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PEDAGOGICAL APPROACHES TO ENVIRONMENTAL EDUCATION IN KAZAKH AND JAPANESE GEOGRAPHY TEXTBOOKS

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Abstract. This article examines the process of environmental education in school education in Kazakhstan, where the principles of sustainable development are being implemented, reflected in strategic initiatives such as the National Action Plan for Environmental Protection and the Ecology of Kazakhstan, Digital Kazakhstan programs. The relevance of the research is due to the need to study international experience, particularly the Japanese education system, which uses effective methods of environmental education and formation of environmental responsibility. In this regard, the purpose of the study is to conduct a comparative analysis of pedagogical approaches to environmental education in geography textbooks of Kazakhstan and Japan, identifying best practices and developing recommendations for their adaptation in Kazakhstan. Research methods include content analysis of geography textbooks in Kazakhstan and Japan, comparative analysis of the structure and content of educational materials, as well as questionnaires among teachers and students to assess the perception and effectiveness of environmental education methods. The survey covered fifty respondents in total (20 teachers and 30 students), which allowed us to assess the perception of environmental topics and teaching methods. The results of the study showed that the Japanese education system actively uses innovative teaching methods such as project-based learning and the development of critical thinking, while in Kazakhstan traditional methods such as lectures and theoretical assignments prevail. Japanese textbooks contain more examples of environmental activism, which contributes to the better involvement of students in solving environmental problems. In conclusion, based on the analysis, recommendations for Kazakhstan are proposed: the introduction of project-based learning, the use of formative assessment methods, the development of interdisciplinary educational materials, the active involvement of parents and the use of technology in the educational process. These measures will help to develop environmental responsibility among Kazakhstani schoolchildren and contribute to the sustainable development of the country.

Key words: Education, environmental education, environmental awareness, pedagogical approaches, teaching methods, project-based learning, textbooks, textbook content analysis, sustainable development

Introduction

Kazakhstan is actively working to integrate the principles of sustainable development into its education system, as reflected in government initiatives and

strategic documents. In his 2021 State of the Nation Address, President Kassym-Jomart Tokayev outlined tasks aimed at improving the environmental situation and fostering a sense of responsibility toward the environment among citizens [1]. In 2020, Kazakhstan adopted the National Action Plan for Environmental Protection [2], outlining measures to strengthen environmental education and public awareness of sustainability. These priorities are also reflected in the Digital Kazakhstan program [3], which promotes innovative teaching technologies and the integration of sustainable practices into curricula. In this context, Kazakhstan faces the challenge of adapting and implementing the best international practices in environmental education to develop an environmental culture and responsibility among the younger generation. Therefore, studying the experience of Japan, a country with advanced approaches to environmental education, is particularly relevant.

The Japanese approach to sustainable development is characterized by a systemic approach, innovative methods, and high effectiveness in fostering environmental responsibility among students. The achievements of Japanese schools are supported by objective research results from international programs and competitions: according to PISA data, the important level of scientific literacy among Japanese students allowed them to rank 3rd to 9th [4]. Kazakhstan, as a country actively adopting international practices, can adapt effective models of environmental education implemented in Japan. In Japan, textbooks often emphasize sustainable development and the interconnection between humans and nature, reflecting the national strategy for environmental protection. In contrast, Kazakh geography textbooks may focus on traditional practices of nature conservation and ecosystems characteristic of the region. In this context, the purpose of the study is to conduct a comparative analysis of pedagogical approaches to environmental education in the geography textbooks of Kazakhstan and Japan, to identify differences in methods for fostering environmental culture and responsibility among students. To implement this idea, the following main objectives were set:

- Assessing the effectiveness of pedagogical approaches to environmental education presented in the geography textbooks of Kazakhstan and Japan, with a focus on methods for fostering environmental culture and responsibility among students.
- Analyzing the differences in approaches to environmental education, including the use of innovative educational technologies and identifying their impact on student engagement in addressing environmental issues.

In the context of globalization, educational systems increasingly focus on environmental education (EE) to develop ecological awareness, responsibility and environmental culture. Japan and Kazakhstan, though different in cultural and socio-economic contexts, both recognize the importance of EE, integrating it into geography education.

EE serves as a foundation for cultivating students' ecological worldview and behavioral responsibility. The structure and content of geography textbooks significantly influence this process, with pedagogical strategies varying depending

on national priorities, traditions and reform agendas.

Both Japan and Kazakhstan have undergone socio-political transformations that shaped their educational systems. In Japan, educational modernization began during the Meiji era (1868-1912), when Western models were actively adopted [5]. Kazakhstan launched large-scale reforms after gaining independence in 1991, seeking to modernize education in line with global trends and labor market needs.

Education in both countries is regarded as a driver of economic growth and social mobility. Japan emphasizes discipline and long-term workforce preparation, while Kazakhstan aims to build a globally competitive education system. Despite the influence of globalization, both countries strive to preserve national language and traditions within education.

Vocational and technical training is another shared focus. Japan has a well-established system of technical education [6] and Kazakhstan is actively developing vocational institutions to meet economic demands.

Japan's experience in EE includes project-based learning, environmental research, and integration of EE into core curricula. Studies show that 80% of Japanese students in EE programs exhibit active ecological behavior, compared to 60% in Kazakhstan [7]. In this context, the aim of this study is to identify and analyze the pedagogical approaches to environmental education in the geography textbooks of Japan and Kazakhstan.

Materials and methods

For this study, geography textbooks intended for elementary, middle and high school levels, published in Kazakhstan and Japan over the past ten years, were selected. This timeframe allows for the identification of current trends in pedagogical approaches to environmental education reflected in modern educational materials.

The main research methods employed were content analysis and comparative analysis. Content analysis involved identifying and systematizing key ecological topics presented in sections dedicated to environmental and social issues. The study also examined the pedagogical strategies used, including project-based learning, interactive methods and empirical activities. Comparative analysis was applied to evaluate the structure of the textbooks, the types of assignments provided and the use of visual elements, with a focus on methodological differences between the two countries.

The theoretical and methodological framework of the study is grounded in activity-based learning (J. Dewey), social constructivism (L.S. Vygotsky) and spiral curriculum theory (J. Bruner). These frameworks provide a basis for viewing textbooks not merely as informational resources but as tools for developing sustainable environmental competencies in students.

To ensure the scientific validity and reliability of the study, a combination of qualitative and quantitative methods was employed. The study employed the following methods, which are summarized in Table 1.

Table 1 – Overview of Research Methods Used in the Study and Their Applications

Research Method	*Application*	*Purpose*
Content Analysis	Analysis of 10 textbooks (5 from Kazakhstan, 5 from Japan)	Identification of environmental topics, approaches, and visual content
Comparative Analysis	Comparison of structure, tasks and illustrations	To define methodological differences
Survey (Questionnaire)	50 respondents: 30 students, 20 teachers	To assess perceptions of environmental education methods
Case Study	Observations at Azuma Elementary School (Tsukuba, Japan)	To evaluate real-world implementation
Visual Analysis	Analysis of diagrams, maps, QR codes, and photos	To assess the level of visual engagement

These methods ensured reliability, scientific validity and practical relevance of the study results. In addition, statistical data regarding students' perception of environmental topics, national educational standards and governmental pedagogical initiatives in both countries were examined to enrich the analysis.

The integration of qualitative and quantitative research, including questionnaires and direct observation, provided a comprehensive understanding of how environmental education is perceived and practiced. The use of classroom case studies, with a focus on hands-on tasks and student projects, helped to further explore the methodological aspects of textbook use.

Based on the findings, a set of recommendations will be proposed for improving environmental education in Kazakhstan, informed by successful practices identified in the Japanese educational system.

Results

The results of the textbook content analysis showed that environmental education in Kazakhstan and Japan has similar key topics, such as climate change, biodiversity conservation, environmental pollution, and sustainable development. However, the approaches to presenting these topics have differences.

Textbooks of geography of Kazakhstan most often use a traditional approach to the presentation of material based on theoretical knowledge. The topics of the environmental problem in Kazakhstan are presented with an emphasis on economic development and sustainability of natural resources. Pedagogical approaches in textbooks are focused on creating a general understanding of the country's environmental problems, using cartographic materials and tables to analyze various environmental situations.

Japanese geography textbooks focus on environmental issues in the context of global challenges such as climate change and global warming. Unlike Kazakh textbooks, Japanese textbooks include a greater number of active

teaching methods, such as project work, research, as well as tasks aimed at developing critical thinking. Japanese educational materials contain examples of environmental activism at the local level and considerable attention is paid to the personal responsibility of students.

The "Academy for Future Educators Center" was used to study the Japanese educational system, including education for sustainable development, as well as to analyze textbooks on geography and ecology. Access to textbooks from grades 1 to 12 was obtained, a comprehensive analysis of educational materials on Geography, Earth science, Natural sciences, as well as textbooks on "Science" and "Social Studies" subjects covering environmental and geographical aspects was conducted.

In addition, participation was held in an event to enroll students in Azuma Elementary School, located in the city of Tsukuba, for the new academic year. The material and technical base of Takezona High School was monitored, as well as the elements contributing to the formation of environmental awareness and education both in the school itself and on its territory (Figure 1).

Figure 1 – Conducting research at the "Academy for Future Educators" Scientific and Academic Center (Tsukuba, Japan)

Japanese textbooks emphasize local environmental issues and sustainable development, including examples of successful environmental initiatives. Kazakhstani textbooks highlight the importance of global environmental issues and their impact on the national environment, with a focus on biodiversity conservation.

Pedagogical Methods: Japanese textbooks feature active learning methods, such as group projects and research assignments, which foster the development of critical thinking. Kazakhstani textbooks, on the other hand, often employ traditional teaching methods with elements of problem-based learning, which limits the active participation of students.

Effectiveness of Approaches: Japanese methods demonstrate a higher level of student engagement and practical application of environmental knowledge [8]. Kazakhstani approaches require adaptation to enhance interactivity and practical orientation.

Textbook Content: Japanese textbooks, such as "Science" and "Social Studies," actively integrate topics related to ecology, starting from elementary grades, and continuing through middle school. In Japanese textbooks, the focus is placed on:

• *Local environmental issues:* pollution, resource management, ecosystem restoration.

• *Environmental awareness:* developing an understanding of the interconnection between society and nature, and the responsibility for its preservation.

• *Sustainable development:* practical examples of environmental initiatives and projects implemented in Japanese schools and communities.

In Kazakh textbooks, such as "Geography", the main emphasis is on:

• *Global environmental issues:* climate change, pollution problems, biodiversity conservation.

• *National specifics:* the impact of environmental issues on Kazakhstan's nature and society, and the importance of preserving unique natural resources.

• *Traditional methods:* the use of lectures and theoretical knowledge, which sometimes limits active student engagement.

Japanese textbooks offer a variety of pedagogical methods, including:

• *Project-based learning:* students work on environmental projects, fostering collaboration and critical thinking skills.

• *Practical assignments:* tasks that involve studying local ecosystems, requiring analysis and the application of knowledge in practice.

• *Interactive methods:* the use of technology and multimedia resources to increase student engagement.

Kazakh textbooks rely on traditional methods, such as:

• *Lecture-based instruction:* focusing on theoretical aspects, which reduces student involvement.

• *Problem-based learning:* present but needs more active implementation to enhance practical orientation.

In addition to the quantitative analysis, a qualitative structural comparison of the textbooks was conducted. Japanese textbooks integrate environmental themes more systematically and deeply: each section contains project tasks, interdisciplinary content and local ecological issues. In contrast, Kazakhstani textbooks focus more on theoretical presentation and global themes.

In the book "Geography Education in Japan" (Yoshiyasu Ida), various aspects of the Japanese educational system are discussed, including methodology, curriculum content, and specific textbooks used in schools. Several categories of textbooks have been identified and analyzed, with the results presented in Table 2 regarding Japanese education [9].

Table 2 – Overview of Japanese Textbooks on Environmental Education by School Level

	Education Level	*Textbook Category*	*Description*
1.	Elementary School	1.1 Textbooks on the Natural World	Includes topics related to nature, society, and basic ecology. Includes topics related to nature, society, and basic ecology. Textbooks like *"Shizen to Seikatsu"* (Natural World and Life) help children understand the relationship between humans and nature.
		1.2 Fundamentals of Ecology	Educational materials that introduce children to concepts of sustainable development and environmental protection.
2.	Secondary School	2.1 Geography Textbooks	For example, *"Nihon no Chiri"* (Geography of Japan), which covers not only physical geography but also social and environmental aspects, including pollution and nature conservation issues.
		2.2 Social Studies Textbooks	Explore the human impact on the environment, discussing social, economic, and ecological issues.
3.	High School	3.1 Environmental education Textbooks	Specialized courses focusing on global environmental challenges, such as climate change and biodiversity.
		3.2 Exam preparation Textbooks	Include topics on ecology and sustainable development, often with a focus on preparing students for university entrance exams.

Note: The table was created by the author based on the results of the comparative analysis.

In addition to textbooks, Ida also focuses on teacher training and their role in the educational process. The book discusses professional development programs and workshops that help teachers effectively use teaching materials and implement innovative teaching methods.

The book also covers pedagogical recommendations for teaching, which include:

1) *Interactive teaching methods:* use of technology, group work and project assignments.

2) *Practical learning:* field studies and environmental projects that allow students to apply the knowledge they have gained in practice.

Survey and Questionnaire Results. The results of the surveys and questionnaires revealed significant differences between the approaches to environmental education in Japan and Kazakhstan. The data, gathered from 50 respondents (20 teachers and 30 secondary and high school students), provided

insights into the effectiveness of teaching methods, student engagement and the use of interactive and project-based learning. Below are the key findings (Figure 2):

1. Effectiveness of Teaching Methods:

o *Japan:* 70% of respondents from Japan noted the high effectiveness of active teaching methods, such as project-based learning, which is commonly used to engage students in real-world environmental issues.

o *Kazakhstan:* in contrast, only 40% of respondents in Kazakhstan reported the effectiveness of project-based learning. Traditional methods still dominate the teaching approach in Kazakhstan, which may explain the lower student engagement in environmental topics.

2. Use of Interactive Teaching Methods:

o *Japan:* over 60% of Japanese teachers incorporate interactive teaching methods, including group work, technology, and multimedia resources, to create more dynamic learning environments.

o *Kazakhstan:* only 30% of teachers in Kazakhstan use interactive methods in their classrooms, indicating a more traditional, lecture-based approach to teaching.

3. Student Participation in Environmental Projects:

o *Japan:* 80% of Japanese students actively participate in environmental projects, reflecting the high level of engagement in ecological initiatives within the Japanese school system.

o *Kazakhstan:* 50% of students participate in environmental projects, showing a lower level of involvement compared to their Japanese counterparts.

Figure 1 – Comparative effectiveness of environmental education methods

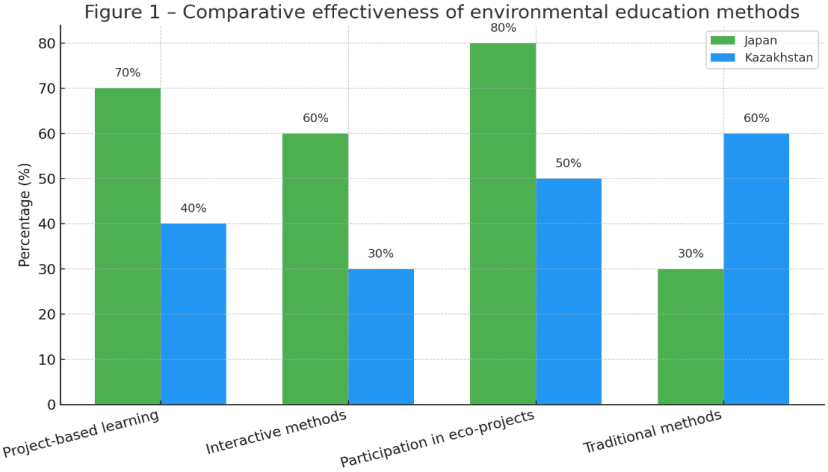

Figure 2 – Comparative effectiveness of environmental education methods based on teacher and student responses

Key Observations:

• *Project-Based Learning:* Japan shows a strong preference for project-based learning (70%), which is associated with higher student engagement in environmental issues. In contrast, Kazakhstan has a lower preference for project-based methods (40%).

• *Traditional Methods:* Traditional teaching methods remain dominant in Kazakhstan, with 60% of teachers using lectures and tests, compared to only 30% in Japan.

• *Engagement in Environmental Projects:* Japanese students show much higher involvement in environmental projects (80%) compared to their peers in Kazakhstan (50%).

The analysis reveals that differences in textbook approaches to environmental education directly impact students' development of practical competencies and their engagement levels. These results suggest that Japan's active and interactive teaching methods, combined with a focus on real-world environmental issues, lead to greater student engagement and involvement in ecological projects. In Kazakhstan, the reliance on traditional methods may limit student participation and enthusiasm for environmental education.

This correlation between textbook methodology and student involvement provides evidence that the format and structure of learning materials play a decisive role in shaping environmental responsibility. These findings can be used to substantiate reforms in Kazakhstani textbooks based on international environmental education standards.

The survey data also highlighted the importance of teacher training and professional development programs, which are more prevalent in Japan, allowing Kazakhstan's' teachers to implement innovative methods that foster greater student participation in environmental education.

Recommendations for Kazakhstan. As part of the development of recommendations to improve educational materials and teaching methods in Kazakhstan, based on successful practices of the Japanese education system, the results of a comparative analysis were used. The recommendations cover key aspects of the educational process, such as the integration of innovative teaching methods, the development of environmental responsibility, and the enhancement of student engagement through project-based and interactive learning. To provide a clearer representation of the results, Table 3 was prepared, reflecting the main findings of the study [10].

Table 3 – Recommendations for Kazakhstan Based on Japanese Experience

Area	*Japanese Practice*	*Recommendations for Kazakhstan*
Educational Materials	Use of integrated textbooks.	Development of interdisciplinary textbooks combining geography, ecology, and social sciences.
Teaching Methods	Active teaching methods (projects, games).	Introduction of project-based learning and role-playing games in the educational process.
Assessment of Knowledge	Formative assessment.	Use of formative assessment methods to monitor students' progress.
Environmental Projects	Participation in real environmental projects.	Organization of local environmental initiatives, such as greening and cleaning activities.

Teacher Training	Continuous professional development.	Introduction of professional development programs for teachers on environmental education.
Parental Involvement	Active parental participation.	Involvement of parents in environmental events and projects at school.
Use of Technology	Integration of ICT into the learning process.	Integration of ICT into the learning process.

Note: The table was created by the author based on the results of the comparative analysis.

Figure 3 illustrates the recommendations for improving environmental education in Kazakhstan. The vertical axis presents key categories, with specific recommendations aimed at enhancing the educational process listed next to them. This visualization, created by us, clearly demonstrates the interconnections between different areas and proposals, ensuring a systematic approach to implementing innovative methods of environmental education. The recommendations and visual materials presented contribute to a more structured and accessible understanding of the information, which is an important step toward the effective implementation of practical measures to improve environmental education in Kazakhstan, drawing on Japan's successful experience.

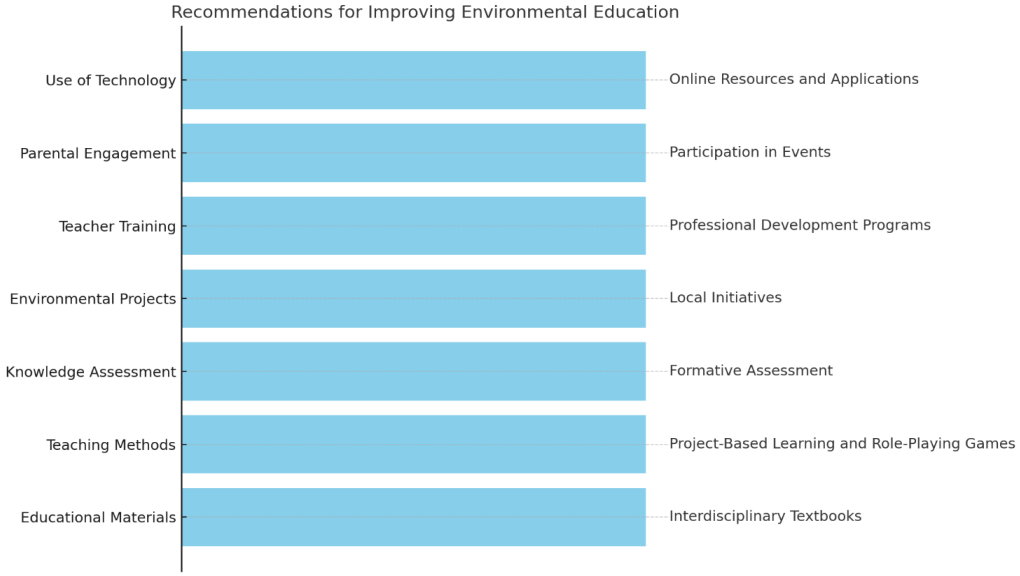

Figure 3 – Recommendations for improving Environmental Education

In Japan, teachers can undergo special training that helps them effectively integrate environmental topics into the curriculum. In Kazakhstan, the situation may differ depending on the level of teacher training and available resources.

Additionally, cultural, historical, and social factors have a significant influence on approaches to environmental education. In Japan, there is a deep connection with nature, which is reflected in educational traditions and methods. In Kazakhstan, considering its rich cultural heritage and traditional practices such

as nomadic pastoralism, it is important to explore how these factors influence the perception of ecology.

Figure 4 provides a comparative infographic showing the distribution of key environmental topics – water, forest, air, climate, biodiversity, and waste – across primary, secondary, and high school levels. In the Japanese model, these topics are addressed consistently at all levels, demonstrating a spiral curriculum structure. Kazakhstani textbooks show uneven coverage, with a concentration of environmental themes at the high school level and minimal attention in primary education. This reflects differences in curriculum design and pedagogical priorities.

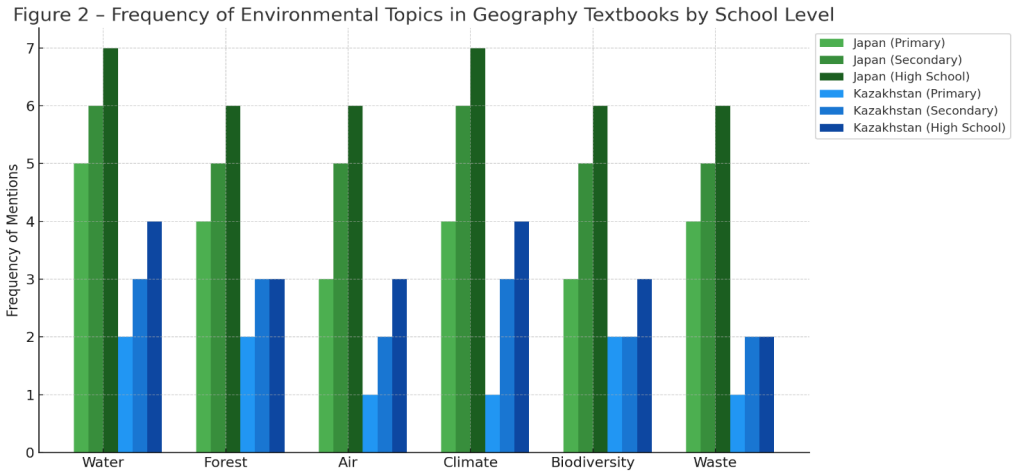

Figure 4 – Frequency of Environmental Topics in Geography Textbooks by School Level

In addition to the quantitative survey, a structural content comparison was conducted and presented in Table 4. Japanese textbooks incorporate more topics, use diverse visual tools, and emphasize project-based and locally contextualized learning. In contrast, Kazakhstani textbooks remain primarily theoretical and globally focused.

Table 4 – Structural Comparison of Environmental Topics in Geography Textbooks of Japan and Kazakhstan

Parameter	*Japan*	*Kazakhstan*
Number of environmental topics	12	6
Presence of project-based activities	Present in every section	Rare
Use of illustrations and diagrams	Rich visual content (QR codes, maps, photos)	Limited (mainly maps)
Interdisciplinary integration	Yes (science, social studies)	Partially
Focus on local environmental issues	Yes (waste, rivers, forests)	Mostly global and generalized topics

This highlights the spiral curriculum model used in Japan (as per Bruner), compared to a less integrated approach in Kazakhstan.

The conducted research, which employed a combination of content analysis, comparative analysis, surveys, and case studies, identified both commonalities and significant differences in environmental education approaches between Kazakhstan and Japan. While textbooks from both countries address essential ecological topics (such as climate change, biodiversity conservation and pollution), their pedagogical methodologies differ markedly. Japanese educational materials consistently implement project-based and interactive strategies beginning in primary school, reinforced through a spiral curriculum structure. This approach is associated with high levels of student engagement, as evidenced by 80% participation in environmental projects. In contrast, Kazakhstani textbooks tend to emphasize theoretical content and global issues, with limited use of active learning methods, resulting in lower student involvement (50%). Japanese textbooks also feature rich visual and interdisciplinary content, whereas Kazakhstani ones primarily rely on maps and include fewer interactive elements. Survey results support these findings, indicating higher perceived effectiveness of Japanese teaching methods (70%) compared to those applied in Kazakhstan (40%). Overall, the study confirms that the structure of educational materials and the pedagogical approaches employed significantly influence the development of students' environmental responsibility. These insights highlight the potential for Kazakhstan to improve environmental education by adapting proven components of the Japanese model.

Discussion

This comparative study offers new perspectives on how environmental education is shaped not only by the content of textbooks but also by the pedagogical strategies embedded within them. While previous works (Abdullayev, 2020 [11]; Ismailova, 2019 [12]; Ito, 2018 [13]; Yamamoto, 2017 [14]) have described theoretical differences between Kazakhstan and Japan, the present research complements these findings with empirical evidence. The results clearly demonstrate how the structure of educational materials and teaching methods directly affect students' engagement and the development of environmental competencies.

A key contribution of this study is the confirmation that the effectiveness of environmental education depends not so much on the presence of ecological topics as on the pedagogical approaches used to deliver them. This corresponds to L.S. Vygotsky's theory of social constructivism, which emphasizes active, socially contextualized learning, and J. Bruner's spiral curriculum concept, which promotes gradual and systematic knowledge acquisition. The Japanese model reflects these ideas through project-based learning, group work, and the integration of local environmental issues. Such an approach enables students to go beyond passive information intake and fosters critical thinking, initiative, and a sense of environmental responsibility.

In contrast, Kazakhstani textbooks mainly rely on a theoretical, reproductive model of instruction with limited use of interactive elements.

Although global environmental issues (such as climate change, pollution, and biodiversity conservation) are addressed, as noted by Guseinova and Sharipova (2018) [15], practical tasks and project-based learning are rarely included. This limits students' ability to develop applied skills necessary for real environmental participation. Such an approach falls short of modern international standards, including UNESCO's Education for Sustainable Development (ESD), which emphasizes action-oriented and practical learning.

The uniqueness of the present study lies in its systematic comparison of the structure and teaching methods of school textbooks from both countries. The findings show that the effectiveness of environmental education depends not only on what topics are included, but also on how they are delivered. The Japanese model focuses on action and engagement, while the Kazakhstani model remains primarily centered on information acquisition.

The practical significance of the findings lies in the potential to:

• revise the geography curriculum in Kazakhstan by integrating project-based and research-oriented tasks;

• develop interdisciplinary textbooks combining geography, ecology and social sciences;

• design methodological recommendations and teacher training programs focused on interactive and activity-based teaching methods.

In addition, the study identified systemic issues that hinder the development of effective environmental education in Kazakhstan: weak interdisciplinary integration, insufficient methodological support, and limited teacher capacity to apply modern pedagogical methods. Addressing these challenges requires a comprehensive approach from revising curriculum content to investing in teacher professional development.

Thus, the value of this study lies in its contribution to both scientific analysis of educational strategies and the practical reform of environmental education content and methods. Based on a comparative and theoretically grounded approach, the study offers recommendations relevant not only for Kazakhstan but also for other countries striving to strengthen the sustainable development component of school education systems.

Conclusion

The conducted study has demonstrated that environmental education approaches in geography textbooks of Kazakhstan and Japan differ significantly, yet each presents distinct advantages. Kazakhstani textbooks primarily emphasize the theoretical understanding of environmental issues, which contributes to the formation of general environmental literacy. In contrast, the Japanese model, grounded in project-based learning and practical engagement, more effectively promotes the development of students' critical thinking, environmental responsibility and real-world problem-solving skills.

Based on these findings, it is recommended that Kazakhstani educational practice incorporate more active pedagogical methods, inspired by Japanese experience – particularly project-based tasks, involvement in local environmental

initiatives and interdisciplinary activities. The integration of such elements will allow for a more balanced approach that combines theoretical knowledge with active student participation, ultimately fostering a deeper and more conscious attitude toward environmental protection.

As a practical outcome of this research, a methodological guide for geography teachers in Kazakhstan is currently under development. This guide will include ready-to-use lesson plans and activity templates focused on environmental topics within the school curriculum. It will also offer recommendations for implementing Japanese teaching strategies, such as the use of multimedia tools, field research and ecological excursions, as well as the design of interdisciplinary projects involving geography, biology and ecology.

The development of this methodological resource represents an important step toward the modernization of environmental education in Kazakhstan. It is expected to support teachers in creating an educational environment that not only imparts knowledge but also instills values and competencies aligned with sustainable development and environmental stewardship.

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ҚАЗАҚ ЖӘНЕ ЖАПОН ГЕОГРАФИЯ ОҚУЛЫҚТАРЫНДАҒЫ ЭКОЛОГИЯЛЫҚ БІЛІМ БЕРУДІҢ ПЕДАГОГИКАЛЫҚ ТӘСІЛДЕРІ

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Аңдатпа. Бұл мақалада Қазақстанның білім беру саласындағы экологиялық оқу-ағарту үдерісі қарастырылады, себебі қазіргі таңда

экологияны қорғау туралы Ұлттық жоспар және «Қазақстан экологиясы», «Цифрлық Қазақстан» бағдарламалары сынды стратегиялық бастамаларда тұрақты даму принциптері көрініс табуда. Сондықтан зерттеудің өзектілігі халықаралық тәжірибені, атап айтқанда экологиялық оқу-ағартудың тиімді әдістері мен экологиялық жауапкершілікті қалыптастыруда нәтиже көрсетіп отырған Жапонияның білім беру жүйесін зерттеу қажеттілігімен түсіндіріледі. Осыған байланысты зерттеудің мақсаты – Қазақстан мен Жапония география оқулықтарындағы экологиялық білім берудің педагогикалық тәсілдерін салыстырып, үздік тәжірибелерді анықтау және оларды Қазақстанға бейімдеу жөнінде ұсыныстар жасау. Зерттеу әдістері қазақ және жапон оқулықтарына талдау жасау, оқу материалдарының құрылымы мен мазмұнын салыстырмалы талдау, мұғалімдер мен оқушылар арасында экологиялық оқу-ағарту әдістерінің қабылдануы мен тиімділігін бағалау үшін сауалнама жүргізуден тұрады. Сауалнама 50 қатысушыны қамтыды (20 мұғалім және 30 оқушы), бұл экологиялық тақырыптар мен оқыту әдістерін қабылдауды бағалауға мүмкіндік берді. Зерттеу нәтижелері Жапония білім беру саласында инновациялық оқыту әдістерін, мысалы, жобалық оқыту мен сыни ойлауды дамытуды белсенді қолданатынын, ал Қазақстанда дәстүрлі әдістер – дәрістер мен теориялық тапсырмалар басым екенін көрсетті. Жапон оқулықтарында практикаға бағдарланған географиялық-экологиялық тапсырмалар, мысалдар көп, бұл оқушыларды экологиялық мәселелерді шешуге тартуға жақсы ықпал етеді. Қорытындысында, жүргізілген талдау негізінде ұсыныстар жасалынды: қазақ орта мектептеріне жобалық оқытуды енгізу, бағалаудың қалыптастырушы әдістерін қолдану, көп салалы оқу материалдарын әзірлеу, ата-аналарды белсенді қатыстыру және білім беру үдерісінде технологияларды пайдалану. Бұл шаралар Қазақстандағы мектеп оқушылары арасында экологиялық жауапкершілікті дамытуға және елдің тұрақты дамуына үлес қосуға көмектеседі.

Тірек сөздер: білім беру, экологиялық білім беру, экологиялық оқу-ағарту, педагогикалық тәсіл, оқыту әдістемесі, жобалық оқыту, оқулықтар, оқулық мазмұнын талдау, тұрақты даму

ПЕДАГОГИЧЕСКИЕ МЕТОДЫ ЭКОЛОГИЧЕСКОГО ОБРАЗОВАНИЯ В УЧЕБНИКАХ ГЕОГРАФИИ КАЗАХСТАНА И ЯПОНИИ

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Аннотация. Данная статья рассматривает процесс экологического просвещения в школьном образовании Казахстана, где внедряются принципы устойчивого развития, отражающиеся в стратегических инициативах, таких как Национальный план действий по охране окружающей среды и программы «Экология Казахстана», «Цифровой Казахстан». Актуальность исследования обусловлена необходимостью

изучения международного опыта, в частности японской системы образования, использующей эффективные методы экологического просвещения и формирования экологической ответственности. В этой связи цель исследования – провести сравнительный анализ педагогических подходов к экологическому просвещению в учебниках географии Казахстана и Японии с выявлением лучших практик и разработкой рекомендаций для их адаптации в Казахстане. Методы исследования включают контент-анализ учебников географии Казахстана и Японии, сравнительный анализ структуры и содержания учебных материалов, также анкетирование среди учителей и учащихся для оценки восприятия и эффективности методов экологического просвещения. Опрос охватил 50 респондентов в общей сложности (20 учителей и 30 учащихся), что позволило оценить восприятие экологических тем и методов обучения. Результаты исследования показали, что японская система образования активно использует инновационные методы обучения, такие как проектное обучение и развитие критического мышления, в то время как в Казахстане преобладают традиционные методы, такие как лекции и теоретические задания. Японские учебники содержат больше примеров экологической активности, что способствует лучшему вовлечению учащихся в решение экологических проблем. В заключение, на основе проведённого анализа, предложены рекомендации для Казахстана: внедрение проектного обучения, использование формирующих методов оценки, разработка междисциплинарных учебных материалов, активное вовлечение родителей и использование технологий в образовательном процессе. Эти меры помогут развить экологическую ответственность среди казахстанских школьников и способствовать устойчивому развитию страны.

Ключевые слова: образование, экологическое образование, экологическое просвещение, педагогические подходы, методика преподавания, проектное обучение, учебники, анализ содержания учебников, устойчивое развитие

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