics as a material that is hard, scary, and boring subject is some of the reasons why AA is needed in mathematics. The use of affective domains gives a powerful influence in learning and knows how students perceive and assess math from the student's point of view. If the better way students look at mathematics, it is expected the better achievements it gets. In learning, it is very important for students to master knowledge and skills, but if the affective domain is ignored, then the cognitive domain will also be affected. This is because if someone feels threatened, sad, stress, etc. then the learning process can decrease [4].

Affective domain refers to different beliefs, feelings, and moods. McLeod identifies the affective concept into four, namely beliefs, attitudes, emotions, and values (including ethics and morals) [14] [15]. With the enactment of a curriculum that views attitudes as one of the competencies that must be possessed by students, the affective education outcomes should focus on students' attitudes, perspective, willingness, and preferences integrated into the curriculum throughout the education level. Therefore, AA plays an important role in the learning process for the achievement of optimal learning objectives.

There are five categories of affective domains, namely: (1) receiving/attending, is students' sensitivity in receiving stimulus (stimulus) from outside that comes in the form of problems, situations, or symptoms. (2) responding, that is reaction given by someone to stimulus coming from outside. (3) valuing, which refers to the ability to assess or calculate the beliefs of symptoms or stimuli. (4) organization, this level is related to the development of value into an organizational system, including the relation of value with another value, consolidation, and priority value that it has. (5) Internalization, an integral system of values that a person possesses, which influences his personality and behavior patterns [16] [17]. These five affective domains need to be possessed by students to know how their perspective and perceptions of mathematics so that in the learning process, an affective domain can not be abandoned.

From the description, it can be concluded that AA is a student assessment that can be seen from the attitude, interest, self-concept, values and morals during the learning process of mathematics (positively or negatively) consisting of five categories: receiving, responding, valuing, organization, and internalization.

1.2. Self Efficacy (SE)

SE is a theory introduced by Bandura. SE is the belief that an individual has to complete every task assigned to him [7][8]. Furthermore, SE is an assessment of the ability possessed by a person to organize and implement or complete a task to achieve a predetermined goal [18]. In the academic field, research on SE focuses on the relationship between beliefs and selection of majors in college, as well as the career

choice in the future especially in science and mathematics [18]. SE helps determine what students do with the knowledge and skills they have to achieve certain goals [19]. With the knowledge and skills possessed, then the student can easily solve every problem given to him. Therefore, in the learning process, the teacher should not rule out SE students to achieve the desired learning objectives.

In mathematics learning, SE is defined as the ability to solve mathematical problems related to specific mathematical material [19]. SE can affect student achievement, because students with low SE as much as possible will avoid the task, while students with high SE will participate in every task maximally. Thus, SE indirectly also affects the student's perspective on mathematics itself. When faced with adversity, the student will spend as much effort as possible to complete his task, thus viewing mathematics as an important subject [20]. SE has the potential to facilitate or hinder the motivation of learning which starts from giving a negative view of mathematics [21]. Therefore, the necessity of SE in shaping students' positive perspective on mathematics is vital.

From the description, it can be concluded that the SE here is a person's self-confidence to measure the extent to which his ability in solving a particular problem associated with the ability to solve mathematical problems.

There are four important sources used by individuals in forming the SE, namely: (1) mastery experience, the experience influences one's perspective on its ability. The successful experience causes the SE to become stronger, while experience fails to weaken SE. (2) Vicarious experience, which is the experience of others. By looking at the achievements of others, one's SE can become stronger or weaker. (3) Social persuasion, belief and confidence obtained if others encourage and assure that we are capable of performing and resolving any given problems. (4) Psychological states, strong emotions usually lower the level of performance / performance of a person. When experiencing great fear, strong anxiety and high levels of stress, a person will have a low SE [7][21][22].

Formally, SE is defined as one's assessment of ability to organize and manage a series of activities to achieve a goal, consisting of three dimensions, namely level or magnitude, generality, and strength. These three dimensions determine a person's SE level. (1) magnitude, the magnitude SE refers to the difficulty of certain tasks, such as spelling words from simple to complex. (2) generality, relating to the area of the field of duty or behavior. (3) Strength, which relates to the degree of strength or stability of a person to his beliefs [23]. Those dimensions determine the level of a person's SE. In developing self-efficacy, students need clear information on knowledge and skills, master the material, and so on [21]. Self-acquisition of some information becomes problematic when the progress is slow, such as during complex skill learning, where students may master some skills component readily, but fail to grasp others. Teachers' feedback provides capabilities information [24].

2. Method

This study is quantitative descriptive research, which is a research that aims to reveal facts or events, circumstances, phenomena, and variables that occur when research takes

place by presenting what really happened [25]. The subjects of this study are grade VIII students from three schools, each representing three categories, namely high category, medium category, and low category. The three categories were obtained based on the national examination score in 2016. In the high category obtained 1 Kebakkramat Junior High School, in the medium category obtained 2 Jaten Junior High School, and in the low category obtained 3 Mojogedang Junior High School. The sampling technique used is stratified cluster random sampling. The research was conducted in the second semester of academic year 2016/2017.

The instrument used in this study was a questionnaire mathematical AA and SE. Questionnaire Mathematical AA consists of 36 statement items, while the SE questionnaire consists of 52 statement items. Before giving on the subject of research, each questionnaire of mathematical AA and students' SE should be tested for its validity and reliability. In this study, the validity test used is the test of expert judgement. Each questionnaire has been validated by three experts consisting of one lecturer and two educational psychologists. After obtaining validation from three experts, the questionnaire was tested by the students. The data has been collected and then analyzed by using reliability test with Cronbach Alpha technique that yields reliability coefficient of 0,86. In this study, students' mathematical AA grouped into three categories: high, medium, and low. Students' SE also grouped into three categories: high, medium, and low.

3. Result and Discussion

From a mathematical AA questionnaire that has been done, we have 90 students who have a high mathematical AA, 97 students who have medium mathematical AA, and 107 students who have lower mathematical AA. The following is the distribution of students' mathematical AA shown in Table 1.

Table 1. Distribution of Mathematical AA

Mathematical AA Category	School Category		
	High	Medium	Low
High	32	30	28
Medium	31	32	34
Low	36	34	37
Total	99	96	99

Based on the SE questionnaire that has been done, we have 82 students with high SE, 119 students with medium SE, and 93 students with low SE. The following is the distribution of SE that are owned by students are shown in Table 2.

Table 2. Distribution of Self Efficacy

SE Category	School Category		
	High	Medium	Low
High	26	26	30
Medium	41	40	38
Low	32	30	31
Total	99	96	99

Based on the distribution of mathematical AA and SE, we can analyze the association between mathematical AA and SE. The following is an association between mathematical AA and SE of students are presented in Table 3.

Table 3. Association between Mathematical AA and SE

Mathematical AA Category	Self Efficacy Category			Total
	High	Medium	Low	
High	80	10	0	90
Medium	2	95	0	97
Low	0	14	93	107
Total	82	119	93	294

From the association table between students' mathematical AA and the student's SE, high AA category is owned by students with high SE that is 80 students, medium AA category tend to be owned by students with medium SE that is 95 students, while low AA category is owned by students with low SE is 93 students. However, this condition does not apply consistently because there are several cases generated by the data from table 3. The first case, there are two students with AA who are being but owned by students with high SE. This is because students with AA medium have attitude and perspective toward mathematics which is not always positive. However, this AA student always tries to increase her confidence that she is capable of completing the tasks assigned to her. The second case, there are ten students with high AA category but owned by students with SE medium. This is because high AA students have positive attitudes and attitudes toward mathematics, but they are not in line with their efforts and beliefs to complete every task. The third case, there are 14 students with low SE category but owned by students with SE medium. This is because students with low AA have attitude and perspective towards mathematics that tends to negative. However, this AA student always tries to increase her confidence that she is capable of completing the task given to her, even though her proportion is minimal.

Based on discussion, if the better student's perspective on mathematics, the more persistent the effort is made to solve the problems or tasks assigned to him. Of the many studies that have been done, shows the importance of AA in mathematics learning. AA students to mathematics have an impact on their learning achievement. About studies conducted by researchers, there is a direct correlation between achievement and attitude [26], in this case, AA students. From several research results, obtained the same conclusion that there is a positive correlation between students' attitudes toward mathematics with his achievements [19][27]. Therefore, it is important for educators to pay attention to how students' perspective of mathematics. By paying attention to AA students, the educator can know what steps will be taken so that students' AA become more positive so that students will have strong confidence to solve every problem of math to the maximum so as to improve learning achievement.

4. Conclusion

Based on the analysis done on the various categories of students' mathematical AA, students with high SE have higher numbers than students with medium SE and low SE, so students with high SE has a mathematical AA better than students with medium SE and low SE, while students with medium SE has a mathematical AA better than students with low SE. However, there are some cases where students with AA medium but are owned by students with high SE, students with high AA category but owned by students with medium SE, and students with low SE category but owned by students with medium SE.

Therefore, in the process of learning educators are advised to pay attention to how the student's AA towards mathematics by looking at from SE. This is because the high and low AA category can be seen from how much confidence and effort made by students in completing each task and problem given. The stronger the business and beliefs that students have, the student's AA is also higher. By paying attention to AA students, the educator can know what steps will be taken so that students' AA become more positive so that students will have strong confidence to solve every problem of math to the maximum so as to improve learning achievement.

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