

# REVIEW OF FACTORS INFLUENCING MATHEMATICAL PERFORMANCE OF ELEMENTARY LEVEL

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## Abstract

Factor analysis technique was used and based on the Eigen values over one, six factors were identified. The combination of items, with loadings greater than 0.50, were considered as separate factors. These factors were Teaching Practices (which was recorded highly on loading), teacher' attribution, classroom climate, students' attitude towards mathematics and students' anxiety, in addition to students' mathematics achievement. Subsequently, confirmatory factor analysis was conducted using the Structural Equation Modelling. The results showed that the teacher' attribution and students' attitude towards mathematics were the highest and lowest factors influencing the students' achievement, respectively. Moreover, the relationship among Teaching Practices and teacher attribution was high (0.68). Generally, good correlations were found among these factors in one hand and student's achievement in mathematics in the other hand.

**Keyword:** Structural Equation, positive or negative assessment

## Introduction

For achievement in tertiary instruction and past, a solid establishment in elementary school mathematics is basic (Cappellari, Lucifora, and Pozzoli, 2008; Steinberg, Varua, and Yong, 2010). In spite of the significance of mathematics throughout everyday life and in the study of other science subjects, there has been a decrease in the quantity of students tried out the tertiary mathematics courses in India just as in western nations (Mishra, 2011; Smith, 2011). At the point when skilled students stay away from the study of mathematics, it diminishes their vocation choices and in this way constrains the country's asset base in science and innovation (Hembree, 1990). Mathematics nervousness has been viewed as the sentiments of dread or pressure in circumstances including mathematics critical thinking or any mathematics-related exercises (Ashcraft, 2002; Ma and Xu, 2004b). Dreger and Aiken (1957, p. 344) defined mathematics nervousness as "the nearness of a disorder of passionate responses to number-crunching and mathematics". Mathematics nervousness was defined by Bandalos, Yates, and Thorndike-Christ (1995) as a blend of test uneasiness, considerations of disappointment, low self-confidence, and a negative point of view toward the

learning of mathematics. With the end goal of this study, mathematics uneasiness was defined as students' negative enthusiastic responses to mathematical ideas and testing circumstances (F. C. Richardson and Woolfolk, 1980).

## Literature Review

Accomplishment in mathematics has been for as long as quite a few years a theme of examination for specialists around the globe worried about improving the nature of mathematics instruction. Mathematics accomplishment of students in the secondary school years has been observed to be significant to achievement in tertiary mathematics and execution in other science subjects, just as adding to all the more likely profession alternatives and personal satisfaction (Barry and Chapman, 2007; Halpern et al., 2007; Murrane, Willett, and Levy, 1995; Wilson and MacGillivray, 2007). There is, be that as it may, expanding worry about levels of student mathematics accomplishment and nature of mathematics instruction all inclusive (Martin, Mullis, Gregory, Hoyle, and Shen, 2000).

Significant proof demonstrates that there is a decrease in the quantity of students choosing sciences and mathematics in Years 11 and 12, in Australia just as in numerous OECD (Organization for Economic Co-activity and Development) nations (Department of Education, Science and Training, 2006; Fullarton, Walker, Ainley, and Hillman, 2003; OECD Global Science Forum, 2006; Osborne and Collins, 2001). India isn't an exemption. Specifically, countless in India drop out of school even before they achieve optional level (Ramanujam, 2012). It has been accounted for that in India, the quantity of alumni choosing mathematics-related professions has been declining, despite the significance of mathematics in the present scientific world (Mishra, 2011).

Studies have identified a few factors influencing mathematics accomplishment amid the school years. These incorporate mathematics self-idea (Abu-Hilal, 2000; Wang, 2007); mathematics tension (Ashcraft, 2002; Hembree, 1990; Ma and Xu, 2004a); frames of mind towards mathematics (Hannula, 2002; Hart, 1989; Lamb and Fullarton, 2002); mathematics self-efficacy (Hackett and Betz, 1989; Pietsch et al., 2003; Williams and Williams, 2010); parental inclusion in scholastic learning (Coleman, 1988; Epstein, 1991; Jeynes, 2005); instructors (Beverley, 2002; Hill, 1994; Hill and Rowe, 1998); peers (Berndt and Keefe, 1995; Wentzel, 1999); and sexual orientation (Gray, 1996; Kenney-Benson, Pomerantz, Ryan, and Patrick, 2006).

## Attitude towards mathematics

Students' frame of mind towards mathematics has been considered as significant in their learning, investment, and accomplishment in mathematics (Papanastasiou, 2002; Shashanni, 1995). All in all, it is trusted that an inspirational frame of mind towards a subject influences a student's achievement in that subject. Frame of mind towards mathematics has been defined as a positive or negative assessment of a mental item (Ajzen and

Fishbein, 1980). As indicated by Hannula (2002), four different evaluative procedures were related with frame of mind towards mathematics, to be specific, (a) feelings experienced while taking part in mathematical exercises; (b) feelings evoked by the idea of mathematics; (c) assessments of the consequences of doing mathematics; and (d) assessments of the estimation of mathematics to one's future objectives.

In a comparative vein, mentality towards mathematics has been considered as multidimensional (Hart, 1989; Ma and Kishor, 1997) recognized by various divisions: regardless of whether one loves or aversions mathematics; trusting that one is proficient or inefficient in mathematics; the propensity to seek after or to maintain a strategic distance from mathematics; convictions that mathematics is significant or non-significant, simple or hard, (Ashcraft, 2002; Ma and Kishor, 1997; Neale, 1969); and whether it is drawing in or sub-par (McLeod, 1992). These pairings differ in the level of emotionality or comprehension related with them and it is reasonable that an individual may have an inspirational demeanor in connection to a few yet a negative frame of mind in connection to other people.

### **Parental involvement**

Since the beginning kids take part in learning and guardians are their first educators. Parental contribution depicts the cooperation of guardians in the instruction of kids more often than not with the expectation of improving their social and scholarly accomplishment (Fishel and Raimirez, 2005). Parental inclusion has been among the factors that have been examined in connection to scholarly accomplishment of students by and large and in mathematics specifically. The multidimensional idea of parental contribution has likewise been perceived by scientists (Chen and Gregory, 2010; Epstein, 1992; Grolnick and Slowiaczek, 1994) as the build incorporates different parental practices and practices (Brown, 1994; Chen and Gregory, 2010; Epstein, 1995).

In spite of the fact that there exists enough proof about the positive influence of parental inclusion on mathematics accomplishment, findings are uncertain about how this occurs. For instance, Hoover-Dempsey and Sandler (1995) proposed that parental inclusion influences accomplishment by improving students' social and scholarly self-efficacy and inspiration to learn. As per Grolnick, Ryan, and Deci (1991), parental association influences kids' learning practices which thus improve their accomplishment in mathematics. In view of the writing on parental association, the significant parental contribution measurements considered in the study incorporate parental desires, guardians' support of scholarly achievement, and parent interest in exercises identified with school (Chen and Gregory, 2010).

## **Influence of gender**

Sexual orientation differences in instructive accomplishment, affect, and mentalities have been looked into broadly due to the under portrayal of ladies in courses or professions including propelled mathematics (Else-Quest, Hyde, and Linn, 2010; Halpern et al., 2007). As indicated by Spelke (2005), there is no sex difference in the improvement of number ideas among babies and pre-schoolers. Sex differences in mathematics favoring young men will in general show up in secondary school years (Hyde, Fennema, and Lamon, 1990; Ma, 2008; Mullis, Martin, Fierros, Goldberg, and Stemler, 2000; Randhawa, 1991).

## **Gender differences in mathematics anxiety and attitude towards mathematics**

Sex differences in mathematics tension and the frames of mind towards mathematics have been broadly investigated, however the findings have been conflicting. Else-Quest et al. (2010) directed a meta-examination of two universal informational collections - the Program for International Student Assessment (PISA) 2003 and the Trends in International Mathematics and Science Study (TIMSS) 2003 - to gauge the greatness of sexual orientation differences in affect and demeanors. This study included 493,495 students of 14-16 years old from 69 countries. Regardless of likenesses in accomplishment, the study announced young men as having more positive mathematics frames of mind than young ladies. Meta explanatory investigations of sexual orientation differences in frames of mind towards mathematics in the United States have likewise detailed that young men have more uplifting demeanors to mathematics than do young ladies, however the hole is little (Hyde, Fennema, Ryan, Frost, and Hopp, 1990).

In a comparative line of research, Barkatsas, Gialamas, and Kasimatis (2008) analyzed students' frames of mind towards PCs and its connection with mathematics accomplishment and sexual orientation among Year 6 and Year 10 students in Athens, Greece. The specialists saw that young men detailed increasingly uplifting dispositions towards mathematics and progressively positive perspectives towards the utilization of PCs in mathematics learning than did young ladies. Then again, there are thinks about that have revealed no significant sex differences in mathematics dispositions among elementary and optional students (e.g., Ma and Kishor, 1997; Nicolaidou and Philippou, 2003).

## Summary

This section gave an audit of the writing identified with mathematics uneasiness, disposition towards mathematics, and parental association and their influence on mathematics accomplishment. The survey has demonstrated that mathematics nervousness contrarily influences accomplishment in mathematics. That is, students with higher mathematics tension perform more ineffectively in mathematics than their less on edge peers (H. Z. Ho et al., 2000; Woodard, 2004). The connection between frame of mind towards mathematics and accomplishment in mathematics is uncertain on account of the intricate idea of the develop, despite the fact that a positive relationship has been seen between the two factors all in all (Nicolaidou and Philippou, 2003; Singh et al., 2002). Parental contribution has been found to influence the scholastic accomplishment of students from kindergarten to Year 12 (Simon, 2001). Specifically, parental desires have been found to have the most grounded influence on the mathematics accomplishment of students (X. Fan and Chen, 2001; Ma, 2001; Trivette and Anderson, 1995).

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