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EXPLORING FACTORS AFFECTING KAZAKHSTANI STUDENTS' PERFORMANCE IN PISA 2018 GLOBAL COMPETENCE ASSESSMENT

Abstract

Globalization has brought opportunities to modern societies, yet at the same time there is a diversity of challenges that impose a growing set of skills, knowledge, values and attitudes required from contemporary citizens, and global competence is one of them. While existing literature focuses on creating more defined conceptual construction of the term and assessing proficiency of global competence among students of different age groups, it remains unclear how school-level factors could further nurture global competence among younger generation. Identifying how such relevant for the 21st century skill could be developed through educational institutions carries practical value, particularly in the context of Kazakhstan, due to its unique geopolitical role in Eurasia, as well its diverse environment.

With the purpose of identifying factors that impact Kazakhstani students' global competence, this study uses PISA 2018 data to analyze students' performance in Global Competence assessment in relation to student-and school-level factors through two-level regression. Findings reveal that both student-and school-level factors significantly affect student's global competence. At the school level, school's achievement in global competence test could be explained by its location, type, and teachers' attitudes towards some cultural groups.

Keywords: global competence, PISA-2018, secondary analysis of PISA-2018 data, non-cognitive skills, international large-scale assessments, PISA innovative domains

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ҚАЗАҚСТАНДЫҚ БІЛІМ АЛУШЫЛАРДЫҢ PISA 2018 ЖАҺАНДЫҚ ҚҰЗІРЕТТЕРІНІҢ ҚАЛЫПТАСУЫНА ӘСЕР ЕТЕТІН ФАКТОРЛАРДЫ ЗЕРТТЕУ

Аңдатпа

Жаһандану қоғам үшін жаңа мүмкіндіктермен қатар қазіргі азаматтардан өсіп келе жатқан дағдылардың, білімдердің, құндылықтар мен көзқарастардың жиынтығын талап ететін көптеген міндеттердің пайда болуына әкелді және **жаһандық құзыреттер – олардың бірі**. Ағымдағы зерттеулер терминнің неғұрлым анықталған концептуалды құрылымын жасауға және әртүрлі жас топтарындағы білім алушылардың жаһандық құзыреттерін бағалауға бағытталғанымен, білім беру ұйымы деңгейіндегі факторлардың білім алушылардың жаһандық құзыреттерін одан әрі дамытуға қалай әсер ететіні түсініксіз болып қала береді. Қазақстан контекстісіне, әсіресе оның қоршаған ортасы мен Еуразиядағы геосаяси рөліне байланысты XXI ғасырға сәйкес дағдыларды білім беру ортасы арқылы қалай дамытуға болатынын анықтау практикалық тұрғыдан құндылыққа ие.

Қазақстандық білім алушылардың жаһандық құзыреттеріне әсер ететін факторларды анықтау мақсатында бұл зерттеу екі деңгейлі регрессия арқылы білім алушылар мен білім беру ұйымдары деңгейіндегі факторлар бойынша жаһандық құзыреттер бойынша тестілеу нәтижелерін талдау үшін PISA 2018 деректерін пайдаланады. Талдау нәтижелері білім алушылар және білім беру ұйымдары деңгейіндегі факторлардың жаһандық құзыреттер меңгеру әсерінің статистикалық мәні бар екенін көрсетеді. Білім беру ұйымының деңгейінде білім алушылардың жаһандық құзыреттер нәтижелерін білім беру ұйымының орналасқан жерімен, оның түрімен және ондағы мұғалімдердің кейбір мәдени топтарға қатысты көзқарасымен түсіндіруге болады.

Түйін сөздер: жаһандық құзыреттер, PISA 2018, PISA 2018 деректеріне қайталама талдау, когнитивті емес дағдылар, халықаралық кең ауқымды зерттеулер, PISA инновациялық бағыттары

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ИЗУЧЕНИЕ ФАКТОРОВ, ВЛИЯЮЩИХ НА ДОСТИЖЕНИЯ КАЗАХСТАНСКИХ ОБУЧАЮЩИХСЯ ПО ГЛОБАЛЬНЫМ КОМПЕТЕНЦИЯМ В PISA 2018

Аннотация

Глобализация открыла новые возможности для современного общества, но в то же время появилось и множество испытаний, требующих от современных граждан растущего набора навыков, знаний, ценностей и взглядов, и глобальные компетенции – не исключение. В то время как существующая литература сосредоточена на создании более определенной концептуальной конструкции термина и оценке глобальных компетенций среди обучающихся разных возрастных групп, остается неясным, как факторы школьного уровня могут способствовать дальнейшему развитию глобальных компетенций среди молодого поколения. Выяснение того, как актуальные для XXI века навыки могут быть развиты посредством образовательной среды, имеет практическую ценность, в частности, в контексте Казахстана, в связи с его уникальной геополитической ролью в Евразии, а также его разнообразной окружающей средой.

С целью выявления факторов, влияющих на глобальные компетенции казахстанских обучающихся, в этом исследовании используются данные PISA 2018 для анализа результатов учащихся в оценке глобальной компетентности в разрезе факторов на уровне обучающихся и организаций образования посредством двухуровневой регрессии. Итоги анализа показывают, что факторы как и на индивидуальном, так и на школьном уровнях существенно влияют на уровень владения глобальных компетенций учащихся. На школьном уровне результаты учащихся по оцениванию глобальных компетенций можно объяснить местоположением организации образования, ее типом и отношением учителей к некоторым к определенным культурам.

Ключевые слова: глобальные компетенции, PISA–2018, вторичный анализ данных PISA–2018, некогнитивные навыки, международные крупномасштабные исследования, инновационные домены PISA

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Introduction. With changes brought to modern world by globalization, society's understanding of key skills, necessary for one's functioning in social life and labor market, has been evolving and expanding in par with emerging opportunities, as well as challenges. There is a "skills revolution" that resulted in the development of increasingly competent individuals, who are capable of assessing number of problems and generating options for their resolution [1]. As a result, modern conceptions on relevant for the 21st century set of skills, knowledge and values start to go beyond traditional views and interpretations, focusing on transversal skills as well, and global competence is not an exception.

While existing literature focuses on creating more defined conceptual construction of the term and assessing proficiency of global competence among students of different age groups [2,3,4], it remains unclear how school–level factors could further nurture global competence among younger generation, particularly in the context of Kazakhstan. Identifying how such relevant for the 21st century skill could be developed through educational institutions in Kazakhstan carries practical value, due to the country's unique geopolitical role in Eurasia, as well its diverse environment.

With the purpose of identifying student- and school-level factors that impact Kazakhstani students' global competence, this study uses data from Programme for International Student Assessment (PISA) 2018 to analyze Kazakhstani students' performance in global competence cognitive assessment through multilevel regression. Findings reveal that both student- and school-level factors significantly affect student's global competence. At the individual level, student's gender, socio-economic status, exposure to the Internet, self-efficacy regarding global issues, as well as awareness of global issues and intercultural communication could significantly affect their performance in global competence assessment. At the school level, school's achievement in global competence test could be explained by its location, type and teachers' attitudes towards

some cultural groups. To be more specific, school's location and its type exhibit greater effect size on students' acquisition of global competence.

This study would first review the concept of "global competence" used in educational research and policy making and discuss the existing literature on student- and school-level factors that are reported to affect the formation of global competence among students. Then, it would proceed to the overview of data and methodology applied to conduct the analysis and discuss findings of three models.

Literature review. Defining the concept of "global competence". Although the construct of "global competence" has only recently become a subject of discussion in research academia and policy making, there is a diversity of terms that have been utilized with similar or partially overlapping meaning: transnational competence [5], global citizenship [6], intercultural competence [7], global consciousness [8]. Early literature suggests that these terms came into use as a result of emerging challenges globalization has brought. To be more specific, Adler and Bartholomew [5] argue that transformation of domestic firms into transnational ones necessitated the development of transnational competencies among managers to support transnational business strategies. Fantini [7] also contributes to the discussion of skills "global citizens" need to develop for effective interaction with a great diversity of ethnic, religious and cultural backgrounds, yet in comparison with Adler and Bartholomew [5], who focused primarily on human resource systems, Fantini's model is rather unified and applicable at all levels – starting from elementary level till the adult education.

When it comes to educational research and policy, "global competence" has entered discussions among researchers and policy analysts as early as in 1990s, yet there is no uniform definition for the concept, because it is still evolving [2]. While few studies provide their own definition of the term [3,9], majority of works adhere to the conceptual framework designed by Organisation for Economic Co-operation and Development, which is considered as an authoritative source for educational policy analysts [2]. OECD refers to "global competence" as a set of skills, knowledge, values and attitudes, successfully applicable in intercultural situations, as well as global issues. OECD's framework for "global competence", which was developed for assessment as an innovative domain in PISA 2018, covers student's capacity to:

1) examine local, global and intercultural issues;
2) engage in open, appropriate and effective interactions with people from different cultures;
3) take action for collective well-being and sustainable development;
4) understand and appreciate the perspectives and world views of others [10].

Factors affecting students' global competence. Several studies show that certain individual background–related factors could shape one's level of global competence acquisition [10,11,12,13], which is why the inclusion of student–level factors needs to be thoroughly examined. What is more, studies by Hu and Hu [13], Kang [12] and Siaya and Hayward [16] highlight the roles of schools in shaping student's skills, attitudes and knowledge on global issues and intercultural communication. Thus, the inclusion of school-level factors into the discussion could play significant role in risk identification and treatment assignment through educational setting.

Student–level factors affecting students' global competence. Student's global competence is reported to be affected by family-related factors, such as family's socio-economic status. According to OECD's report on PISA-2018 results [10], advantaged students tend to have access to more resources/opportunities for developing global competence than their disadvantaged peers. Which is why, it expected to observe the effect of student's socio-economic status on their performance in global competence assessment.

Apart from family background, student's proficiency in foreign languages has also shown to influence global competence. Semaan and Yamazaki [11], to be more specific, has conducted study among 137 students from two US universities, studying intensive program in Arabic, Persian, Chinese, Japanese and Korean languages, found positive relationship between student's global competence and second language learning motivation. Similarly, research conducted by Kang et al. [12] found that language barrier is one of the challenges that hinders intercultural communication and students' consequent global competence acquisition through cross/intercultural projects. Therefore, it is possible to expect that students, who are proficient in foreign language, perform better in global competence assessment.

Student's life experiences related to exposure to other cultures in various ways could also enhance their global competence. Kang et.al. [12] and Hu and Hu [13] in their study argue that exposure to mass media, migration and contact with foreigners on daily basis could transform individuals' understanding of foreign cultures and attitudes towards certain global issues. Certain problems, as Hu and Hu argue, may not have reached the consensus in regard to their solution, which is why related approaches, policies and experiences of different nations may contribute to a greater familiarity among students, and as a result, cultivate their global

competence [13]. Meanwhile, analysis of students from apparel programs at US and Korean universities, who participated in a series of fashion-related cross/intercultural projects, show that global mass media has exerted the strongest influence on students' global competence acquisition.

In addition to that, Hu and Hu [13] has found that student's skills, knowledge and values are also of great significance in explaining their performance in global competence assessment. To be more precise, their analysis of PISA 2018 data of 25 countries/economies via decision tree and random forest models has shown that students, who have highly evaluated their knowledge on global issues and skills to perform certain related tasks, tend to display better results in the global competence assessment. Similar outcome is observed among students with stronger sense of intercultural communication – they tend to score higher in global competence test. Therefore, it is expected that student's self-evaluation of knowledge and ability to do certain global competence-related tasks might affect their performance in global competence assessment.

School–level factors affecting students' global competence. Schools are considered as primary source of educating global competence. They facilitate both social and political engagement of students from different cultural, ethnic and religious backgrounds, allowing students to adopt, select, imitate certain norms, values and attitudes that the student would bring to the community [14]. Which is why, certain educational practices could play significant role in shaping student's global competence.

The quality of global competence taught at school depends on the level of global competence of teachers. As the results of analysis conducted by Hu and Hu [13] show, negative attitude towards certain cultural groups in the educational setting exhibited by teachers is reported to have the strongest impact on student's global competence. As such, it is expected that students would exhibit higher level of global competence in schools, where teachers do not display discriminatory attitude towards groups of diverse cultural background.

In addition to teacher-related factors, school curriculum on global competence could also enhance student acquisition of skills, knowledge and values related to it. According to several studies [9,15], taking courses with global/international focus positively affects student's understanding of varying cultural beliefs, thus, influencing their global competence. Siaya and Hayward [16] also contribute to the discussion, arguing that internationalization of curriculum provides opportunities for students to enhance their global skills. Conclusively, schools with curriculums that include global competence-related topics and practices could influence global competence acquisition for its students.

Multicultural educational practices could also boost student's values, skills and knowledge related to global issues and intercultural situations. For instance, research by Kang [12] shows that participation in cross-/inter–cultural projects positively impacts students' knowledge of other cultures and skills in intercultural communication. Hu and Hu [13] also argue that studying abroad provides direct experiences for students to get exposed to the cultural, religious and ethnic diversity. Such environment provides enough opportunities for students to practice their intercultural communication skills and knowledge of different cultures, thus assisting them in acquiring global competence.

Apart from educational practices and school's attention to global competence-related topics in their curriculum, certain school characteristics could assist in predicting proficiency in global competence. Rural schools, as Hu and Hu [13] argue, tend to have fewer resources and opportunities to enhance student performance, than urban schools. As a result, one could expect that student's performance in global competence assessment could be explained with school location. What is more, type of educational program (secondary, vocational) provided in the educational institution is important in predicting student performance [17], since educational programs do vary according to their learning outcomes and destinations, for which programs were designed to prepare students for. Consequently, it is possible to observe difference in global competence performance between vocational training and education organizations and secondary schools.

Materials and Methods. ***Data.*** PISA 2018 is the 5th cycle of PISA, international large-scale assessment conducted by OECD, which focuses on evaluating 15–year–old students' readiness to fully participate in social and economic world. While it assesses student's performance in reading, mathematics and science, PISA expands the understanding of "literacy", focusing on relevant for the 21st century competencies, as well. Starting from 2012, OECD introduced innovative domains, evaluating transversal skills of 15-year-old students on a country–level. In PISA 2018, participating countries and economies had an opportunity to observe students' performance in global competence assessment.

Apart from cognitive test, OECD designs questionnaires for students, parents, teachers, and schools to provide researchers and policy analysists with rich data on contextual information of participating schools and students [10]. Which is why, in order to analyze student- and school-level factors that affect Kazakhstani students' global competence performance, this study would utilize PISA 2018 database.

Kazakhstan participates in PISA since 2009. PISA 2018 is the first cycle for the country that was delivered via computer systems. Overall, 19 507 students from 616 educational institutions took part in PISA 2018 test and questionnaire in Kazakhstan. Apart from students, the administration of sampled schools competed the school questionnaire.

Methodology. Considering hierarchical structure of PISA data, this study uses two-level regression to analyze both student- and school-level factors. PISA is a large-scale assessment that draws inferences for a whole population of participating countries based on two-stage sample. The first stage includes systematic probability proportional to size (PPS) sampling, where schools are sampled according to their measure of size. In the second stage, students are selected within sampled schools. Under this sampling approach data observations from the same group, i.e. students from one school, might exhibit more similarity to each other than other observations from different groups [11]. This could violate the assumption of independence of all observations, which is why cluster membership needs to be taken into consideration in the choice of model. Using multi–level model, in this case, is an appropriate statistical approach in analyzing nested data, because it creates a 'sub–model' for each level in the structure (in case of this study, student- and school-level) and expresses relationship between variables of interest within specified level. As a result, usage of multilevel modelling allows to observe how school-level factors influence certain processes at the student-level [18].

Since PISA uses plausible values, sampling weights and replicate weights to draw inferences on student performance for a whole population, it is important to integrate them into model, as well. To do so, *BIFIEsurvey* package in R is used. The package is primarily designed for statistical analysis of large–scale assessment datasets with replication design and allows researchers to use plausible values and survey weights to conduct two–level regressions [19].

According to Hox et.al [20], statistical significance of multilevel models could be achieved by applying '50/20 rule', which requires at least 50 level-2 units (schools) and at least 20 observations on level-1 (students). As a result, the number of PISA 2018 participants from Kazakhstan, analyzed through the multilevel model, decreased. 181 schools (1 562 students in total) with less than 20 participants in PISA–2018 were identified and removed from the database for the final analysis. As a result, total of 17 945 students from 435 schools were selected for conducting the multi–level modelling.

Certain student- and school-level variables were transformed to conduct the analysis (Table 1). Variables forming SC158, SC165 and SC167 were recoded (0 – "No", 1 – "Yes") and sum was computed for final variables. ST223 variable responses were relabeled according to their value scale – "To none or almost none of them" was recoded as 0, "To some of them" was recoded as 1, "To most of them" was recoded as 2, and "To all or almost all of them" was recoded as 3. Sum of student responses to these questions were used for final variable, ST223. ST177Q01HA was also recoded according to their value labels (1 – "One", 2 – "Two", 3 – "Three", 4 – "Four or more"). Dummy variable was created for TFGender (0-Male, 1-Female), SCHTYPE (0 – ISCED 3B, 1 – ISCED 2A) and LOCATION (0 – rural, 1 – urban).

This study would apply three steps for two-level modelling procedure. First, it would analyze the null model or "intercept-only" model (Model 0) to see if clustering between groups of students is present and the use of multi-level model is appropriate. The second model (Model 1) would introduce student-level variables (no school-level factors included) to examine how certain student characteristics affect their performance in global competence assessment. School variables are added to the model at the third step (Model 2) to see how school-level factors influence the relationship between student characteristics and performance in global competence assessment.

Table 1. An overview of student– and school–level variables

Variable	Description	Formation
Student–level		
Gender	Student's gender	TFGender
ESCS	Student's economic, social and cultural status	ESCS
ST177Q01	Number of languages spoken by student sufficiently to talk with others	ST177Q01HA
IC006Q01	Internet usage outside of school during a typical weekday	IC006Q01TA
GCSELFEFF	Index of self-efficacy regarding global competence	GCSELFEFF

GCAWARE	Index of awareness of global issues	GCAWARE
AWACOM	Index of awareness of intercultural communication	AWACOM
School–level		
SCHTYPE	Type of organization (according to ISCED level)	SCHTYPE
LOCATION	School location (urban/rural)	LOCATION
ST223	Teacher's discriminatory behavior towards certain cultural groups	ST223Q02HA + ST223Q04HA + ST223Q05HA + ST223Q08HA
SC158	Attention to global issues in formal curriculum	SC158Q01HA + SC158Q02HA + SC158Q04HA + SC158Q07HA SC158Q08HA + SC158Q09HA + SC158Q12HA
SC165	Multicultural/intercultural educational practices	SC165Q01HA + SC165Q02HA + SC165Q03HA + SC165Q04HA + SC165Q05HA + SC165Q06HA + SC165Q07HA + SC165Q08HA + SC165Q09HA + SC165Q10HA
SC167	Attention to global competence-related skills in school curriculum	SC167Q01HA + SC167Q02HA + SC167Q03HA + SC167Q04HA + SC167Q05HA + SC167Q06HA

Results and discussion. Table 2 shows summary of three models. According to the null model (Model 0), the intercept equals to 409.67, meaning that the average performance of Kazakhstani students in PISA 2018 global competence assessment equals to 409.67 points. Intraclass Correlation (ICC) of the intercept-only model is 0.27. This implies that 27% of overall variation in student's performance in global competence assessment is explained by clustering. ICC indicates substantial variability between the groups, in our case, schools. Therefore, the conduct of multilevel regression is prompted to explain the variation in student's performance in global competence assessment.

Introducing student-level variables (excluding school-level factors) displays how individual factors influence student performance in global competence. The intercept has decreased – under this model, the average performance of a Kazakhstani student in PISA 2018 global competence test is 391.13 points. Among all variables used in student-level only model, student's proficiency in foreign languages (ST177Q01) is not statistically significant in explaining student's performance in global competence assessment.

Table 1. Summary of models

	Model 0 (intercept-only model)				Model 1 (Student-level only)				Model 2 (Full model)			
	Coef.	s.e.	t	p	Coef.	s.e.	t	p	Coef.	s.e.	t	p
(Intercept)	410.67	2.57	159.63	0.000	393.40	4.61	85.41	0.000	359.03	13.51	26.58	0.000
Student-level factors												
Gender					16.88	2.46	6.85	0.000	12.78	2.46	5.19	0.000
ESCS					6.56	1.54	4.26	0.000	4.60	1.41	3.27	0.002
ST177Q01					-0.19	1.36	-0.14	0.889	0.04	1.39	0.03	0.976
IC006Q01					6.68	0.70	9.47	0.000	5.98	0.75	8.00	0.000
GCSELFEFF					7.21	1.04	6.95	0.000	7.99	1.01	7.94	0.000
GCAWARE					4.62	1.23	3.76	0.002	4.18	1.25	3.33	0.004
AWACOM					7.13	1.57	4.54	0.000	7.07	1.56	4.54	0.000
School-level factors												
SCHTYPE									26.91	6.79	3.97	0.000
LOCATION									27.55	5.73	4.81	0.000
SC165									1.66	1.01	1.63	0.104
SC167									-0.56	1.29	-0.43	0.668
SC158									0.05	1.03	0.05	0.960
ST223									-4.14	0.46	-8.92	0.000
Residual variance												
Between schools	1527.61				1087.68				843.10			
Within schools	4182.39				3802.44				3676.60			
ICC	0.27				0.20				0.22			

Summary of Model 1 suggests that female students are expected to score 16.42 points higher in global competence assessment than male students, when all other variables are held constant. The same trend is observed in students' ESCS – students with higher economic, social and cultural status perform better in global competence assessment than male students and students, whose socio-economic status is lower. The usage of internet by students outside of school (IC006Q01) is also positively associated with their global competence. When it comes to students' self-evaluation of their knowledge and skills on global issues and intercultural situations, their self-efficacy regarding global competence (GCSELFEFF), awareness of global issues (GCAWARE) and intercultural communication (AWACOM) tend to contribute to a higher performance in global competence test, as well. Overall, the decreased value of between-school and within-school variation signify that variables covered Model 1 seem to explain the residual variance present in Model 0.

With the addition of school-level variables in Model 2, it is possible to observe how school-level factors explain the relationship between student characteristics and their global competence. As Table 2 shows, the effect size of student-level factors has slightly decreased, with the exception of students' self-efficacy regarding global competence (GCSELFEFF). Yet, even after including school-level variables in the model, students' gender, ESCS, the usage of internet, self-efficacy regarding global competence and awareness of global issues and intercultural communication are still statistically significant predictors of their performance in global competence assessment. According to Model 2, female students score 12.78 points higher than male students in global competence assessment. When it comes to student's socio-economic background, with 1 unit (standard deviation from the OECD average) increase in student's ESCS 4.6 point increase in performance is also expected. Student's self-efficacy on global competence, the way they perceive their knowledge on global issues and skills on intercultural communication further enhances their global competence. Overall, one could see that the effect of student characteristics after accounting for school-level factors remains similar to Model 1.

Considering school-level factors, school location (LOCATION) seems to be the most significant predictor of student's performance in global competence test. As results of the model show, urban school tend to perform 27.55 points higher in global competence assessment than rural schools. Such findings might indicate the substantial gap in resources allocated to rural schools that hinder their students' global competence.

The program of education offered to students (SCHTYPE) is also important for students' global competence. A statistically significant relationship between two variables is observed – there is 26.91–point

advantage of ISCED 2 schools (secondary schools) over ISCED 3 ones (vocational education and training institutions).

Teacher's discriminatory behavior towards certain cultural groups (ST223) could also explain student's global competence. There is a statistically significant relationship between teacher's intercultural attitudes and student's level of global competence. Negative coefficient in the model summary implies that students in schools, where teachers tend to exhibit discriminatory attitude and treatment towards certain cultural groups, score less in global competence test than students, whose teachers do not display such behavior.

Surprisingly, attention to global issues (SC167) and skills (SC158) related to global competence in school's curriculum does not have statistically significant effect on student's global competence, which allows us to assume that students, studying in schools that pay attention to global competence-related skills and knowledge, see no gain in performance on global competence than their peers, who study in schools with no attention to global skills and knowledge in their curriculum. Multicultural/intercultural educational practices adopted by schools (SC165) has also shown to be statistically non-significant in predicting the global competence acquisition among students. This means that that students from schools that engage in multi–/intercultural activities (exchange programs, festivities, historical, social events, etc.) score similar number of points in global competence test as their peers, whose schools do not offer such activities.

Overall, findings from Model 2 demonstrate that student-level factors explaining their global competence remain statistically significant even after adjusting for school-level factors, and school type and location, and teacher's multicultural attitudes are significant predictors of Kazakhstani students' proficiency in global competence. Among all the variables, the effect size of school's location and its type, as the summary of model 2 shows, seem to be the greatest in the model. Nevertheless, student's performance in global competence does not seem to be affected by student's foreign language proficiency, school's attention to global competence–related skills and knowledge, or the multicultural practices adopted by schools. In comparison with intercept–only and student-level only model, the values of between-school and within-school variation has decreased, meaning that the inclusion of school-level characteristics allowed to explain the residual variation in former models.

Conclusion. The study was guided by the main research question of what student- and school-level factors could explain Kazakhstani students' performance in global competence assessment. To answer this question, extensive literature review on the conceptual construct of "global competence", as well as existing literature on factors, affecting student's acquisition of global competence, was conducted. As a result, there are several student– and school-level variables identified to have an effect on student's global competence level. Such variables were included in the two-level regression, presented in this paper.

As findings of the multi-level regression show, on the student-level, male students, along with low-ESCS students, are expected to score less in global competence assessment than female students and students with higher ESCS. Student's self-evaluation on their knowledge and skills related to global competence is also statistically significant predictor of their performance in global competence.

On the school-level, school's location and its type are one of the most significant predictors of students' performance in global competence assessment. As it was discussed earlier, schools in rural regions tend to have fewer resources and opportunities than urban ones, which as a result, could affect their performance in many aspects. Students in secondary schools tend to display a higher level of global competence than students, studying in VET programs. Such findings suggest that the way skills and knowledge on global issues and intercultural communication are introduced and developed within educational setting needs to be revised and adapted, taking into account the specific needs of rural population and VET educational institutions.

According to the results of the model, teacher's intercultural attitudes and could also explain the difference in student's level of global competence. Intercultural attitudes of teachers are an indicator of how students perceive the way teachers treat certain cultural groups, which seems to provide more meaningful responses than teachers' self-evaluation. Students, who responded that their teachers display positive attitude towards certain cultures, score higher in global competence assessment, than peers, who reported negative multicultural attitude among teachers. Such findings indicate that teachers and attitudes they translate in school environment are essential components of global competence education among students. Which is why, considering the ways in which teachers could enhance their cultural awareness and apply it in an educational setting could be of a great importance.

Still, it is necessary to conduct more detailed analysis that considers differences between secondary schools and vocational education and training institutions, as well as urban and rural schools, to identify peculiarities that could be addressed to lessen the achievement gap. What is more, more detailed analysis on the

reasons, why school's attention to global issues in formal curriculum, its multicultural educational practices and attention to global competence-related skills in curriculum showed no statistical significance would hugely assist in identifying how such data could be further utilized in analysis of student's learning of global competence.

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