dent Assessment) survey. This relationship, INV, appears to be a specific one: it takes an important position in the model of the relationship between the mental ability and socio-economic and innovation indicators; INV is connected with both sides of the relationship. Further, we show that INV varies between countries, having higher values in socio-economically developed countries and lower values in less developed countries. We also show that the common variance of the INV and democracy index is 74%. Thus, we argue that motivated learning of students and the level of a country's development go hand in hand.

Keywords: motivation, educational achievement, democracy, innovation

Personal conceptions of competence and academic achievement: Testing the predictive power of motivational beliefs using structural equation modeling

Luísa Faria & Sílvia Pina Neve
University of Porto, Portugal
lfaria@fpce.up.pt

Considering that motivational beliefs are one major determinant of academic achievement, this study aims to explore and test the predictive power that four constructs related to motivation have over students achievement in Portuguese and Mathematics subjects. The four constructs are *personal conceptions of intelligence* (Dweck, 1999; Faria, 2006), *perceptions of causality* (Weiner, 2005), *academic self-concept* (Marsh & Shavelson, 1985; Shavelson, 2003), and *academic self-efficacy* (Bandura, 1997, 2006; Pina Neves & Faria, 2004; Schunk & Pajares, 2005), and they can all be seen as motivational beliefs. Therefore, we can integrate them in a comprehensive model that assumes they establish causal links among them (inter-construct paths) and that they are all predictors of achievement (paths towards Portuguese and Mathematics grades). Using a diverse set of measures (*Personal Conceptions of Intelligence Scale, Attributions and Causal Dimension Questionnaire, Self-Description Questionnaire II*, and *Academic Self-Efficacy Scale*), we assessed 1302 Portuguese students' motivational beliefs. Structural equation modeling main results revealed that, regarding inter-construct paths, personal conceptions of intelligence emerged, as hypothesized, as the organizing construct of our model, academic self-concept predicted both academic self-efficacy and controllability causal dimension, and this later predicted the other two causal dimensions (locus and stability). Furthermore, considering paths towards students' grades, we observed that the specific dimensions of academic self-concept and academic self-efficacy which are directly related to each subject domain of performance (Portuguese *vs.* Mathematics) were those which better and stronger predicted achievement on each of those two domains. Results are discussed and implications for practice are presented.

Keywords: Personal conceptions of competence, academic achievement, motivation, structural equation modeling.

The predictive power of motivation on achievement beyond intelligence and prior knowledge

Olaf Köller
Leibniz-Institute for Science and Mathematics Education, Germany
koeller@ipn.uni-kiel.de

Former empirical studies have shown somewhat contradicting results concerning the role of motivational variables in predicting school achievement when cognitive abilities are controlled. In this study, we thus analyzed the unique contribution of students' motivation beyond intelligence and previous knowledge on academic achievement. Cross-sectional and longitudinal findings from $n = 1.000$ grade 5 students (50% female) from different school types are presented. Motivational measures were scales assessing domain specific self-concept and interests in math and mother tongue (German), psychometric intelligence (figural and verbal reasoning). Furthermore, standardized achievement tests (math, spelling, and reading) and marks (at the end of the school year) were collected. Due to the hierarchical character of the data (students nested within classes), multilevel analyses were applied. Findings clearly show that both cognitive and motivational variables positively predict achievement measures. These effects, however, were substantially moderated by the type of achievement measure. While motivation shows a higher contribution to marks, cognitive variables (intelligence and prior knowledge) are stronger predictors of achievement. Results are discusses with respect to their theoretical and practical implications.

Keywords: Academic achievement, predictive power of motivation, multi-level analysis