Conceptual framework: International studies such as ICCS use student questionnaires to gather data about student values and attitudes. Such data is often used for comparing means of latent variables between countries and results are always relevant to educational policy and practice. Nevertheless, the assessment of MI of questionnaire data in ICCS has not yet received enough attention. This implies that secondary data analysis might result in cross-country comparisons of constructs that are not necessarily appropriate. Therefore it becomes essential to perform MI tests of constructs and establish whether meaningful comparisons can be carried out.

Objectives: The aim of this study is to assess the measurement invariance (MI) of citizenship values attitudinal measures in the ICCS 2009 study. To this end we address the following research questions: Do tests of MI within a multiple group factor analytical framework hold across all countries participating in the study? Are alternative methods for MI (e.g. multiple group factor analysis with alignment) more suitable for exploring MI and estimate country differences in factor means? Can we pinpoint the ill-fitting countries and items?

Methods: The study of MI for cross-cultural data is typically carried out using a multi-group confirmatory factor analysis approach. Within this framework, several steps for assessing MI are taken: 1) establishing configural invariance; 2) metric invariance; and 3) scalar invariance. However, in the large-scale cross-cultural studies the measurement instruments very often do not demonstrate full measurement equivalence. It implies that attempts of establishing partial measurement invariance are undertaken. To achieve it, a decision on which parameters of the model to relax is needed. In the large-scale cross-cultural studies such a decision is too cumbersome due to many possible violations of invariance and thus many possible modifications. Therefore, a new approach that accommodate the classical MG-CFA to the specificity of the large-scale international surveys, namely the multi-group factor analysis alignment, has recently been proposed (Asparouhov & Muthén, 2013). This method seems to be very promising to establish partial strong measurement invariance.

Data sources: The data come from 37 countries assessed in ICCS 2009. We use the information from student responses (14-year-olds) on two sets of items measuring citizenship values measured on a 4-point Likert scale. The sample sizes vary between 1,964 in the Netherlands to 6,576 in Mexico with a total of 140,293 across all 37 countries.

Results: Results of multiple group factor analysis across the 37 countries show that in general the configural model and the model with full weak measurement invariance fit the data well. However, full scalar MI is not achieved. This finding leads us to establishing the partial scalar non-invariance and to this end, we run the MG-CFA with alignment. The results are promising implying that there is a scalar MI, and although it is only partial, it enables making cross-country comparisons of citizenship values.
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