

Relationship between affect and achievement in science and mathematics in Malaysia and Singapore

Abstract

Background: The Trends in International Mathematics and Science Study (TIMSS) assesses the quality of the teaching and learning of science and mathematics among Grades 4 and 8 students across participating countries. **Purpose:** This study explored the relationship between positive affect towards science and mathematics and achievement in science and mathematics among Malaysian and Singaporean Grade 8 students. **Sample:** In total, 4466 Malaysia students and 4599 Singaporean students from Grade 8 who participated in TIMSS 2007 were involved in this study. **Design and method:** Students' achievement scores on eight items in the survey instrument that were reported in TIMSS 2007 were used as the dependent variable in the analysis. Students' scores on four items in the TIMSS 2007 survey instrument pertaining to students' affect towards science and mathematics together with students' gender, language spoken at home and parental education were used as the independent variables. **Results:** Positive affect towards science and mathematics indicated statistically significant predictive effects on achievement in the two subjects for both Malaysian and Singaporean Grade 8 students. There were statistically significant predictive effects on mathematics achievement for the students' gender, language spoken at home and parental education for both Malaysian and Singaporean students, with $R^2 = 0.18$ and 0.21 , respectively. However, only parental education showed statistically significant predictive effects on science achievement for both countries. For Singapore, language spoken at home also demonstrated statistically significant predictive effects on science achievement, whereas gender did not. For Malaysia, neither gender nor language spoken at home had statistically significant predictive effects on science achievement. **Conclusions:** It is important for educators to consider implementing self-concept enhancement intervention programmes by incorporating 'affect' components of academic self-concept in order to develop students' talents and promote academic excellence in science and mathematics.