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## Factors Associated with Better Achievements in Mathematics: A Study on Technology Stream Students in University of Ruhuna

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### ABSTRACT

This study was conducted to determine the effect of affective some learning and teaching variables on test scores in mathematics achievement test used for technology stream students at the University of Ruhuna. The study was a descriptive study in which a survey research design was adopted. A total of 181, Level I students from the faculty of technology participated in the study. Data for the study was collected through a questionnaire that included a mathematics achievement test. A reliability analysis was done to assess the internal consistency of the survey questionnaire. The values of Cronbach's alpha ranges from 0.841 to 0.868 for all the scales. Student questionnaires were analyzed by using principal component analysis to obtain different dimensions that are expected to be related to students' mathematics achievement. Final model was designed and tested by structural equation modelling technique (SEM) using R software. Students' interest in mathematics, students' attitudes towards mathematics, students' motivation towards mathematics, teacher's involvement towards students' performance in mathematics, and students' involvement towards their performance in mathematics were identified as factors associated with test scores. The teacher's involvement in students' mathematics performance had a positive impact on mathematics achievement. Students' involvement towards their performance in mathematics were found to be positively related to the students' success in mathematics. On the other hand, students' attitudes towards mathematics do not have any relation with mathematics achievement. Students' interest and students' motivation towards mathematics also have positive infact on their mathematics achievement.

**Keywords:** *Principal component Analysis (PCA), Structural Equation Model (SEM), Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA), Reliability*