

Indicators of (In)Tolerance Among European Young People: An Assessment of Measurement Invariance in ICCS 2016

Maria Magdalena Isac

University of Groningen

m.m.isac@rug.nl

Laura Palmerio

INVALSI

laura.palmerio@invalsi.it

M.P.C. (Greetje) van der Werf

University of Groningen

m.p.c.van.der.werf@rug.nl

Keywords

Tolerance; Measurement Invariance; International Civic and Citizenship Education Study (ICCS); International Large-Scale Assessments

Abstract

This contribution is an executive summary of the draft article "Indicators of (In)Tolerance among European Young People: An Assessment of Measurement Invariance in ICCS 2016" which was presented at the EARLI SIG 13 and InZentIM Conference 2018 on "Migration, Social Transformation, and Education for Democratic Citizenship." A subsequent version of the background article is under consideration for publication in a journal. Further information can be obtained from the first author upon request.

The work considers the topic of tolerance as an important goal of those European education policies that focus on education for democratic citizenship. It argues that cross-cultural comparability must be empirically assessed and ensured to enable the measurement of highly relevant indicators that serve to monitor inter-European and international differences in young people's tolerant attitudes. Using data provided by the *International Civic and Citizenship Education Study* (ICCS, 2016), we examine the extent to which average comparisons of European cross-national differences in young people's tolerant attitudes toward immigrants, ethnic/racial groups, and gender equality, are empirically justified. Results of multiple-group confirmatory factor analysis (MGCFA) show that cross-cultural comparability can be achieved with some modifications. We conclude by providing information on further scale refinement and improvement.

German Synopsis

Dieser Artikel ist eine Kurzfassung des Beitragsentwurfs „Indicators of (In)Tolerance among European Young People: An Assessment of Measurement Invariance in ICCS 2016,“ der bereits auf der EARLI SIG 13 und der InZentIM Konferenz 2018 über „Migration, Social Transformation, and Education for Democratic Citizenship“ vorgestellt wurde. Eine weiterführende Fassung des Beitrags wurde zur Veröffentlichung in einer wissenschaftlichen Zeitschrift eingereicht. Weitere Informationen können von der zuerst aufgeführten Beitragsautorin erbeten werden.

Der Beitrag betrachtet das Thema der Toleranz als wichtiges Ziel der europäischen Bildungspolitiken, die den Schwerpunkt demokratische Bürgerschaft haben. Es wird erörtert, dass kulturübergreifende Vergleichbarkeit empirisch bewertet und sichergestellt werden muss, um die Messung von wichtigen Merkmalen, die der Beobachtung von innereuropäischen und internationalen Unterschieden in der Toleranzhaltung von Jugendlichen dienen, zu ermöglichen.

Unter Benutzung von Daten aus der *International Civic and Citizenship Education Study* (ICCS, 2016) untersuchen wir, in welchem Maß länderübergreifende europäische Durchschnittsvergleiche der Unterschiede in der Toleranzhaltung junger Leute bezüglich Einwanderer, ethnisch-rassischer Gruppen und Gleichberechtigung empirisch gerechtfertigt werden können. Die Ergebnisse einer konfirmatorischen Faktorenanalyse mit multiple Gruppenvergleich weisen darauf hin, dass nach einigen Veränderung eine kulturübergreifende Vergleichbarkeit durchaus erreichbar sein kann. Wir schließen mit einem Ausblick über weitere Verbesserungen und Verfeinerungen der Werteskalen.

Background

In brief, the theoretical part of the article reflected on the following points:

In the European context, which faces the challenge of unprecedented levels of migration, the monitoring and promotion of tolerance (tolerance being broadly defined as respect, acceptance and appreciation of diversity (UNESCO 1995) is an essential part of policies focused on education for democratic citizenship and human rights (Council of Europe 2017; European Commission/EACEA/Eurydice 2017; European Council 2015). Therefore, comparative studies gauging the extent of cross-national differences in young people's tolerance levels are a key requirement.

The *Civic Education Study* (CIVED, 1999) and the *International Civic and Citizenship Education Studies* (ICCS, 2009 and 2016) (Schulz et al. 2010, 2018; Torney-Purta et al. 2001) conducted by the International Association for the Evaluation of Educational Achievement (IEA) are among the most informative studies that serve to chart tolerant attitudes among young people in an international and European comparative context. For example, they investigate young people's beliefs about equal rights and opportunities for different groups in society based on gender, ethnic/racial status, and immigration background (Schulz 2016).

Yet a large body of research warns about the risks associated with directly comparing scores on constructs of interest across educational systems, especially in the context of international large-scale assessments (ILSAs) such as ICCS (He and Van de Vijver 2013; Rutkowski and Rutkowski 2017). Meaningful comparisons of means across countries require that the construct is understood and operationalized in a similar way in each context. Nevertheless, measurement instruments can be sensitive to cultural, linguistic, and geographic differences. For this reason, secondary users of data collected in such studies are urged to test the assumption of cross-cultural comparability or measurement invariance before proceeding to cross-national comparisons.

Against this background, this study examined the extent to which average comparisons of cross-national differences in young people's levels of tolerance toward immigrants using data from the ICCS 2016 study are justified. The theoretical part included a literature review on three main topics. First, main theoretical perspectives on the conceptualization and measurement of tolerance concept (Ceobanu & Escandell, 2010; Côté & Erickson, 2009; Forst, 2003; Gibson, 2006, 2013; Green, Preston, & Janmaat, 2006; Mutz, 2001; Van Driel, Darmody, & Kerzil, 2016; Van Zalk et al., 2013; Weldon, 2006); second, the state of the art regarding the

concept of measurement invariance and methods for measurement invariance testing with ILSA data (e.g. Brown, 2014; Byrne & Van de Vijver, 2010; Kim, Cao, Wang, & Nguyen, 2017; Marsh et al., 2017; Millsap, 2011; Putnick & Bornstein, 2016; Rutkowski & Svetina, 2017); and third, insights from previous research on measurement invariance as applied to tolerant attitudes in previous IEA civic and citizenship education studies (e.g. Miranda & Castillo, 2018; Munck, Barber, & Torney-Purta, 2017).

Methods

The main characteristics of the strategy used for data analysis in the article were as follows:

We used data from the fourteen European countries that participated in the European Module of the ICCS 2016 study (Losito et al. 2018; Schulz et al. 2016), where students completed questionnaires exploring their attitudes toward equal rights for immigrants, attitudes toward equal rights for all ethnic/racial groups, and attitudes toward gender equality. In total, data from 51,040 students clustered in fourteen European countries was included in the research.

Based on ICCS 2016 study data, the construct of "tolerance" was defined and measured as young people's beliefs about equal political and cultural rights and opportunities for (three) different groups in society based on immigration background, ethnic/racial status and gender (Schulz et al. 2016a). Three scales were used to measure this three-dimensional construct: a) student attitudes toward equal rights for immigrants, b) student attitudes toward equal rights for all ethnic/racial groups, and c) student attitudes toward gender equality. Student attitudes towards equal rights for immigrants were captured by items focusing on civil and political liberties such as equal rights to education, rights to linguistic and cultural diversity, and the right to vote. Similar sets of indicators, tailored to rights and opportunities relevant for each of the groups, were used to capture tolerant attitudes toward ethnic/racial groups (e.g., equal opportunities for labor market participation) and toward gender equality (e.g., equal opportunities for political participation). Different levels of agreement with these items were measured by means of a 4-point Likert scale.

Data preparation was conducted with the IEA IDB analyzer (IEA 2017) and IBM SPSS Statistics 23.00 (IBM Corp. 2015). All CFA and MGCFAs analyses were performed in Mplus 7.4 (L. K. Muthén and Muthén 2017), taking into account the complex survey design on the ICCS 2016 study.

We applied multiple-group confirmatory factor analysis (MGCFAs) (Jöreskog 1971; Steenkamp and Baumgartner 1998) to assess whether comparisons of average scale scores across fourteen European countries participating in the ICCS 2016 study could be made with confidence. We took into account the ordered categorical character of the data and followed the most recent guidelines for model fit evaluation (Rutkowski and Svetina 2017). The assessment of measurement invariance involved the comparison of three competing nested models, namely: configural, metric, and scalar models (Brown 2014; Putnick and Bornstein 2016). The configural invariance model tested if the instrument measured the same latent factors and if the set of items associated with each factor was similar across countries. The metric invariance model tested whether the factors had the same meaning and the same measurement unit in all groups. The scalar invariance model tested, in addition to equal item loadings, that item thresholds (the levels of the categorical items) were equal in all countries. Reaching the level of scalar measurement invariance was taken as an indication that valid cross-country comparisons of factor scores (scale means) are defensible.

We also tested the robustness of our findings by means of subgroup analysis (e.g. testing whether the comparisons were defensible also within four subgroups of country clusters that showed similarities in terms of linguistic, geographic, and cultural characteristics) and by comparing results of the MGCFAs with the ones obtained with alternative, less strict methods (i.e. the alignment method) (B. Muthén and Asparouhov 2014).

Results

The main results obtained can be summarized as follows:

Preliminary country-specific analyses pointed out three items (one for each of the three factors) with low factor loadings in a majority of countries. These items were: “Members of all ethnic/racial groups should be encouraged to run in elections for political office;” “Men and women should have equal opportunities to take part in government;” and, “Immigrants should have the opportunity to continue speaking their own language.” These items were excluded from further analyses.

Results of measurement invariance analysis pointed to the achievement of full scalar invariance with the implication that average scores based on the three interrelated scales can be validly compared across the European educational systems under investigation. These findings were largely corroborated by the robustness analyses (i.e. comparisons with results from the country cluster analysis and the alignment method).

Model-based scale reliabilities for three scales were above .800 in all countries, ranging from 0.809 to 0.960. These estimates suggest high reliability of the three latent variables underlying the three sets of observed indicators (items). In addition, the scales proved to be particularly reliable in most of the Nordic countries (i.e. Finland, Norway and Sweden), with the reliability measure well above 0.900 for the scales capturing attitudes toward equal rights for all ethnic/racial groups and attitudes toward gender equality, and above 0.880 for the scale capturing attitudes toward equal rights for immigrants.

Model-based item loadings, representing indicator reliability, were well above the .500 for all scales and countries, ranging from 0.577 to 0.966. This finding indicated sufficient indicator reliability. Yet, findings were diverse across countries. Item reliability was high (above 0.780, on average) and rather consistent across countries for the attitudes toward equal rights for all ethnic/racial groups and attitudes toward gender equality scales. In contrast, on the scale measuring attitudes toward equal rights for immigrants, some items were clearly stronger than others. More specifically, the strongest indicator of the scale in the majority of countries was the item: "<Immigrant> children should have the same opportunities for education that other children in the country have," with item loadings exceeding .800, while the weakest indicator was the item: "<Immigrants> should have the opportunity to continue their own customs and lifestyle," with item loadings ranging from 0.577 to 0.720.

Results also revealed that the three factors are connected with strong associations in most countries, with an average correlation of 0.600. This was especially true for the associations of attitudes toward equal rights for immigrants with attitudes toward equal rights for all ethnic/racial groups. More specifically, across the fourteen countries, associations of attitudes toward equal rights for immigrants with attitudes toward equal rights for all ethnic/racial groups ranged from 0.465 to 0.748, with an average of 0.628.

Conclusions

The most important findings highlighted by this research were:

The results obtained pointed out that cross-cultural comparability can be achieved for (most items of) these scales with data from the ICCS 2016 study among the fourteen investigated countries. More specifically, results of measurement invariance tests using MGCFA pointed to the achievement of full scalar invariance, with the implication that average scores based on three interrelated scales (attitudes toward equal rights for immigrants, attitudes toward equal rights for all ethnic/racial groups, and attitudes toward gender equality) can be

validly compared across the educational systems under investigation. These findings were largely corroborated by robustness analyses.

In addition, the country cluster-specific analyses indicated that cross-country comparisons are defensible also among more homogeneous groupings of countries, and that these comparisons are particularly strong in the “Nordic” and “Western” European clusters of countries. Such findings may be due to greater closeness between these countries in terms of, for example, their linguistic similarity, democratic tradition, and/or experience with immigration and integration policies.

Moreover, the analysis also revealed information relevant for further scale refinement that could be considered, especially in the developmental phases of future ICCS studies. First, corroborating existing assumptions from previous research (Miranda and Castillo 2018), we confirmed that tolerant attitudes toward immigrants are one aspect of a larger three-dimensional concept encompassing three (correlated) factors: attitudes toward equal rights for immigrants, attitudes toward equal rights for all ethnic/racial groups and attitudes toward gender equality. Second, in line with previous findings (Munck et al. 2017), we showed that items capturing cultural aspects of tolerance toward immigrants (e.g. endorsing rights to linguistic and cultural diversity) are either unreliable in most countries or show substantial variability in terms of factor loadings.

References

- Brown, T. A. (2014). *Confirmatory Factor Analysis for Applied Research. Methodology in the Social Sciences*. London: Guilford.
- Byrne, B. M., & Van de Vijver, F. J. R. (2010). Testing for Measurement and Structural Equivalence in Large-Scale Cross-Cultural Studies : Addressing the Issue of Nonequivalence. *International Journal of Testing*, 10(2), 107–132.
- Ceobanu, A. M., & Escandell, X. (2010). Comparative Analyses of Public Attitudes Toward Immigrants and Immigration Using Multinational Survey Data: A Review of Theories and Research. *Annual Review of Sociology*, 36(1), 309–328. Retrieved from <http://www.annualreviews.org/doi/10.1146/annurev.soc.012809.102651>
- Côté, R. R., & Erickson, B. H. (2009). Untangling the Roots of Tolerance. *American Behavioral Scientist*, 52(12), 1664–1689. Retrieved from <http://journals.sagepub.com/doi/10.1177/0002764209331532>
- Council of Europe. (2017). *Learning to Live Together. Council of Europe Report on the state of citizenship and human rights education in Europe*. Retrieved from <https://rm.coe.int/the-state-of-citizenship-in-europe-e-publication/168072b3cd>
- European Commission/EACEA/Eurydice. (2017). *Citizenship Education at School in Europe - 2017*. Brussels.
- European Council. (2015). Declaration on Promoting citizenship and the common values of freedom, tolerance and non-discrimination through education. Retrieved from

Isac, M. M., Palmerio, L., & van der Werf, G. (2019). Indicators of (in)tolerance among European young people: An assessment of measurement invariance in ICCS 2016. In E. Gutzwiller-Helfenfinger, H. J. Abs, & P. Müller (Eds.), *Thematic papers based on the Conference "Migration, Social Transformation, and Education for Democratic Citizenship"* (pp. 151-159). University of Duisburg-Essen: DuEPublico. doi: 10.17185/duepublico/47790

http://ec.europa.eu/dgs/education_culture/repository/education/news/2015/documents/citizenship-education-declaration_en.pdf

- Forst, R. (2003). Toleration, justice and reason. In C. McKinnon & D. Castiglione (Eds.), *The culture of toleration in diverse societies* (pp. 71–85). Retrieved from [/citations?view_op=view_citation&continue=/scholar%3Fhl%3Den%26as_sdt%3D0,5%26scilib%3D1%26scioq%3Dforst%2BToleration,%2Bjustice%2Band%2Breason&citilm=1&citation_for_view=wqbWoNIAAAAJ:u5HHmVD_uO8C&hl=en&oi=p](http://citations.view_op=view_citation&continue=/scholar%3Fhl%3Den%26as_sdt%3D0,5%26scilib%3D1%26scioq%3Dforst%2BToleration,%2Bjustice%2Band%2Breason&citilm=1&citation_for_view=wqbWoNIAAAAJ:u5HHmVD_uO8C&hl=en&oi=p)
- Gibson, J. L. (2006). Enigmas of intolerance: Fifty years after Stouffer's communism, conformity, and civil liberties. *Perspectives on Politics*, 4(1), 21–34. Retrieved from http://www.journals.cambridge.org/abstract_S153759270606004X
- Gibson, J. L. (2013). Measuring Political Tolerance and General Support for Pro–Civil Liberties Policies: Notes, Evidence, and Cautions. *Public Opinion Quarterly*, 77(S1), 45–68. Retrieved from <http://dx.doi.org/10.1093/poq/nfs073>
- Green, A., Preston, J., & Janmaat, J. (2006). *Education, equality and social cohesion: A comparative analysis*. Springer.
- He, J., & Van de Vijver, F. J. R. (2013). Methodological issues in cross-cultural studies in educational psychology. In G. A. D. Liem & A. B. I. Bernardo (Eds.), *Advancing cross-cultural perspectives on educational psychology: A festschrift for Dennis McInerney* (pp. 39–56). Information Age Publishing Charlotte, NC.
- IBM Corp. (2015). IBM SPSS Statistics for Windows, Version 23.0. Armonk, NY: IBM Corp.
- IEA. (2017). *IDB analyzer*. Amsterdam and Hamburg: International Association for the Evaluation of Educational Achievement. Available at <http://www.iea.nl/data.html>.
- Jöreskog, K. G. (1971). Simultaneous factor analysis in several populations. *Psychometrika*, 36(4), 409–426.
- Kim, E. S., Cao, C., Wang, Y., & Nguyen, D. T. (2017). Measurement Invariance Testing with Many Groups: A Comparison of Five Approaches. *Structural Equation Modeling*, 24(4), 524–544.
- Losito, B., Agrusti, G., Damiani, V., & Schulz, W. (2018). *Young People's Perceptions of Europe in a Time of Change: IEA International Civic and Citizenship Education Study 2016 European Report*. Springer.
- Marsh, H. W., Guo, J., Parker, P. D., Nagengast, B., Asparouhov, T., Muthén, B., & Dicke, T. (2017). What to do When Scalar Invariance Fails: The Extended Alignment Method for Multi-Group Factor Analysis Comparison of Latent Means Across Many Groups. *Psychological Methods*. Retrieved from <http://doi.apa.org/getdoi.cfm?doi=10.1037/met0000113>
- Millsap, R. E. (2011). *Statistical Approaches to Measurement Invariance*. Routledge. Retrieved from <https://www.taylorfrancis.com/books/9780203821961>
- Miranda, D., & Castillo, J. C. (2018). Measurement Model and Invariance Testing of Scales Measuring Egalitarian Values in ICCS 2009. *Teaching Tolerance in a Globalized World*, 19–31.
- Munck, I., Barber, C., & Torney-Purta, J. (2017). Measurement Invariance in Comparing Attitudes Toward Immigrants Among Youth Across Europe in 1999 and 2009. *Sociological Methods & Research*, 004912411772969. Retrieved from <http://journals.sagepub.com/doi/10.1177/0049124117729691>
- Muthén, B., & Asparouhov, T. (2014). IRT studies of many groups: the alignment method. *Frontiers in Psychology*, 5, 978.

- Isac, M. M., Palmerio, L., & van der Werf, G. (2019). Indicators of (in)tolerance among European young people: An assessment of measurement invariance in ICCS 2016. In E. Gutzwiller-Helfenfinger, H. J. Abs, & P. Müller (Eds.), *Thematic papers based on the Conference "Migration, Social Transformation, and Education for Democratic Citizenship"* (pp. 151-159). University of Duisburg-Essen: DuEPublico. doi: 10.17185/duepublico/47790
- Muthén, L. K., & Muthén, B. O. (2017). *Mplus User's Guide*. Eighth Edition. Los Angeles, CA: Muthén & Muthén.
- Mutz, D. C. (2001). Tolerance. In N. J. Smelser & B. Baltes (Eds.), *International Encyclopedia of the Social and Behavioral Sciences* (pp. 15766--15771).
- Putnick, D. L., & Bornstein, M. H. (2016). Measurement invariance conventions and reporting: The state of the art and future directions for psychological research. *Developmental Review, 41*, 71–90. Retrieved from <https://www.sciencedirect.com/science/article/pii/S0273229716300351>
- Rutkowski, L., & Rutkowski, D. (2017). Improving the Comparability and Local Usefulness of International Assessments: A Look Back and A Way Forward. *Scandinavian Journal of Educational Research, 0(0)*, 1–14. Retrieved from <http://dx.doi.org/10.1080/00313831.2016.1261044>
- Rutkowski, L., & Svetina, D. (2017). Measurement Invariance in International Surveys: Categorical Indicators and Fit Measure Performance. *Applied Measurement in Education, 30(1)*, 39–51. Retrieved from <http://dx.doi.org/10.1080/08957347.2016.1243540>
- Schulz, W., Ainley, J., Fraillon, J., Kerr, D., & Losito, B. (2010). *ICCS 2009 International Report: Civic knowledge, attitudes, and engagement among lower-secondary school students in 38 countries*. *ICCS Intn Report*. Amsterdam, The Netherlands, The Netherlands: International Association for the Evaluation of Educational Achievement (IEA). Retrieved from http://www.iea.nl/fileadmin/user_upload/Publications/Electronic_versions/ICCS_2009_International_Report.pdf
- Schulz, W., Ainley, J., Fraillon, J., Losito, B., & Agrusti, G. (2016). *Assesment framework: IEA International Civic and Citizenship Education Study 2016*. IEA.
- Schulz, W., Ainley, J., Fraillon, J., Losito, B., Agrusti, G., & Friedman, T. (2018). *Becoming citizens in a changing world: IEA International Civic and Citizenship Education Study 2016 international report*. Springer.
- Steenkamp, J. E. M., & Baumgartner, H. (1998). Assessing Measurement Invariance in Cross-National Consumer Research. *Journal of Consumer Research, 25(1)*, 78–107. Retrieved from <https://academic.oup.com/jcr/article-lookup/doi/10.1086/209528>
- Torney-Purta, J., Lehmann, R., Oswald, H., & Schulz, W. (2001). *Citizenship and Education in Twenty-eight Countries*. Delft, Netherlands: International Association for the Evaluation of Educational Achievement (IEA). Retrieved from http://pub.iea.nl/fileadmin/user_upload/Publications/Electronic_versions/CIVED_Phase2_Age_Fourteen.pdf
- UNESCO. (1995). Declaration of principles on tolerance. *Culture of Peace Programme*.
- Van Driel, B., Darmody, M., & Kerzil, J. (2016). Education policies and practices to foster tolerance, respect for diversity and civic responsibility in children and young people in the EU. *NESET II Report, 2012–2015*.
- Van Zalk, M. H. W., Kerr, M., Van Zalk, N., & Stattin, H. (2013). Xenophobia and tolerance toward immigrants in adolescence: Cross-influence processes within friendships. *Journal of Abnormal Child Psychology, 41(4)*, 627–639.
- Weldon, S. A. (2006). The institutional context of tolerance for ethnic minorities: A comparative, multilevel analysis of Western Europe. *American Journal of Political Science*.

Indicators of (In)Tolerance Among European Young People: An Assessment of Measurement Invariance in ICCS 2016

Maria Magdalena Isac, Laura Palmerio, M.P.C. (Greetje) van der Werf

In: Thematic Papers Based on the Conference: *Migration, Social Transformation, and Education for Democratic Citizenship*

This text is provided by DuEPublico, the central repository of the University Duisburg-Essen.

This version of the e-publication may differ from a potential published print or online version.

DOI: <https://doi.org/10.17185/duepublico/47790>

URN: <urn:nbn:de:hbz:464-20190201-153106-7>

Link: <https://duepublico.uni-duisburg-essen.de:443/servlets/DocumentServlet?id=47790>

License:



This work may be used under a [Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International](https://creativecommons.org/licenses/by-nc-nd/4.0/) license.