
Sharia economics students' anxiety towards mathematical economics course

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ABSTRACT

Mathematical economics is one of the compulsory courses in sharia economics students. At each exam of the mathematical economics course, the majority of scores earned by students tend to be low. It is the anxiety of facing the exam on mathematical economics courses that are considered as one of the causes. This type of research is qualitative descriptive research. The study aims to find out anxiety students have on the course of mathematical economics. The research subject is sharia economics students of IAIN Ponorogo who is taking a course in mathematical economics. The triangulation techniques of interviews, observations, and documentation are done for data retrieval. The results showed that student anxiety towards mathematical economics courses tends to be high. Some reasons for students' anxiety are educational backgrounds that are social majors, anxiety on low test scores, anxiety on the character of the lecturer, and anxiety caused by low self-efficacy in the ability to solve mathematical economics problems. From the results of this research, the lecturer is expected to be a motivator and mediator for students to reduce students' anxiety towards the courses of mathematical economics.

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1. INTRODUCTION

Mathematics is one of the essential disciplines of formal education. From elementary to college level, mathematics has a portion of the learning and lecturing process. It is not a strange thing because mathematics does form a mindset and an instinctual pattern of one's problem-solving. The importance of mathematics in human life is increasing in line with increasing technological developments (Mutlu, 2019). However, unfortunately, there are still many students who consider mathematics difficult when compared to other subjects. Not only students, but there are also still many adults who do not like mathematics or have a poor experience with mathematics (Furner, 2019). Math anxiety has affected society for more than sixty years, and it cannot be eliminated only by way of teaching in the classroom (Beilock & Willingham, 2014; Boaler, 2008; Dowker et al., 2016; Furner, 2017; Metje et al., 2007). A study from the PISA (Programme for International Students Assesment) showed a high level of negative correlation between math anxiety and a person's performance in mathematics (Foley et al., 2017). There are many reasons why math anxiety, among others, is the lack of mathematical background, the habit of memorizing formulas, the limited time of testing, lack of confidence, and also the negative thinking about mathematics by parents and teachers (Ashcraft & Ridley, 2005;

Finlayson, 2014; Hoffman, 2010; Maloney et al., 2011; Rubinsten & Tannock, 2010). Anxiety to mathematics has become a global phenomenon worldwide (Metje et al., 2007). A person with excellent mathematical problem-solving skills will usually become someone who can provide solutions to the problem of daily life. The ability to solve problems based on math skills will help someone when solving their life problems.

At a college level in the science course, mathematics courses are charged to students as one of the basic courses that usually given during the early semester of the lecture. However, for social majors, not all majors provide academic courses as compulsory subjects. One of the social majors that provide students with mathematics courses is sharia economics. There is one type of mathematics course that is charged to sharia economics students as compulsory courses, i.e., the academic course of mathematical economics.

Mathematical economics is a subject that discusses some aspects of economics attributed to mathematics. For example, the topics discussed in the mathematical economics for Islamic economics students are about the function of the demand, the bidding function, and also the market balance function. Even though it is not entirely a mathematical economics material given to students, scores earned by students during mathematical economics examinations tend to be low.

The scores of mathematical economics exams that tend to be low have many causal factors. Anxiety during mathematical economics is considered to be one of the causes of students to acquire a low score. Math anxiety is considered a severe problem in education (Chang & Beilock, 2016). Math anxiety can make students harder to give attention while in class, study the material, and also solve mathematical problems (Furner, 2019). Besides, anxiety towards mathematics is a serious obstacle that occurs in students at all levels of education and makes students difficult to improve in mathematics (Arji et al., 2019; Furner, 2017; Geist, 2010; Rofiki, 2015). When encountering a math-related task, a person with math anxiety will feel anxious and anxious about the situation and the consequences it will do (Maloney & Beilock, 2012). On the other hand, positive emotions towards mathematics contribute to the learning of Mathematics (Villavicencio & Bernardo, 2016). Researchers are, therefore, interested in knowing the anxiety of students when dealing with academic economics courses.

Fitriasari had previously implemented research on social majors' students who follow the academic level of mathematical economics in 2017. The study discusses the relationship between anxiety and the teaching style of lecturers on mathematical economics learning outcomes. The results of his research showed a negative relationship between anxiety and learning outcomes (Fitriasari, 2017). The study only discusses anxiety in general, so this research aimed to uncover deeper about the anxiety experienced by Sharia economics students in the mathematical economy subject.

2. METHOD

Qualitative descriptive research is used to find out the anxiety of students majors in sharia economics towards the economics of mathematical subjects. Qualitative descriptive research is chosen based on information obtained from objects or participants by collecting data in the form of words analyzed by researchers, and research conducted subjective (Creswell, 2012). The research subject was ten students of IAIN Ponorogo Sharia economics students who took the academic level of mathematics in the 2019/2020 school year. The study subject was chosen with the purposive sampling technique, which was based on specific considerations (Creswell, 2012). The subject of research chosen by criteria has a value that tends to be lower in the academic

level of mathematical economics or seems jittery when the exam/coursework economics is conducted, data collection techniques using triangulation were interviews, observations, and documentation. In-depth interviews were conducted to acquire data on students' mathematics anxieties on a mathematical economics subject. The obtained data were analyzed then were concluded.

3. RESULTS AND DISCUSSION

3.1. Math Anxiety

Anxiety is an uncomfortable feeling that includes worries, feelings of anxiety, excessive fear of something that someone, sometimes, experienced at different levels (Lileikien & Danilevičiūtė, 2016). The form of anxiety experienced by a person is various. Some kinds of anxiety can be experienced by a person, including ego super anxiety, neurotic anxiety, and psychotic anxiety (Kartono, 2003). The super anxiety of ego relates to things that will happen to a person like fear of failure, fear of death, or fear of being ridiculed by people. Neurotic anxiety is associated with a negative self-defense mechanism; one of the causes is severe emotional conflict. While psychotic anxiety tends to have psychic disorganization, people who experience this type of anxiety usually experience great confusion and feel a threat in his life.

Math anxiety is the anxiety experienced by someone when faced with mathematics. It can be anxiety when it comes to math, which leads to a sense of displeasure when studying mathematics. The anxiety that arises when dealing with mathematics, perceived by students of sharia economics, is a natural thing. It is because there is a tendency to dislike courses related to the numbers; moreover, the anxiety is most common when facing exams. The intensity of anxiety experienced by one can be divided into two things, namely state anxiety that is a person's anxiety in certain conditions such as the face of the exam and anxiety trait is the condition of someone who often experiences anxiety in various kinds of situations (Endler & Kocovski, 2001). State anxiety is considered to be something familiar to humans, while anxiety traits can become a personality of a person settling on him/her, leading to anxiety disorders.

3.2. Students' Anxiety towards Mathematical Economics

The anxiety that occurs in sharia economics students while undergoing this course is various. In general, anxiety occurs due to the background of their education that comes from the social sciences department. The reason 'used to be unable and now forgot' to be one sentence that they sounded ordinary to say. The background of the social sciences makes them lazy to deal with mathematics. Counting is complicated, according to them. The science of mathematics that is included in the 'exact science' cannot be 'just drawing' but must be used to practice many questions to be proficient in mathematical materials. The economics of mathematical materials taught to students is not so much different from the material they had at the time of the school level. However, the educational background is not an exact person, making them restless when faced with an easy mathematical problem. The social education background, coupled with past experiences about mathematics, manages to make them 'give up' with mathematics. The high scores gained in the past can improve their performance in mathematics and vice versa (Jansen et al., 2013). If they feel that they have never received satisfactory results for mathematical subjects, it is also an adverse impact when they get mathematical economics at a college level.

Anxiety confronts the majority of mathematical economics courses that occur during exams. Worries of obtaining a low score and ending at the same course iteration in the following year become the majority of the reasons for the Islamic economic students' anxiety towards the

mathematical economics course. When going through exams, many students have been trying to understand the material, but unfortunately, the anxiety they feel makes the material they learn as if they were missing from their cognition. Math anxiety disrupts cognitive processes and working memory (Ashcraft, 2002). According to Reuters and the American Association for the Advancement of Science in San Francisco, math anxiety can drain brain working memory, which ultimately leads to a problem when students are working on a mathematical test (Furner, 2019). The impact of anxiety perceived by students may extend to their ability to think clearly and concentrate so that the score gained when taking the mathematical economics exam is low. This low score is associated with mathematical anxiety and negative attitudes toward mathematics (Núñez-Peña et al., 2013). When students feel anxious about mathematics, they will show the results of learning mathematics under their actual ability (Beilock & Maloney, 2015). So much anxiety influences when facing exams. Not infrequently, many students are found to have a good track record but fail at the test due to the 'blank' factor. The anxiety in this case of concern for the exam has a negative correlation with the score of exam scores obtained by students. Someone who is experiencing anxiety while facing the test will usually feel the preparation is always lacking, not maximums. These feelings exacerbate feelings of anxiety. The anxiety of the exam score will not immediately change the test score to be high. Excess concerns without readiness will further exacerbate exam results. However, the worry of obtaining a low score does not arise. Some reasons make them worry about the score gained during the exam, the demands of parents, for example. One of the respondents stated that parents demand their children to get a high score in the course of their burdens. The burden then raises a concern for respondents when they will face the exam and ends with a low score due to feeling anxious and 'blank' during the exam. Besides, the demands of parents will increase the students' anxiety and make students feel compelled to learn mathematical economics.

The students' success factor in the course of lecturing is not separated from the teaching factor. A total of three out of ten students expressed that the characters and how to lecturers' teaching style also had a role in raising or lowering the anxiety they experienced. The teaching style has a significant impact on the perceived aspect of student anxiety (Van der Sandt & O'Brien, 2017). A fierce teaching character and an elusive teaching way have a significant contribution to the anxiety that students have felt (Yoenanto, 2001). Further, math anxiety is caused by the presence of combinations between internal factors and external factors, a teacher factor that is one of the external factors that can be controlled as an attempt to reduce anxiety (Chernoff & Stone, 2014). Lecturers with friendly characters and teaching style that they think are fun to make them more calm and relaxed while undergoing lectures. The students' perceived mathematical anxiety can be treated with a teaching style and cooperative learning process (Hellum-Alexander, 2010). It makes it ultimately more comfortable to receive the material delivered. However, not all lecturers in the economics of math coursework have the character as students expected. Bold, prone character makes students feel worried. The concerns that they felt caused fear to inquire about the material being delivered, and ultimately the understanding of the material conveyed by the lecturer could not be understood. Mathematical economics is a matter of not easy for the students of sharia economics, but with the delivery of material by the easy-to-receive lecturers can make them more comfortable and calm while undergoing lectures. A lecture strategy applied by lecturers or teachers in learning plays a role in shaping student perception of mathematical anxiety (Ramirez et al., 2018). A teacher or lecturer can help reduce math anxiety to students by incorporating individual teaching styles, methods, and strategies related to the effort of lowering the anxiety of mathematics (Tooke & Lindstrom, 1998).

Teachers or lecturers who play as instructors in learning are required to improve their coursework or teaching methods by combining several strategies to improve student confidence, thereby lowering anxiety (Baxter et al., 2016). The anxiety that students feel about lecturers is subjective. Some respondents said that lecturer, according to other respondents, turned out according to the respondent who was relaxed. Therefore, for a lecturer, it is essential to create a class condition that makes students comfortable. It is due to the anxiety that may be caused by the character of how the lecturer will have an impact on the process of receiving information about the material delivered in the class. The balance and suitability of the lecturer teaching style with the expectation of the students is expected to make the lecture process run more effectively.

Another anxiety perceived by students is related to self-confidence or self-efficacy. Students often feel that he is incapable of following a course of mathematical economics, whereas if traced and well-guided turns out they can solve the problems or questions given. The lack of self-efficacy they feel makes them eventually less thorough when solving problems. Self-efficacy owned by students helped them in using his skills and expertise (Peker, 2016). A person with a low level of self-efficacy tends to avoid something even though it is easy to do. While a person with a high self-efficacy level will try to complete a task and build a positive attitude towards the task faced (Akin & Kurbanoglu, 2011). Self-efficacy is a person's belief or trust when it will do something (Bandura et al., 1999). One student revealed that he felt that the material tested was all learned on the night before the exam, but low self-efficacy made them make some mistakes while working on the exam problem, such as ask a friend or instead give an answer that does not match the question asked. Low self-efficacy caused by anxiety makes students feel that they are incapable of completing or working on a mathematical economics exam well. Self-efficacy needed to overcome math anxiety (Hoffman, 2010).

The anxiety process of students, when faced with a course of mathematical economics, can be explained in the five stages of the presence of causal factors, a relationship of negative thoughts, the occurrence of anxiety, the emergence of physical response and poor learning outcomes received (Arem, 1993). Past experiences with mathematics, the demands of parents to get the perfect grades coupled with the method of delivering lousy material into the cause of students experiencing anxiety. These causal factors then elicit a negative thought that degrades the self-efficacy of mathematical economics. Due to anxiety, students feel anxious and groggy when they will face this course. The students' perceived anxiety eventually made a low-earned score. The low score has become a new lousy experience of mathematics, so those processes become cycles that are not easy to be disconnected. The initial identification and action process for the prevention of math anxiety need to be done so that the anxiety perceived by the student is not increasing (Ramirez et al., 2013). Thus, the math anxiety cycle can be minimized.

4. CONCLUSION

Students' anxiety of sharia economics when dealing with mathematical economics courses tend to be high and varied. Anxiety due to the background of social education, anxiety due to gaining a low score on exams, anxiety on character, and teaching style of lecturers and anxiety due to a deep sense of self-efficacy are some types of anxiety experienced by students. From this research, it is hoped that a lecturer in the economics of math coursework can have a unique, creative, and relaxing teaching style and character to lower the level of students' perceived anxiety. A fun lecture process can be an alternative way for a lecturer to create a comfortable and vibrant class situation. Positive comments submitted by a lecturer to his students are

expected to reduce the anxiety that students feel when dealing with mathematical economics. Various innovations in the way lecturers in creating a pleasant lecture atmosphere are expected to reduce the level of student anxiety so that the process of delivering materials by lecturers to students can run well. With this action, the students' understanding of mathematical economics can be expected to increase.

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