An investigation into students' perceptions of global competence and their level of being informed about global issues: The Turkey sample of PISA 2018*

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Abstract

This study aimed at detecting students' perceptions of global competence and their level of being informed about global issues and investigating the predictive power of students' level of being informed about global issues to their global competence perceptions. Research participants consisted of PISA 2018 Turkey sample. In PISA 2018, while students' perceptions of global competence were measured by the items under the heading of "*How easy do you think it would be for you to perform the following tasks on your own?*", their levels of being informed about global issues were determined by the items under the heading of "*How informed are you about the following topics?*". Research results revealed that students' perceptions of global competence were at the intermediate level while their levels of being informed about global issues were around the threshold value the separates intermediate and advanced level. The effects of gender and grade level on students' perceptions of global competence and their status of being informed about global issues were found to be statistically significant; however, the calculated eta squared values showed that the aforementioned effects were negligible in practice. We established that 28% of the variance in students' perceptions of global competence was explained by their level of being informed about global issues, which signifies that practices informing students about global issues significantly support their global competence perceptions.

Keywords: Global competence, Global issues, PISA 2018, Turkey sample of PISA.

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*Ethics committee approval is not required as this paper based on open access PISA data
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INTRODUCTION

Today, international trade, digital connection, environmental factors, migration (demographic changes), and cultural interactions have shaped the politics, health, energy, and tourism policies of countries, as well as affecting their education processes. Under the influence of such factors, some questions regarding the educational process have to be reconsidered: What should be the purpose of education? What knowledge, skills, and attitudes should be achieved primarily by students? How can we best prepare students for the world? How can we encourage today's educators to renew their knowledge? In order to find answers to such questions, many academics and international organizations (e.g., Organization for Economic Co-operation and Development–OECD, United Nations Educational, Scientific and Cultural Organization–UNESCO) have drawn attention to the concept of global competence (Boix Mansilla & Jackson, 2020).

Oxley and Morris (2013) stated that global competence emerged from the concept of global citizenship. Therefore, the concept of global citizenship should be emphasized first in order to understand global competence accurately. According to the Global Citizenship Education Working Group (GCED-WG) of UNESCO, global citizenship as a broad concept encompasses a set of values, skills, and competencies. Human rights, peace, and justice are shared universal values under the umbrella of global citizenship. Empathy, critical thinking, problem solving, communicating and collaborating with others, and conflict resolution are among the skills within the scope of global citizenship. Respect for diversity, and intercultural understanding, and recognizing the presence and interconnection of environmental, social, economic, and political problems on a global scale are among the competencies associated with global citizenship (Center for Universal Education at Brookings, 2017).

Attempts to measure the values, skills, and competencies listed above regarding global citizenship (Auld & Morris, 2019), that is, the effort to transform global citizenship into observable outputs, have revealed the concept of global competence. OECD (2018a) defines global competence as the capacity to scrutinize local, global, and intercultural issues to comprehend different perspectives, to communicate effectively with individuals from dissimilar cultures, and to take action for collective well-being and sustainable development. According to Boix Mansilla and Jackson (2011), global competence is the capacity and tendency to understand problems of global importance and to take action to solve these problems. Reimers (2009), on the other hand, defined global competence in terms of three interdependent dimensions: The first dimension involves global values that form the basis of respect for cultural diversities and an eagerness to engage those diversities; the second dimension involves the ability to speak, understand, and think in several foreign languages in addition to the dominant language in one's native country; and the third dimension contains extensive knowledge and understanding of world history, geography, and such global issues as health care, climate change, economics, politics, and international relations.

Globally competent individuals are aware of current global challenges such as poverty, inequality, climate change, resource depletion, demographic change, and migration (Sälzer & Roczen, 2018). Moreover, these people have the ability to take action individually or together with others to ensure community welfare when injustice is in question, when the harmonious interaction between the individual-individual and the individual-nature is disrupted, and when an environmental risk or technological challenge occurs, which may affect the society's welfare as well (Boix Mansilla & Jackson, 2020).

Social Studies and Global Competence
One of the prominent elements in the strategies for the implementation of global citizenship education and the acquisition of global competencies by students is the curriculum (Asia-Pacific Centre of Education for International Understanding-APCEIU, 2017). Although the curricula for Human Rights, Citizenship and Democracy, Life Science, Turkish, Science, and Media Literacy implemented in Turkey
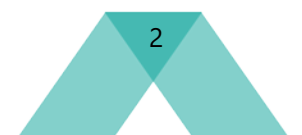
include objectives that serve to develop students' global competencies (The Think Tank of Turkish Education Association–TEDMEM, 2019), social studies discipline comes to the fore in cultivating global citizenship competencies in individuals.

Preparing students for participation in a democratic society is the main goal of a social studies course (National Council for the Social Studies, 2008). The fact that it is a course that promotes participatory and conscious citizenship makes social studies an important tool in the achievement of global citizenship competencies. In addition, social studies course is very functional for students to deal with multiple perspectives and to examine local and global issues critically (Holmes, 2019). In this sense, the social studies course offers many opportunities for students to learn about issues of global importance.

To fully avail of the potential of the social studies course in providing individuals with global competencies, some crucial points should be considered in the teaching process. For example, students should be taught how geography, rivers, and climate affect culture rather than presenting maps, mountains, rivers, and agriculture at the knowledge level. A similar approach should be adopted in teaching history: Students should be able to see and interpret the history of their own countries in the context of simultaneous events in other parts of the world by making use of comparative history teaching. For instance, when discussing the subject of revolution, students should be asked to compare the French Revolution of 1789 with the Arab Spring of 2011, or the topics related to world history should be taught thematically by tracing the interaction between humans and the environment (OECD, 2018b). When such an approach is adopted in the teaching process, the social studies course can contribute more to the development of students' global competencies. Figure 1 presents the prominent goals related to global competence in the social studies curriculum applied in Turkey (4th–7th grades).
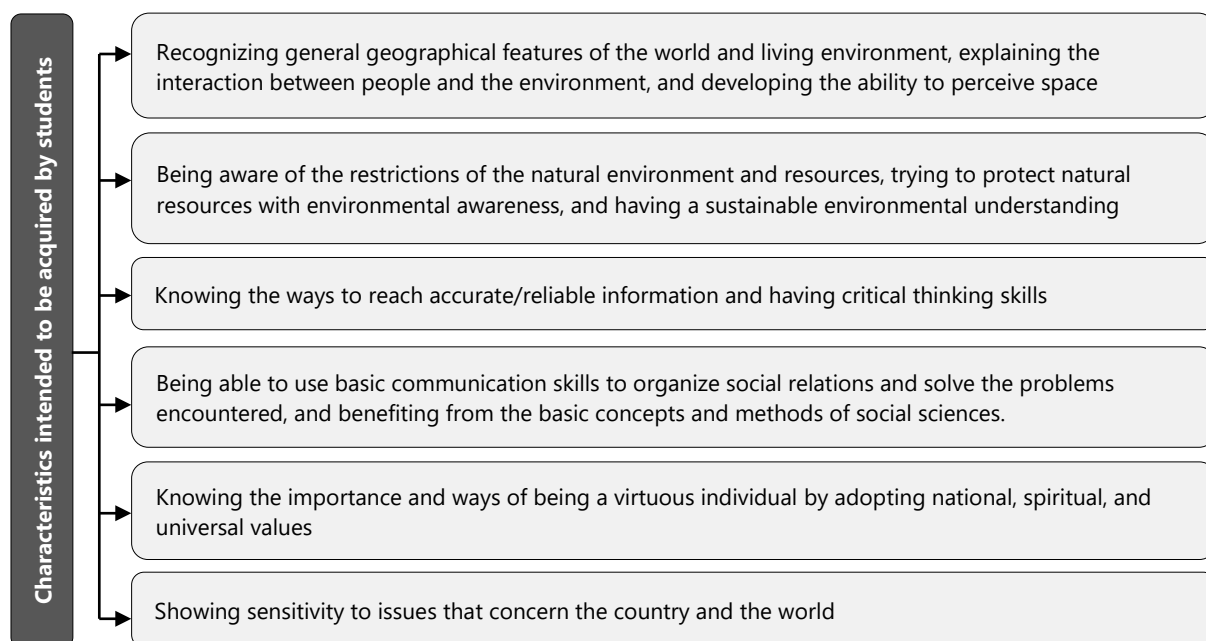
Figure 1. Goals Related to Global Competencies in the Social Studies Curriculum Implemented in Turkey (Ministry of National Education–MoNE, 2018)

The skills of "empathy" and "recognition of stereotypes and prejudices" in the social studies curriculum also serve global competence although they are not directly related. Furthermore, one of the seven learning areas in the curriculum is *Global Connections*, which contains many objectives associated with global competence. Table 1 shows the objectives in question (MoNE, 2018). In addition, there are objectives for global competence in many learning areas outside of global connections (see MoNE, 2018).

Table 1. Objectives Associated with Global Competence in Global Connections Learning Area

Grade	Objectives
4	Introduces the various countries around the world.
	Comprehends Turkey's relations with its neighbors and other Turkic Republics.
	Contrasts the cultural elements of the other countries with those of ours.
	Respects different cultures.
5	Explores the impact of the place where he/she lives and his/her environment in the economic relations between our country and other countries.
	Debates the effect of communication and transportation technology on economic connections between countries.
	Elucidates the importance of tourism in international relations.
	Exemplifies common heritage elements in various countries.
6	Probes the cultural, social, political, and economic relations of our country with the Turkic Republics and neighboring states.
	Analyzes the economic relations of our country with those of others.
	Analyzes the roles our country has assumed in the international arena depending on its political, military, economic, and cultural characteristics.
	Ponders the effects of popular culture on our culture.
7	Exemplifies international organizations of which Turkey is a member.
	Recognizes the economic regions and institutions that Turkey has relations with.
	Queries the stereotypes of various cultures.
	Develops ideas and suggestions for the solution of global problems with his/her friends.

The goals and objectives listed above for the 2018 social studies curriculum were largely the same in the 2005 curriculum, which was implemented when students who participated in PISA 2018 attended secondary school. While three new goals that were not included in the 2005 curriculum were added to the 2018 curriculum (objectives 2, 3, and 5 in Figure 1), there were only partial changes in the previously existing objectives. That's to say, the 2018 and 2005 social studies curricula had a similar structure in terms of their level of serving global competence.

Measuring Global Competence

The concepts of global competence and global citizenship have forced educational policies and implementation processes to a paradigm shift. With this paradigm shift, the aim of raising individuals with global competence has gained importance in education systems, especially in recent years, and this aim has been addressed in a supra-disciplinary framework (TEDMEM, 2019). Emphasizing global competence education, OECD (2018b) states that global competence is indispensable to live in harmony in multicultural communities, to increase employability in the changing labor market, to utilize media platforms effactually, and to support sustainable development targets. In addition, it points out that directing students to a lifestyle that promotes sustainable development and respect for human rights, and a peaceful culture without violence is only possible with global competence education. Accordingly, the OECD launched the global competency assessment in 2018 with the aim of preparing 15-year-old students for an inclusive and sustainable world (OECD, 2018b). Thus, it included global competence in the scope of the Program for International Student Assessment (PISA), first put into practice in 2000 and conducted every three years to test students' math, science, financial literacy, and problem-solving skills.

PISA has been implemented in more than 70 countries, while only 27 countries participated in the PISA 2018 global competence assessment (OECD, 2020). This new assessment area is important as it is the first international measure of global competence (Idrissi et al., 2020). PISA sees global competence as a multidimensional, lifelong learning goal (OECD, 2019). OECD (2018b) underlined that students should have four key competencies to communicate effectively with people in face-to-face or virtual environments, in their communities or in other regions/countries (see Figure 2).

Figure 2. The Dimensions of Global Competence (OECD, 2018b)

In PISA 2018, the global competence goals were evaluated in two parts, consistent with the four dimensions in Figure 2: a cognitive assessment and a background questionnaire. The cognitive assessment was created to disclose students' capacities to critically peruse global issues, understand how to communicate with others in intercultural contexts, and define and crosscheck variant forms of action to handle global and intercultural issues. Students participating in the PISA 2018 global competence assessment were asked to complete this section, which consists of several tests. The content of these tests includes cultural and intercultural relations, socio-economic development and interdependence, environmental sustainability, institutions, conflicts, and human rights. Each chapter consists of several scenarios (case studies) focusing on a global or intercultural problems and scenario-based tasks. For example, in one of the scenarios, the student was asked to imagine that s/he has a new classmate from an immigrant family and to portray some of the challenges this friend is experiencing. In each scenario, students faced many different circumstances since their background knowledge, cognitive skills, and ability to analyze the incident and find solutions were tested with their reactions to these situations. The second part of the global competency assessment includes questionnaires responded to by students, teachers, and school administrators. Figure 3 summarizes the content of these surveys (TEDMEM, 2019).

In the questionnaires administered to students, students assessed themselves on the topics presented in Figure 3. Through the questionnaires applied to teachers and school administrators, data were obtained to the extent to which the content related to global competence and the approach and teaching methods to gain this content were included in the curriculum. Besides, self-reported information was obtained from teachers and school administrators about their beliefs and teaching applications related to cultural and ethnic diversity and multicultural education (TEDMEM, 2019). Some of the countries participating in the PISA 2018 global competence assessment took part in both the cognitive test and the background questionnaire. Many countries, including Turkey, did not participate in the cognitive test, while they only answered the questionnaires related to global competence (OECD, 2020).
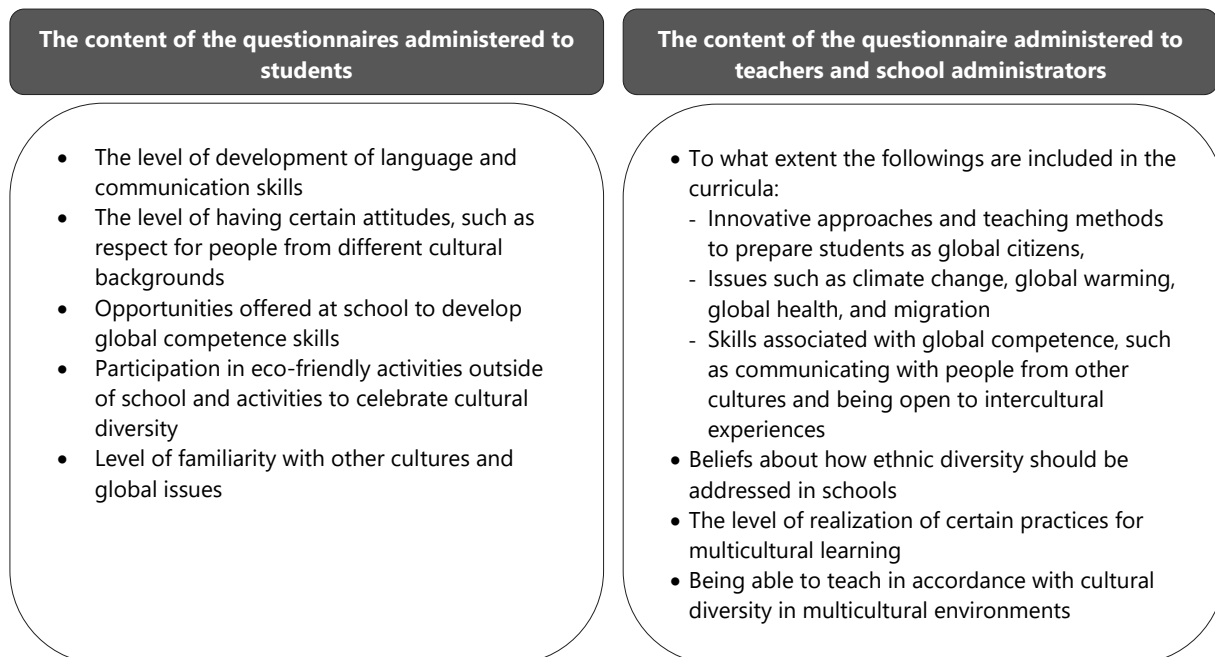
The content of the questionnaires administered to students	The content of the questionnaire administered to teachers and school administrators
• The level of development of language and communication skills • The level of having certain attitudes, such as respect for people from different cultural backgrounds • Opportunities offered at school to develop global competence skills • Participation in eco-friendly activities outside of school and activities to celebrate cultural diversity • Level of familiarity with other cultures and global issues	• To what extent the followings are included in the curricula: - Innovative approaches and teaching methods to prepare students as global citizens, - Issues such as climate change, global warming, global health, and migration - Skills associated with global competence, such as communicating with people from other cultures and being open to intercultural experiences • Beliefs about how ethnic diversity should be addressed in schools • The level of realization of certain practices for multicultural learning • Being able to teach in accordance with cultural diversity in multicultural environments

Figure 3. The Content of the Questionnaires Administered within the Scope of the PISA 2018 Global Competency Assessment

The Aim and Importance of the Research

The goal of PISA is to form internationally comparative arguments for educational development and implementation (Wiseman, 2013). The impact of PISA on the rebuilding of education systems worldwide has been proven by numerous studies (Bonal & Tarabini, 2013; Cobb & Couch, 2018; Cobb & Couch, 2021; Engel & Frizzell, 2015; Sellar & Lingard, 2014; Wiseman, 2013). Many countries have set national agendas for educational investment and economic development based on PISA results and reformed their education systems by taking into account the PISA's country rankings and OECD's education policies (Bailey et al., 2022; Grek, 2009). Therefore, PISA is accepted as one of the most effective international comparative assessments worldwide (Görür et al., 2019). There has been a significant departure from cognitive subjects such as reading, mathematics, and science in OECD education policies since 2018. The OECD has added a new dimension that includes the assessment of knowledge, skills, and attitudes toward global competence to measure a wider range of skills in the PISA program (Cobb & Couch, 2021). One of the main objectives of measuring global competence in PISA is to contribute to the data-based improvement of curricula, teaching process, measurement, and assessment, and school policies for cultural diversity in a way that prepares young people as global citizens (TEDMEM, 2019).

When we examined the relevant literature, we came across a number of studies that deal with the global competence issue within the framework of PISA (e.g., Chandir, 2022; Chandir & Gorur, 2021; Engel et al., 2019; Robertson, 2021; Sälzer & Roczen, 2018). In Turkey, on the other hand, research on global competence subject is relatively limited, and when we reviewed them, we could not locate any studies investigating Turkish students' global competence status based on the PISA data. We only found the report published by TEDMEM (2019) for introducing the global competence framework of PISA 2018. In fact, global competence is one of the most fundamental research topics of the 21st century, and assessing such a subject based on large-scale data like PISA is very important in terms of revealing a comprehensive picture of students' perceptions of global competence.

Considering all these issues listed above, we aimed to determine the perceptions of global competence of 15-year-old students in Turkey who participated in PISA 2018 and their level of being informed about global issues, and to investigate the relationship between the aforementioned two variables. In accordance with this purpose, we sought answers to the following research questions:

1. What is the level of students' perception of global competence and their level of being informed about global issues?
2. Do students' perceptions of global competence and their level of being informed about global issues differ according to their gender?
3. Do students' perceptions of global competence and their level of being informed about global issues differ according to their grade levels?
4. What is the role of students' level of being informed about global issues to predict their perceptions of global competence?

METHOD

Participants
PISA 2018 Turkey sample constitutes the study group of the research. A total of 6890 students from 186 schools selected by stratified two-stage random sampling from Turkey participated in PISA 2018 (see MoNE, 2019 for detailed explanation).

Instruments
In the research, we used the data obtained from the student questionnaire administered within the scope of PISA 2018. We downloaded the data from PISA 2018 database and then excluded the data of other countries from the data file. Thus, we reached a data set containing only the data of the Turkish sample. In this data set, student responses to the items in the following two headings formed the data source of the research:

▪ How easy do you think it would be for you to perform the following tasks on your own? (It was coded as ST196 in data file and student questionnaire)

▪ How informed are you about the following topics? (It was coded as ST197 in data file and student questionnaire)

The heading of "How easy do think it would be for you to perform the following tasks on your own?" contains 6 items to determine students' perceptions of competence regarding global problems (see Table 2). The items have response categories from 1 to 4, in which 1 means *I couldn't do this* and 4 means *I could do this easily*.

Table 2. Items to Determine Students' Perceptions of Global Competence

Item no	Item
ST196-1	Explain how carbon-dioxide emissions affect global climate change
ST196-2	Establish a connection between prices of textiles and working conditions in the countries of production
ST196-3	Discuss the different reasons why people become refugees
ST196-4	Explain why some countries suffer more from global climate change than the others
ST196-5	Explain how economic crises in single countries affect the global economy
ST196-1	Discuss the consequences of economic development on the environment

In the heading of "How informed are you about the following topics?", on the other hand, there were items that measure students' thoughts on how much information they were given about global issues. This title comprises 7 items with a scale 1 to 4, in which 1 means *I have never heard of this* and 4 means *I am familiar with this and I would be able to explain this well*. These items, which aim to reveal the level

of information given to students about global issues from the students' own perspectives, are presented in Table 3.

Table 3. Items Related to Information Given to the Students about Global Issues

Item no	Item
ST197-1	Climate change and global warming
ST197-2	Global health (e. g. epidemics)
ST197-3	Migration (movement of people)
ST197-4	International conflicts
ST197-5	Hunger or malnutrition in different parts of the world
ST197-6	Causes of poverty
ST197-7	Equality between men and women in different parts of the world

Data Analysis

Prior to analysis, we reviewed the dataset for missing values and outliers. Tabachnick and Fidell (2019) specified that if only %5 or less data points are missing in a random pattern from a large data set, the troubles are not major, and almost any procedure for dealing missing values gives close results. From this point of view, since the pattern of our missing points was completely random, we chose to employ the listwise method for handling the missing data. We also tested the distribution of the data to decide on the statistical techniques and estimators to be used. In addition, when we examined the students' grade level, we saw that the number of students in the 8th (*f*=15) and 12th grades (*f*=4) was insufficient for analysis. So, we excluded the participants from these grade levels from the data set. Thus, only the data of 6108 students remained in the data set. Later, we scanned Z-values over total scores to detect univariate outliers. We deleted the data of 70 students, whose Z–score was outside the range of ±3 from the data file. Thereby, 6038 participants, 3061 (50.70%) female and 2977 (49.30%) male, remained in the data file. Of the participants 1118 (18.50%) were in 9th grade, 4739 (78.50%) were in 10th grade, and 181 (3.0%) were 11th-grade students. Table 4 illustrates the skewness and kurtosis coefficients for the dataset with 6038 participants. Even with a conservative approach, the skewness and kurtosis indices within ±1 are considered non-problematic (Bowen & Guo, 2012). Accordingly, the skewness and kurtosis statistics in Table 4 indicate the presence of univariate normality in the data.

Table 4. Skewness and Kurtosis Coefficients of the Datasets

		Skewness		Kurtosis	
		Statistic	Std. Error	Statistic	Std. Error
Dataset coded ST196	Female	−.68	.04	.38	.09
	Male	−.47	.05	−.10	.09
	Grade 9	−.49	.07	−.04	.15
	Grade 10	−.61	.04	.16	.07
	Grade 11	−.61	.18	.36	.36
	Total	−.58	.03	.12	.06
Dataset coded ST197	Female	−.18	.04	.12	.09
	Male	−.13	.05	−.24	.09
	Grade 9	−.20	.07	−.18	.15
	Grade 10	−.18	.04	−.02	.07
	Grade 11	−.20	.18	.34	.36
	Total	−.19	.03	−.03	.06

Since the structural regression model will be used for testing the relationship between the variables regarding the students' global competence in the research, the data set should be free from multivariate outliers as well as univariate outliers. So, following the testing univariate normality, we checked the Mahalanobis distances to detect multivariate outliers and found that there were no multivariate outliers in the data set. Subsequently, we examined the data set in terms of multicollinearity because the model created to test the relationship between the variables discussed in the study was a structural regression

model. To this end, we looked at the Variance Inflation factor–VIF (1.00<10) and Tolerance (1.00>.010) values and ascertained that there was no multicollinearity problem based on the cutoffs recommended by Hair et al. (2019). In the next step, we inspected the multivariate normality by means of Henze–Zirkler's test and found Henze–Zirkler's test as 118.18 ($p<.001$) and 185.72 ($p<.001$) for the ST196, and the ST197 coded datasets, respectively. Henze–Zirkler's test results proved that data were not multivariate normal.

Having completed the preliminary checks, we performed confirmatory factor analysis (CFA) for unidimensional solution to obtain evidence whether a total score could be obtained from the ST196 and ST197 coded measurement tools. Since the research data violated the multivariate normality assumption, we conducted CFA using robust maximum likelihood estimation procedure. In addition, we calculated the Cronbach's alpha coefficients on the measurements obtained from both instruments in order to put to the proof of their reliabilities. Table 5 summarizes the results of CFA and reliability analysis.

Table 5. Results of CFA and Reliability Analysis for ST196 and ST197 Coded Measurement Tools

Measurement tools	Factor Loadings	Fit indices	Cronbach's alpha
ST196[*]	between .68 and .79	RMSEA=.079, SRMR=.024, CFI=.98, NNFI=.96, GFI=.98	.87 (%95 CI [.864, .875])
ST197[**]	between .53 and .78	RMSEA=.070, SRMR=.029, CFI=.97, NNFI=.96, GFI=.98	.84 (%95 CI [.838, .850])

[*] Residual covariances of items 5 and 6 were correlated, [**] Residual covariances of items 1 and 2 were correlated.

After proving that a total score could be obtained from the items for both measurement tools, we proceeded to the analysis for the research questions. Initially, we calculated descriptive statistics to identify the level of students' perceptions of global competence and how much they were informed about global issues. Secondly, we tested whether students' gender and grade levels had a significant effect on their perceptions of global competence and their level of being informed about global issues. Since the univariate normal distribution assumption is met, we exerted independent samples *t*-test for analyses related to gender variable and one-way ANOVA for analyses regarding the grade level. Furthermore, we checked for the strength of the significant differences observed by calculating the effect size. There are various effect size statistics, and one of the most frequently used is eta squared denoted by η^2 symbol and ranges from 0 to 1 (Pallant, 2005). Cohen (1988) offered the following guidelines for assessing it: $.01 \leq \eta^2 < .06$, small; $.06 \leq \eta^2 < .14$, medium; and $\eta^2 \geq .14$, large (Gray & Kinnear, 2012). Lastly, we inspected the predictive effect of students' status of being informed about global issues on their global competence perceptions through the structural equation model. As the data did not meet the multivariate normality assumption, we used a robust maximum likelihood estimation method also in the structural regression model like in CFA. While judging the fit between the specified model and the data of the sample, we referenced the threshold values displayed in Table 6.

Table 6. The Proposed Cutoffs Regarding the Fit Indices Perused to Judge the Model-Data Fit[*]

Fit Index	RMSEA	SRMR	CFI	GFI	NNFI
Proposed cutoff [*]	≤ .08	≤ .10	≥ .90	≥ .90	≥ .90

[*] Pituch and Stevens (2016)

Kline (2011) remarks that the statistical and logical basis for χ^2/df is weak, so it should have no role in model fit assessment. Based on Kline's (2011) this explanation, we ignored the χ^2/df value while evaluating the model–data fit. In the research, we used the web tool developed by Korkmaz et al. (2014) relying on R programming language to test the multivariate normality assumption and carried out the other statistical analyses in the JASP 0.17.

RESULTS

We analyzed the descriptive statistics of students' perceptions of global competence and their level of being informed about global issues, within the scope of the first research problem. Table 7 shows the analysis outputs of descriptive statistics.

Table 7. Descriptive Statistics of Students' Perceptions of Global Competence and Their Level of Being Informed about Global Issues

	Minimum	Maximum	M	SD
Perception of global competence (ST196)	1.00	4.00	2.81	.72
Being informed about global issues (ST197)	1.43	4.00	3.08	.52

Typologies of cognitive processes in the PISA 2018 test of global competence are divided into three levels: basic, intermediate, and advanced (OECD, 2019). Considering that both the perception of global competence and the level of being informed about global issues were responded between 1 and 4 in PISA 2018, we decided to define values between 1.00 and 2.00 as basic, values between 2.00 and 3.00 as intermediate, and values between 3.00 and 4.00 as advanced for both variables in our research. Based on these intervals, we can infer that students' perceptions of global competence were at the intermediate level and their level of being informed about global issues were around the cutoff point that separates intermediate and advanced levels.

Secondly, we tested whether students' perceptions of global competence and their level of being informed about global issues differed according to their gender. Table 8 exhibits the outputs of the independent sample t-test applied for this purpose.

Table 8. Independent Sample t-test Results on the Effect of Gender on the Global Competence Variables Discussed in the Study

Global competency variables discussed in the study	Female		Male		$t(6036)$	p^*	η^2
	M	SD	M	SD			
Perception of global competence (ST196)	2.88	.68	2.75	.75	6.82	.00	.008
Being informed about global issues (ST197)	3.12	.47	3.03	.56	6.56	.00	.007

$^*p < .05$

Table 8 illustrates that gender has a statistically significant effect on both the perception of global competence and on the level of being informed about global issues. Closer inspection of Table 8 depicts that the η^2 values are quite small, which indicate that the statistically significant differences observed for the gender variable are not important in practice. That is, it is the sample size rather than the differences between the mean of females and males that cause a statistically significant result.

Thirdly, we performed one–way ANOVA to check over the effect of students' grade level on their perceptions of global competence and their level of being informed about global issues. Table 9 displays the outputs of one–way ANOVA.

Table 9. One–way ANOVA Results on the Effect of Grade Level on the Global Competence Variables Discussed in the Study

Global competency variables discussed in the study	9th Grade		10th grade		11th grade		$F(2, 6035)$	p^*	η^2
	M	SD	M	SD	M	SD			
Perception of global competence (ST196)	2.74	.73	2.83	.71	2.82	.68	7.22	.001	.001
Being informed about global issues (ST197)	3.04	.56	3.09	.51	3.07	.47	3.41	.033	.002

$^*p < .05$

Table 9 exposes that grade level has a statistically significant effect on students' perceptions of global competence and their level of being informed about global issues. Nevertheless, the η^2 values related to the significant differences detected are quite small. Namely, the significant differences observed in terms of grade level are not significant in practice and are result of the large sample size. Therefore, although the ANOVA result was significant, we did not find it necessary to perform the post hoc test.

Eventually, we tested the predictive role of students' level of being informed about global issues in their perceptions of global competence. For this purpose, we applied the structural equation model and reached the following fit indices: RMSEA=.072 (90% CIs [.069, .075]), SRMR=.039, CFI=.94, GFI=95, NNFI=.92. The reported indices proved that the research data fit the specified model. Figure 4 displays the structural regression model of the relationship between variables.
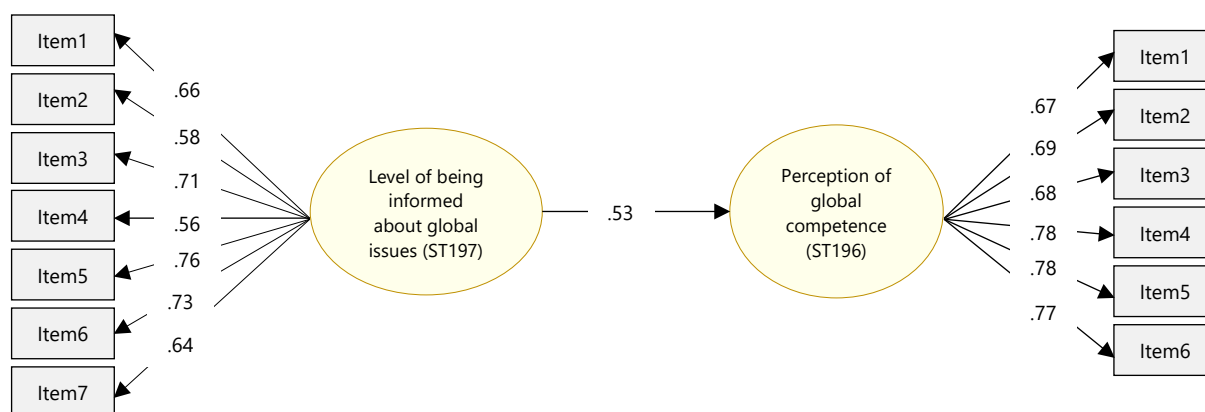

Figure 4. Path Diagram for the Effect of the Level of Being Informed about Global Issues on the Global Competence Perception

Figure 4 indicates a positive and significant correlation between students' perceptions of global competence and their level of being informed about global issues. Additionally, the equation regarding the relationship between the variables exposes that 28% of the variance in students' perceptions of global competence is explained by their level of being informed about global issues (R^2=.28).

DISCUSSION, CONCLUSION, AND SUGGESTIONS

In this study, we aimed to determine the global competence perceptions of 15-year-old students participating in PISA 2018 in Turkey and their level of being informed about global issues, and also to investigate the relationship between these variables. The research results revealed that students' perceptions of global competence were at intermediate level, and their level of being informed about global issues was around the boundary value that separates intermediate and advanced levels. According to the PISA 2018 report, students from Turkey were above the OECD average in terms of both their perceptions of global competence and their level of being informed about global issues. Besides, Turkey ranked 22nd among 65 countries in terms of students' perceptions of global competence and 11th in terms of their level of being informed about global issues (OECD, 2020). That is to say, the report on PISA results reflected that the relative status of students in Turkey regarding their global competencies is good. On the other hand, when we make an absolute evaluation instead of a relative evaluation based on rankings between countries, we can say that students in Turkey need to improve both their perceptions of global competence and their level of being informed about global issues because the means calculated in the present study indicate that students in Turkey were not at an advanced level in terms of both of the variables related to global competence.

The fact that students in Turkey do not have an advanced level of perception of global competence and status of being informed about global issues can be attributed to various factors. First of all, in parallel with the importance attributed to high-stake exams in Turkey, students and other stakeholders in the education process mostly focus on the content of these exams (Çetin & Ünsal, 2019; Turkish Education Association, 2005) and they often push issues such as global competence in the background. In addition, as reported in the related research in the literature, the content of global competence is limited in the existing curricula applied in Turkey and in the textbooks used. For instance, Türk and Atasoy (2021), in their study, examined the contents of the current social studies curriculum and stated that the contents aimed at gaining the global citizenship were included in the curriculum at a substantial rate. On the other hand, Türk and Atasoy (2021) pointed out that there is no explanation about global issues among the cases to be taken as a basis in the implementation of the curriculum and emphasized that understanding of responsibility at the national level is prioritized in the curriculum objectives and the curriculum provides a structure that allows the training of active citizens at the national level, however they specified that the curriculum should be developed in terms of objectives aiming at gaining global participation, global responsibility, and global belonging in order to ensure the national–global balance.

In another study conducted by Eryılmaz (2021), it was reported that although social studies textbooks include problems such as global climate change, natural catastrophes, hunger, terrorism, and migration, information about the causes and occurrence of global climate change is presented superficially. Similarly, Özkaral (2019) underlined that the content that would increase the sense of global responsibility in students should be included more in the social studies curriculum. An analogous picture is also in question in terms of refugee, asylum, and immigration concepts, which are very important in terms of global competence. Kılcan and Şimşek (2021) reported that the aforementioned concepts did not find an adequate response in the social studies curriculum.

In the analyses of the gender variable, we determined that there were significant differences in favor of females between male and female students in terms of both their perceptions of global competence and their level of being informed about global issues. However, based on the calculated effect sizes, we inferred that the significant differences observed are not significant in practice. The PISA 2018 report exposed that in 45 of 65 countries, the female's level of being informed about global issues was significantly higher than that of males. In 19 of the remaining 20 countries, there was no gender difference in the students' level of being informed about global issues. It has been reported that the only country where male students' level of being informed about global issues is significantly higher than that of female students was Korea. In terms of the effect of gender on the perception of global competence, a significant difference was found in favor of females in 22 of 65 countries and in favor of males in 17. It was detected that there was not a significant difference between male and female students' perceptions of global competence in the remaining 26 countries. It was remarked that Turkey is one of the countries with the largest significant difference between male and female students in terms of global competence in the PISA 2018 report (OECD, 2020). Despite this information in the relevant report, our calculation of the effect sizes indicating that the effect of the gender variable in practice is negligible in the present study has made us think that a similar situation may exist in many other countries where significant differences are found. Considering that male and female student are subject to the same curricula and go through the same educational processes, it is not surprising that the effect of the gender variable on students' perceptions of global competence and on their level of being informed about global issues is negligible in practice.

When we tested the effect of grade level on the variables subject to the research, we obtained statistically significant results. However, as in the gender variable, the effect sizes proved that these statistically significant differences were negligıble in practice. Curricula implemented in Turkey have a spiral structure based on the fact that the subjects are presented by expanding and deepening each year (MoNE, 2018). Considering this spiral structure, we had anticipated that students' level of being informed about global issues and also their perception of global competence would increase evidently towards the upper

grades. The fact that the research results are contrary to this forecast may be related to the fact that the objectives related to global competence are not sufficiently included in the curriculum and/or the objectives and activities in the official curricula do not fully fulfill the curricula in practice.

We ascertain that students' level of being informed about global issues is a significant predictor of their perception of global competence, and we conclude that 28% of the variance in perception of global competence can be explained by the variable of being informed about global issues. This result means that the practices informing students about global issues significantly support their perception of global competence. When we consider the research results and the literature related to these results from a holistic perspective, we can offer various suggestions to improve students' perceptions of global competence. Primarily, curricula and textbooks should be enriched in terms of objectives and activities that will serve global competence. In-service training should be carried out to improve the competencies of teachers who are the implementers of the curricula. Moreover, out-of-school learning activities related to global competence should be organized.

Statement of Researchers

Researchers' contribution rate statement: The first author contributed to the methodology, results, and discussion sections. The second author determined the research problem and contributed to the introduction and discussion sections. The third author prepared the dataset for the study and contributed to the methodology and results sections.
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