

Assessing Measurement Invariance: Multiple Group Confirmatory Factor Analysis for Differential Item Functioning Detection in Polytomous Measures of Turkish and American Students

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ABSTRACT

International assessments are often developed in one country and applied in other countries. Assessing the measurement invariance across countries is an important step in determining valid conclusions, comparisons across countries. This paper investigated measurement invariance, across two countries, of selected questions from the Programme for International Student Assessment 2009 student questionnaire. Turkey and United States were compared with the multiple group confirmatory factor analysis for scores on polytomous items to detect differential item functioning (DIF). The results were based on the chi-square goodness of fit test and root mean squared error of approximation, the comparative fit index and the Tucker-Lewis index. The items exhibit DIF, learning strategies, were investigated with Item Response Theory based on the chi-square goodness of fit and t-test.

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Introduction

Large-scale standardized international assessments have become more important in recent decades as a consequence of globalization. In order to compare and evaluate the quality of education and future workforces across countries, many cross-national student assessments have been conducted to compare learning outcomes. One prominent example is the Programme for International Student Assessment (PISA) sponsored by the Organisation for Economic Co-operation and Development (OECD).

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