Self-efficacy and enjoyment for learning mathematics among lower secondary school students: differences, changes and causal relationships among first year students

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The present longitudinal study was guided by the following research questions; (a) are there significant differences in students' self-efficacy and enjoyment for learning maths with respect to their demographic characteristics? , (b) do students self-efficacy and enjoyment to learn maths change during the first year of lower secondary school? and (c) what are the causal relationships between self-efficacy and enjoyment for learning math during the first year of lower secondary school? The sample comprised of 237 randomly selected students in their first year of lower secondary school in Uganda. Data were collected using two subscales from the Attitudes towards Math Inventory and the Motivated Strategies for Learning Questionnaire and analyzed using t-tests, Analysis of Variance, and cross-lagged modeling. We noted significant differences in students math self-efficacy in second term based on their sex and mother's education and a decrease in students' enjoyment and self-efficacy from the first to the second term of study. Self-efficacy and enjoyment for math learning were relatively stable during the two terms of study. Lastly, we noted a unidirectional causal relationship between students' efficacy and enjoyment for maths learning - with enjoyment for learning maths in the first term significantly predicting students' maths efficacy beliefs for the second term. Implications of the study findings to maths education will be discussed.

Keywords: cross-lagged modeling; enjoyment; maths self-efficacy; lower secondary school.