Examining the causal relationships between enjoyment and motivation of high school students towards learning of Mathematics: evidence using autoregressive and cross lagged models

Charles Magoba Muwonge, Mbarara University of Science and Technology

Sudi Balimutajjo, Mbarara University of Science and Technology

Previous studies have demonstrated a high relationship between student's motivation and their related enjoyment in learning Mathematics. Apparently, highly motivated students enjoy learning Mathematics just as high Mathematics enjoyment affects subsequent motivation in learning Mathematics. Therefore, in this concept paper, we describe a longitudinal panel survey in which we examine the causal relationship between Mathematics enjoyment and Mathematics motivation among students beginning secondary school education. Three waves of data will be collected with an interval of 3 months starting from March 2017, from four schools in South Western Uganda (N = 1734) using the Math Enjoyment and Math Motivation scales. Data will be analyzed by means of cross-lagged and auto-regressive models (using Mplus 7.4) to answer the following two questions;

a) To what extent are students' motivation and enjoyment in learning Mathematics stable as they progress through year one of lower secondary education?

b) What are the causal relationships between Mathematics enjoyment and motivation among senior one student's?

Findings from this baseline study will enable us to develop sustainable interventions to boost learner's motivation and enjoyment in studying mathematics as early as the first year of secondary school education.

Key words: Auto-regressive models; Cross-lagged models; Mathematics Enjoyment; Mathematics Motivation