Student profile with high adversity quotient in math learning

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Abstract. Lately a lot of research conducted to determine the effect of Adversity Quotient students on learning achievement. This is done because many students with excellent IQ and EQ, but often have problems when they are in the workforce. This study will analyze the profile of High School students with high Adversity Quotient (AQ) in learning mathematics. The test is done using a questionnaire to know the AQ level of the students, and the interview is done to get the data about the student profile. Based on the results of tests and interviews obtained data that students with high AQ able to face the learning of mathematics in various materials and with different models of learning.

1. Introduction

Student learning outcomes are influenced by two factors, i.e., internal and external factors. Internal factors are factors that come from within the self which includes motivation, interest in learning, and learning independence. While learning facilities and learning environment belong to an external factor. One of the internal factors that influence the success of teaching and learning activities is the student's motivation. Students, who have high motivation in learning, will have the ability to survive in the face of adversity. So students will not stop when they face difficulties but keep their effort to solve the difficulty. A student who has high achievement motivation will have the fighting ability and the ability to survive in facing the difficulties. Motivation is defined as the driving force from within and within the subject to perform certain activities to achieve certain goals [1]. The existence of motivation can increase one's resistance to facing difficulties (Adversity Quotient) and self-fighting power. The ability to survive in facing the difficulties and the effort to solve the difficulty are needed by students in facing various problems in life. The ability to survive in facing the adversity and the effort to solve difficulties, in the psychological study is called Adversity Quotient (AQ). A student needs to have a high AQ to achieve success in learning and can gain high learning achievement. AQ can vary between one student and another. The existence of differences in student AQ can cause the differences in student's achievement.

Stoltz defines AQ as, "... able to withstand the difficulties and the ability to overcome it ...". Stoltz argues that only IQ is not enough to achieve success. This is because there are people who have high intellectual intelligence (high IQ) as well as the ability to mingle and communicate impressive (high EQ), but they failed? According to Stoltz, this is happening because of the low Adversity Quotient (AQ) [2]. For him, AQ underlies all aspects of success.
"Adversity Quotient (AQ) is the ability to surmount life's adversities, whether academic, career or personal-social in nature." According to him, AQ is the ability to overcome life difficulties, whether academic, career or personal and social [2].

In line with the Stoltz’s statement, [3] state the following "In the past few decades, much attention was given to Intelligence quotient and Emotional quotient, which were believed to be determinants of success and excellent performance in higher education and professional studies. Previous studies in Adversity Quotient (AQ) revealed that some individuals possess a high IQ and all the components of EQ, yet they fail to be successful. Hence, we can understand that neither IQ nor EQ found to determine one's success, although both play a role. Therefore, it is unanswered yet that how some people endure while some may be equally brilliant and well-adjusted may fail and quit. Thus, here comes a new concept, which is AQ, which is the lifelong ascendant to every individual. AQ can be useful to predict performance, motivation, empowerment, creativity, productivity, learning, energy, hope, happiness, vitality, emotional health, physical health, persistence, resilience, attitude, longevity and response to change [4].

"The common thinking of the people of long ago is that one's intelligence quotient can foretell his success in his field of endeavor. The higher the intelligence quotient, the higher is the success expectation from an individual. However, researches recently have shown that measurement of adversity quotient (AQ) is a better index in measuring success" [5]. From the statement, it can be seen that from the first people think that intellectual intelligence can predict the success of people in their work field. The higher the intellectual intelligence, the higher one's expectations of success. However, recent studies have shown improved adversity significance in measuring the success. AQ can be an indicator of how strong a person can continue to survive in a struggle until the person can come out as a winner, step down in the middle of the effort or even take no chances.

Martin [6] explains, one interesting study of Stoltz is to distinguish three types of human beings seen from his response to the instinctive impulse to face challenges, namely:

a. Quitters
   Is a group of people who lack the willingness to accept the challenges in his life. This indirectly also close all opportunities and chances that come to him, because many opportunities and changes are wrapped with problems and challenges. Types of quitters tend to resist the challenges and problems that are covering them.

b. Champers
   Is a group of people who already have the will to try to face the problems and challenges that exist, but they see that the journey is quite up here. Unlike the quitters, this group has tried, struggling with the problems, but because of the constant problems and challenges, they have chosen to surrender.

c. Climbers
   Is a group of people who choose to continue to survive in the struggle against various things that will continue to hit, whether it is a problem, challenges, and obstacles. The group chooses to continue to struggle regardless of their background and abilities they will keep trying and trying to get settled.

Furthermore, Paul Stoltz divides AQ into four main components which are the main dimensions of AQ's determinants of intelligence, and are called CO2RE:

a. Control
   It is about how far a person feels to have control over an event of an occur adversity. A high AQ person will feel control over what happened and believe that he can do something to improve the difficult situation. Happen. A high AQ person will feel control over what happened and believe that he can do something to improve the difficult situation.

b. Origin and Ownership
   How far someone blames himself, or how far someone blames someone else or the environment becomes the source of the difficulty and how far someone acknowledges the difficulties. People
with low AQ, blame themselves destructively and give a negative label for their inability to face adversity. As a result, this person is paralyzed by the excessive guilt and does not take any action.

c. Reach
How far someone lets a difficulty reaching out to the other sides of life. How a problem interferes with other activities.

d. Endurance
How long the difficulty will last. People with low AQ will easily see the problem from a pessimistic angle, seeing that things will never improve and they will always fail. The higher a person's endurance, the more capable he faces the difficulties. (In other words, he is getting tough).

The CO2RE dimension in this study is used as an indicator of AQ. AQ students are determined by using a questionnaire, containing positive and negative statements based on the AQ indicator. Positive statements are some statements that are not related to the difficulties, and negative statements are some statements relating to the difficulties a person may experience. According to Stoltz, it is the negative statement to note the score, as it shows more response to adversity.

The AQ’s Questionnaire in this study consists of 40 items. Each statement’s item in this questionnaire uses a Likert scale model with a range of values of 1 to 5, assuming 1 represents the lowest and 5 represents the highest. The AQ’s Questionnaire has a range between 40 to 200.

How to classify a person's AQ into quitters, campers and climbers by looking at scoring based on CO2RE. The following classification of AQ according to Stoltz.

a. If a person's AQ is at a score of 166 - 200, then he will have the ability to deal with severe difficulties and will not give up.

b. If a person's AQ is at a score of 135 - 165, then he will survive the challenges and take advantage of most of the potential that develops on a daily basis.

c. If a person's AQ is at a score of 95 - 134, then he will be good enough to go through life's twists as long as things are going well.

d. If a person's AQ is on a score of 60 - 94, then he is less likely to take advantage of their potential. Difficulties will cause huge losses that make it difficult to continue the effort.

e. If a person's AQ is at a score of 59 to down, then he has suffered in some way, such as motivation, energy, health, vitality, performance, persistence and hope.

From some previous opinions, it can be concluded that Adversity Quotient (AQ) is a person's ability to face and overcome difficulties as a condition to achieve his success. With a person's ability to deal with and overcome difficulties experienced, then someone will have the toughness to continue to struggle in achieving success. From the ability of a person in facing the adversity, then we can divide AQ into three categories, namely people who have AQ high, medium and low. Student classification based on AQ level can be seen in Table 1.

| AQ Score | Student’s categories based on AQ |
|----------|----------------------------------|
| 135 – 200 | High AQ                         |
| 60 - 134  | Medium AQ                       |
| Less than 60 | Low AQ                        |

2. Methods
This research is qualitative research with case study strategy to find the profile of high Adversity Quotient students in learning mathematics following the development of a new curriculum which requires students to be more active in learning so that the material being studied can be understood well.
2.1. Participants
The subjects of this study are three students who have high Adversity Quotient in SMP Regina Pacis Surakarta. Sampling in this research using purposive sampling technique. Researchers selected three students who had high Adversity Quotient, and each learner had good communication skill.

2.2. Data Collection
Data collection techniques in this study are done by the questionnaires and interviews. Questionnaire AQ is used to obtain the data of students who have high AQ and interviews are used to obtain student's profiles. The Adversity Quotient student's questionnaire is using indicator, such as:

- Control
  - Trying to get out when facing the difficulties in match learning
  - The ability to control oneself to face the adversity in match learning

- Origin and Ownership
  - The view of the cause of the adversity in match learning
  - Have a high sense of responsibility in facing the difficulties in match learning

- Reach
  - The ability to limit the consequences of facing the difficulties in match learning
  - The ability to respond to difficulties wisely in match learning

- Endurance
  - Have confidence that the difficulties and causes are only temporary in match learning
  - The student's conquest to conquer the cause of adversity in match learning

The indicators used in this research are using the four components that became the main dimension of the determinants of AQ intelligence. After the questionnaire test was prepared, it determined that there are nine control's statements, and for Origin and ownership there are ten statements. There are nine reach's statements and 12 endurance's statements. From the questionnaire, there are 20 supporting statements and 20 statements that are not supportive.

The list of questions during the interviews with students are 1) how are the attitude and the way he faces difficulties in learning mathematics, 2) What efforts he did to get out of the difficulties he faced, 3) How do you think about the influence of others in facing some difficulties. Those questions are used to check whether the subject has filled the questionnaire by the actual situation or not so that it will obtain a valid data and know the profile of the actual student.

2.3. Data Analysis
The technique of data analysis in this research is done by describing the data which has been gained from interviews and filling the questionnaire. Researcher used triangulation technique, so the method gained from the questionnaire and interview are used to obtain the valid data.

3. Result and Discussion
"There was a significant difference in the adversity quotient of faculty members when classified according to their academic rank and length of service" [3]. Students who have high AQ then show that their teaching performance is very satisfactory. There is a significant relationship between AQ and student's teaching performance at Visayas University.

Matore in his research conclusion state that AQ of student did not much influence their academic achievement but positively associated. It showed that the students’ competence in handling the challenges in their lives was based on the life experience, environment and upbringing. Academic achievement was determined only through a learning process at the polytechnics [7].

In The International Journal of Indian Psychology state that "AQ is not influenced by gender, a stream of education and family factors, rather it was seen to be influenced by the school's types. Investigator inquired and understood the AQ profile of higher secondary school student as it is the way to higher education" [4]. AQ from high school students is a guide for higher education. Understanding the AQ level of university students will be better facilitated to guide students as they face stress in the lectures.
This paper aims to describe the profile of students with high Adversity Quotient in Mathematics learning. The data were obtained from the results of the research on junior high school students in Surakarta, using Adversity Quotient questionnaire and interviews. Questionnaire AQ is used to obtain data of students who have high AQ and interviews used to obtain student profiles. The subjects of this study were three students of class VIII Regina Pacis Junior High School in Surakarta who had high AQ. From the interview results obtained the description of students with high AQ as follows: 1). Abstinence in learning 2). Can adjust to various conditions, 3). Always try to get the best, 4). Be able to control the response in all situations, 5). Able to influence the positive things, 6). Able to see the source of the problem well, 7). Responsible for the difficulties that occur and use it to get solutions and make improvements, 8). Having a high learning motivation, 9). Not afraid of change, 10). Open, willing to receive feedback and criticism, and 11). Always think positive.

These attitudes are the attitudes needed in learning mathematics, because nowadays student-centered teaching model, method and technique are used [8]. Open, willing to receive feedback and criticism adnd always think positive are the attitudes needed in cooperation. Cooperation is the basic characteristic of human beings [9]. This is in line with the results of research conducted by Kartika Sari [10] which concluded that the profile of climber's [11]. Learning mathematics is a process to understand the problem and how to solve problems related to the material being studied. This is because the abstract mathematical object, so it often makes students face the difficulty of learning it. For students who have a high AQ, this difficulty is made them a challenge that can bring opportunities. The success of high AQ students in facing challenges can shape them into unyielding individuals and has better problem-solving abilities [12]. Students with high AQ will have better mathematics learning achievement than those with medium and low AQ. This is in line with the results of research conducted by Leonard and Niky [13] that there is a significant influence between AQ on learning achievement and which concluded that students with high AQ have better mathematics learning achievement compared with students with medium and low AQ, students with medium AQ are having better learning outcomes than students with low AQ [14].

Adversity Quotient (AQ), as a predictor of success, is highly useful in allowing an individual to determine how he/she would manage in the face of an adversity.

4. Conclusion
Adversity Quotient is the ability to survive in the face of difficulties and has the power struggle to solve difficulties. Students must have the fighting power to get out of the difficulties they face. In learning mathematics, students need to have a high AQ, to be able to learn the material well, because students tend to regard mathematics as a difficult science. Adversity Quotient Profile of junior high school Regina Pacis Surakarta is as follows. A student who has high achievement motivation then the student will have the fighting ability and ability to survive to face difficulties. The existence of motivation can increase one's resistance in the face of adversity (Adversity Quotient) and the fighting power of self. Ability to survive in the face of difficulties and have the power struggle to solve the difficulty is needed students in facing various problems in life. A student needs to have a high AQ to achieve success in learning and can gain high learning achievement, and it is necessary efforts made to improve the AQ according to Amir’s research. Abstinence in learning, able to control the response in any situation, able to see the source of the problem well, responsible for the difficulties that occur and use it to get solutions and make improvements, have high learning motivation and always positive thinking. This is in the opinion that there is a positive relationship between AQ and entrepreneurial intentions.

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