Miller, B., & Taber-Doughty, T. (2014). Self-monitoring checklists for inquiry problem-solving: Functional problem-solving methods for students with intellectual disability. Education and Training in Autism and Developmental Disabilities, 49(4), 555–567. Retrieved from www.scopus.com

Murtagh, L., & Seoighe, A. (2022). Educational psychological provision in Irish-medium primary schools in indigenous Irish language-speaking communities (Gaeltacht): Views of teachers and educational psychologists. British Journal of Educational Psychology, 92(4), 1278–1294. https://doi.org/10.1111/bjep.12499

Pravitel'stvo Respubliki Kazakhstan. (2022). Prikaz № 4 ob utverzhdenii printsipov otsenki osobykh obrazovatel'nykh potrebnostey Respubliki Kazakhstan [Order No. 4 on the approval of the principles of the assessment of special educational needs of the Republic of Kazakhstan]. Retrieved from https://adilet.zan.kz/kaz/docs/V2200026618/history [in Russian]

Prezident Respubliki Kazakhstan. (2018). Strategicheskiy plan razvitiya Respubliki Kazakhstan do 2025 goda (Ukaz № 636 ot 15 fevralya 2018 g.) [Strategic Development Plan of the Republic of Kazakhstan by 2025 (Decree No. 636, February 15, 2018)]. [in Russian]

Šafárová, K., Mekyska, J., & Zvončák, V. (2021). Developmental dysgraphia: A new approach to diagnosis. International Journal of Assessment and Evaluation, 28(1), 143–160. https://doi.org/10.18848/2327-7920/CGP/V28I01/143-160

Verozub, A. S. (2022). Innovatsionnyy podkhod k razrabotke tekhnologii obsledovaniya detey s tyazhelymi mnozhestvennymi narusheniyami razvitiya [Innovative approach to the development of technology for the examination of children with severe multiple developmental disorders]. Spetsial'noye obrazovaniye – Special Education, 1(65), 54–62. [in Russian]

Zakon Respubliki Kazakhstan ob obrazovanii. (2007). [Law of the Republic of Kazakhstan on Education]. Retrieved from https://adilet.zan.kz/rus/docs/Z070000319_ [in Russian]

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VALUES FORMATION IN SCHOOLCHILDREN THROUGH GLOBAL STRATEGIC STUDIES: QUANTITATIVE STUDY RESULTS

Abstract

This study examines the impact of geopolitical education in the school geography curriculum on students' cognitive development, practical skills, and value formation. A structured questionnaire was used to assess students' understanding of fundamental geopolitical concepts, their ability to analyze international processes, and their perceptions of key values such as tolerance, responsibility, and civic awareness. The collected data were analyzed using statistical software to objectively assess the level of learning and identify patterns in students' responses. The results indicate that students demonstrate strong retention of knowledge and high levels of engagement in geopolitical topics, but there are challenges in the practical application of acquired skills. The study highlights the importance of integrating geopolitics into education to prepare students for informed participation in global affairs. By strengthening decision-making competencies and promoting ethical perspectives, geopolitical education can contribute to the development of responsible citizens capable of addressing contemporary international challenges. The results point to the need for interactive learning approaches, including discussions, simulations, and case studies, to strengthen students' ability to critically evaluate geopolitical scenarios. The study also highlights the need for a well-structured curriculum that combines theoretical knowledge with practical learning to enhance students' preparedness for future challenges.

Keywords: cognitive knowledge; skills; value attitudes; school education; quantitative analysis.

Introduction. The development of key skills and values in schoolchildren is becoming an important task of modern education, especially in the context of globalization and increasing interdependence of countries. In this context, the study of geopolitics is of particular importance, since it contributes to the development of critical thinking, analytical skills, and understanding of international processes in students (Azkiya, 2023; Belhoste & Dimitrova, 2023). Researchers note that the integration of geopolitical topics into school courses allows students to comprehend complex issues of the modern world and develop decision-making skills in conditions of uncertainty (Adanalı, 2021; Fettweis, 2015). School textbooks play a key role in education by setting the direction for studying key topics such as international conflicts, energy security, and sustainable development. They not only convey basic knowledge but also contribute to the development of students' analytical skills and the formation of their own opinions (Kelly, 2019; Kopanja, 2020).

Geopolitics, as a discipline at the intersection of geography and international relations, helps to instill in students a sense of responsibility for their future and the future of their country. According to research by Dittmer and Dodds (2008), the study of geopolitical issues through popular culture helps schoolchildren perceive complex international conflicts through the prism of everyday life. Such approaches contribute to a deeper assimilation of the material and the formation of sustainable values (Dittmer & Gray, 2010). A number of studies demonstrate the positive impact of geopolitical education on the formation of students' civic position. In particular, Carter and McCormick (2006) emphasize that school courses that include elements of geopolitics allow students to critically understand the role of their country in international processes. The importance of this approach is confirmed in the study of Dittmer (2005), which shows that the use of multimedia and digital resources for studying international relations contributes to the development of analytical skills.

Theoretical aspects of integrating geopolitics into school education are actively studied both in Western countries and in Kazakhstan. For example, the works of Western researchers Ide (2016) and Kelly (2019) focus on the critical perception of international events and their influence on the formation of students' behavior. At the same time, studies by Wu (2018) and Starr (2005) emphasize the importance of taking into account cultural and national characteristics when introducing geopolitical topics into educational programs. In Kazakhstan, similar issues are raised in the work of Myrzaly et al. (2024), who note that the integration of geopolitical concepts into secondary education promotes students' understanding of global issues and the development of their analytical skills.

Research conducted by Li and Wang (2024) shows that the use of online resources and blended learning methods effectively increases student engagement and promotes independent work. In addition, it is important to note the role of teachers in developing students' skills in analyzing and evaluating international events. Reber (2009) emphasizes in his work that teachers must have a high level of training and use modern teaching methods in order to effectively develop students' critical thinking.

Thus, the inclusion of geopolitics in the school curriculum not only improves students' academic performance, but also prepares them for conscious participation in society. The formation of knowledge about geopolitics is an important part of the overall educational strategy aimed at educating responsible citizens who are able to understand and make decisions in the face of global challenges.

The *purpose* of this study is to analyze the impact of studying geopolitics on the formation of schoolchildren's cognitive knowledge, practical skills, and value systems.

The main *objectives* of the study:

1. To assess the level of formation of cognitive knowledge on geopolitics.

2. To identify the degree of development of skills in working with information and analytical abilities.

3. To study the impact of the educational process on the formation of students' value systems.

The *hypothesis* of the study is that the geography curriculum contributes to the formation of significant cognitive knowledge in schoolchildren, develops practical skills in analyzing information and geopolitical processes, and also forms stable value systems, such as patriotism, tolerance, and respect for international norms.

Materials and Methods. The study was organized in three stages. The first stage defined the scope, object, purpose and objectives of the study. The second stage included a literature review and selection of methodology. The final stage included an empirical study, data analysis and formulation of conclusions.

Participants of the study. A total of 203 11th-grade students from urban (62.1%) and rural schools (37.9%) in the Almaty region took part in the survey. The sample of 11th-grade students was not chosen randomly, since it is at this stage that the school study of the geography course, which includes topics related to geopolitics, ends. 11th-grade students have a sufficient level of knowledge and life experience, which allows them to give more informed and reasoned answers to questions regarding international relations, global challenges and the importance of sustainable development.

Tools. The questionnaire consisted of 25 questions divided into three categories: cognitive, skill and affective. Participants rated their level of agreement with the statements on a Likert scale from 1 to 5, where 1 means "completely disagree" and 5 – "completely agree".

Question categories:

- cognitive category (7 questions): questions on knowledge of basic geopolitical concepts and processes;
- skill category (9 questions): questions on the development of analytical skills and the ability to work with maps and information sources;
- affective category (9 questions): questions concerning the formation of value attitudes, such as tolerance, patriotism and respect for international norms.

Data Collection Procedure. The data collection procedure included the development of a questionnaire, drafted by the authors of the study and pre-checked for completeness and clarity of wording. The questionnaire was administered to students through geography teachers using the Google Forms platform. The respondents' responses were collected over a two-week period.

Data processing methods. IBM SPSS Statistics Version 30.0.0.0 (172) was used to process the collected data. The following statistical analysis methods were used in the study:

1. Descriptive statistics to calculate the mean values (M) and standard deviations (SD) for each of the survey categories: cognitive, skill, and affective.

2. Correlation analysis to identify relationships between cognitive knowledge, skills, and affective attitudes, the Pearson correlation coefficient (r) was used.

3. Factor analysis to verify the structure of the questionnaire, that is, to confirm that the questions are indeed grouped into three separate categories – cognitive, skill, and affective. The results of the factor analysis made it possible to assess the internal consistency of each category.

4. Graphic visualization of data to clearly present the results, bar charts and histograms were constructed showing average values by category, as well as the distribution of responses by cognitive, skill and affective components.

Results. The results of the study revealed high average values for the cognitive and affective categories, indicating a significant level of assimilation of key knowledge on geopolitics by students and their awareness of the importance of value systems such as tolerance, respect for other cultures and patriotism (fig. 1). The average score (M) for the cognitive category was M=4.2, confirming a high level of students' understanding of geopolitical processes. In the affective category, the average score was M=4.0, indicating successful development of social and ethical orientations. At the same time, the average value for the skill category was M=3.8, which is slightly lower than in other categories and indicates the need to strengthen the practical component of training aimed at developing analytical and research skills.

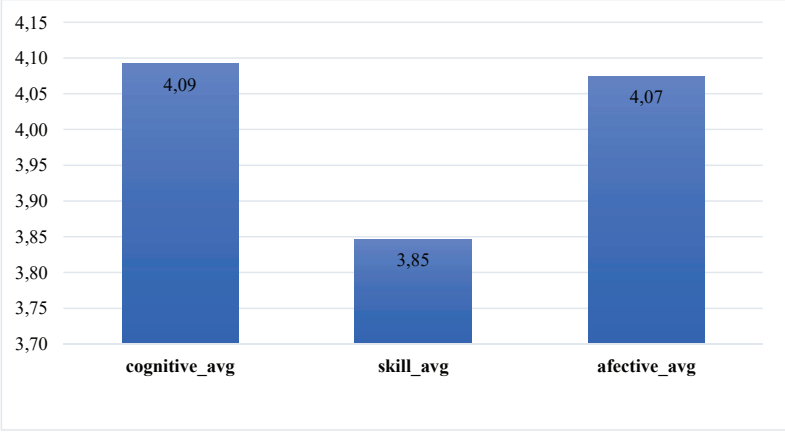

Figure 1: Comparison of mean values of cognitive, skill and affective categories

Analysis of the cognitive category. The results of the study of the cognitive category, presented in figure 2, demonstrate a high level of assimilation of knowledge on key issues of geopolitics by students. The average value for the cognitive category is M=4.09 with a standard deviation of SD=0.77, which indicates a high degree of agreement of students with statements reflecting an understanding of geopolitical processes. The histogram shows that the most frequent assessments are in the range from 4.0 to 5.0, with a peak around 4.0, which confirms the prevalence of high knowledge among the majority of respondents.

The analysis of individual questions (table 1) shows that the highest mean value (M=4.18, SD=0.89) was received by the statement "The role of international organizations, such as the UN or NATO, in geopolitics is explained", which indicates a good understanding by students of the importance of international structures in global political processes. High mean values were also noted for questions concerning the explanation of the importance of the country's geographical location for its political and economic relations (M=4.17, SD=0.90) and the analysis of global processes, such as conflicts, integration and cooperation between countries (M=4.12, SD=0.95). Relatively low mean values are observed for questions related to the presentation of historical examples of geopolitical events (M=3.97, SD=0.92) and the importance of geopolitics for the sustainable development of countries (M=3.98, SD=0.83). This may indicate that students have a more difficult time perceiving historical examples and relating them to contemporary processes, as well as the need to increase the emphasis on sustainable development in the geopolitics course.

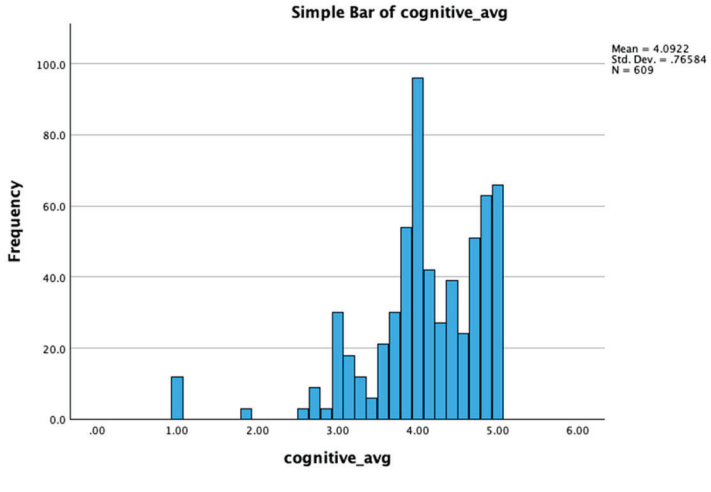

Figure 2: Distribution of values by cognitive category

Table 1. *Descriptive statistics for cognitive category questions*

	N	Mean	Std. Deviation
Geopolitics explains the importance of a country's geographical location for its political and economic relations	203	4.17	.904
Analyzes the reasons for changing borders and dividing territories	203	4.11	.908
Tells about global processes such as conflicts, integration and cooperation between countries	203	4.12	.952
Studies the influence of natural resources on relations between states	203	4.11	.971
Explains the role of international organizations such as the UN or NATO in geopolitics	203	4.18	.891
Presents historical examples of geopolitical events and their consequences	203	3.97	.919
Shows the importance of geopolitics for the sustainable development of countries	203	3.98	.832

Analysis of the skill category. The results of the study of the skill category, presented in figure 3, show that the average score for the skill component was M=3.85 with a standard deviation of SD=0.68. Most students demonstrated a skill level in the range from 3.5 to 4.5, with a peak around 4.0, which indicates a fairly good level of formed skills, but still lower than the indicators for the cognitive category.

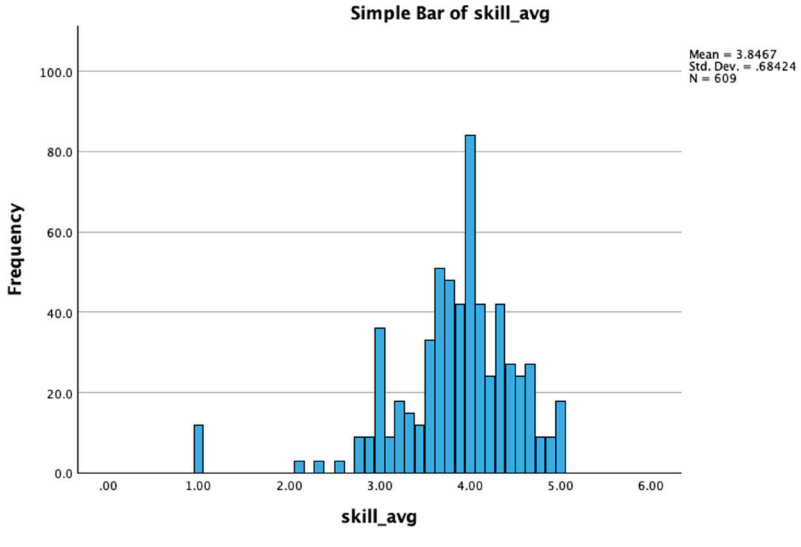

Figure 3: Distribution of values by skill category

An analysis of individual questions shows that the highest mean values were recorded for questions related to the development of skills in critically assessing geopolitical information (M=4.02, SD=0.86) and teamwork skills on projects on geopolitical topics (M=4.04, SD=0.86) (table 2). This indicates a high level of student interaction during the assignments and their ability to critically analyze information.

The mean values for questions related to the organization of educational activities, such as simulating international negotiations (M=3.39, SD=0.97) and conducting discussions and debates on topics related to geopolitics (M=3.63, SD=0.94), were somewhat lower. This may indicate that such practical forms of work are used less often or require more active involvement of students to achieve higher results.

Table 2. Descriptive statistics for skill category questions

	N	Mean	Std. Deviation
Develop skills in analyzing geopolitical maps and diagrams	203	3.98	.829
Work with various sources of information to analyze international relations	203	3.98	.901
Conduct discussions and debates on topics related to geopolitics	203	3.63	.938
Conduct practical tasks to analyze the impact of geopolitics on the economic development of countries	203	3.84	.855
Organize training events, such as simulating international negotiations	203	3.39	.970
Develop skills in predicting changes in the geopolitical space	203	3.87	.831
Analyze risks associated with international security	203	3.88	.842
Improve skills in critically assessing geopolitical information	203	4.02	.864
Develop skills in working in a team on projects on geopolitical topics	203	4.04	.861

Affective category analysis. The analysis of the results for the affective category showed that the average value for all questions was M=4.07 with a standard deviation of SD=0.73 (fig. 4), which indicates a fairly high level of formed value attitudes among students. The histogram shows that the distribution of responses has a peak in the range from 4.0 to 4.5, with the highest frequency around 4.0, which reflects the predominance of positive assessments. Students generally highly rated the importance of value aspects in studying geopolitics.

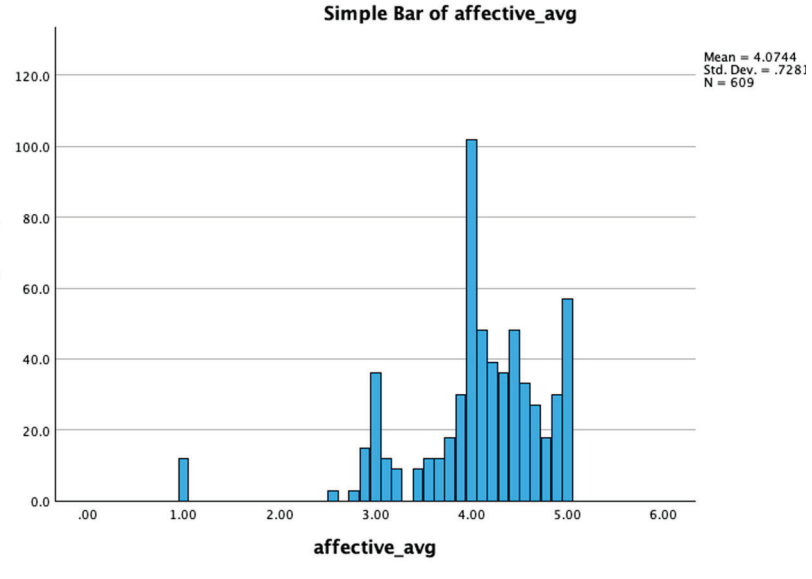

Figure 4: Distribution of values by affective category

According to table 3 of the descriptive statistics, the highest average value is observed for the statement "Interest in studying modern geopolitical events is being formed" (M=4.20, SD=0.88), which indicates significant motivation of students to further study this topic. A high level was also shown by statements about understanding the importance of international cooperation (M=4.19, SD=0.83) and fostering responsibility for maintaining peace and stability (M=4.12, SD=0.82). The average values for questions related to environmental responsibility (M=3.94, SD=0.90) and support for sustainable development (M=3.99, SD=0.86) were somewhat lower. This may indicate that these topics require more attention in the educational program, despite their relevance in the context of global challenges.

Table 3. *Descriptive statistics for affective category questions*

	N	Mean	Std. Deviation
Respect for the sovereignty and culture of other countries is formed	203	4.04	.922
Responsibility for maintaining peace and stability is fostered	203	4.12	.820
Respect for international laws and norms is instilled	203	4.08	.782
Interest in studying modern geopolitical events is formed	203	4.20	.879
A sense of patriotism is strengthened through awareness of the country's role in global geopolitics	203	4.06	.963
Tolerance and understanding of cultural diversity are instilled	203	4.05	.825
Environmental responsibility is fostered in the context of geopolitical challenges	203	3.94	.899
Support for sustainable development and solutions to global problems is stimulated	203	3.99	.859
Understanding of the importance of international cooperation is formed	203	4.19	.825

The results of the correlation analysis presented in table 4 showed the presence of significant positive relationships between cognitive knowledge, skills and affective attitudes of students studying geopolitics. The correlation coefficient between cognitive knowledge and skills was 0.800 ($p < 0.001$), which indicates that students with a higher level of knowledge also demonstrate more developed practical skills. The relationship between cognitive knowledge and affective attitudes was even higher ($r = 0.870$, $p < 0.001$), indicating that a deep understanding of geopolitical processes contributes to the formation of such value attitudes as tolerance, patriotism and respect for the culture of other countries. A strong relationship was also found between skills and affective attitudes ($r = 0.850$, $p < 0.001$), which confirms the influence of practical classes on the development of stable value orientations in students. All correlations are statistically significant at the level of $p < 0.001$, which indicates the reliability of the identified relationships and confirms that successful mastering of geopolitics contributes not only to the formation of knowledge and skills, but also to the development of the most important socio-ethical attitudes.

Table 4. *Correlation dependencies between the average values of categories*

		cognitive_avg	skill_avg	affective_avg
Cognitive_avg	Pearson Correlation	1	.800**	.870**
	Sig. (2-tailed)		<.001	<.001
	N	609	609	609
Skill_avg	Pearson Correlation	.800**	1	.850**
	Sig. (2-tailed)	<.001		<.001
	N	609	609	609
Affective_avg	Pearson Correlation	.870**	.850**	1
	Sig. (2-tailed)	<.001	<.001	
	N	609	609	609

** Correlation is significant at the 0.01 level (2-tailed)

Discussion. The results of this study demonstrate the importance of including geopolitics in the school curriculum to develop key competencies in students necessary for understanding international processes and making informed decisions. The high mean values of the cognitive category (M=4.09) confirm that students successfully master basic knowledge about international relations, geopolitical processes, and key international

organizations. This is consistent with the findings of previous studies, such as Kelly (2019) and Wu (2018), which emphasize the role of geopolitical education in developing students' analytical skills and critical thinking.

The mean values in the affective category (M=4.07) also indicate the successful formation of students' value systems, such as tolerance, patriotism, and respect for international norms. These results confirm the findings of Dittmer and Dodds (2008) that studying geopolitics contributes to the development of socially significant qualities and civic responsibility in students. However, slightly lower scores in the skills category (M=3.85) indicate that the practical component of training requires improvement. This coincides with the findings of Wu (2018), who notes that more active forms of training, such as simulating international negotiations and holding thematic discussions, are necessary for the full development of skills for analyzing and predicting international processes.

The results obtained emphasize the importance of integrating geopolitics into school education to develop not only knowledge but also socially significant values in schoolchildren. School textbooks play a special role in this process, which, as noted by Kopanja (2020) set the direction for studying key topics such as international conflicts, sustainable development, and energy security. In addition, the results of the study indicate the need for active involvement of students in practical activities related to the analysis of international processes. This may include project assignments, discussions, and role-playing games, which confirms the effectiveness of interactive teaching methods noted in Ide (2016).

limitations of the study. Despite the significance of the obtained results, the study has a number of limitations. Firstly, the study sample included only 11th grade students from schools in the Almaty region, which may limit the generalization of the results to other regions of Kazakhstan. Secondly, the survey was conducted using an online questionnaire, which may affect the accuracy of the data obtained, especially in rural schools where access to the Internet may be limited. It is also worth noting that the study focuses primarily on quantitative analysis, while qualitative methods, such as interviews with students and teachers, could complement and deepen the interpretation of the data obtained.

Directions for future research. Several directions are proposed for further development of the research topic. Firstly, it is advisable to conduct similar studies in other regions of Kazakhstan to compare the results and identify regional features of schoolchildren's perception of geopolitics. Secondly, it is recommended to use a combined approach, including both quantitative and qualitative research methods. This will provide a more complete picture of the development of students' knowledge, skills, and values. Finally, special attention should be paid to the development of teaching materials that take into account contemporary global challenges such as climate change, migration, and sustainable development issues. This will help make the process of learning geopolitics more relevant and useful for students, preparing them for active participation in society.

Thus, the results of this study confirm the importance of integrating geopolitics into the school curriculum and provide directions for further research aimed at improving teaching methods and enhancing the quality of geopolitical education.

Conclusion. This study confirmed the importance of studying geopolitics in the school curriculum for the comprehensive development of students. The results showed that high school students successfully develop cognitive knowledge about international relations, geopolitical processes and the role of key international organizations. The average values for the cognitive category indicate a high level of understanding of the basics of geopolitics. However, it was noted that more attention should be paid to historical examples and sustainable development in the educational process, since these aspects received comparatively lower marks. Analysis of the skill category revealed that although students demonstrate a fairly high level of development of analytical skills and abilities to work with information, there is still a need to strengthen the practical component

of training. This is especially true for holding discussions, debates and simulating international negotiations. This will not only develop the skills of forecasting and analyzing the international situation, but also increase the involvement of students in the educational process. The affective category, which includes value attitudes, also showed high results, especially in such aspects as interest in international events, a sense of patriotism and an understanding of the importance of international cooperation. At the same time, aspects that require further development have been identified, in particular the formation of environmental responsibility and understanding of the need for sustainable development. These topics, despite their high relevance in the modern world, are not yet sufficiently developed within the school curriculum. Thus, the study confirmed that the study of geopolitics contributes not only to the formation of knowledge and skills in students, but also to their education as citizens with a high level of social responsibility and critical thinking. To further improve the educational process, it is recommended to strengthen the practical component of teaching, pay more attention to global challenges of our time and use interactive teaching methods, such as role-playing games, case analysis and project assignments.

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References:

Adanalı, R. (2021). How geogames can support geographical education? *Review of International Geographical Education Online*. https://doi.org/10.33403/rigeo.855550.

Azkiya, N. (2023). Strengthening the awareness of state defense of the millennial generation through defense management against economic threats after the covid-19 pandemic. *International Journal of Humanities Education and Social Sciences (Ijhess)*, 3(2). https://doi.org/10.55227/ijhess.v3i2.629

Belhoste, N. and Dimitrova, A. (2023). Developing critical geopolitical awareness in management education. *Management Learning.* https://doi.org/10.1177/13505076231185970

Carter, S., & McCormack, D. P. (2006). Film, geopolitics and the affective logics of intervention. *Political Geography*, 25(2), 228-245. DOI: https://doi.org/10.1016/j.polgeo.2005.11.004.

Dittmer, J. (2005). Captain America's Empire: Reflections on Identity, Popular Culture, and Post-9/11 Geopolitics. *Annals of the Association of American Geographers.* https://doi.org/10.1111/j.1467-8306.2005.00478.x.

Dittmer, J., & Dodds, K. (2008). Popular Geopolitics Past and Future: Fandom, Identities and Audiences. *Geopolitics*, 13(3), 437-457. DOI: https://doi.org/10.1080/14650040802203687.

Dittmer, J., & Gray, N. (2010). Popular Geopolitics 2.0: Towards New Methodologies of the Everyday. *Geography Compass.* https://doi.org/10.1111/j.1749-8198.2010.00399.x.

Fettweis, C. J. (2015). On Heartlands and Chessboards: Classical Geopolitics, Then and Now. *Orbis*, 59(2), 233-248. DOI: https://doi.org/10.1016/j.orbis.2015.02.005.

Ide, T. (2016). Critical geopolitics and school textbooks: The case of environment-conflict links in Germany. *Political Geography*, 55, 60-71. https://doi.org/10.1016/j.polgeo.2016.07.002.

Kelly, P. (2019). Classical Geopolitics, a New Analytical Model. *Pannoniana*, 3(1-2), 293-297. https://doi.org/10.2478/pannonia-2019-0016.

Kopanja, M. (2020). Geopolitical thought of saul bernard cohen: between obsoletion and underutilization. *Medjunarodni Problemi (International problems)*, 72(1), 61-100. https://doi.org/10.2298/medjp2001061k

Li, F., & Wang, L. (2024). A study on textbook use and its effects on students' academic performance. *Disciplinary and Interdisciplinary Science Education Research.* https://doi.org/10.1186/s43031-023-00094-1

Myrzaly, N. B., Muzdybayeva, K. K., Rakhymzhan, R. G., Abdimanapov, B. Sh., & Berdygulova, G. E. (2024). Geopolitics in school education: Assessing the perception of key aspects by secondary school students in Kazakhstan. *Pedagogy and Psychology, 60*(3). 46-57. https://doi.org/10.51889/2960-1649.2024.60.3.005

Starr, H. (2005). Territory, Proximity, and Spatiality: The Geography of International Conflict. *International Studies Review*, 7(3), 387-406. https://doi.org/10.1111/1468-0009.00011-i1

Wu, Z. (2018). Classical geopolitics, realism and the balance of power theory. *Journal of Strategic Studies*, 41(6), 786-823. https://doi.org/10.1080/01402390.2017.1379398.