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Secondary school students' attitudes of tolerance towards minorities

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Abstract

Continued migration flows are inevitable, and research into favorable conditions for educating students in pluralistic societies is timely. This study attempts to address the operationalization of favorable conditions when educating children in diverse societies. Previous research into the contact hypothesis and acculturation theory has suggested that moderating factors are necessary for contact between groups of "others" to effect positive change in attitudes of tolerance and reduce prejudice. To represent groups of "others", this study—which analyzed ICCS data from both the 2009 and 2016 cycles—considers lower-secondary students with an immigration background, who speak a different language than the administered assessment in the home, and diversity in terms of socio-economic background. To represent a desirable or "successful" classroom context, the study focuses on attitudes of tolerance held by lower-secondary students towards minorities, investigating whether participation in civic activities in the school or community, or the act of learning in more diverse classrooms, was associated with increased rates of tolerance. Findings supported the stated hypotheses to some extent, as some associations between heterogenous classroom composition (in terms of the share of students from immigrant backgrounds and those who spoke different languages in the home) and increased attitudes of tolerance towards minorities were observed. Student participation in civic activities in school was significantly associated with higher attitudes of tolerance towards minorities in 16 out of 18 analyzed countries. A relation between civic participation in the community and tolerance towards minorities was not found. Overall, students' rates of tolerance towards minorities increased significantly for the majority of analyzed countries between 2009 and 2016.

Introduction

We live in increasingly globalized and diverse societies. The global refugee population is estimated to be at a record high, and the UN predicts that continued migration flows are inevitable (UN IOM, 2019). In 2022, the crises in Afghanistan and Ukraine alone were estimated to account for over 4 million refugees (UNHCR, 2021a, 2022), a sum which is compounded today by refugees from Gaza, Sudan and Congo, as well as other regions in conflict (UNHCR, 2023). Amnesty International estimates around 26 million refugees globally (Amnesty International, 2022). Over half of those classified as refugees worldwide are children under the age of 18 (UNHCR, 2021b). Painting with a broader brush,

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there are also untold numbers of migrants—also known as immigrants, or sojourners—who cross international borders for other reasons: economic, environmental, etc.

Research into factors surrounding beneficial contexts for the education of immigrant children is therefore timely and relevant: the success of long-term integration of immigrant children into host societies is highly impacted by the education that they receive (Borgonovi & Pokropek, 2018). There is strong evidence that favorable education outcomes have significant effects on later labor-market integration of immigrants and greater societal well-being (OECD, 2015). Education is also essential in the effort to counter threats posed by young people turning to violent extremism (UNESCO, 2019). It is not only immigrant children and families, therefore, who have a stake in their education; successful integration—best achieved via education—of immigrant children will have long-reaching positive impacts for future societies at large. To take an even larger global view, within societies, groups of people from different cultures and ethnicities often live, and are educated, together in close proximity while still having the same nationality.

When considering education policy, the acquisition of academic skills and competences, while vital, is not sufficient to prepare students to undertake their roles as citizens. Structures, or arrangements on an institutional level which serve to enable intercultural dialogue are also essential for a culturally diverse democracy (Council of Europe, 2016). In line with Piaget's belief that children learn morality via peer interaction (1932), education—and the context in which it occurs—may play a major role in the development of attitudes of tolerance, dispelling misconceptions and prejudices (Borgonovi & Pokropek, 2018). The current study aims to add to the existing body of research concerning conditions and results of contact between groups of others of secondary school students; in particular, Sandoval-Hernández et al. (2018) research into how policymakers and schools can encourage attitudes of tolerance towards diversity in students.

This brings the question of how to define diversity to the fore. From an international perspective, Letendre noted that there has been a paucity of clarity in educational research regarding what factors determine "minority status" in modern nations (2000). How then to operationalize "otherness" and "success" to perform analyses regarding the fostering of attitudes of tolerance when educating children in a pluralistic society?

The current study focuses on three characteristics to represent the "other" in lower-secondary student populations. Firstly, children who are first- or second-generation immigrants are assumed to have at least a modicum of cultural "differentness" from their (at least third generation) native-born classmates, regardless of the motivations behind their relocation or their linguistic background. Based on this reasoning, as a first proposed measure of diversity, the proportion of students with self-reported immigration status (i.e., that either they or their parents were born in a different country) are considered, allowing for analyses including the share of immigrant students in the classroom. Secondly, in order to address students who may not claim first- or second-generation immigrant status but do not speak the language of instruction used in their school at home (indicating cultural diversity), the share of students who speak a different language than that of the administered assessment used in this study in the home are considered as a measure of diversity (with the language the assessment was administered

corresponding to the language of instruction in school). Researching student outcomes relating to classroom differences based on linguistic diversity as opposed to ethnicity or nationality, Bredtmann et al. found that students who claimed a linguistically diverse background did not have negative outcomes in terms of language or math skills, but that their social integration was negatively affected (2019). Finally, much research has been performed regarding diversity in terms of socio-economic status, or SES. Sandoval-Hernández et al. for example, found that certain indicators of SES, such as number of books in the home and education level of the parents, were predictive of more tolerant attitudes among students (in the sense that having more books at home and higher levels of education were associated with higher rates of tolerance); however, factors like gender and reported membership in immigrant groups played a role as well (2018). In order to compare against the previous two indicators of diversity, the authors introduce share of classroom diversity in SES of the students' families as the third indicator.

To represent a desirable or "successful" classroom context, the current study focuses on attitudes of tolerance held by lower-secondary students towards minorities. Writ large, attitudes of tolerance have generally been shown to affect the success of interaction between people of different cultures. Minorities tend to fare worse in communities with lower levels of tolerance (Côté & Erickson, 2009). For students in a classroom setting, favorable rates of attitudes of tolerance indicate a favorable classroom climate and feelings of safety. A favorable classroom climate has been found to be directly related to academic achievement (Reyes et al., 2012), while the feeling of school safety has been found to be significantly associated with educational outcomes, a finding more pronounced among immigrant students (Katschinig & Hastedt, 2017). Accordingly, the current study focuses on attitudes of tolerance towards equal rights for all ethnic/racial groups as a favorable measure in an education system. This measure is referred to as tolerance towards minorities.

Focusing specifically on measures and mechanisms of contact between groups of "others" (as defined above), the current study draws on relevant data collected in 2009 and 2016 for the International Civic and Citizenship Education Study (ICCS), conducted by the International Association for the Evaluation of Educational Achievement (IEA), to examine factors and activities associated with lower-secondary school student attitudes of tolerance towards minorities.

Previous research suggests that moderating factors, i.e., the conditions of contact, are crucial to the resulting changes in both majority and minority groups. In terms of such moderating factors, civic activities—i.e., activities which can be characterized as meeting the criteria for intergroup contact that positively affects attitudes of tolerance—are examined as potential factors which may be associated with increased rates of tolerance towards minorities in the classroom, both as a function of contact between native and immigrant students (Pettigrew, 1997; Stark, 2011) and also in and of themselves (Sandoval-Hernández et al., 2018). The current study considers both civic activities performed in the school and civic activities performed in the community as potentially such moderating factors. Finally, given the demographic fluxes seen between 2009 and 2016, the current study also examines trends and changes in the relationships between tolerance, classroom composition, and participation in civic activities in those countries that participated in both study cycles.

Literature review and hypotheses

Informing the current study is a plethora of existing research into the contact hypothesis and acculturation theory.

Contact hypothesis

The contact hypothesis, at its core, posits that contact between differing groups serves to decrease prejudice and increase acceptance of the "other", including support for immigrants' rights (Allport, 1954). More modern research on the contact hypothesis strongly suggests that simple contact is not enough to reduce rates of prejudice alone; rather, the type (i.e., context) of contact is vital (Pettigrew & Tropp, 2011). Pettigrew and Tropp found that "negative intergroup experiences can enhance feelings of anxiety and threat and hinder the development of positive orientations toward the outgroup" (2006). Stark (2011) also found that intergroup contact alone may not necessarily result in more positive attitudes towards immigrants, but that desirable effects can be observed when the context of contact is taken into account by instructors working in schools with diverse student populations: i.e., contact that fosters opportunities for developing personal relationships. According to Stark, a good way to create such opportunities for positive interpersonal relationships is to structure classroom interactions to focus on cooperation in order to achieve mutual goals and encourage the formation of kindred opinions and interests (2011). Pettigrew likewise underscored the importance of the formation of intergroup friendships in intergroup interaction, emphasizing in particular that the contact be sustained (1997). The four conditions for contact between different groups which Allport offered as most indicative of decreased prejudice include contact between groups of (1) equal status who (2) share common goals, contact which (3) includes cooperation, and contact which is (4) supported by external authorities (1954). Interactions between groups should be moderated by factors which help to reduce impressions of competition (e.g., economic or societal threats) between groups (Côté & Erickson, 2009).

Paluck et al. (2019), re-evaluating the contact hypothesis in more recent years, provided critique that gaps in the literature exist; while they acknowledged Hewstone's (2003) and Pettigrew and Tropp's (2006) research on the contact hypothesis as being "decisive", they also offered that empirical support for the four conditions of contact detailed above was lacking. The Single Factor Fallacy (Pettigrew & Hewstone, 2017) warns against overly simplistic interpretations of the contact hypothesis and emphasizes that ignoring relevant theories or key variables of interest can distort resulting analyses; accordingly, the current study includes multi-level analysis and aspects of trend analysis to further judge the robustness of its findings.

Previous research into the contact hypothesis has focused on the role that classroom composition plays in the attitudes of students. For example, Brese examined the role of schools in determining attitudes of tolerance, reporting that children in European countries who are exposed to the "other" in an ethnically diverse school setting are more likely to accept them (2015). Likewise, Caro and Schulz reported that research on Latin American youth revealed the importance of interaction between differing groups in fostering a climate of tolerance, in turn benefiting minority groups and contributing to general societal well-being (2012).

Acculturation theory

Acculturation can be broadly defined as the process of change which occurs as a result of contact between culturally dissimilar groups (Schwartz et al., 2010). The study of acculturation is understood to rely heavily on the perceptions that members of the "host" population hold of members of the "incoming" population. Clemens et al. underscore positive framing of migration to native citizens as a vital aspect of successful integration efforts, explicitly arguing against propagation of the idea that immigration must necessarily be seen as a negative development which harms workers and citizens in host countries (2018). Unfortunately, such attitudes are common in native-born populations; researchers at Harvard University, analyzing large-scale surveys and experiments on native attitudes towards immigrants in six countries (France, Germany, Italy, the UK, the US, and Sweden), found considerable bias in the perceptions of host countries' citizens towards immigrants in both prevalence and nature, finding that they tended to overestimate the share of immigrants in their societies as well as their levels of education, wealth, and reliance on government aid (Alesina et al., 2018).

Acculturation theory is often applied to the study of changes seen in immigrant groups, with special emphasis placed on the extent to which immigrants either adopt their hosts' culture or maintain their own cultural heritage. However, acculturation should also be considered a reciprocal interaction, by which members of the majority culture are likewise impacted by contact with members of minority groups.

Drawing parallels between the contact hypothesis and acculturation theory, research into acculturation has also placed special emphasis on the social context of acculturation (Birman & Simon, 2014). Also as with the contact hypothesis, acculturation has been identified as having the potential to effect positive change, but has also been sometimes found to be a source of stress and depression for assimilating groups (Falavarjani et al., 2019; Oppedal et al., 2004).

Hypotheses

When considering mechanisms of "successful" contact, i.e., contact which results in reduced attitudes of prejudice/increased attitudes of tolerance, civic activities performed by students in the school or in the community could be theorized to foster cooperation and formation of a group identity (Stark, 2011) and meet Allport's (1954) four criteria for intergroup contact detailed above. Sandoval-Hernández et al. analyzing data from the IEA's 2009 ICCS cycle, reported that in terms of attitudes toward diversity, students' participation in civic-related activities at school exhibited consistently positive connotations with attitudes towards diversity (2018).

The current study builds on Sandoval-Hernández et al. research, novelly examining ICCS 2016 data on civic activities performed within a school, and civic activities performed within a community, as exploratory factors which meet the criteria laid out for activities which constitute desirable contexts in terms of intergroup contact.

Based on the acculturation frameworks set out by Berry (1997) and Arends-Toth and Van de Vijver (2006), more modern interpretations of the contact hypothesis (Pettigrew & Tropp, 2006, 2011), and review of relevant literature summarized above, the authors' first hypothesis is that, among the countries participating in ICCS, reported student

attitudes of tolerance towards minorities will exhibit a positive relationship with civic activities performed either in the school (for example, taking part in decision-making about how the school is run) or in the community (for example, students' participation in a youth organization; see Sect. "Civic participation by students in school and the community" for more details on the analyzed scales' components). The authors' second hypothesis is that students learning in increasingly diverse classrooms (in terms of the share of students from an immigrant background, language spoken in the home, or SES, as described above) will exhibit increased rates of tolerance towards minorities. The authors' third hypothesis is that in countries which exhibit significant changes in immigrant populations between cycles (i.e., 2009 and 2016), these relationships will be strengthened accordingly. Including variables measuring both constructs (classroom diversity and reported participation in civic activities) in one model will allow for the discerning of moderating or overlapping associations between tolerance, civic activities, and classroom diversity. As in previous research by Sandoval-Hernandez et al. on young people's attitudes towards equal rights for ethnic/racial minorities in the EU (European Commission, 2015), control variables, including students' family SES and gender, are likewise considered as potential mediators (see Sect. "Control variables").

Data and methods

The current study draws on data from the International Civic and Citizenship Education Study (ICCS), conducted by the International Association for the Evaluation of Educational Achievement (IEA), comparing 2009 and 2016 study cycles.

ICCS investigates the ways in which young people in participating countries are prepared to undertake their roles as citizens. In addition to a test of theoretical knowledge and cognizance of features of civics and citizenship, ICCS also gathered and reported data stemming from background questionnaires on student beliefs, attitudes and behaviors relating to civics and citizenship (Schulz et al., 2016). 38 countries participated in ICCS in 2009; 24 participated in 2016.

The student samples for ICCS consisted of grade 8 students, which were sampled based on a stratified school sample design from (usually) one class per school. Up to 15 teachers per school who taught the target grade were also sampled and administered a questionnaire.[1] The ICCS sampling design therefore necessitated analysis of the dependent and independent variables based on the classroom, and not the school. However, given the random nature of the within-school sampling procedures, the authors assert that composition of the classroom can be, for the purposes of this study (reporting on education system level), extrapolated to the school, while acknowledging that a heterogeneous school may yet have homogenous classrooms, and vice-versa. See the ICCS 2009 and 2016 Technical Reports for more information on the ICCS 2009 and 2016 sampling designs (Schulz et al., 2011, 2018b).

For this paper, to check for trends over time according to our third hypothesis that increasingly diverse classrooms will exhibit more tolerance towards minorities, the 18 countries that participated in both cycles of ICCS and met the participation requirements to be compared across the two cycles[2] were analyzed.

[1] For this study, the teacher data were not used.

[2] See Schulz et al., 2018a, 2018b, p. 61.

Table 1 ICCS participating countries and students in 2009 and 2016

Country	Participating students	
	2009	2016
Belgium (Flemish)	2968	2931
Bulgaria	3257	2966
Chile	5192	5081
Chinese Taipei	5167	3953
Colombia	6204	5609
Denmark	4508	6254
Dominican Republic	4589	3937
Estonia	2743	2857
Finland	3307	3173
Italy	3366	3450
Latvia	2761	3224
Lithuania	3902	3631
Malta	2143	3764
Mexico	6576	5526
Norway	3013	6271
Russian Federation	4295	7289
Slovenia	3070	2844
Sweden	3464	3264

Sources: Schulz (2010, p. 263), Schulz et al., (2018a, p. 212)

Table 1 provides a list of these countries and their respective number of students that were assessed.

The background questionnaire scales used in our analysis were created by the ICCS consortium using Item Response Theory (IRT), with weighted likelihood estimates set to a mean of 10 and standard deviation of 2 within each participating country (Schulz et al., 2011, 2018b). Information on the linking of scales scores between 2009 and 2016 is provided in the ICCS 2016 Technical Report (Schulz et al., 2018b, p. 147ff.)

Multilevel analysis with Mplus was conducted to check for the share of variance in students' attitudes towards minorities on class level. Whereas in 2009, no country had more than 10% of the variance explained in students' attitudes towards equal rights for minorities on class level, in 2016 this was the case in four countries (see Table 5), with up to 16% in Sweden. Nevertheless, with these overall low shares of variance explained at class level across most countries in both years, the authors decided against a multilevel approach, rather conducting analyses on the student level. Also, since the class-level effects were generally small and not consistent across countries, analyzing data at the student level was deemed appropriate. Further, conducting analyses at the student level allowed for a more straightforward interpretation of the results while accounting for the complex sampling design through the use of sampling weights and appropriate techniques for estimating unbiased standard errors.

Model

The analysis was conducted using OLS (ordinary least square) linear regression models, implemented using the IEA IDB Analyzer. Due to the complex sampling design, sampling weights were used in both cycles in order to estimate unbiased population parameters; for estimating unbiased standard errors, the jackknife repeated replication technique was applied (Schulz et al., 2011, 2018b). Students with missing data for any variable were not included in analyses.[3] For more information on the data processing methodology, please refer to the ICCS 2009 and 2016 Technical Reports (Schulz et al., 2011, 2018b).

Variables

A brief description of the variables used for analysis in this paper can be found in the following sections. For more specifics about scaling and reliabilities, please refer to the ICCS 2009 and 2016 Technical Reports (Schulz et al., 2011, 2018b).

Attitudes towards tolerance

As in 2009, ICCS 2016 included a scale indicating students' attitudes towards equal rights for all ethnic/racial groups (ETHRGHT). Having determined that the scale meets the criteria laid out by Stark (2011) and Allport (1954; see Sect. "Literature review and hypotheses") for moderating factors for positive intergroup contact, the current study uses this scale—which was composed of five questions indicating student endorsement of equal rights for all ethnic/racial groups' (i.e., minorities, see Sect. "Introduction")—as a dependent variable and a proxy for students' tolerance towards minorities. The questions included whether students thought that all ethnic/racial groups should have an equal chance to get a good education or a good job in the country of test, whether schools should teach students to respect members of all ethnic/racial groups, and whether members of all ethnic/racial groups should be encouraged to run for public office or enjoy the same rights and responsibilities. A higher score on the scale indicates higher support for equal rights for all ethnic/racial groups (for details on the scale, please refer to Schulz et al., 2018b). Regarding scale comparability across countries and time, measurement invariance was investigated and reported in the ICCS Technical Report 2016; the scale from 2016 was found to be comparable to the 2009 version (Schulz et al., 2018b, p. 167ff.).

Figure 1 shows the students' attitudes toward equal rights for all ethnic/racial groups scale averages for each country in 2009 and 2016. In all countries except Bulgaria the country scale average increased significantly, meaning more positive attitudes towards equal rights for all ethnic/racial groups were observed in 2016 compared to 2009 (see Table 6 in the Appendix for all score averages for 2009 and 2016 as well as the differences between 2009 and 2016).

Classroom diversity

Share of immigrant students in the classroom The authors calculated the proportion of students in each class with self-reported immigration status to be used as a measure of intergroup contact, and an independent variable. Based on students' responses, the ICCS

[3] See Appendix Table 4 for the final number of cases per country used for the analysis.

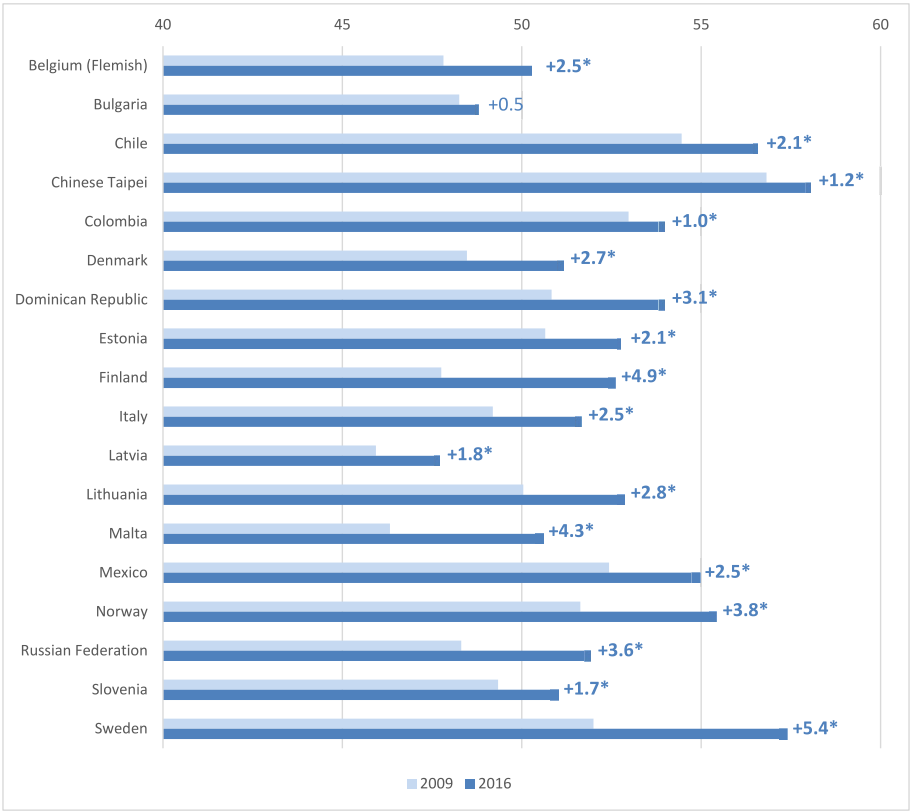

Fig. 1 Students' attitudes toward equal rights for all ethnic/racial groups scale score averages in 2009 and 2016, and difference between 2009 and 2016. Differences in bold indicated with an asterisk* are significant on a 95% confidence level

consortium provided a variable on if the students were from native, 1st, or 2nd generation immigrant families (Köhler et al., 2018, p. 312). For the analysis in this paper, the two immigrant categories were collapsed.

The share of immigrant students in the classroom was added as a variable at student level. Figure 2 shows the average share of immigrant students in the classroom in the countries participating in ICCS in 2009 and 2016, with the numbers indicating the change of the percentage of immigrant students from 2009 to 2016 (see Table 7 in the Appendix for all average percentages for 2009 and 2016 as well as the differences between 2009 and 2016).

From 2009 to 2016, the share of immigrant students in the classroom increased significantly in 6 out of the top 8 countries with the greatest share of immigrants in 2016. No countries exhibited a significant decrease in classroom share of immigrant students between 2009 and 2016.

Share of students who do not speak the language of the test at home The share of students in the classroom who do not speak the test language at home (S_TLANG_CLS) was also calculated for both the 2009 and 2016 cycles and included in the model as a student level independent variable. This was done using student self-reports: whether the language in which the test was administered was the same as that used at home. This information

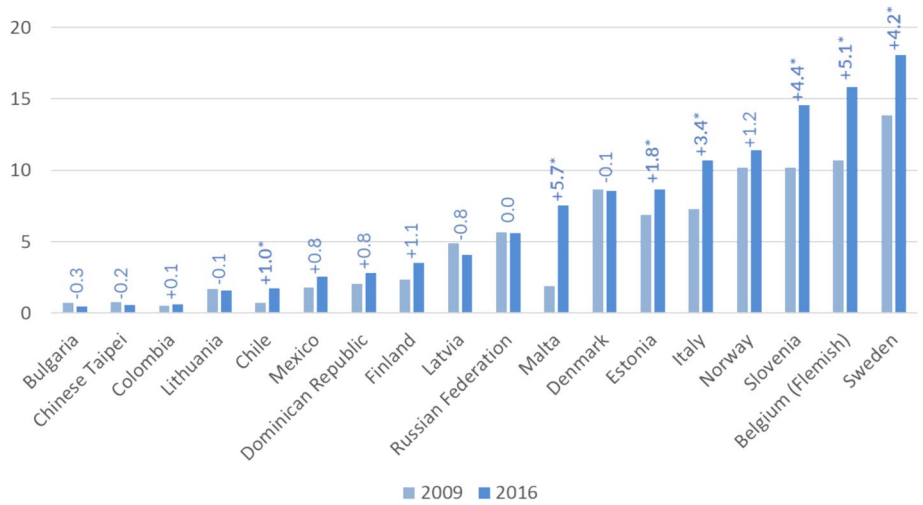

Fig. 2 Average share (in %) of immigrant students in the classroom in 2009 and 2016, and difference between 2009 and 2016. Differences in bold indicated with an asterisk* are significant on a 95% confidence level

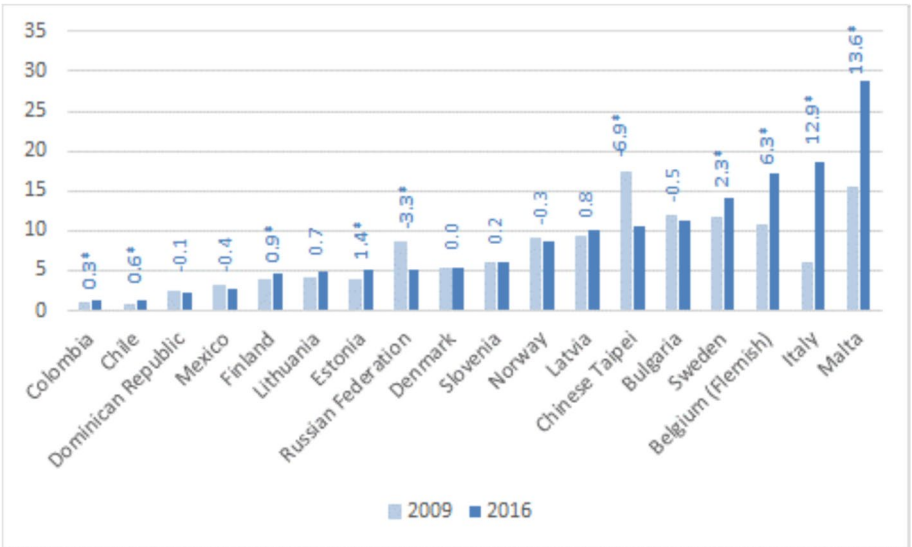

Fig. 3 Share of students in the classroom who do not speak the language of test at home in 2009 and 2016, and difference between 2009 and 2016. Differences in bold indicated with an asterisk* are significant on a 95% confidence level

was used to calculate the percentage of students in each classroom who reported using a different language at home. Figure 3 shows the average share of 8th grade students in the classroom (in percent) who do not speak the language of test at home for 2009 and 2016, with the numbers indicating the change in this share from 2009 to 2016 (see Table 8 in the Appendix for all average percentages for 2009 and 2016 as well as the differences between 2009 and 2016). As shown, between the 2009 and 2016 cycles, an increase in students who do not speak the language of test at home was observed in eight countries, while only two countries showed a decrease. In 2016, seven countries exhibited a 10% or

Table 2 Correlation of the share of students in the classroom with an immigrant background and the share of students in the classroom who do not speak the language of test at home, and the percentage of immigrant students among target grade students, 2009 and 2016

Country	2009				2016			
	r	(SE)	% Immigrant students (SE)		r	(SE)	% Immigrant students (SE)	
Sweden	**0.96**	**(0.01)**	13.9	(1.2)	**0.94**	**(0.01)**	18.1	(1.6)
Denmark	**0.85**	**(0.03)**	8.6	(0.8)	**0.86**	**(0.03)**	8.6	(0.8)
Norway	**0.92**	**(0.02)**	10.2	(1.4)	**0.83**	**(0.03)**	11.4	(1.1)
Finland	**0.66**	**(0.11)**	2.4	(0.5)	**0.69**	**(0.07)**	3.5	(0.5)
Belgium (Flemish)	**0.81**	**(0.04)**	10.7	(1.2)	**0.66**	**(0.09)**	15.8	(1.6)
Slovenia	**0.62**	**(0.07)**	10.2	(0.9)	**0.49**	**(0.07)**	14.6	(1.0)
Italy	**0.88**	**(0.03)**	7.3	(0.8)	**0.39**	**(0.11)**	10.7	(0.9)
Chile	0.02	(0.10)	0.7	(0.1)	**0.33**	**(0.05)**	1.7	(0.3)
Dominican Republic	0.11	(0.13)	2.0	(0.3)	**0.28**	**(0.09)**	2.8	(0.4)
Mexico	**0.51**	**(0.19)**	1.8	(0.2)	**0.23**	**(0.08)**	2.5	(0.4)
Lithuania	**0.27**	**(0.09)**	1.7	(0.2)	0.17	(0.11)	1.6	(0.3)
Malta	− 0.01	(0.08)	1.9	(0.3)	**0.10**	**(0.03)**	7.6	(0.4)
Latvia	− 0.01	(0.10)	4.9	(0.7)	0.06	(0.08)	4.1	(0.4)
Russian Federation	− 0.03	(0.11)	5.7	(0.5)	0.00	(0.07)	5.6	(0.5)
Estonia	− 0.07	(0.05)	6.9	(0.5)	− 0.05	(0.10)	8.7	(0.7)
Bulgaria	0.12	(0.07)	0.7	(0.2)	− 0.06	(0.04)	0.5	(0.1)
Colombia	0.10	(0.08)	0.5	(0.1)	− 0.06	(0.04)	0.6	(0.1)
Chinese Taipei	− **0.15**	**(0.06)**	0.8	(0.1)	− **0.10**	**(0.03)**	0.6	(0.2)

Standard errors appear in parenthesis. Coefficients in bold are significant on a 95% confidence level

greater share of students who reported speaking a different language in the home than that of the administered test, compared to 2009.

This is markedly different than the share of students who reported having an immigrant background, suggesting that using the language spoken in the home is measuring something distinct from immigration background. This was partly confirmed by looking at the correlation between the two different shares on class level (see Table 2). While in the northern and western European countries in the sample the correlation between immigrant background and not speaking the language of test at home is high, it is only moderate, low, or even non-significant in the other countries. For some countries with only moderate to no correlation, there are simply too few students with immigration background or not speaking the language of test at home, but also other countries with a substantive number of students with no relation of immigration background and language use at home. At least, these findings do not point to an overall issue with collinearity when entering both variables in a regression model. However, this should be kept in mind when running regression analyses for those countries with high correlations (e.g., Sweden, Denmark, and Norway).

The strength of the correlation, in turn, is to some extent related to the overall share of immigrant students. Countries with a comparably high share of students with an immigrant background show a relatively high correlation between the share of students in the classroom with an immigrant background and the share of students in the classroom

who do not speak the language of test at home or vice versa. Countries with a relatively low(er) share of students with an immigrant background show a weak or no correlation.

Classroom diversity regarding the socio-economic status of students' families To introduce the level of heterogeneity in the classroom regarding the socio-economic status of the students' families in the regression model, a variable (S_HISEI_CLS_divers) on student level was derived for both cycles as the standard deviation of the average families' socio-economic status (HISEI) of all the students in the classroom.

Civic participation by students in school and the community

The final analyzed independent variable was civic participation by students, both in the school and in the community. The scale on civic participation in school (S_SCHPART) was composed of questions relating to students' participation at school, voting for class representative or school parliament, taking part in decision-making about how the school is run, taking part in discussions at a school assembly, becoming a candidate for class representative or school parliament, and participating in an activity to make the school more environmentally friendly (e.g., through water-saving or recycling).

The scale on participation in activities in the wider community (S_COMPART) was composed of questions relating to students' participation in a youth organization affiliated with a political party or union, an environmental action group or organization, a human rights organization, a voluntary group doing something to help the community, an organization collecting money for a social cause, a group of young people campaigning for an issue, and an animal rights or welfare group.

A scale for both constructs was included in both 2009 and 2016. Note, however, that the scales were modified slightly—for the scale on participation in school, one item has been changed; for the scale on participation in the community one item was removed and a new one included (Schulz et al., 2011, 2018b). Therefore, scale scores were not equated between the two cycles and are not directly comparable. Nevertheless, for both cycles, higher scores indicate higher levels of civic participation in the community and in school, respectively.

Control variables

In the regression models, the effects of the different predictor variables according to the stated hypotheses are the focus. As gleaned from previous research, certain student characteristics are associated with students' attitudes towards tolerance (see for example Schulz et al., 2018a, 2018b). Therefore, these characteristics are included in the regression model as control variables, to identify the effect of the predictor of interest, when these control variables are kept constant. As control variables, included in the model is a measure of the students' family SES (S_HISEI; composed of parental occupation, parental education, and number of books in the home), student gender (S_GENDER), and students' civic knowledge (PV_CIV).

Table 3 Significance of predictors of positive attitudes towards equal rights for all ethnic/racial groups in 2009 and 2016

Country	Participation in school related civic activities (S_SCHPART)[1]	Share of immigrant students in class (S_IMMIG_CLS)	Share of students not speaking the language of test at home (S_TLANG_CLS)	Students' gender (S_GENDER_D2)	Students' immigrant status (S_IMMIG_DICH_D2)	Student not speaking the language of test at home (S_TLANG_D1)	Students' civic knowledge (PV_CIV)
Belgium (Flemish)	x			x	x		x
Bulgaria	x			x			x
Chile	x			x			x
Chinese Taipei	x	x		x			x
Colombia	x		x			x	x
Denmark	x			x	x	x	x
Dominican Republic	x						x
Estonia	x	x	x	x			x
Finland	x		x	x			x
Italy				x	x		x
Latvia		x				x	x
Lithuania	x						x
Malta	x		x	x	x		x
Mexico	x		x				x
Norway	x	x		x	x		x
Russian Federation	x				x	x	x
Slovenia	x			x	x	x	x
Sweden	x			x		x	x

An "x" indicates a significant predictor in 2016 (95% confidence interval). A non-highlighted cell containing an "x" indicates a significant predictor in 2009 and 2016 (95% confidence interval). A yellow highlighted cell indicates the predictor was significant in 2016, but not in 2009. A light red highlighted cell indicates the predictor was significant in 2009, but not in 2016

[1] One item of the scale on participation in school related civic activities was changed from 2009 to 2016 (see Sect. "Civic participation by students in school and the community"), so caution should be given when interpreting the results

Findings

In the full model, i.e., with all above-mentioned variables included, no significant associations between civic participation in the community and students' attitudes towards equal rights for all ethnic/racial groups were found. Socio-economic status of students' families, both the indicator for the individual student as well as the indicator of diversity regarding SES on classroom level only showed significance in two and one countries, respectively. Therefore, these three variables were removed from the model.

In the reduced model, significant relations between students' participation in civic activities in school and students' attitudes towards equal rights for all ethnic/racial groups were found in 16 out of 18 countries in both 2009 and 2016, even when controlling for gender, SES, and civic knowledge.

Table 3 indicates the significance of the predictors of the reduced model in 2009 and 2016 by country (Table 8 in the Appendix contains all regression coefficients of the reduced model).

Looking at the adjusted r^2, the model explains 3–20% of variance in attitudes towards tolerance in 2009 and 4–25% in 2016 (see Table 10 in the Appendix). For three countries (Chinese Taipei, Columbia, Denmark), a decrease in explained

variance was found between 2009 and 2016, while an equal number of countries (Estonia, Malta, Russian Federation) also saw an increase in the amount of explained variance. For all other twelve countries, the amount of variance in students' attitudes towards tolerance explained with this model did not change significantly.

In terms of explanatory power of the variables included in the model for students' attitudes towards equal rights for all ethnic/racial groups, civic knowledge was the most relevant factor in the model in terms of the number of countries a factor is significant (significant in all countries), followed by participation in school activities (significant in all countries in 2009 and 16 countries in 2016) and gender (significant in 14 countries in 2009 and 12 countries in 2016).

Four countries exhibited a change between having no significant relation between students' participation in civic activities in school and students' attitudes towards equal rights for all ethnic/racial groups, to having a significant relation; in Malta and Lithuania, civic participation at school became a significant predictor of tolerance towards equal rights for all ethnic/racial groups in 2016 after not being significant in 2009, while in Italy and Latvia, the significant relationship found in 2009 disappeared in 2016. A majority of countries (14 total) were found to have significant relationships between students' participation in civic activities in school and students' attitudes towards equal rights for all ethnic/racial groups in both 2009 and 2016. Although the scale scores are not comparable as one item of the scale changes from 2009 to 2016 (see Sect. "Civic participation by students in school and the community"), the findings on the significance show that these civic activities related to the school—however slightly different—play a role in explaining variance in students' tolerant attitudes. Even more so, as the coefficients are all positive, showing that more activities are related to a higher level of tolerance.

As reported in the ICCS 2016 International Report, students who had greater levels of civic knowledge were more likely to report positive attitudes towards equal rights for all ethnic/racial groups (Schulz et al., 2018a, 2018b). This finding was replicated in the present model, with civic knowledge emerging as the variable with the highest explanatory power regarding tolerance. In terms of changes between the two cycles, all countries exhibited positive relations between civic knowledge and attitudes towards equal rights for all ethnic/racial groups in both cycles. For three countries, the explanatory power of this relation increased between 2009 and 2016, while an equal number of countries exhibited a decrease in the explanatory power of civic knowledge. For 12 countries, no change in explanatory power was found.

Regarding the indicators of classroom diversity and their association with attitudes towards tolerance, they show different results. Classroom diversity in terms of the share of immigrants is a significant predictor of attitudes towards tolerance in six countries in 2009 and four countries in 2016. Interestingly, countries show differences in the direction of the association. In Estonia, a greater share of immigrants was related to lower tolerance in both 2009 and 2016 and was stronger in the latter cycle. In Latvia, a neighboring country, the association is the opposite: More diversity in the classroom regarding students' immigrant background is related to more tolerance, again in both cycles. Overall, both in 2009 and 2016, three countries show a positive relation (Denmark, Latvia, Malta in 2009; Chinese Taipei, Latvia, Norway in 2016). In 2009 three countries (Chile, Columbia, Estonia), and in 2016 one country (Estonia) show a negative relation.

Hence, in 2016, in the few cases where classroom composition regarding the share of immigrants is associated with attitudes towards tolerance, results from three of the four countries support the hypothesis that extended contact is related with more tolerance, whereas only in one country the opposite is found.

Classroom diversity in terms of the language spoken at home being different than the language of test developed as a significant indicator of tolerance in five countries (Columbia, Estonia, Finland, Malta, and Mexico) in 2016, while in 2009 only one country (Finland) showed a significant relation. All relations are positive, suggesting that more diversity in this regard is associated with more tolerance, which supports our hypothesis that more contact could be related to increased tolerance. This finding also supports to some extent the hypothesis that with increased numbers of immigrants in 2016 compared to 2009, the relation should get more pronounced.

Discussion

In general, the presented analyses provide support for the authors' hypothesis regarding civic activities—at least in schools—having an association with increased rates of attitudes of tolerance towards minorities, in the majority of analyzed countries. This could suggest that the act of participating in a civic activity in school fulfils the criteria laid out by Stark (2011) for the development of positive interpersonal relationships in mixed schools, and/or the four aspects of intergroup contact introduced by Allport (1954; see Sect. "Literature review and hypotheses").

It should be noted that the entire battery of activities comprising the civic participation in school scale was used for analysis; findings, therefore, represent an opportunity to further examine individual activities performed in the school, in order to determine with greater precision which activities have the strongest relationship with attitudes of tolerance. Therefore, the individual activities which make up the scale are recommended for examination in turn to determine which have stronger or weaker relationships with student tolerance. For example, it might be of interest to determine if activities which have a stronger traditional connotation with civic duty (e.g., voting for < class representative > or < school parliament >, taking part in decision-making about how the school is run, or becoming a candidate for < class representative > or < school parliament >) have a stronger relationship with tolerance than, for example, participating in an activity to make the school more < environmentally friendly > (e.g. through water-saving or recycling). However, in terms of satisfying the criteria set by Stark (2011) regarding the development of positive interpersonal relationships, particularly aspects regarding parallel interests and the achievement of mutual goals, perhaps participating in an activity to make the school more < environmentally friendly > (e.g. through water-saving or recycling) would exhibit *more* of a relationship with tolerance.

Interestingly, a relation between civic participation in the community and students' attitudes towards equal rights for all ethnic/racial groups was not found. The scale on participation in community activities comprises, for example, activities in diverse groups, such as a youth organization affiliated with a political party or union, an environmental action group or organization, a human rights organization, or an animal rights or animal welfare group. Further research could investigate differences in the association of participating in activities of these group with tolerance towards minorities. Some items comprising the scale, for example the participation in an animal

rights group, could be hypothesized to be unrelated to attitudes towards ethnic groups as the aim of such groups is not related towards ethnic diversity. As another example, regarding affiliation with a political party, attitudes towards minorities could be quite different depending on the policy agenda of a political party regarding minorities. Again, the authors recommend further analysis on the individual activities.

In terms of classroom diversity, some support for the stated hypothesis was found. Diversity with regard to socio-economic status of the students' families did not show a relationship with differences in attitudes towards tolerance in our study. However, classroom diversity with regard to the share of immigrant students did turn out to be a significant predictor of attitudes towards tolerance in a couple of countries. A similar, even more straightforward relation with diversity indicated by the share of students who do not speak the language of test (which in most cases is the language of instruction) at home was found. Although only a couple of countries showed an association of either of the two indicators with tolerance, almost all these relations (7 out of 8) were positive in 2016, meaning that more diversity is associated with more positive attitudes towards tolerance.

To summarize, some support for the hypothesis that classroom diversity could foster positive attitudes towards tolerance, not only by considering specific classroom interactions, but already by the mere composition of the classroom itself, was found. In this sense, it might be favorable (if possible) to increase the diversity in classrooms rather than trying to set up homogenous classes, for example for students with an immigration background or more general students from minority groups. This might be easier to achieve for countries and schools with a bigger share of students from minority groups or with a bigger diversity per se. According to the findings, the same applies also for linguistic diversity; the data suggest that there are possible positive effects to be seen from educating students from diverse linguistic background in the same classroom.

Apart from contact as a potential source of fostering positive attitudes towards minority groups, our results show that students who had greater levels of civic knowledge were more likely to report positive attitudes towards equal rights for all ethnic/racial groups. As this relation could be observed in all countries participating in ICCS, and also holds over time from 2009 to 2016, efforts to put emphasis on and to increase civic knowledge of students might also effect increased tolerance of students. The study does not provide more concrete insights into the question of whether there are certain aspects of civic knowledge and hence civic and citizenship education that would be preferable or more useful to focus on. Further research, including a more granular look into civic knowledge, might provide more information and, potentially, and more specific policy recommendations on (re-)shaping civic and citizenship education curricula.

Further research could include conducting multilevel analyses for countries with relatively higher intraclass correlations for students' attitudes towards equal rights for minority groups, such as Sweden and Denmark. In those contexts/countries, multilevel analyses could provide insights into the class-level factors or processes that contribute to the observed variations in attitudes towards minorities, enabling a more nuanced understanding of the phenomenon and informing targeted interventions or policies.

Further research into country-specific contexts and factors, including political and social aspects, may also yield more nuanced findings regarding the reported findings.

It should be noted that neither the ICCS assessments nor the questionnaires were specially tailored to provide data relating to acculturation or the contact hypothesis. Although the authors propose that participation scales as well as the classroom diversity regarding students with immigrant background, language spoken in the home, or SES can be used as an indicator of contact with "the other" group/s, there is no data on the type or quality of the contact. Therefore, findings must be interpreted with some caution.

Further, the notion of "minorities" or, more even broadly, "the other" can mean somewhat diverse things, depending on the country context. While some countries that perceive themselves as immigrant countries with a clear policy and respective attitude might have a well-defined and comparably low flow of immigrants coming into the country based on selection criteria, other countries have welcomed many refugees during recent crises. Yet others saw a substantive movement in the past due to historical processes, e.g., the relatively high amount of Russian-speaking people or people with Russian origin in the Baltic states. Therefore, the current study also calls for a closer look into countries, their historical development, and their current situation in terms of diversity and also their current societal atmosphere with regard to tolerance.

Overall, rates of tolerance (as expressed by the findings of the positive attitudes towards equal rights for all ethnic/racial groups scale) increased significantly for the majority of countries, which is striking and a promising finding considering the political and immigration trends discussed in the introduction.

Appendix

Tables 4, 5, 6, 7, 8, 9, 10

Table 4 Student sample size, number of students used for regression analysis, and respective reduction

	2009			2016		
Country	Sample	Regression Analysis	Reduction	Sample	Regression Analysis	Reduction
Belgium (Flemish)	2968	2838	4%	2931	2706	8%
Bulgaria	3257	3049	6%	2966	2799	6%
Chile	5192	5006	4%	5081	4662	8%
Chinese Taipei	5167	5036	3%	3953	3801	4%
Colombia	6204	5736	8%	5609	5206	7%
Denmark	4508	4199	7%	6254	5644	10%
Dominican Republic	4589	3411	26%	3937	3146	20%
Estonia	2743	2644	4%	2857	2780	3%
Finland	3307	3170	4%	3173	3041	4%
Italy	3366	3247	4%	3450	3179	8%
Latvia	2761	2665	3%	3224	3042	6%
Lithuania	3902	3779	3%	3631	3422	6%
Malta	2143	2025	6%	3764	3359	11%
Mexico	6576	6021	8%	5526	5072	8%
Norway	3013	2754	9%	6271	5725	9%
Russian Federation	4295	4192	2%	7289	7071	3%
Slovenia	3070	2944	4%	2844	2723	4%
Sweden	3464	3183	8%	3264	2896	11%

Yellow bars indicate the relative strength of the reduction

Table 5 Intraclass correlation for students' attitudes towards equal rights for minority groups in 2009 and 2016, and difference between 2009 and 2016

Country	Class (L2)–Student (L1)		
	2009 (%)	2016 (%)	DIFF (%)
Belgium (Flemish)	5.4	0.5	− 5.1
Bulgaria	3.6	5.7	2.1
Chile	7.0	5.2	− 1.8
Chinese Taipei	2.1	0.4	− 1.7
Columbia	4.9	4.1	− 0.8
Denmark	9.4	16.4	7.0
Dominican Republic	3.0	11.3	8.3
Estonia	3.6	3.2	− 0.4
Finland	3.4	1.2	− 2.2
Italy	6.6	0.2	− 6.4
Latvia	5.4	9.6	4.2
Lithuania	2.8	1.8	− 1.0
Malta	6.8	11.9	5.1
Mexico	6.4	3.1	− 3.3
Norway	2.8	2.6	− 0.2
Russian Federation	6.1	1.9	− 4.2
Slovenia	2.4	1.6	− 0.8
Sweden	6.1	15.8	9.7

Table 6 Average scale scores for students' attitudes towards equal rights for minority groups in 2009 and 2016, and difference between 2009 and 2016

Country	2009		2016		Change	
					2016–2009	
	Mean	(S.E.)	Mean	(S.E.)	Mean	(S.E.)
Belgium (Flemish)	47.82	(0.26)	50.30	(0.28)	**2.48**	**(0.45)**
Bulgaria	48.26	(0.23)	48.78	(0.27)	0.52	(0.44)
Chile	54.46	(0.25)	56.58	(0.24)	**2.13**	**(0.43)**
Chinese Taipei	56.82	(0.16)	58.05	(0.17)	**1.23**	**(0.34)**
Colombia	52.97	(0.17)	53.98	(0.16)	**1.01**	**(0.34)**
Denmark	48.47	(0.29)	51.17	(0.24)	**2.70**	**(0.45)**
Dominican Republic	50.83	(0.29)	53.98	(0.18)	**3.15**	**(0.42)**
Estonia	50.65	(0.23)	52.75	(0.24)	**2.10**	**(0.42)**
Finland	47.76	(0.23)	52.61	(0.23)	**4.85**	**(0.41)**
Italy	49.19	(0.24)	51.66	(0.24)	**2.47**	**(0.42)**
Latvia	45.93	(0.22)	47.72	(0.24)	**1.78**	**(0.41)**
Lithuania	50.05	(0.21)	52.86	(0.23)	**2.81**	**(0.40)**
Malta	46.33	(0.28)	50.60	(0.19)	**4.28**	**(0.42)**
Mexico	52.43	(0.20)	54.97	(0.20)	**2.54**	**(0.38)**
Norway	51.63	(0.27)	55.42	(0.23)	**3.79**	**(0.43)**
Russian Federation	48.31	(0.23)	51.92	(0.37)	**3.61**	**(0.51)**
Slovenia	49.34	(0.20)	51.03	(0.24)	**1.69**	**(0.40)**
Sweden	52.00	(0.31)	57.39	(0.28)	**5.40**	**(0.49)**

Standard errors appear in parenthesis. Coefficients in bold are significant on a 95% confidence level

Table 7 Average percentages of share of immigrant students in the classroom in 2009 and 2016, and difference between 2009 and 2016

Country	2009		2016		Change 2016–2009	
	%	(S.E.)	%	(S.E.)	%	(S.E.)
Belgium (Flemish)	10.72	(1.19)	15.81	(1.58)	5.09	(1.98)
Bulgaria	0.73	(0.17)	0.47	(0.14)	− 0.26	(0.22)
Chile	0.73	(0.14)	1.73	(0.28)	**0.99**	**(0.31)**
Chinese Taipei	0.78	(0.12)	0.56	(0.20)	− 0.22	(0.24)
Colombia	0.51	(0.09)	0.63	(0.13)	0.12	(0.16)
Denmark	8.65	(0.83)	8.58	(0.83)	− 0.07	(1.17)
Dominican Republic	2.03	(0.33)	2.79	(0.42)	0.76	(0.53)
Estonia	6.86	(0.48)	8.68	(0.68)	1.82	(0.84)
Finland	2.36	(0.47)	3.49	(0.47)	1.13	(0.66)
Italy	7.26	(0.76)	10.69	(0.88)	3.43	(1.16)
Latvia	4.91	(0.66)	4.09	(0.43)	**− 0.82**	**(0.78)**
Lithuania	1.68	(0.24)	1.58	(0.25)	− 0.10	(0.35)
Malta	1.87	(0.30)	7.55	(0.42)	**5.68**	**(0.51)**
Mexico	1.77	(0.19)	2.54	(0.39)	0.77	(0.43)
Norway	10.20	(1.39)	11.42	(1.08)	1.22	(1.76)
Russian Federation	5.66	(0.54)	5.62	(0.50)	− 0.04	(0.74)
Slovenia	10.16	(0.92)	14.58	(0.97)	4.42	(1.33)
Sweden	13.86	(1.20)	18.05	(1.57)	4.19	(1.98)

Standard errors appear in parenthesis. Coefficients in bold are significant on a 95% confidence level

Table 8 Share of students in the classroom who do not speak the language of test at home in 2009 and 2016, and difference between 2009 and 2016

Country	2009		2016		Change 2016–2009	
	%	(S.E.)	%	(S.E.)	%	(S.E.)
Belgium (Flemish)	10.76	(1.27)	17.07	(1.19)	**6.31**	**(0.87)**
Bulgaria	11.80	(1.30)	11.31	(1.58)	− 0.48	(1.03)
Chile	0.77	(0.16)	1.38	(0.20)	**0.61**	**(0.13)**
Chinese Taipei	17.38	(1.02)	10.49	(0.69)	**− 6.88**	**(0.62)**
Colombia	0.87	(0.14)	1.19	(0.23)	**0.32**	**(0.13)**
Denmark	5.26	(0.50)	5.29	(0.55)	0.03	(0.37)
Dominican Republic	2.29	(0.28)	2.15	(0.29)	− 0.14	(0.20)
Estonia	3.74	(0.49)	5.12	(0.59)	**1.38**	**(0.38)**
Finland	3.79	(0.53)	4.67	(0.50)	**0.88**	**(0.36)**
Italy	5.81	(0.58)	18.68	(1.06)	**12.86**	**(0.61)**
Latvia	9.33	(1.43)	10.09	(1.57)	0.76	(1.06)
Lithuania	4.14	(1.12)	4.87	(0.98)	0.73	(0.74)
Malta	15.34	(0.77)	28.90	(0.68)	**13.57**	**(0.51)**
Mexico	3.19	(0.75)	2.81	(0.69)	− 0.38	(0.51)
Norway	8.95	(1.15)	8.67	(0.77)	− 0.28	(0.69)
Russian Federation	8.46	(1.85)	5.13	(0.83)	**− 3.33**	**(1.01)**
Slovenia	5.94	(0.66)	6.10	(0.67)	0.15	(0.47)
Sweden	11.70	(1.12)	14.03	(1.30)	**2.34**	**(0.86)**

Standard errors appear in parenthesis. Coefficients in bold are significant on a 95% confidence level

Table 9 Standardized regression coefficients for the reduced linear regression model with attitudes towards equal rights of ethnic/racial groups as the dependent variable for 2009 and 2016, and change from 2009 to 2016

Country	Students' civic participation in school (S_SCHPART)						Share of students in class with immigrant background (S_IMMIG_CLS)						Share of students in class who do not speak the language of school instruction at home (S_TLANG_CLS)					
	2009		2016		Change 2016–2009		2009		2016		Change 2016–2009		2009		2016		Change 2016–2009	
	b	(S.E.)	b	(S.E.)	b	(S.E.)	b	(S.E.)	b	(S.E.)	b	(S.E.)	b	(S.E.)	b	(S.E.)	b	(S.E.)
Belgium (Flemish)	**0.05**	**(0.02)**	**0.04**	**(0.02)**	− 0.01	(0.03)	0.04	(0.04)	0.06	(0.05)	0.02	(0.06)	0.00	(0.04)	− 0.02	(0.06)	− 0.02	(0.07)
Bulgaria	**0.06**	**(0.02)**	**0.05**	**(0.02)**	− 0.01	(0.03)	− 0.01	(0.02)	0.04	(0.03)	0.05	(0.04)	0.03	(0.03)	0.05	(0.03)	0.03	(0.04)
Chile	**0.07**	**(0.02)**	**0.09**	**(0.02)**	0.02	(0.02)	**− 0.05**	**(0.02)**	− 0.03	(0.02)	0.03	(0.03)	− 0.01	(0.02)	0.00	(0.02)	0.01	(0.03)
Chinese Taipei	**0.08**	**(0.01)**	**0.04**	**(0.02)**	− 0.04	(0.02)	0.02	(0.01)	**0.03**	**(0.01)**	0.00	(0.02)	0.01	(0.02)	0.00	(0.02)	− 0.01	(0.03)
Colombia	**0.11**	**(0.02)**	**0.07**	**(0.03)**	− 0.04	(0.03)	**− 0.03**	**(0.01)**	0.02	(0.02)	**0.05**	**(0.02)**	0.01	(0.02)	**0.06**	**(0.02)**	0.05	(0.03)
Denmark	**0.06**	**(0.02)**	**0.07**	**(0.02)**	0.00	(0.03)	**0.11**	**(0.05)**	0.04	(0.04)	− 0.07	(0.06)	0.00	(0.04)	0.04	(0.03)	0.05	(0.05)
Dominican Republic	**0.08**	**(0.02)**	**0.14**	**(0.02)**	0.06	(0.03)	0.00	(0.02)	− 0.03	(0.02)	− 0.03	(0.03)	0.00	(0.02)	0.00	(0.02)	− 0.01	(0.03)
Estonia	**0.05**	**(0.02)**	**0.06**	**(0.02)**	0.01	(0.03)	**− 0.06**	**(0.02)**	**-0.16**	**(0.02)**	**− 0.09**	**(0.03)**	− 0.03	(0.03)	**0.08**	**(0.03)**	**0.10**	**(0.04)**
Finland	**0.05**	**(0.02)**	**0.07**	**(0.02)**	0.02	(0.03)	− 0.05	(0.03)	− 0.06	(0.03)	− 0.01	(0.05)	**0.09**	**(0.03)**	**0.13**	**(0.03)**	0.04	(0.04)
Italy	**0.08**	**(0.02)**	0.04	(0.02)	− 0.04	(0.03)	− 0.06	(0.04)	− 0.03	(0.03)	0.03	(0.05)	− 0.02	(0.04)	− 0.04	(0.03)	− 0.01	(0.05)
Latvia	**0.06**	**(0.03)**	0.05	(0.03)	− 0.01	(0.04)	**0.11**	**(0.04)**	**0.07**	**(0.02)**	− 0.04	(0.04)	− 0.04	(0.03)	− 0.01	(0.03)	0.03	(0.05)
Lithuania	0.01	(0.02)	**0.11**	**(0.02)**	**0.10**	**(0.03)**	0.02	(0.01)	− 0.01	(0.02)	− 0.04	(0.02)	− 0.01	(0.02)	− 0.01	(0.02)	0.00	(0.03)
Malta	0.05	(0.03)	**0.08**	**(0.02)**	0.03	(0.03)	**0.04**	**(0.02)**	0.03	(0.02)	− 0.02	(0.03)	0.04	(0.03)	**0.05**	**(0.02)**	0.01	(0.04)
Mexico	**0.10**	**(0.01)**	**0.07**	**(0.02)**	− 0.03	(0.02)	− 0.02	(0.02)	− 0.02	(0.03)	0.00	(0.03)	− 0.01	(0.02)	**0.04**	**(0.02)**	0.05	(0.03)
Norway	**0.05**	**(0.02)**	**0.07**	**(0.02)**	0.02	(0.03)	0.05	(0.05)	**0.07**	**(0.03)**	0.02	(0.05)	0.02	(0.05)	0.00	(0.03)	− 0.02	(0.06)
Russian Federation	**0.09**	**(0.02)**	**0.12**	**(0.02)**	0.03	(0.03)	− 0.02	(0.02)	− 0.03	(0.02)	− 0.01	(0.03)	0.07	(0.03)	0.01	(0.02)	− 0.05	(0.04)
Slovenia	**0.07**	**(0.02)**	**0.07**	**(0.02)**	− 0.01	(0.03)	− 0.02	(0.03)	− 0.03	(0.02)	− 0.01	(0.04)	0.03	(0.03)	0.00	(0.03)	− 0.03	(0.04)
Sweden	**0.10**	**(0.02)**	**0.11**	**(0.02)**	0.01	(0.03)	0.14	(0.08)	0.12	(0.07)	− 0.02	(0.10)	− 0.10	(0.08)	− 0.12	(0.07)	− 0.02	(0.11)

Table 9 (continued)

Country	Student's gender (S_GENDER_D2)						Student's immigrant background (S_IMMIG_DICH_D2)						Student's not speaking the language of instruction at home (S_TLANG_D1)					
	2009		2016		Change 2016–2009		2009		2016		Change 2016–2009		2009		2016		Change 2016–2009	
	b	(S.E.)	b	(S.E.)	b	(S.E.)	b	(S.E.)	b	(S.E.)	b	(S.E.)	b	(S.E.)	b	(S.E.)	b	(S.E.)
Belgium (Flemish)	**0.11**	**(0.02)**	**0.05**	**(0.02)**	**− 0.07**	**(0.03)**	**0.07**	**(0.02)**	**0.08**	**(0.03)**	0.01	(0.04)	0.05	(0.02)	0.05	(0.04)	0.00	(0.04)
Bulgaria	**0.12**	**(0.02)**	**0.11**	**(0.02)**	− 0.01	(0.03)	0.02	(0.02)	− 0.02	(0.02)	− 0.04	(0.03)	**0.08**	**(0.02)**	0.03	(0.03)	− 0.05	(0.04)
Chile	**0.09**	**(0.02)**	**0.04**	**(0.02)**	− 0.04	(0.03)	− 0.02	(0.02)	0.01	(0.02)	0.03	(0.03)	0.00	(0.02)	0.00	(0.02)	0.00	(0.02)
Chinese Taipei	**0.06**	**(0.01)**	**0.06**	**(0.02)**	0.00	(0.02)	− 0.01	(0.02)	0.00	(0.02)	0.01	(0.02)	**− 0.04**	**(0.01)**	0.00	(0.02)	0.04	(0.02)
Colombia	− 0.03	(0.02)	0.03	(0.02)	**0.06**	**(0.03)**	0.01	(0.01)	0.00	(0.01)	− 0.01	(0.02)	− 0.01	(0.01)	**− 0.03**	**(0.01)**	− 0.02	(0.02)
Denmark	**0.15**	**(0.01)**	**0.04**	**(0.02)**	**− 0.11**	**(0.02)**	**0.15**	**(0.02)**	**0.08**	**(0.02)**	**− 0.07**	**(0.03)**	0.01	(0.02)	**0.05**	**(0.02)**	0.04	(0.02)
Dominican Republic	**− 0.04**	**(0.02)**	− 0.01	(0.02)	0.03	(0.02)	0.00	(0.02)	0.02	(0.02)	0.02	(0.03)	**− 0.05**	**(0.02)**	− 0.01	(0.02)	0.04	(0.03)
Estonia	**0.10**	**(0.02)**	**0.05**	**(0.02)**	− 0.05	(0.03)	0.00	(0.01)	0.03	(0.02)	0.02	(0.03)	**0.08**	**(0.03)**	0.03	(0.01)	− 0.05	(0.03)
Finland	**0.21**	**(0.02)**	**0.13**	**(0.02)**	**− 0.07**	**(0.03)**	**0.05**	**(0.02)**	0.03	(0.02)	− 0.02	(0.03)	0.04	(0.02)	− 0.03	(0.03)	-0.07	(0.04)
Italy	**0.07**	**(0.02)**	**0.08**	**(0.02)**	0.01	(0.02)	**0.13**	**(0.03)**	**0.11**	**(0.02)**	− 0.02	(0.04)	− 0.02	(0.03)	0.00	(0.02)	0.02	(0.03)
Latvia	0.02	(0.02)	0.04	(0.02)	0.02	(0.03)	− 0.01	(0.03)	− 0.03	(0.02)	− 0.01	(0.04)	**0.08**	**(0.03)**	**0.04**	**(0.02)**	− 0.03	(0.03)
Lithuania	**0.08**	**(0.02)**	0.03	(0.02)	− 0.05	(0.03)	0.00	(0.01)	0.02	(0.02)	0.01	(0.02)	0.04	(0.02)	− 0.01	(0.02)	− 0.04	(0.03)
Malta	**0.09**	**(0.03)**	**0.03**	**(0.02)**	− 0.05	(0.03)	0.02	(0.02)	**0.07**	**(0.02)**	0.05	(0.03)	− 0.02	(0.03)	− 0.02	(0.02)	0.00	(0.04)
Mexico	0.00	(0.01)	0.02	(0.01)	0.02	(0.02)	− 0.01	(0.02)	− 0.03	(0.01)	− 0.02	(0.02)	− 0.01	(0.02)	0.02	(0.02)	0.03	(0.02)
Norway	**0.10**	**(0.02)**	**0.07**	**(0.01)**	− 0.02	(0.02)	0.04	(0.04)	**0.10**	**(0.02)**	0.06	(0.04)	0.06	(0.03)	− 0.03	(0.02)	**− 0.09**	**(0.04)**
Russian Federation	0.03	(0.02)	0.00	(0.02)	− 0.02	(0.02)	**0.04**	**(0.02)**	**0.05**	**(0.02)**	0.02	(0.03)	0.03	(0.02)	**0.04**	**(0.02)**	0.01	(0.03)
Slovenia	**0.10**	**(0.02)**	**0.11**	**(0.02)**	0.01	(0.03)	0.01	(0.02)	**0.07**	**(0.03)**	**0.07**	**(0.03)**	**0.08**	**(0.02)**	**0.08**	**(0.02)**	0.00	(0.03)
Sweden	**0.15**	**(0.02)**	**0.12**	**(0.02)**	− 0.04	(0.03)	**0.08**	**(0.03)**	0.03	(0.03)	− 0.05	(0.04)	0.03	(0.03)	**0.10**	**(0.03)**	0.07	(0.04)

Table 9 (continued)

Country	Student's civic knowledge (PV_CIV)					
	2009		2016		Change 2016–2009	
	b	(S.E.)	b	(S.E.)	b	(S.E.)
Belgium (Flemish)	**0.18**	**(0.02)**	**0.24**	**(0.03)**	0.06	(0.04)
Bulgaria	**0.09**	**(0.02)**	**0.16**	**(0.03)**	0.07	(0.04)
Chile	**0.29**	**(0.01)**	**0.33**	**(0.02)**	0.04	(0.02)
Chinese Taipei	**0.26**	**(0.02)**	**0.17**	**(0.02)**	**− 0.09**	**(0.03)**
Colombia	**0.29**	**(0.02)**	**0.23**	**(0.02)**	**− 0.06**	**(0.02)**
Denmark	**0.29**	**(0.02)**	**0.29**	**(0.02)**	0.00	(0.03)
Dominican Republic	**0.14**	**(0.03)**	**0.13**	**(0.02)**	− 0.01	(0.04)
Estonia	**0.27**	**(0.02)**	**0.36**	**(0.02)**	**0.09**	**(0.03)**
Finland	**0.29**	**(0.02)**	**0.33**	**(0.02)**	0.04	(0.03)
Italy	**0.24**	**(0.02)**	**0.28**	**(0.02)**	0.04	(0.03)
Latvia	**0.19**	**(0.03)**	**0.25**	**(0.02)**	0.06	(0.04)
Lithuania	**0.30**	**(0.02)**	**0.27**	**(0.02)**	− 0.03	(0.03)
Malta	**0.18**	**(0.03)**	**0.26**	**(0.02)**	**0.08**	**(0.03)**
Mexico	**0.34**	**(0.02)**	**0.35**	**(0.02)**	0.01	(0.02)
Norway	**0.33**	**(0.02)**	**0.30**	**(0.02)**	− 0.03	(0.03)
Russian Federation	**0.20**	**(0.02)**	**0.29**	**(0.02)**	**0.09**	**(0.03)**
Slovenia	**0.26**	**(0.02)**	**0.21**	**(0.02)**	− 0.05	(0.03)
Sweden	**0.35**	**(0.02)**	**0.43**	**(0.02)**	**0.07**	**(0.03)**

Standard errors appear in parenthesis. Coefficients in bold are significant on a 95% confidence level

Table 10 Amount of variance in students' attitudes towards tolerance towards minorities explained by reduced regression model (adjusted r^2) in 2009 and 2016, and change from 2009 to 2016

Country	2009		2016		Change	
					2016–2009	
	adj. r^2	(S.E.)	adj. r^2	(S.E.)	adj. r^2	(S.E.)
Belgium (Flemish)	0.06	(0.01)	0.07	(0.01)	0.00	(0.02)
Bulgaria	0.04	(0.01)	0.05	(0.01)	0.01	(0.01)
Chile	0.11	(0.01)	0.13	(0.01)	0.02	(0.02)
Chinese Taipei	0.10	(0.01)	0.04	(0.01)	**− 0.06**	**(0.01)**
Colombia	0.11	(0.01)	0.07	(0.01)	**− 0.05**	**(0.01)**
Denmark	0.15	(0.01)	0.11	(0.01)	**− 0.04**	**(0.02)**
Dominican Republic	0.03	(0.01)	0.04	(0.01)	0.01	(0.01)
Estonia	0.12	(0.01)	0.20	(0.02)	**0.09**	**(0.02)**
Finland	0.17	(0.02)	0.17	(0.02)	0.00	(0.02)
Italy	0.08	(0.01)	0.10	(0.01)	0.02	(0.02)
Latvia	0.05	(0.01)	0.07	(0.01)	0.02	(0.02)
Lithuania	0.10	(0.01)	0.10	(0.01)	0.00	(0.02)
Malta	0.06	(0.01)	0.10	(0.01)	**0.04**	**(0.02)**
Mexico	0.13	(0.01)	0.13	(0.01)	0.00	(0.02)
Norway	0.14	(0.01)	0.12	(0.01)	− 0.02	(0.02)
Russian Federation	0.06	(0.01)	0.11	(0.01)	**0.05**	**(0.02)**
Slovenia	0.11	(0.01)	0.08	(0.01)	-0.02	(0.02)
Sweden	0.20	(0.02)	0.25	(0.02)	0.05	(0.03)

Standard errors appear in parenthesis. Changes in bold are significant on a 95% confidence level.

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CB performed literature review, interpreted the data, and largely composed chapters 1, 2, 4 and 5. FK performed analyses, interpreted data, largely composed chapter 3 and the appendix, and contributed to development of topic.

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References

Alesina, A., Miano, A., & Stantcheva, S. (2018, October). *Immigration and redistribution.* NBER Working Paper 24733. https://www.nber.org/system/files/working_papers/w24733/w24733.pdf. Accessed Mar 2024.

Allport, G. (1954). *The nature of prejudice.* Addison-Wesley.

Amnesty International. (2022). *Refugees, asylum-seekers and migrants*. https://www.amnesty.org/en/what-we-do/refugees-asylum-seekers-and-migrants/. Accessed Mar 2024.

Arends-Tóth, J., & Vijver, F. V. (2006). Issues in the conceptualization and assessment of acculturation. In M. H. Bornstein & L. R. Cote (Eds.), *Acculturation and parent-child relationships: Measurement and development* (pp. 33–62). Routledge.

Berry, J. W. (1997). Immigration, acculturation, and adaptation. *Applied Pyschology, 46*, 5–34.

Birman, D., & Simon, C. D. (2014). *Acculturation research: Challenges, complexities, and possibilities*. American Psychological Association.

Borgonovi, F., & Pokropek, A. (2018, October 30). The role of education in promoting positive attitudes towards migration at times of stress. *OECD Education Working Papers, No. 185*.

Bredtmann, J., Otten, S., & Vonnahme, C. (2019). Linguistic diversity in the classroom, student. *Education Economics, 29*(2), 121–142.

Brese, F. (2015). Tolerance towards minority groups amongst European students. In M. M. Isac (Ed.), *Tolerance through education: Mapping the determinants of young people's attitudes towards equal rights for immigrants and ethnic/racial minorities in Europe.* European Commission.

Caro, D. H., & Schulz, W. (2012). Ten hypotheses about tolerance toward minorities among Latin American adolescents. *Citizenship, Social and Economics Education.* https://doi.org/10.2304/csee.2012.11.3.213

Clemens, M., Huang, C., & Graham, J. (2018). *The economic and fiscal effects of granting refugees formal labor market access.* Center for Global Development. https://www.cgdev.org/publication/economic-and-fiscal-effects-granting-refugees-formal-labor-market-accessbrief#:~:text=Formal%20LMA%20allows%20refugees%20to,refugees%20and%20thus%20greater%20self%2D. Accessed Nov 2019.

Côté, R. R., & Erickson, H. B. (2009). Untangling the roots of tolerance: How forms of social capital shape attitudes toward ethnic minorities and immigrants. *American Behavioral Scientist*. https://doi.org/10.1177/0002764209331532

Council of Europe. (2016). *Competences for democratic culture: living together as equals in culturally diverse democratic societies.*

European Commission. (2015). *Tolerance through education: Mapping the determinants of young people's attitudes towards equal rights for immigrants and ethnic/racial minorities in Europe*. European Commission.

Falavarjani, M. F., Yeh, C. J., & Brouwers, S. A. (2019). Exploring the effects of acculturative stress and social support on the acculturation-depression relationship in two countries of similar social status. *Journal of International Migration and Integration/revue De l Integration Et De La Migration Internationale, 21*(3), 3.

Hewstone, M. (2003). Intergroup contact: Panacea for prejudice? *The Psychologist., 16*(7), 352–355.

Katschinig, T., & Hastedt, D. (2017, August). *Too scared to learn? Understanding the importance of school safety for immigrant students.* IEA Policy Brief. https://www.iea.nl/publications/series-journals/policy-brief/august-2017-too-scared-learn-understanding-importance. Accessed Nov 2019.

Köhler, H., Weber, S., Brese, F., Schulz, W., & Carstens, R. (2018). *ICCS 2016 user guide for the international database.* International Association for the Evaluation of Educational Achievement (IEA).

Letendre, G. K. (2000). The `problemaof minority education in aninternational perspective. *International Journal of Educational Research, 33*, 577.

OECD. (2015). *Indicators of immigrant integration.* http://www.oecd.org/els/mig/Indicators-of-Immigrant-Integration-2015.pdf. Accessed Nov 2019.

Oppedal, B., Røysamb, E., & Sam, D. L. (2004). The effect of acculturation and social support on change in mental health among young immigrants. *International Journal of Behavioral Development, 28*, 483.

Paluck, E. L., Green, S. A., & Green, D. P. (2019). The contact hypothesis re-evaluated. *Behavioural Public Policy*.

Pettigrew, T. (1997). Generalized intergroup contact effects on prejudice. *Personality and Social Psychology Bulletin*. https://doi.org/10.1017/bpp.2018.25

Pettigrew, T. F., & Hewstone, M. (2017). The single factor fallacy: Implications of missing critical variables from an analysis of intergroup contact theory. *Social Issues and Policy Review*. https://doi.org/10.1111/sipr.12026

Pettigrew, T. F., & Tropp, L. R. (2006). A meta-analytic test of intergroup contact theory. *Journal of Personality and Social Psychology, 90*, 767.

Pettigrew, T. F., & Tropp, L. R. (2011). *When groups meet: The dynamics of intergroup contact*. Psychology Press.

Piaget, J. (1932). *The moral judgment of the child*. Harcourt.

Reyes, M. R., Brackett, M. A., Rivers, S. E., White, M., & Salovey, P. (2012). Classroom emotional climate, student engagement, and academic achievement. *Journal of Educational Psychology*. https://doi.org/10.1037/a0027268

Sandoval-Hernández, A., Isac, M. M., & Miranda, D. (2018). *Teaching tolerance in a globalized world*. Springer.

Schulz, W., Ainley, J., & Fraillon, J. (2011). *ICCS 2009 technical report*. IEA.

Schulz, W., Ainley, J., Fraillon, J., Losito, B., & Agrusti, G. (2016). *IEA international civic and citizenship education study 2016: Assessment framework*. Springer.

Schulz, W., Ainley, J., Fraillon, J., Losito, B., Agrusti, G., & Friedman, T. (2018a). Becoming Citizens in a Changing World: IEA International Civic and Citizenship Education Study 2016 International Report. In International Association for the Evaluation of Educational Achievement (IEA).

Schulz, W., Carstens, R., Losito, B., & Fraillon, J. (2018b). *ICCS 2016 technical report*. IEA.

Schwartz, S. J., Unger, J. B., Zamboanga, B. L., & Szapocznik, J. (2010). Rethinking the concept of acculturation: Implications for theory and research. *American Psychologist*. https://doi.org/10.1037/a0019330

Stark, T. (2011). Integration in Schools. A Process Perspective on Students' Interethnic Attitudes and Interpersonal Relationships. *Doctor of Philosophy*.

UN IOM. (2019). *World migration report 2020.* https://publications.iom.int/system/files/pdf/wmr_2020.pdf. Accessed Oct 2021.

UNESCO. (2019). *Preventing violent extremism through education*. https://www.unesco.org/en/preventingviolent-extremism. Accessed Oct 2021.
UNHCR. (2021a). *Afghanistan refugee crisis explained*. USA for UNHCR. https://www.unrefugees.org/news/afghanistan-refugee-crisis-explained/#How%20long%20are%20most%20Afghan%20refugees%20displaced%20for. Accessed Apr 2022.
UNHCR. (2021b). *Children*. https://www.unhcr.org/children-49c3646c1e8.html. Accessed Apr 2022.
UNHCR. (2022, March 06). Twitter: https://twitter.com/Refugees/status/1500420010195492864. Accessed Nov 2023.
UNHCR. (2023, October 31). *Speeches and Statements*. High Commissioner's statement to the Third Committee of the United Nations General Assembly. https://www.unhcr.org/news/speeches-and-statements/high-commissioner-s-statement-third-committee-united-nations-general. Accessed Jan 2024.

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