

Understanding the Relationship Between Students' Mathematics Anxiety Levels and Mathematics Performances at the Foundation Level

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Abstract

For many students, mathematics is regarded as a challenging subject to learn and master in class. One of the significant factors contributing to the students' difficulties in learning mathematics is caused by a phenomenon called mathematics anxiety. Mathematics anxiety is a feeling of unease and anxiety toward mathematics and it can be different from person-to-person. Understanding the effects of mathematics anxiety levels on students' mathematics performances in class can be the key to help students' mastery of mathematics. The aim of the study is to investigate the relationship between mathematics anxiety levels and students' mathematics performances at the foundation level. A sample of 545 students from a local foundation centre was chosen for this study. Data collection via questionnaire was used where quantitative data were analysed using correlation, t-test, and descriptive analyses. The results showed that there was a weak positive correlation between students' anxiety levels and the students' mathematics performance in their final examination. Recommendations and future potential for this study were further discussed in this paper.

Keywords: mathematics, mathematics anxiety, foundation level, mathematics performances

1. Introduction

1.1 Introduction

Students' proficiency and mastery in mathematics today have become one of the major focuses among educators especially with the rise of awareness in Science, Technology, Engineering and Mathematics (STEM) education and Education 4.0. Mathematics is a fundamental subject in education that encourages the development of learners' thinking ability. According to Cresswell and Speelman (2020), learning and mastery of mathematics can facilitate logical, analytical, critical, and abstract thinking among students. Mathematics offers fundamental skills such as thinking in life, establishing relationships between events, reasoning, estimating, problem-solving apart from gaining calculation skills and teaching numbers and mathematical operation (Umay, 2003; cited in Onal, Inan, & Bozkurt, 2017). Besides that, mathematics also provides a supportive role in understanding and mastering other sciences and art subjects. Hence, it is crucial for educators to understand the learners' barriers in learning mathematics, as it is common for students to have negative perceptions towards mathematics (Ashcraft, 2002).

Mathematics anxiety is known to be one of the major factors that hinders the students' proficiency and mastery in mathematics. According to Yeo, Tan and Lew (2015), anxiety in mathematics is one of the categories of uneasiness and may have a negative impact on students as it is continually presented within mathematical problems. Mathematics anxiety occurs within all levels of education and continues to rise as the year progresses (Yurtcu & Dogan, 2003). The level of mathematics anxiety in students can also be an honest indicator of students' academic success (Karimi & Venkatesh, 2010). A study by Sheffield and Hunt (2006) found that students with high mathematics anxiety levels generally performed low in their mathematics assessments. Understanding the nature of mathematics anxiety and its effects on students' behaviour may provide an insight on how to minimize and manage mathematics anxiety among students.

With the foundation level acting as a bridge between secondary and tertiary level education, it is interesting to explore the effects of mathematics anxiety on students' mathematics achievements and their behaviour at this