Abstract

This dissertation consists of a theoretical study and three empirical studies. The theoretical study addressed the question of how to constitute a motivation questionnaire for investigating the relationship between motivation and academic achievement. The study argued that for a consistent questionnaire, we must turn to the properties of variables. Using object properties, this study classified achievement variables into three categories: motivators, mediators, and moderators and proposed a moderated-mediation model (Hayes, 2013) as a framework for investigating the relationship between motivation and academic achievement. Intrinsic and extrinsic motivation were classified as mediators, while self-efficacy belief, self-determination and anxiety about mathematics were classified as moderators of academic achievement.

The proposed framework was implemented through a mediation and a moderated-mediation analysis. With motivation as predictor, academic achievement as outcome, and intrinsic or extrinsic motivation as mediating variables, this study imagined a mediation path diagram (Baron & Kenny, 1986) as a triangle of vectors in equilibrium, and argued that the feasibility of mediation implicitly assures the feasibility of reverse mediation; that suppression might be interpreted as reverse mediation (study 2).

Also, with mathematics self efficacy belief as dependent variable, a stepwise multiple regression showed that pride, academic interest, academic achievement goals and hope accounted for 62.2% of variance in mathematics self-efficacy belief. A discriminant analysis showed that pride, academic interest, and academic achievement goals discriminates between students with low and high mathematics self-efficacy beliefs. With both results, this study argued that motivation variables might be the drivers of persistence often associated with strong self-efficacy belief; that persistence might be a reflective indicator of motivation (study 3).

The goal of empirical study 1 was to determine the set of indicators that accounts for most variance in a student’s academic achievement. This goal was not realized perhaps due to the unexpected poor correlation statistics between the indicators and student’s academic achievement variables observed in this study. This study concludes
that both the proposed and related research frameworks may only be used to compare groups of students, rather than individual students (Bandura, 2001).

Keywords: motivators; mediators, moderators; mediation and moderated-mediation; reverse mediation; motivating property