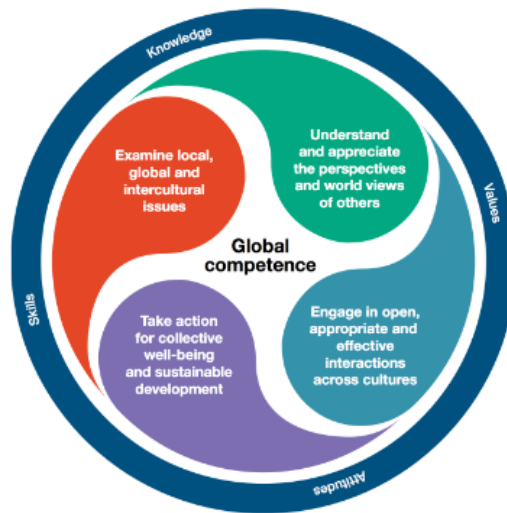


*Are global competencies, ethnic diversity, and teacher support important
for empowering ethnic minority students?*



Tess Ravensberg (668127)

Master Thesis

Social Inequalities, Erasmus University

Dr. J.F.A. Braster

Prof. Dr. P. A. Dykstra

25th of June 2023, Word count: 7703

Abstract

The problem of educational disparity has received extensive inquiry and has a wide range of potential causes and remedies. The degree of academic self-efficacy is one key factor in determining a person's academic performance. Making the appropriate educational transitions depends on your academic self-efficacy, which boosts your drive and academic success.

Discrimination, a lack of resources, and how ethnic minority students are treated and viewed in the educational system are all potential causes of ethnic minority students' perceptions of lower levels of academic self-efficacy. This study examines if having supportive teachers, a diverse student body, and a high level of global competencies in the classroom raises students' levels of academic self-efficacy. Data from the 2018 Program for International Student Assessment (PISA) is used for multilevel analysis. The relationship between ethnic minority students' academic self-efficacy seems to be moderated and therefore most specified by the variable teacher support. The discovered effect contradicts the established hypothesis 'direction, which provides justification for further investigation. Concerning global competencies and ethnic diversity within the school, only individual-level effects are found. The novelty of the subject and how the variable ethnic background is constructed are some limitations that could partly explain these results.

Keywords: Academic self-efficacy, ethnic minority students, teacher support, PISA, multilevel analysis

Are global competencies, ethnic diversity, and teacher support important for empowering ethnic minority students?

In the past decennia, education has expanded and been made more available. In almost all OECD countries, the enrolment of students has increased, with some countries even more than 10% (Mishra, 2020). Within this development, people with a lower social background who were first underrepresented become part of the educational system (Mishra, 2020). Interventions like quotas or “minority” reservations help with increasing their chances (Hafalir et al., 2013). Still, it appeared that those with a migration background or first-generation learners are more likely to drop out of school, thus academic success is not guaranteed (Mishra, 2020).

Several explanations might explain this academic achievement gap. To begin with, the language skills students have, the resources, and the emotional support the parents deliver are important contributions (Mishra, 2020). Also, support from peers within the classroom and a sense of school belonging positively influence educational and career expectations (Mishra, 2020; Wong et al., 2019). However, not only external factors play a role in academic expectations and aspirations. Overall, “Self-efficacy is the foundation of human motivation or accomplishment and is an essential quality in students’ lives as a whole” (Bandura, 2006, p14 in Jang et al., 2023).”

Whether we are motivated to learn is influenced by the beliefs we have. With the social learning theory, Bandura (1994) defines self-efficacy as the perceived belief we have in our capabilities and whether we can influence what happens in our lives. With a higher degree of self-efficacy, people are more able to cope with difficult and challenging situations (Bandura, 1994; Chemers et al., 2001). Within the area of self-efficacy, academic self-efficacy is about the belief one can complete academic tasks at a certain level with success (Schunk, 1991). A high level of academic self-efficacy improves goal-setting, decreases feelings of

anxiety, and is important for making transitions from high school to college and for making the right career decisions (Bandura, 1994; Chemers et al., 2001; Maree & Che, 2020). Additionally, a high level of academic self-efficacy is found to lead to higher levels of motivation, academic performance, and higher level of confidence in becoming proficient in a subject (Bandura & Locke, 2003; Chemers et al., 2001).

At the same time, the school environment including the teachers has a major role to play in students' academic self-efficacy (Tannert & Gröshner, 2021). Moreover, the school environment includes the daily experiences students have and the interactions between students, teachers, parents, and the management of the school (Zysberg & Schwabsky, 2021). This research does not only take into account the different interactions that might take place within a school environment; however, it is about whether a school environment with high levels of global competencies enhances the relationship between having an ethnic minority background and the level of academic self-efficacy.

Global competencies concern the needed skills to compete in a global society. These intercultural and global skills are important for living harmoniously in multicultural societies, thriving in a changing labor market, using media platforms effectively and responsibly, and supporting the UN Sustainable Development Goals (OECD, 2020a). Education that is focused on global competencies aims to increase the student's understanding of the world and empower them to express their views and participate in society (OECD, 2020a). Intercultural education and education that is focused on becoming a global citizen are pointed out by the OECD (2018c) as important for students' understanding of this interrelated world. While people's obligations and rights in areas such as taxes, laws, and regulations are commonly acknowledged, issues like climate change and migration are of universal concern. (Hayden et al., 2020)

Still, several constraints might prevent schools, students, and parents from acting upon this type of education and the corresponding values that are learned. What could be the case is that perhaps only those privileged and with enough resources act upon the curriculum (Hayden et al., 2020). Nevertheless, in general, encouraging students to have a global mindset and more cultural awareness goes along with developing more empathy and improving cognitive sophistication (Cushner & Mahon, 2002). Furthermore, it changes students' frame of reference, wherefore students' ability to understand and discuss different worldviews increases (Cushner & Mahon, 2002).

As mentioned before, this research questions whether the level of academic self-efficacy of ethnic minority students increases when global competencies are high in school. Next to the level of global competencies, the ethnic diversity in schools and support from teachers will be taken into account as possible school climate factors. With the 2018 survey of the Program for International student assessment (PISA), an answer to the following research question is sought: *“To what extent is the academic self-efficacy of ethnic minority students more developed in a context where global competencies, ethnic diversity, and teacher support are high?”*

Theory

Ethnic Minority Background and Sense of Academic Self-efficacy

As mentioned in the introduction, academic self-efficacy is important for students' motivation and well-being (Bandura, 2006, p14 in Jang et al., 2023). There are different possible explanations for why ethnic minority students might experience lower levels of academic self-efficacy. On the societal level are school segregation and a lack of role models two possible contributors (Butler, 2022; Spuur, 2012). On the individual level are perceived racial discrimination and lack of resources two possible reasons why students with different ethnic backgrounds feel lower levels of academic self-efficacy (Butler, 2022). Moreover, a

person's gender, age, and stage of life may have an impact on their level of academic self-efficacy (Huang, 2013). Additionally, according to Bekomson and Ntamu (2019), higher levels of academic self-efficacy appear to be associated with a more religious value orientation.

A pioneer in explaining why ethnic minorities possibly differ in their academic performances and their perception of success is John Ogbu (Ogbu & Simons, 1998). His theory, called cultural-ecological theory, explains how societal and individual factors impact the way ethnic minorities are mistreated in the educational system and how ethnic minorities perceive this treatment (Ogbu & Simons, 1998; Van Praag, 2013). He makes a distinction between system and community factors. According to him, system factors consist of educational practices, educational rewards, and the way ethnic minorities are treated within the school environment (Ogbu & Simons, 1998). The community factors are beliefs and interpretations of educational credentials, the degree of trust and control within education, and whether education represents the identity of ethnic minority students. The cultural-ecological theory hypothesizes that ethnic minority students can feel mistreated and misunderstood by the educational system which can negatively influence their sense of academic competence. Part of the reason is that their cultural interpretations might differentiate from the norm (Ogbu & Simons, 1998).

When the cultural identity theory is added to this explanation, there can be hypothesized that the cultural identity you take on is important for your level of academic self-efficacy. Our identity is formed in negotiation with others and we adopt the values and beliefs of the group we feel connected (Ting-Toomey, 2005). Ethnic minority students presumably make downward comparisons with ethnic majority students, influencing their self-concept negatively. Misconceptions and stereotypical images of certain cultures or in this

case, ethnicity, can be taken personally and negatively influence the sense of academic competence (Liang et al., 2018).

How you think about yourself is important for making the right career decisions (Chen et al., 2015). The student's academic self-concept is formed by their abilities and earlier academic performances and affects their further academic achievement (Chen et al., 2015; Pajares & Schunk, 2001). Even though academic self-concept and self-efficacy are both judgments about your academic competencies, there is a small difference. While academic self-concept is more about the perceived knowledge and perceptions students have about themselves in academic contexts, academic self-efficacy is the belief students have about accomplishing academic activities at a given level (Ferla et al., 2009).

Besides cultural identity and the educational environment, social capital is detrimental to the academic success of students (Mishra, 2020). Some examples of social capital are having the right connections, sufficient language skills, and the resources of parents. Within the social sciences, a lot of people have bent over the social capital theory, and several hypotheses and life outcomes are linked to it (Rogošić & Baranović, 2016). The social capital theory states among other things that someone's social background, social position, or social relationships influence the resources, benefits, and opportunities they get in their life (Adler & Kwon, 2002). With concern to education, the level of social capital influences what kind of school someone goes to, whether they could study abroad, and the possibilities for other extracurricular activities. The networks and connections someone can acquire through school and family also produce differences in educational achievement among students (Rogošić & Baranović, 2016).

Since academic self-efficacy mainly depends on earlier performances, academic possibilities, and support from parents, there can be hypothesized that because of a less advantaged social background, the level of academic self-efficacy is lower for ethnic minority

students compared to ethnic majority students. With the social capital theory, the cultural-ecological theory, and the cultural identity theory in mind, the following hypothesis is therefore put down:

H1: *Ethnic minority students have a lower academic self-efficacy level than ethnic majority students.*

Global Competencies

General knowledge about world geography, culture, and global issues is needed to engage sensibly and adequately in this globalized world (Majewska, 2022). The shift students can go through with acquiring global competence can be explained by the transformative learning theory. This theory explains how perceptions of ourselves, each other, and the world are challenged through critical thinking (Majewska, 2022; Mezirow, 1997). Transformative learning enhances independent, responsible thinking which is vital for active citizenship and moral decision-making in unpredictable situations (Mezirow, 1997). A transformation in the frame of reference often happens when people are confronted with complex dilemmas. Being globally competent asks you to be reflective, open to change, and resilient to new situations. Learning such abilities can therefore come with feelings of discomfort (Majewska, 2022). Even though learning about global issues can feel controversial and confronting, discussing controversial topics might increase the level of interest in international legislation, moral values, and politics (Oxfam, 2018).

Whenever students learn to make valid judgments, respect the opinions of others, and consider different viewpoints, they build resilience and confidence in dealing with global issues at school and home (Oxfam, 2018). The latter is especially beneficial for those with a disadvantaged socio-economic or educational background and who lack the opportunity to discuss such issues at home (Mansilla & Schleicher, 2022). Depending on the school and its policies, education that aims to increase global competencies can either decrease or increase

inequalities that exist within the classroom (Mansilla & Schleicher, 2022). When students from different backgrounds are empowered, this kind of education helps them with overcoming their socioeconomic adversity (Aldridge et al., 2016; Wang et al., 2010; Weissbourd, 2013). Moreover, by teaching global competencies, students will develop a more comprehensive understanding of the world and they are more capable of engaging with others in open, appropriate, and effective ways (Mansilla & Schleicher, 2022).

With the advantages of teaching and having global competencies and the transformative learning theory in mind, the following hypothesis is proposed:

H2: The relationship between ethnic minority background and academic self-efficacy becomes less negative when there is a high degree of global competencies in school.

School Climate: Ethnic Diversity

Global competencies, intercultural skills, and attitudes are not only learned by the school curriculum or whether you go abroad with your family. The composition of your learning environment, for instance, the classroom or your school, influences whether you come in contact with people from different backgrounds (Banks, 2021). The intergroup contact theory is applicable for hypothesizing that students who are in a classroom consisting of students with different ethnic, religious, and cultural backgrounds are more exposed to different values and therefore more inclined and motivated to learn intercultural values (Erickson & O'Connor, 2000; Li, 2013).

In ethnically diverse schools, the ethnic identity of a student might also become less prominent which might increase their sense of belonging (Nishina et al., 2019). Moreover, ethnic diversity is related to less discrimination and improved cross-ethnic relationships. Furthermore, ethnic minority students feel less picked on, safer, and less lonely in an

ethnically diverse school environment (Hall et al., 2017; Juvonen et al., 2018). At the same time, the socio-economic status of the family and the school could have negative effects on students' engagement and academic achievements (Lee, 2012; Lee, 2014).

Still, there can be hypothesized that a higher degree of ethnic diversity might improve the belief in academic competencies since ethnic minority students experience a greater sense of school belonging and have better relationships with students from different ethnic and cultural backgrounds (Nishina et al., 2019). The hypothesis is therefore as follows:

H3: The relationship between ethnic minority background and academic self-efficacy becomes less negative when there is a higher degree of ethnic diversity.

School Climate: Teachers

In schools with more ethnic backgrounds, teachers have a major role to play in creating positive classroom environments (Thomas, 2014). They are responsible for creating a safe space where different values can be shared and heard (Li, 2013). Whenever they can create an environment where all students are respected and valued, regardless of their ethnicity or background, and every student is motivated to participate, it positively influences the academic performances of students (Mishra, 2020; Thomas, 2014). Furthermore, a positive classroom environment allows students to develop deeper relationships. This might not only increase academic self-efficacy but also can serve as social support for those with a more disadvantaged background (Thomas, 2014).

Whether teachers can give the right support in a multicultural setting depends on their level of self-efficacy as well. Their level of self-efficacy can be different for instructional strategies, classroom management, student engagement, or emotional support for students (Geerlings et al., 2018). Moreover, Geerlings and colleagues (2018) argue that a teacher's

self-efficacy level can depend on the student's ethnicity. Whenever the teacher and student have different cultural backgrounds, consisting of different norms and values, this potentially leads to more misunderstanding and fewer interpersonal relationships (Geerlings et al., 2018).

The social identity theory explains this further by hypothesizing that people tend to more positively evaluate their in-group compared to their out-group (Geerlings et al., 2018). The theory distinguishes the individual identity from the social identity and argues that the way people categorize themselves and others influences their actions (Jodrell, 2010). Whenever a social identity is salient, it can affect how students behave in class (Jodrell, 2010). At the same time, the theory is also a possible explanation for why teachers without an ethnic minority background may have more biased perceptions towards ethnic minority students compared to ethnic majority students (Geerlings et al., 2018).

A perceived mismatch between the social identity of the student and the teacher can have several negative consequences, such as conflicts, less teacher-classroom management, problem behavior, discrimination, and less fortunate school outcomes (Kunemund et al., 2020). These negative consequences are all examples that are correlated to a lower level of academic self-efficacy among students (Burić & Kim, 2020; Butler, 2022).

Nonetheless, teachers play a critical role in motivating students. With their enthusiasm, support, and effort they could encourage peer cooperation and create a positive classroom environment where the motivation of students can grow (Mojavezi & Tamiz, 2012). Thus, whenever a teacher can serve the right amount of support, the academic self-efficacy of students with an ethnic minority background could increase. Therefore, the following hypothesis is put down:

H4: The relationship between ethnic minority background and academic self-efficacy becomes less negative when there is a higher degree of teacher support.

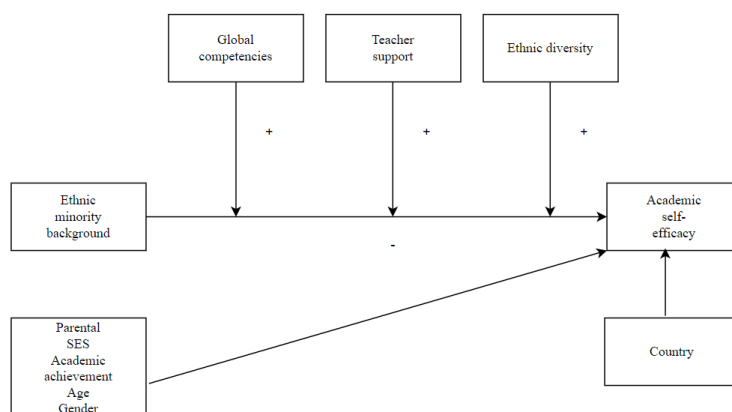
Conceptual model

With all the hypotheses in mind, the following conceptual model is put up. Besides the expected individual effect of ethnic minority background and the school-level effects of global competencies, teacher support, and ethnic diversity certain control variables are taken with. In line with the social capital theory, the control variable “parental SES” will be included in the analysis. Since it was previously stated that academic self-efficacy also depends on students’ prior performances and skills, the level of academic achievement and the grade in which students are enrolled are incorporated as well (Chen et al., 2015; Pajares & Schunk, 2001).

Finally, the control variables of country, gender, and age have been factored in. Concerning age and gender, academic self-efficacy seems to increase by age and differ per gender (Huang, 2013). Since schools are nested in countries as well, it is important to control for potential country-level effects. How all the variables are constructed is further explained in the methodological section.

Figure 1

All expected effects of hypotheses 1 through 4, including the control variables



Method

Data

For finding a possible answer to the research question, secondary, quantitative data from the *Program for International student assessment (PISA)* of 2018 has been used. Since 2000, every three years, PISA conducts research about 15-year-old students' reading, mathematics, and science literacy. The data is made public for (beginning) researchers wherefore they can make comparisons between countries and years. Besides asking questions about subjects and the home situation of students, PISA asks questions about other skills and competencies students have acquired in school, such as global competencies and financial literacy (OECD, 2018). In 2018, circa 710.000 students participated in the study (OECD, 2019a).

Global competence, cultural awareness, and the effect of ethnic diversity in the school is something relatively new and stood central in the publication of 2018. Therefore, only the collected data from 2018 will be used where a total of 79 countries participated (OECD, 2019b). The data consist of self-reported survey data of not only students but also teachers, parents, and principals. All answers are anonymized and cannot be traced back to the respondent, which contributes to conducting ethically, responsible research. Moreover, informed consent and data confidentiality is guaranteed by PISA. For further information, the list of Ethics & Privacy can be found in Appendix A.

Variables

Dependent variable

The dependent variable in this research is academic self-efficacy which can be broken down into efficacy in reading, mathematics, and science. However, every time PISA conducts research they focus on a different topic. In 2018, reading stood central and since global

competencies are only asked in 2018 a scale of self-efficacy in reading will be created to measure academic self-efficacy. Within the questionnaire, there are two questions (ST161 & ST163) that measure whether students perceive themselves as good readers and whether they had difficulty with a PISA reading test they had done. The questions together consist of nine statements with the answer categories: “Strongly disagree”, “Disagree”, “Agree”, and “Strongly agree”.

Since the questions are about feeling competent and whether they perceive difficulty with reading and the PISA test, it aligns with the definition of academic self-efficacy of Schunk (1991) which is the belief one can complete academic tasks at a certain level with success. Prior to the analysis, the statements are structured in a way that a positive value on an item indicates someone perceives themselves as a good reader or who had little trouble with the PISA reading test. After this, a Principal Component Analysis has been carried out where all the items have been loaded on one factor (KMO = .824, Bartlett’s Test of Sphericity = .000). In Appendix, Table B3, the eigenvalues, explained variance, and all factor loadings of the different items are put down. To see what the internal consistency is between the statements a reliability analysis is carried out, where a satisfactory Cronbach’s alpha has been found ($\alpha = .821$) (Field, 2017). Cronbach alpha values below 0.70 are considered insufficient, up to 0.80 as acceptable, and above 0.80 as strong (Field, 2017).

Independent variables

Ethnic minority background. For answering the first hypothesis, the variable “ethnic minority background” needs to be created. In literature, ethnic minority or immigrant backgrounds are assessed differently. One way is to look at the place of birth (Kahanec et al., 2011). In the dataset, both students and their parents were asked whether they were born in the country of assessment or elsewhere. From these questions, an index called “immigrant background” is already been created by PISA with the following answer categories: native

students (those students with at least one parent who was born in the country, second-generation (those students born in the country of assessment but whose parents were born in another country), and first-generation students (those students born outside the country of assessment and whose parents were also born outside the country of assessment) (OECD, 2020b). For the variable ethnic minority background, a distinction is made between the native students and the first- and second-generation students. A binary variable is created where the value 0 is assigned to native students and 1 to those who are born in a different country or have at least one parent who is born in a different country.

Global competencies. For investigating the research question, multiple questions about global competencies are used. Parents, students, teachers, and principals were all asked about their level of global competence or the importance of teaching students global competencies. For the moderating variable “global competencies” is chosen to use the questions answered by the students and the principals separately. Within the student questionnaire, there were already ten constructed scales (based on the questions ST196 & ST197, ST204, ST214 to ST219 & ST223) that measure the level of global competencies of students. The scales consist of questions that mainly measure the attitude children have towards other cultures and whether they learn about topics such as migration, international conflicts, and global health. All items can be found in the Appendix, Table B1.

Before conducting a Principal Component Analysis, Cronbach’s alpha values of all ten scales were inspected separately. The values have a range from $\alpha = .819$ to $\alpha = .930$. After this, a Principal Component Analysis with all the ten scales has been done where the variable DISCRIM is loaded on a different factor since it is the only item with a negative value ($\lambda = -.213$) on the first dimension. Despite the negative loading, DISCRIM is an interesting scale to include in the analysis since discriminatory practices possibly influence the level of academic self-efficacy of ethnic minority students negatively (Butler, 2022). The “DISCRIM” scale

asks students whether they believe teachers have misconceptions against and lower expectations for students from other cultural groups. A second Principal Component Analysis has been carried out, without the DISCRIM variable, where the factor score has been saved as the variable that will be included in the multilevel analysis (KMO = .813, Bartlett's Test of Sphericity = .000).

Table 1

Results from a Principal Component Analysis (PCA) of the dependent variable academic self-efficacy

	Factor loadings
Global competence	
- Self-efficacy regarding global issues	.541
- Student's awareness of global issues	.578
- Student's attitudes towards immigrants	.567
- Student's interest in learning about other cultures	.631
- Perspective-taking	.636
- Cognitive flexibility/adaptability	.628
- Respect for people from other cultures	.668
- Awareness of intercultural communication	.600
- Global mindedness	.589
Eigenvalues	3.289
Explained variance (%VAF)	36,64%

Note. The extraction method was Principal Component Analysis with an oblique (Oblimin with Kaiser normalization) rotation.

School curriculum. The principals' responses to six items from the school questionnaire (SC165 TT/M SC167 SC150 SC158 & SC159) are combined to form a rating that assesses how much the curriculum emphasizes developing global competencies¹.

¹ Organization for Economic Cooperation and Development. (2019). PISA 2018 Schools Questionnaire [PDF]. Retrieved from

After closer inspection, it was determined to leave out several variables (SC158, SC159, SC166 & SC167) since they did not measure the extent to which global competencies are addressed within the curriculum. The two remaining questions that are included (SC150 & SC165) are about the kind of help schools offer students with a different heritage language and what kind of practices are done when it comes down to multicultural learning. Both questions are described in the Appendix, Table B2.

The remaining questions include several sub-questions with yes and no as answer categories. The answer categories have been recoded, whereby a high value implies that the school places high importance on global competencies (yes= 1, no = 0). The total of all the sub-questions creates a variable that represents how much the curriculum of the school encourages global competencies and provides ethnic minority students with additional support. A reliability analysis is performed where a Cronbach's alpha of 0,710 is found which is a sufficient value (Field, 2017). The variable is centered on reducing the risk of multicollinearity and clarifying the interpretation of the results. By combining the questions from both questionnaires, the level of global competencies from students within a school and what the school offers in teaching global competencies are taken into account.

Teacher support. The second moderator of this research is teacher support. Within the teacher dataset of PISA, five statements measure whether teachers can cope and/or feel confident in teaching and supporting students within a multicultural classroom (TC209). PISA already created a scale surrounding this question, called "GCSELF" (OECD, 2020b). Hereby, PISA left out the statement "I can cope with the challenges of a multicultural classroom" (TC209Q01HA) while theoretically, it is an interesting statement. A Principal Component Analysis and a reliability analysis including this statement showed there seemed to be no

reason for leaving out the statement. Therefore, the statement is taken with. The factor loadings of all the items can be seen in Appendix, Table B3. The Cronbach's alpha ($\alpha = .900$) of all the items is satisfactory (Field, 2017) and none of the items would increase the alpha whenever it would be deleted. From the Principal Component Analysis, a factor score has been saved including all the items (KMO = .843, Bartlett's Test of Sphericity = .000).

Ethnic diversity. For measuring ethnic diversity, the proportion of students with an ethnic minority background, which is specified above, in a school has been calculated. The scores of the variable "ethnic minority background" have been aggregated at the school level to be able to compare the mean at the school level with the mean in general. Besides ethnic diversity, global competencies of students, school curriculum, teacher support, and the control variable DISCRIM are aggregated at the school level for the same reason.

Control variables

The variable "parental SES" consist of the following variables "parental highest level of education" (PARED), "parents 'highest occupational status'" (HISEI), and "home possessions" (HOMEPOS) (OECD, 2020b). Academic achievement has been measured by constructing a weighted factor score from the average scores in reading, mathematics, and science (KMO = .762, Bartlett's Test of Sphericity = .000). Gender is a dummy variable where the female carries a value of 1, and the male carries a value of 0. The decision has been made to exclude age as a control variable as the research focuses on 15-year-olds.

There are dummies created for the remaining countries after the filter. This came down to 15 dummy variables where Germany is chosen as the reference group. Under the heading 'Analytical approach', there is explained further how this filter is created.

Analytical Approach

The 28th version of IBM Statistics has been used to analyze the dependent, independent, and control variables from the PISA dataset. Before any analyses had been done, the variables have been checked for missing variables on any of the items and an equal N has been created. Moreover, a rule of thumb for a multilevel analysis is a minimum of 20 respondents for enough variance at a level (Aljaberi et al., 2022). Therefore, the filtering process before analysis incorporates the following criteria: (1) all variables must have complete data without any missing values, and (2) schools included in the analysis must have a minimum of 20 teachers who completed the teacher questionnaire and a minimum of 20 students who completed the student questionnaire.

In this research, one can speak of a multilevel analysis since contextual variables, in this case at the school level, are expected to influence the individual relationship between ethnic minority background and academic self-efficacy. Before the final conceptual model is run, a simple linear regression will be carried out to check Hypothesis 1. Whether there are significant results, can be determined with an alpha level of 5 percent. Whenever the p-values are $<.05$, the relationship(s) between the variables are significant. Moreover, assumptions such as normality and multicollinearity have been checked.

After all the assumptions, a total of six models are run with multilevel analysis. The null model consists of the y-variable academic self-efficacy and the dummy variables of the remaining countries after the filter. In the first model, the individual effect of ethnic minority background on academic self-efficacy is inspected. In the next model, the school-level fixed effects of teacher support, global competencies of students, ethnic diversity, school curriculum, and the control variable discriminatory climate (“DISCRIM”) are included. In the third model, the individual covariates gender, academic achievement, parental SES, and grade are taken into account. In the fourth model, a random slope effect of ethnic background is

added to see whether the effect of having an ethnic minority background on the level of academic self-efficacy of students differs per school. Finally, the interaction variables between all the school-level variables and the individual-level variable ethnic background are taken with.

Results

Assumptions and Tests

As was pointed out in the Method section, several assumptions have been checked before the multilevel analysis. To begin with the assumption of normality, for the dependent variable academic self-efficacy a histogram was created. Academic self-efficacy seems to be normally distributed. Besides the dependent variable, there were histograms constructed for the standard deviations of the moderators in this research. The descriptive statistics of the standard deviations of the moderators in this study are in Appendix B, Table B4.

A different assumption that is important to inspect is multicollinearity. This is the degree of correlation between the independent variables. To not violate this assumption, all continuous variables are either standardized or centralized. Moreover, multicollinearity is not an issue whenever the values of VIF are lower than 10 and the values of Tolerance are above 0.1. The VIF values ranged from 1.00 to 6.478 and Tolerance ranged from .154 to 1.00, therefore, no critical values are exceeded (Field, 2017).

Finally, before carrying out a multilevel analysis a simple linear regression was carried out to check whether there is a linear relationship between ethnic background and academic self-efficacy in the first place. A small negative, significant effect is found ($\beta = -.137 (.012)$; $p < .001/2$).

Descriptive statistics

Below, in Table 2, the descriptive statistics can be investigated. According to the Table, 58744 observations meet the criteria specified by the previously specified filter. Since most of the variables are centralized or standardized, most of the means are close to zero. It may be concluded that the percentage of ethnic minority students overall barely differs from the mean per school because the variables ethnic minority background and ethnic diversity have almost the same mean. On average, the average level of global competencies among students ($M = -.014$) and the average level of teacher support ($M = -.160$) at the school level are a bit below the overall mean of the sample. Regarding the school curriculum, the mean at the school level is somewhat higher ($M = .977$).

Table 2

Descriptives statistics for all the used variables

	Min	Max	<i>M</i>	<i>SD</i>
<i>Individual level</i>				
Academic self-efficacy	-3.28	2.09	.000	1.00
Ethnic minority background	0	1	.128	.334
<i>School-level</i>				
Global competencies				
- Student	-2.46	2.38	-.014	.394
- Curriculum School	-.7.44	7.56	.977	2.753
Ethnic diversity	.00	.87	.130	.193
Teacher support	-1.86	1.74	-.160	.439
<i>Covariates (individual)</i>				
Parental SES	-8.173	3.959	-.284	1.105
Academic achievement	-3.45	3.30	.00	1.00

Grade	-4.00	3.00	-.271	.625
Gender (female =1)	0	1	.505	.500
<i>Covariates (school-level)</i>				
Discriminatory school climate	-1.15	1.97	-.042	.401

Note. N = 58744.

Multilevel analysis

In the null model, the variance on the individual and the school level is compared to see whether there is enough reason to carry out a multilevel analysis. The intra-class-correlation (ICC) is calculated to see how much variance of the main effect can be explained at the school level when the country is taken into account as a context-level effect.² The ICC is 4,4%, indicating a low amount of variance at the school level regarding the relationship between ethnic minority background and academic self-efficacy.

After the null model, the individual-level effect of ethnic minority background is included. A negative effect is found ($\beta = -.080$, $p < .001$). After examining this individual effect, the school-level effects have been added. The *-2 Log Likelihood* decreases significantly ($\Delta -2LL = 764,04$ $\Delta df = 5$), thus, the null model has been improved by adding the school-level fixed effects. From all school-level fixed effects, only teacher support is not significant. For school curriculum and global competencies, a positive effect is found, whereas, for school diversity a negative effect is found.

The third model continues embroidering on model two by adding the individual covariates. All the effects are found to be significant, however, the variable “Grade” is the only variable that has a negative effect ($\beta = -.009$, $p < .001$). The difference between the *-2*

² Except for one country, negative, significant relationships were found between the level of academic self-efficacy and the country dummy variables. This highlights the significance of considering country as a contextual impact.

Log Likelihood for model two and model three is significant, thus, the model has been improved by adding the individual-level fixed effects ($\Delta-2LL = 10460,87 \Delta df = 4$).

The fourth model changes the previous model by incorporating ethnic background into the model as a random slope. The individual-level and school-level fixed effects barely change, the difference between the *-2 Log Likelihood* is close to zero ($\Delta-2LL = 0,25 \Delta df = 2$). and the random slope effect is not significant ($\gamma = .002, p = .669$). This shows that the individual-level effect of ethnic background on a student's level of academic self-efficacy does not differ per school.

The final model includes the interaction variables that are constructed by multiplying the variable ethnic background with all the school-level fixed effects. The *-2 Log Likelihood* decrease suggests an improvement of the model compared to the previous model, however, the decrease is not significant ($\Delta-2LL = 8,08 \Delta df = 5$). Out of all the interaction variables, only the interaction variable involving teacher support is significant ($\beta = -.069, p = .022$). Whereas most effects stay the same, the effect of having an ethnic background becomes very small and loses its significance ($\beta = .007, p = .778$).

In Figure 2, the interaction effect is illustrated³. The graph shows that students without an ethnic minority background have more academic self-efficacy when they receive more support they receive from teachers. For students with an ethnic minority background, the difference in academic self-efficacy is less pronounced.

In all six models, the individual variance and school-level variance were significant which means that the level of academic self-efficacy differs significantly per individual and between schools.

³ Dawson, J. (n.d.). 2-way_linear_interaction. [Microsoft Excel spreadsheet]. <http://www.jeremydawson.co.uk/slopes.htm>

Table 3*Multilevel analysis with Dependent variable Academic self-efficacy*

	Model 0	Model 1	Model 2	Model 3	Model 4	Model 5
	<i>b (SE)</i>	<i>b (SE)</i>	<i>b (SE)</i>	<i>b (SE)</i>	<i>b (SE)</i>	<i>b (SE)</i>
<i>Individual-level fixed effects</i>						
Intercept	.448*** (.024)	.464*** (.024)	.550*** (.024)	.315*** (.024)	.315*** (.024)	.316*** (.024)
Ethnic background		-.080*** (.014)	-.063*** (.014)	.028* (.013)	.028* (.013)	.007 (.024)
<i>School-level fixed effects</i>						
Global competencies (S)			.401*** (.017)	.068*** (.016)	.068*** (.016)	.069*** (.017)
Curriculum school			.006** (.002)	.001 (.002)	.001 (.002)	.001 (.002)
Ethnic diversity			-.205*** (.052)	.144*** (.050)	.144** (.050)	.146** (.054)
Teacher support			.006 (.006)	.039* (.015)	.039* (.015)	.046** (.016)
Discriminatory school climate			-.137 (.019)	.106*** (.018)	.106*** (.018)	.106*** (.018)

<i>Covariates</i>				.082***	.082***	.083***
Parental SES				(.004)	(.004)	(.004)
				.477***	.477***	.476***
Academic achievement				(.005)	(.005)	(.005)
				-.089**	-.088***	-.089***
Grade				(.007)	(.007)	(.007)
				.063***	.063***	.063***
Gender				(.007)	(.008)	(.007)
<i>Cross-level interactions</i>						
Ethnic background* Global competencies (S)						-.010
						(.066)
Ethnic background * Curriculum School						.000
						(.005)
Ethnic background* Ethnic Diversity						.027
						(.066)
Ethnic background * Teacher support						-.069*
						(.032)
<i>Random effects</i>						
Variance individual level	.912***	.911***	.911***	.760**	.760**	.760***

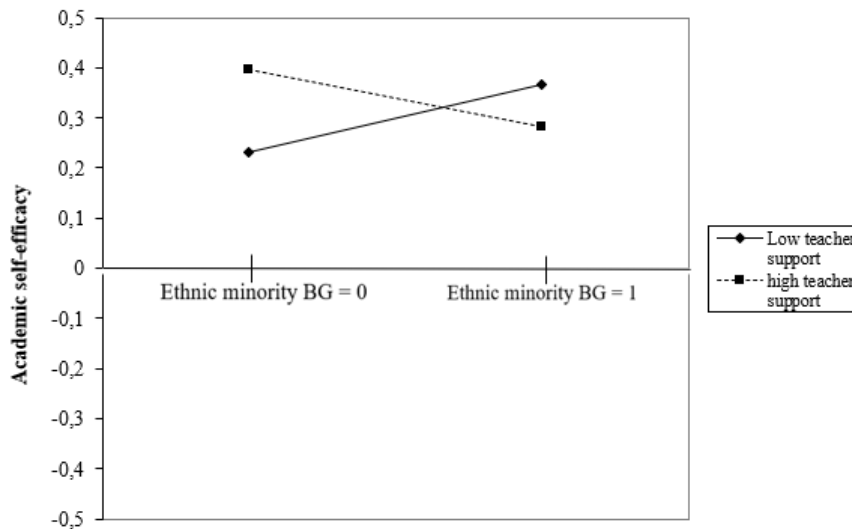
	(.005)	(.005)	(.005)	(.005)	(.005)	(.005)
Variance school level	.042***	.042***	.018***	.019***	.019***	.019***
	(.002)	(.002)	(.002)	(.001)	(.002)	(.002)
Variance slope					.002	.002
					(.005)	(.005)
<i>-2 Log-likelihood</i>	162925.30	162892.43	162128.38	151667.82	151667.58	151660.36
<i>Δdf</i>	17	1	5	4	2	4

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. Global competencies (S) are the aggregated scores of students. From the first model onwards, the country dummies are taken into account as a control variable with Germany as a reference.⁴

⁴ The countries included in the analysis are Albania, Brazil, Chile, Germany, Dominican Republic, Spain, United Kingdom, Hong Kong, Korea, Macao, Morocco, Panama, Portugal, Baku (Azerbaijan), and Chinese Taipei.

Figure 2

Interaction between ethnic minority background and teacher support



Conclusion

The central question of this study was: “*To what extent is the academic self-efficacy of ethnic minority students more developed in a context where global competencies, ethnic diversity, and teacher support are high?*” With the elaborative datasets of PISA (OECD, 2018), a possible answer to this question has been sought. PISA itself already created several scales and compared, correlated, and tested different variables with one another. This research continued this search by hypothesizing that the relationship between the level of academic self-efficacy of students with an ethnic minority background is influenced by the level of global competencies of other students, the degree of ethnic diversity, and teacher support within a school environment.

The main finding of the multi-level analysis is that there are mainly individual-level fixed effects, except for the interaction effect of teacher support. In the second and the third model, the negative effect that was predicted in hypothesis one is found. However, when

individual covariates such as academic achievement and ESCS are added, the effect becomes positive. A possible explanation for the positive effect is that whenever students have similar levels of academic achievement, their academic self-efficacy does not differ anymore. In addition to the changed direction, the significance of the effect of ethnic minority background decreases when individual factors are accounted for. In the final model, the significance of the positive effect of having an ethnic minority background on academic self-efficacy disappears completely, while a significant negative interaction effect of teacher support emerges.

By including this interaction variable, the relationship between ethnic minority background and academic self-efficacy is more specified and provides more insight into the mechanism. Still, it is not in line with the fourth hypothesis which expected a positive effect of the interaction variable. A perceived mismatch between the social identities of the student and the teacher, a lack of confidence in teaching in a multicultural setting, or biased perceptions might be possible explanations for the negative effect (Geerlings et al., 2018; Kunemund et al., 2020). At the same time, it cannot be excluded that teachers give ethnic minority students more support since they experience lower levels of academic self-efficacy. All in all, future studies are needed to examine the relationship between teachers and children from other ethnic backgrounds, as well as the level of support that is provided by teachers to these children.

Concerning the second and the third hypotheses, the positive school-level fixed effects of global competencies of students and ethnic diversity would give reason to believe both hypotheses. The positive effect of ethnic diversity, for instance, aligns with previous research that states that a higher representation of race and ethnicity is beneficial for learning outcomes (Benner & Crosnoe, 2011). However, when these school-level fixed effects interacted with ethnic background in the final model, no significant results are found. So, both the level of

ethnic diversity and the level of global competencies among students do not necessarily enhance or diminish the academic self-efficacy of ethnic minority students.

Discussion

This study elaborates on previous studies by addressing the importance of feeling competent in academic capabilities, regardless of your ethnic background. In a world that is becoming more interconnected and diverse, it's interesting to question what kind of skills, knowledge, and values students should learn when they are at school. Those with an ethnic minority background should be empowered and supported to participate, and increasing global competencies within the school environment could be a possible manner to do so (Ansong et al., 2019). However, in this study, global competencies do not appear to make a difference in the level of academic self-efficacy of ethnic minority students, but the level of teacher support seems to explain more.

In the context of this study, several limitations cast caveats on the findings. To start with, the way how ethnic background is computed. Besides that, the percentage of students with an ethnic minority background is relatively low (13%), the place of birth is not the only way to measure whether someone perceives themselves as an ethnic minority student (Kahanec et al., 2011). Nationality can be for example a different way to measure ethnicity. These limitations of operationalization also apply to the variable of ethnic diversity. Furthermore, regarding the operationalization of ethnic diversity, the presence of various ethnicities within the classroom has not been considered. Therefore, an improvement for future research would be to determine more precisely the ethnicities of the students in the class. Moreover, although several control variables have been examined to explain academic self-efficacy, such as parental socioeconomic status, it is important to acknowledge the potential influence of other forms of support, including support from friends, family, the neighborhood, and other types of communities (Mishra, 2020).

To continue with academic self-efficacy. A possible limitation is the focus on reading. As mentioned in the method section, 2018 was the first year PISA asked questions about global competencies. Since every year a different core subject is pivotal, future research could compare the hypothesized effects for different core subjects. In addition, the effect of academic achievement on academic self-efficacy is positive, however, the reciprocal relationship is acknowledged in literature and should therefore receive more attention in follow-up research (Schöber et al., 2018).

In this study, different kinds of school environments are considered. Still, caution should be used in handling the results and the interpretations of the variables. For instance, the importance of possessing global competencies is substantiated by theory, however, there could be argued it remains a relatively ambiguous, novel, and unclear skill for a 15-year-old. Concerning the questions that measured whether the school is involved with multicultural learning practices, social desirability could play a role. On top of that, there could be a difference in what the school offers and how it is perceived by the student.

The findings concerning teacher support give reason to follow-up research. More attention should be given to teachers and their capability in teaching in multicultural school environments. Within this study, the ethnicity of the teacher is not taken into account. For subsequent studies, it would be beneficial to include that in the analysis. In the literature, there comes forward that ethnic minority teachers are more culturally aware and act upon racial stereotypes. Consequently, they are more capable of creating a positive classroom environment, thereby, contributing to the academic success of ethnic minority students (Chern & Halpin, 2016).

In terms of analysis, one could question whether a multilevel analysis is the best method since the intra-class-correlation was rather low (4,4). Besides, the findings would have been more robust whenever the variance between countries could have been

acknowledged. This would give weight to the number of respondents per country, which increases the generalizability and accuracy of the findings and distinguishes country-level factors from each other (Raudenbush & Brick, 2002). However, carrying out a three-level analysis with multiple break variables was not possible in SPSS. Thus, different software would be required to account for school and country variance.

Besides the limitations of the operationalizations of the variables, there are some additional suggestions for future research. For instance, examining the progression of academic self-efficacy over time with longitudinal data would be an interesting exploration. By utilizing longitudinal data, it is possible to account for the influence of age. In addition, cultural values might be a different interesting social context to include in follow-up research. For instance, individualistic countries could be compared with collectivistic countries. Whereas in collectivistic countries, there is a focus on group abilities, goals, and achievements, it is found that students show lower levels of academic self-efficacy compared to more individualistic countries (Ansong et al., 2019). A possible explanation for that is that individual accomplishments and self-evaluations of academic achievements are perceived and valued differently (Oettingen & Zosuls, 2006).

Within the scope of this research, it is not possible to provide a definitive answer to the research question due to the numerous diverse personal, familial, and societal factors at play. Nonetheless, interventions that increase the academic self-concept of students, especially for those with a less advantageous background are important (Ansong et al., 2019). Schools should continue to provide students from different ethnic backgrounds with opportunities for academic engagement, thereby contributing to a reduction in inequalities both within and outside the classroom (Mansilla & Schleicher, 2022).

References

- Adler, P. S., & Kwon, S. W. (2002). Social capital: Prospects for a new concept. *Academy of management review*, 27(1), 17-40. <https://doi.org/10.5465/amr.2002.5922314>
- Aldridge, J. M., Fraser, B. J., Fozdar, F., Ala'i, K., Earnest, J., & Afari, E. (2016). Students' perceptions of school climate as determinants of well-being, resilience and identity. *Improving schools*, 19(1), 5-26. <http://dx.doi.org/10.1177/1365480215612616>
- Aljaberi, M. A., Lee, K. H., Alareqe, N. A., Qasem, M. A., Alsalahi, A., Abdallah, A. M., ... & Lin, C. Y. (2022, September). Rasch modeling and multilevel confirmatory factor analysis for the usability of the impact of event Scale-Revised (IES-R) during the COVID-19 pandemic. In *Healthcare* (Vol. 10, No. 10, p. 1858). MDPI. <https://doi.org/10.3390/healthcare10101858>
- Ansong, D., Eisensmith, S. R., Okumu, M., & Chowa, G. A. (2019). The importance of self-efficacy and educational aspirations for academic achievement in resource-limited countries: Evidence from Ghana. *Journal of adolescence*, 70, 13-23. <https://doi.org/10.1016/j.adolescence.2018.11.003>
- Bandura, A. (1994). Self-efficacy. In V. S. Ramachaudran (Ed.), *Encyclopedia of human behavior* (Vol. 4, pp. 71-81). New York, NY: Academic Press. (Reprinted in H. Friedman (Ed.), *Encyclopedia of mental health*. San Diego, CA: Academic Press, 1998).
- Bandura, A., & Locke, E. A. (2003). Negative self-efficacy and goal effects revisited. *Journal of applied psychology*, 88(1), 87. <https://doi.org/10.1037/0021-9010.88.1.87>
- Banks, J. A. (2021). Diversity, group identity, and citizenship education in a global age. In *Handbuch Bildungs-und Erziehungssoziologie* (pp. 1-24). Wiesbaden: Springer Fachmedien Wiesbaden. https://doi.org/10.1007/978-3-658-31395-1_20-1

- Bekomson, A. N., & Ntamu, B. A. (2019). Religious value orientation and self-efficacy among secondary school students in cross River State, Nigeria. *Global Journal of Educational Research, 18*(2), 81-89. <https://doi.org/10.4314/gjedr.v18i2.4>
- Benner, A. D., & Crosnoe, R. (2011). The racial/ethnic composition of elementary schools and young children's academic and socioemotional functioning. *American Educational Research Journal, 48*(3), 621-646. <https://doi.org/10.1007/s10964-010-9561-2>
- Burić, I., & Kim, L. E. (2020). Teacher self-efficacy, instructional quality, and student motivational beliefs: An analysis using multilevel structural equation modeling. *Learning and Instruction, 66*, 101302. <https://doi.org/10.1016/j.learninstruc.2019.101302>
- Butler, M. (2022). *Examining Academic Self-Efficacy, Race-Related Stress, Psychological Well-Being, and Racial Centrality on Black Former Undergraduate Historically Black College Students Currently Enrolled in Graduate Predominantly White Institutions* (Doctoral dissertation, Western Michigan University).
- Chemers, M. M., Hu, L., & Garcia, B. F. (2001). Academic self-efficacy and first-year college student performance and adjustment. *Journal of Education Psychology, 93*(1), 55-64. doi: 10.1037/0022-0663.93.1.55
- Chen, C. T., Chen, C. F., Hu, J. L., & Wang, C. C. (2015). A study on the influence of self-concept, social support and academic achievement on occupational choice intention. *The Asia-Pacific Education Researcher, 24*, 1-11. <https://doi.org/10.1007/s40299-013-0153-2>
- Cherng, H. Y. S., & Halpin, P. F. (2016). The importance of minority teachers: Student perceptions of minority versus White teachers. *Educational researcher, 45*(7), 407-420. <https://doi.org/10.3102/0013189X16671718>

- Cushner, K., & Mahon, J. (2002). Overseas student teaching: Affecting personal, professional, and global competencies in an age of globalization. *Journal of Studies in International Education*, 6(1), 44-58. <https://doi.org/10.1177/1028315302006001004>
- Erickson, J., & O'Connor, S. (2000). Service-learning's effect on prejudice: Does it reduce or promote it? In C. O'Grady (Ed.), *Transforming education, transforming the world: The integration of service-learning and multicultural education into higher education*. Mahwah, NJ: Erlbaum.
- Ferla, J., Valcke, M., & Cai, Y. (2009). Academic self-efficacy and academic self-concept: Reconsidering structural relationships. *Learning and individual differences*, 19(4), 499-505. <https://doi.org/10.1016/j.lindif.2009.05.004>
- Field, A. (2017). *Discovering Statistics Using IBM SPSS Statistics (5th ed.)*. SAGE Publications
- Geerlings, J., Thijs, J., & Verkuyten, M. (2018). Teaching in ethnically diverse classrooms: Examining individual differences in teacher self-efficacy. *Journal of school psychology*, 67, 134-147. <https://doi.org/10.1016/j.jsp.2017.12.001>
- Hafalir, I. E., Yenmez, M. B., & Yildirim, M. A. (2013). Effective affirmative action in school choice. *Theoretical Economics*, 8(2), 325-363. <https://doi.org/10.3982/TE1135>
- Hall, A. R., Nishina, A., & Lewis, J. A. (2017). Discrimination, friendship diversity, and STEM-related outcomes for incoming ethnic minority college students. *Journal of Vocational Behavior*, 103, 76-87. <https://doi.org/10.1016/j.jvb.2017.08.010>
- Hayden, M., McIntosh, S., Sandoval-Hernández, A., & Thompson, J. (2020). Global citizenship: changing student perceptions through an international curriculum. *Globalisation, Societies and Education*, 18(5), 589-602. <https://doi.org/10.1080/14767724.2020.1816158>

- Huang, C. Gender differences in academic self-efficacy: a meta-analysis. *Eur J Psychol Educ* 28, 1–35 (2013). <https://doi.org/10.1007/s10212-011-0097-y>
- Jang, G., Schwarzenthal, M., & Juang, L. P. (2023). Adolescents' global competence: A latent profile analysis and exploration of student-, parent-, and school-related predictors of profile membership. *International Journal of Intercultural Relations*, 92, 101729. <https://doi.org/10.1016/j.ijintrel.2022.10.005>
- Jodrell, D. (2010). Social-Identity and Self-Efficacy Concern for Disability Labels. *Psychology Teaching Review*, 16(2), 111-121. <https://doi.org/10.53841/bpsptr.2010.16.2.111>
- Juvonen, J., Kogachi, K., & Graham, S. (2018). When and how do students benefit from ethnic diversity in middle school?. *Child development*, 89(4), 1268-1282. <https://doi.org/10.1111/cdev.12834>
- Kahanec, M., Zaiceva, A., & Zimmermann, K. F. (2011). Ethnic minorities in the European Union: An overview. *Ethnic Diversity in European Labor Markets*
- Kunemund, R. L., Nemer, S. L., Williams, C. D., Miller, C. C., Sutherland, K. S., Conroy, M. A., & Granger, K. L. (2020). The mediating role of teacher self-efficacy in the relation between teacher–child race mismatch and conflict. *Psychology in the Schools*, 57(11), 1757–1770. <https://doi.org/10.1002/pits.22419>
- Lee, J. S. (2012). The effects of the teacher–student relationship and academic press on student engagement and academic performance. *International Journal of Educational Research*, 53, 330-340. <https://doi.org/10.1016/j.ijer.2012.04.006>
- Lee, J. S. (2014). The relationship between student engagement and academic performance: Is it a myth or reality?. *The Journal of Educational Research*, 107(3), 177-185. <https://doi.org/10.1080/00220671.2013.807491>

- Li, Y. (2013). Cultivating student global competence: A pilot experimental study. *Decision Sciences Journal of Innovative Education*, 11(1), 125-143.
<https://doi.org/10.1111/j.1540-4609.2012.00371.x>
- Liang, Y. W., Jones, D., & Robles-Pina, R. A. (2018). Ethnic and Gender Stereotypes on College Students' Academic Performance. *Research in Higher Education Journal*, 35.
- Majewska, I. A. (2022). Teaching global competence: Challenges and opportunities. *College Teaching*, 1-13. <https://doi.org/10.1080/87567555.2022.2027858>
- Mansilla, V. B., & Schleicher, A. (2022). *Big Picture Thinking: How to educate the whole person for an interconnected world*. ISSUU. Retrieved March 15, 2023, from <https://issuu.com/oecd.publishing/docs/big-picture-thinking-educating-global-competence>
- Maree, J. G., & Che, J. (2020). The effect of life-design counselling on the self-efficacy of a learner from an environment challenged by disadvantages. *Early Child Development and Care*, 190(6), 822-838. <https://doi.org/10.1080/03004430.2018.1495629>
- Mezirow, J. (1997). Transformative learning: Theory to practice. *New directions for adult and continuing education*, 1997(74), 5-12.
- Mishra, S. (2020). Social networks, social capital, social support and academic success in higher education: A systematic review with a special focus on 'underrepresented students' *Educational Research Review*, 29, 100307.
<https://doi.org/10.1016/j.edurev.2019.100307>
- Mojavezi, A., & Tamiz, M. P. (2012). The Impact of Teacher Self-efficacy on the Students' Motivation and Achievement. *Theory & Practice in Language Studies*, 2(3).
<https://doi.org/10.4304/tpls.2.3.483-491>

- Nishina, A., Lewis, J. A., Bellmore, A., & Witkow, M. R. (2019). Ethnic diversity and inclusive school environments. *Educational Psychologist*, 54(4), 306-321.
<https://doi.org/10.1080/00461520.2019.1633923>
- OECD. (2018). PISA 2018 database. Retrieved from
<https://www.oecd.org/pisa/data/2018database/>
- OECD. (2019a). PISA 2018 Assessment and Analytical Framework. *Programme for International Student Assessment*. <https://doi.org/10.1787/b25efab8-en>
- OECD. (2019b), *PISA 2018 Results (Volume I): What Students Know and Can Do*, PISA, OECD Publishing, Paris, <https://doi.org/10.1787/5f07c754-en>.
- OECD. (2020a), *PISA 2018 Results (Volume VI): Are Students Ready to Thrive in an Interconnected World?*, PISA, OECD Publishing, Paris,
<https://doi.org/10.1787/d5f68679-en>.
- OECD (2020b). *PISA 2018 Technical Report*, OECD Publishing, Paris.
- Oettingen, G., & Zosuls, K. M. (2006). Culture and self-efficacy in adolescents. *Self-efficacy beliefs of adolescents*, 5, 245-265.
- Ogbu, J. U., & Simons, H. D. (1998). Voluntary and involuntary minorities: A cultural-ecological theory of school performance with some implications for education. *Anthropology & education quarterly*, 29(2), 155-188.
<https://doi.org/10.1525/aeq.1998.29.2.155>
- Oxfam. (2018). *Teaching Controversial Issues: A guide for teachers*. Retrieved February 23, 2023, from
<https://oxfamilibrary.openrepository.com/bitstream/handle/10546/620473/gd-teaching-controversial-issues-290418-en.pdf?sequence=1&isAllowed=y>

- Pajares, F., & Schunk, D. H. (2001). Self-beliefs and school success: Self-efficacy, self-concept, and school achievement. *Perception, 11*(2), 239-266.
- Raudenbush, S. W., & Bryk, A. S. (2002). *Hierarchical linear models: Applications and data analysis methods* (Vol. 1). sage.
- Rogošić, S., & Baranović, B. (2016). Social capital and educational achievements: Coleman vs. Bourdieu. *Center for Educational Policy Studies Journal, 6*(2), 81-100.
<https://doi.org/10.26529/cepsj.89>
- Schöber, C., Schütte, K., Köller, O., McElvany, N., & Gebauer, M. M. (2018). Reciprocal effects between self-efficacy and achievement in mathematics and reading. *Learning and Individual Differences, 63*, 1-11. <https://doi.org/10.1016/j.lindif.2018.01.008>
- Schunk, D. H. (1991). Self-efficacy and academic motivation. *Educational psychologist, 26*(3-4), 207-231. <https://doi.org/10.1080/00461520.1991.9653133>
- Spuur, K. A. (2012). Racial discrimination, academic self-efficacy, self-concept, and student's academic success.
- Tannert, S., & Gröschner, A. (2021). Joy of distance learning? How student self-efficacy and emotions relate to social support and school environment. *European Educational Research Journal, 20*(4), 498-519. <https://doi.org/10.1177/14749041211024784>
- Thomas, D. (2014). Factors that influence college completion intention of undergraduate students. *The Asia-Pacific Education Researcher, 23*, 225-235.
<https://doi.org/10.1007/s40299-013-0099-4>
- Ting-Toomey, S. (2005). Identity negotiation theory: Crossing cultural boundaries. *Theorizing about intercultural communication, 211-233*.
- Tiven, M. B., Fuchs, E. R., Bazari, A., & MacQuarrie, A. (2018). Evaluating global digital education: Student outcomes framework. *New York, NY: Bloomberg Philanthropies and the Organisation for Economic Co-operation and Development, 114*.

- Van Praag, L. (2013). *Right on track? An explorative study on ethnic minorities' success in Flemish secondary education* (Doctoral dissertation, Ghent University).
- Wang, M. T., Selman, R. L., Dishion, T. J., & Stormshak, E. A. (2010). A tobit regression analysis of the covariation between middle school students' perceived school climate and behavioral problems. *Journal of Research on adolescence, 20*(2), 274-286.
<http://dx.doi.org/10.1111/j.1532-7795.2010.00648.x>
- Weissbourd, R., Bouffard, S. M., & Jones, S. M. (2013). School Climate and Moral and Social Development. School Climate Practice Brief. *National School Climate Center*.
- Wong, T. K., Parent, A. M., & Konishi, C. (2019). Feeling connected: the roles of student-teacher relationships and sense of school belonging on future orientation. *International Journal of Educational Research, 94*, 150-157.
<https://doi.org/10.1016/j.ijer.2019.01.008>
- Zysberg, L., & Schwabsky, N. (2021). School climate, academic self-efficacy and student achievement. *Educational Psychology, 41*(4), 467-482
<https://doi.org/10.1080/01443410.2020.1813690>.

APPENDIX A

CHECKLIST ETHICAL AND PRIVACY ASPECTS OF RESEARCH

INSTRUCTION

This checklist should be completed for every research study that is conducted at the Department of Public Administration and Sociology (DPAS). This checklist should be completed *before* commencing with data collection or approaching participants. Students can complete this checklist with help of their supervisor. This checklist is a mandatory part of the empirical master's thesis and has to be uploaded along with the research proposal. The guideline for ethical aspects of research of the Dutch Sociological Association (NSV) can be found on their website (http://www.nsv-sociologie.nl/?page_id=17). If you have doubts about the ethical or privacy aspects of your research study, discuss and resolve the matter with your EUR supervisor. If needed and if advised to do so by your supervisor, you can also consult Dr Bonnie French, coordinator of the Sociology Master's Thesis program.

PART I: GENERAL INFORMATION

Project title: "What we learn is how we act": the importance of global competencies for ethnic minority students.

Name, and email of student: Tess Ravensberg, 668127tr@eur.nl

Name, email of supervisor: Dr Sjaak Braster, Sjaak.braster@gmail.com

Start date and duration: 13-02-2023 – 25-06-2023

Is the research study conducted within DPAS

Yes

PART II: HUMAN SUBJECTS

1. Does your research involve human participants? Yes

If 'NO': skip to part V.

If 'YES': does the study involve medical or physical research? No

Research that falls under the Medical Research Involving Human Subjects Act ([WMO](#)) must first be submitted to [an accredited medical research ethics committee](#) or the Central Committee on Research Involving Human Subjects ([CCMO](#)).

2. Does your research involve field observations without manipulations that will not involve identification of participants? No

If 'YES': skip to part IV.

3. Research involving completely anonymous data files (secondary data that has been anonymized by someone else). Yes

If 'YES': skip to part IV.

PART III: PARTICIPANTS

1. Will information about the nature of the study and about what participants can expect during the study to be withheld from them?
n/a
2. Will any of the participants not be asked for verbal or written 'informed consent,' whereby they agree to participate in the study? n/a
3. Will information about the possibility to discontinue the participation at any time be withheld from participants? n/a
4. Will the study involve actively deceiving the participants? n/a
Note: almost all research studies involve some kind of deception of participants. Try to think about what types of deception are ethical or non-ethical (e.g. purpose of the study is not told, coercion is exerted on participants, giving participants the feeling that they harm other people by making certain decisions, etc.).
5. Does the study involve the risk of causing psychological stress or negative emotions beyond those normally encountered by participants? n/a
6. Will information be collected about special categories of data, as defined by the GDPR (e.g. racial or ethnic origin, political opinions, religious or philosophical beliefs, trade union membership, genetic data, biometric data for the purpose of uniquely identifying a person, data concerning mental or physical health, data concerning a person's sex life or sexual orientation)? n/a
7. Will the study involve the participation of minors (<18 years old) or other groups that cannot give consent? n/a
8. Is the health and/or safety of participants at risk during the study? n/a
9. Can participants be identified by the study results or can the confidentiality of the participants' identity not be ensured? n/a

10. Are there any other possible ethical issues with regard to this study? n/a

If you have answered 'YES' to any of the previous questions, please indicate below why this issue is unavoidable in this study.

n/a

What safeguards are taken to relieve possible adverse consequences of these issues (e.g., informing participants about the study afterwards, extra safety regulations, etc.)?

n/a

Are there any unintended circumstances in the study that can cause harm or have negative (emotional) consequences for the participants? Indicate what possible circumstances this could be.

n/a

Please attach your informed consent form in Appendix I, if applicable.

Continue to part IV.

PART IV: SAMPLE

Where will you collect or obtain your data?

From the Program for International student assessment (PISA), the surveys conducted in 2018 will be used.

Note: indicate separate data sources.

What is the (anticipated) size of your sample?

Without any readjustments, the total size of the PISA data consists of 710.000 students. During the analysis will be clear which countries/students will be included.

Note: indicate separate data sources

What is the size of the population from which you will sample?

See the previous question.

Note: indicate separate data sources.

Continue to part V.

Part V: Data storage and backup

Where and when will you store your data in the short term, after acquisition?

I will possess the dataset while conducting this research, afterwards, it will be deleted.

Note: indicate separate data sources, for instance for paper-and-pencil test data, and digital data files.

Who is responsible for the immediate day-to-day management, storage and backup of the data arising from your research?

The researcher.

How (frequently) will you back up your research data for short-term data security?

Every two weeks.

In the case of collecting personal data, how will you anonymize the data?

I make use of existing, secondary, anonymized data.

Note: It is advisable to keep directly identifying personal details separated from the rest of the data. Personal details are then replaced by a key/ code. Only the code is part of the database with data and the list of respondents/research subjects is kept separate.

PART VI: SIGNATURE

Please note that it is your responsibility to follow the ethical guidelines in the conduct of your study. This includes providing information to participants about the study and ensuring confidentiality in the storage and use of personal data. Treat participants respectfully, be on time at appointments, call participants when they have signed up for your study and fulfil promises made to participants.

Furthermore, it is your responsibility that data are authentic, of high quality and properly stored. The principle is always that the supervisor (or strictly speaking the Erasmus University Rotterdam) remains the owner of the data, and that the student should therefore hand over all data to the supervisor.

Hereby I declare that the study will be conducted by the ethical guidelines of the Department of Public Administration and Sociology at Erasmus University Rotterdam. I have answered the questions truthfully.

Name student: Tess Ravensberg

Name (EUR) supervisor: Dr. Sjaak Braster

Date: 21-03-2023

Date: 21-03-2023

A handwritten signature in black ink, appearing to be 'TR', enclosed within a hand-drawn oval border.

APPENDIX B

Table 1

Global competence scales

GCELFEEFF: ST196 (I couldn't do this – I could do this easily)

How easy do you think it would be for you to perform the following tasks on your own?

- Explain how carbon-dioxide emissions affect global climate change
- Establish a connection between prices of textiles and working conditions in the countries of production
- Discuss the different reasons why people become refugees
- Explain why some countries suffer more from global climate change than others
- Explain how economic crises in single countries affect the global economy
- Discuss the consequences of economic development on the environment

GCAWARE: ST197 (I have never heard of this – I am familiar with this and I would be able to explain this well)

How informed are you about the following topics?

- Climate change and global warming
- Global Health
- Migration
- International conflicts
- Hunger or malnutrition in different parts of the world
- Causes of poverty
- Equality between men and women in different parts of the world

ATTIM: ST204 (Strongly disagree – Strongly agree)

People are increasingly moving from one country to another. How much do you agree with the following statements about immigrants?

- Immigrant children should have the same opportunities for education that other children in the country have
- Immigrants who live in a country for several years should have the opportunity to vote in elections
- Immigrants should have the opportunity to continue their own customs & lifestyle
- Immigrants should have all the same rights that everyone else in the country has

INTCULT: ST214 (Very much like me – Not at all like me)

How well does each of the following statements below describe you?

- I want to learn how people live in different countries
-

-
- I want to learn more about the religions of the world
 - I am interested in how people from various cultures see the world
 - I am interested in finding out about the traditions of other cultures

PERSPECT: ST215 (Very much like me – Not at all like me)

How well does each of the following statements below describe you?

- I try to look at everybody's side of a disagreement before I make a decision
- I believe that there are two sides to every question and try to look at them both
- I sometimes try to understand my friends better by imagining how things look from their perspective
- Before criticizing somebody, I try to imagine how I would feel if I were in their place

COGFLEX: ST216 (Very much like me – Not at all like me)

How well does each of the following statements below describe you?

- I can deal with unusual situations
- I can change my behaviour to meet the needs of new situations
- I can adapt to different situations even when under stress or pressure
- When encountering difficult situations with other people, I can think of a way to resolve the situation
- I am capable of overcoming my difficulties in interacting with people from other cultures

RESPECT: ST217 (Very much like me – Not at all like me)

How well does each of the following statements below describe you?

- I respect people from other cultures as equal human beings
- I treat all people with respect regardless of their cultural background
- I give space to people from other cultures to express themselves
- I respect the values of people from different cultures

AWACOM: ST218 (Strongly disagree – Strongly agree)

Imagine you are talking in your native language to people whose native language is different from yours. To what extent do you agree with the following statements?

- I carefully observe their reactions
 - I frequently check that we are understanding each other correctly
 - I listen carefully to what they say
 - I choose my words carefully
 - I give concrete examples to explain my ideas
 - I explain things very carefully
 - If there is a problem with communication, I find ways around
-

GLOBMIND: ST219 (Strongly disagree – Strongly disagree)

To what extent do you agree with the following statements?

- I think of myself as a citizen of the world
- When I see the poor conditions that some people in the world live under, I feel responsibility to do something about it
- I think my behaviour can impact people in other countries
- It is right to boycott companies that are known to provide poor workplace conditions for their employees
- I can do something about the problems of the world
- Looking after the global environment is important to me

DISCRIM: ST223* (To none or almost none of them – To all or almost of them)

Thinking about teachers in your school: to how many of them do the following statements apply?

- They have misconceptions about the history of some cultural groups
- They have negative things about people of some cultural groups
- They blame people of some cultural groups for problems faced by <country of test>
- They have lower academic expectations for students of some cultural groups

Note. ST214 to ST217 were recoded by PISA. ST223, DISCRIM is taken into account separately. Organization for Economic Cooperation and Development. (2019). PISA 2018 Student *Questionnaire* [PDF]. Retrieved from https://www.oecd.org/pisa/data/2018database/CY7_201710_QST_MS_STQ_NoNotes_final.pdf

Table 2

School curriculum questions

SC150: Does your school offer any of the following options to students in whose <heritage language> is not the <test language>? (Yes = 1, No = 2)

- These students attend regular classes and receive additional periods of instruction aimed at developing skills<test of language> (e.g. reading literacy, grammar, vocabulary, communication).
 - Before transferring to regular classes, these students attend a preparatory programme aimed at developing skills <test of language> (e.g. reading literacy, grammar, vocabulary, communication).
 - Before transferring to regular classes, these students receive some instruction in school subjects through their <heritage language>.
 - These students receive significant amounts of instruction in their <heritage language> aimed at developing proficiency in both languages.
-

-
- Class size is reduced to cater to the special needs of these students.

SC165: Do the following statements reflect teachers' practices for multicultural learning in your school? (Yes = 1 , No = 2)

- In our school, students learn about the histories of diverse groups that live in <country of test>.
 - In our school, students learn about the histories of diverse cultural groups that live in other countries
 - In our school, students learn about the cultures (e.g. beliefs, norms, values, customs, or arts) of diverse cultural groups that live in <country of test>.
 - In our school, students learn about different cultural perspectives on historical and social events.
 - Our school supports activities that encourages students' expression of diverse identities (e.g. national, religious, ethnic or social identities).
 - Our school offers an exchange programme with schools in other countries.
 - Our school organises multicultural events (e.g. cultural diversity day).
-

Table 3

Results from principal component analyses of the variables academic self-efficacy, global competence, and teacher support.

	Factor loadings
<hr/>	
Academic self-efficacy	
- I am a good reader	.511
- I am able to understand difficult texts	.612
- I read fluently	.608
- I have always had difficulty with reading (R)	.659
- I have to read a text several times before completely understanding it (R)	.596
- I find it difficult to answer questions about a text (R)	.642
In the Pisa reading test:	
- There were many words I could not understand (R)	.705
- Many texts were too difficult for me (R)	.761
- I was lost when I had to navigate between different pages (R)	.692
Cronbach's alpha	.821

Eigenvalues	3.761
Explained variance (%VAF)	41,79%

****Teacher support (3.574, 71,49%)**

- I can cope with the challenges of a multicultural classroom.	.837
- I can adapt my teaching to the cultural diversity of students.	.866
- I can take care that students with and without migrant background work together	.843
- I can raise awareness for cultural differences amongst the students.	.854
- I can contribute to reducing ethnic stereotypes between the students.	.827
Cronbach's alpha	.900
Eigenvalues	3.574
Explained variance (%VAF)	71,49%

Academic performance

- Reading	.958
- Mathematics	.957
- Science	.975
Eigenvalues	2.784
Explained variance (%VAF)	92,81%

Note. The extraction method was principal component analysis with an oblique (Oblimin with Kaiser normalization) rotation. ** Since teacher support is created in and merged to a different dataset, the factor loadings are based on a different N. Reverse-scored items are denoted with (R).

Table 4

Descriptives statistics for all the standard deviations

	Min	Max	<i>M</i>	<i>SD</i>
<i>School-level</i>				
Global competencies				
- Student	0.24	2.19	0.93	0.18
Ethnic diversity	0.00	0.52	0.21	0.19
Teacher support	0.00	2.94	0.87	0.30

Note. *Gender: 1 = female, 0 = male.

APPENDIX C

In consultation with the supervisor and the master's thesis coordinator, the syntax has been made available through a Google Drive link.

<https://docs.google.com/document/d/1I0p3HR5WkkY8tN9O-JM6c9PkjSwm4hVrXtCzk6m7LEI/edit?usp=sharing>