

 <p>ISSN 02791-0188 / e-ISSN 2790-0127</p> <p><b>Science, Education and Innovations</b> in the Context of Modern Problems</p> <p>Editor-in-Chief   Dr. Rahil Najafov</p> <p>www.imcra-az.org</p>	<p>Science, Education and Innovations in the Context of Modern Problems</p> <p>Issue 4, Vol. 9, 2026</p>
	<p>RESEARCH ARTICLE </p>
	<h2 style="text-align: center;">Comparative Analysis of Pedagogical Science and Quality of Education in Azerbaijan and Kazakhstan</h2>
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<p><b>Issue web link</b></p>	<p><a href="https://imcra-az.org/archive/395-science-education-and-innovations-in-the-context-of-modern-problems-issue-3-vol-9-2026.html">https://imcra-az.org/archive/395-science-education-and-innovations-in-the-context-of-modern-problems-issue-3-vol-9-2026.html</a></p>
<p><b>Keywords</b></p>	<p>pedagogical science, comparative education, quality of education, Azerbaijan, Kazakhstan, educational reform, PISA, digitalization, teacher training</p>
<p><b>Abstract</b></p>	
<p>This study provides a comprehensive comparative analysis of the development of pedagogical science and the quality of education in Azerbaijan and Kazakhstan, two post-Soviet countries undergoing significant educational transformation. The research aims to evaluate the effectiveness of national education systems, identify key similarities and differences in pedagogical approaches, and assess the impact of educational reforms on learning outcomes and institutional development. The study is based on a mixed-methods comparative framework that integrates qualitative and quantitative data sources, including international large-scale assessments (PISA 2022), UNESCO and OECD reports, national statistical indicators, and academic publications. Key dimensions of analysis include the theoretical foundations of pedagogical science, institutional structures, teacher training systems, quality assurance mechanisms, digitalization processes, and participation in international educational programs. The findings indicate that both Azerbaijan and Kazakhstan demonstrate strong commitment to aligning their education systems with global standards, particularly through policy reforms, curriculum modernization, and international cooperation initiatives. However, significant differences emerge in the pace and structure of these transformations. Kazakhstan shows relatively higher performance in international assessments, greater integration of digital technologies in education (approximately 65%), and more systematic implementation of competency-based learning and evaluation models. Its sustained participation in international benchmarking programs such as PISA has enabled data-driven policymaking and continuous system improvement. In contrast, Azerbaijan emphasizes the humanistic and cultural dimensions of education, focusing on inclusivity, national identity, and equitable access to learning opportunities. While important progress has been made in digitalization and institutional reform, participation in international assessment systems remains comparatively limited, which constrains comprehensive evaluation of educational outcomes. The analysis also reveals shared challenges faced by both countries, including shortages of highly qualified teaching staff, discrepancies between theoretical training and practical application, insufficient integration of research into pedagogical practice, and the need to better align educational programs with labor market demands. Additionally, both systems face the ongoing task of adapting to rapid digital transformation and evolving global educational standards. The study concludes that sustainable improvement in the quality of education requires a balanced and integrated policy approach that combines structural reforms, investment in teacher development, expansion of digital infrastructure, and stronger international collaboration. Special emphasis is placed on the importance of academic mobility, joint research initiatives, and the harmonization of quality assurance systems. The results of this research contribute to the field of comparative education by providing empirical insights into post-Soviet educational transformation and offering practical recommendations for policymakers, researchers, and educators. The findings may also serve as a foundation for further studies on educational modernization and international cooperation in the context of global educational challenges.</p>	
<p><b>Citation</b></p>	
<p>Ahmadov H.H. (2026). Comparative Analysis of Pedagogical Science and Quality of Education in Azerbaijan and Kazakhstan. <i>Science, Education and Innovations in the Context of Modern Problems</i>, 9(4), 1-9. <a href="https://doi.org/10.56334/sci/9.4.1">https://doi.org/10.56334/sci/9.4.1</a></p>	

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Received: 02.12.2025

Accepted: 02.03..2026

Published: 23.03.2026 (available online)

**1. Introduction**

Since gaining independence in the early 1990s, both Azerbaijan and Kazakhstan—former republics of the Soviet Union—have undertaken extensive reforms aimed at transforming their educational systems. These reforms have primarily focused on improving the quality of education, modernizing pedagogical science, and integrating national education systems into the global educational space.

Education plays a pivotal role in shaping human capital, fostering innovation, and ensuring sustainable socio-economic development. In the context of globalization, rapid technological advancement, and increasing competition in knowledge economies, the quality of education has become a critical concern for policymakers and researchers alike.

Azerbaijan and Kazakhstan share similar historical, political, and cultural backgrounds, which provides a valuable basis for comparative analysis. Both countries inherited centralized educational models and have since transitioned toward more flexible, competency-based, and internationally oriented systems. However, despite these similarities, each country has followed its own trajectory in reform implementation, pedagogical development, and quality assurance.

The importance of comparative studies in education lies in their ability to identify best practices, highlight systemic challenges, and facilitate the exchange of knowledge between countries. By examining the evolution of pedagogical science and educational quality in Azerbaijan and Kazakhstan, this study aims to contribute to the broader discourse on educational modernization in post-Soviet contexts.

Furthermore, the increasing participation of both countries in international assessment programs—such as the Programme for International Student Assessment (PISA)—provides an empirical basis for evaluating educational outcomes and benchmarking national performance against global standards. These assessments not only reveal the strengths and weaknesses of national systems but also guide policy decisions and reform strategies.

This paper, therefore, seeks to answer the following key research questions:

- How has pedagogical science evolved in Azerbaijan and Kazakhstan in the post-Soviet period?
- What are the main similarities and differences in the organization and quality of education in both countries?
- How effective are national educational policies in improving learning outcomes?
- What lessons can be learned through comparative analysis to enhance educational quality?

By addressing these questions, the study aims to provide a deeper understanding of the dynamics of educational reform and to propose recommendations for future development.

**2. Methodological Approach (added for SEI standard)**

The study is based on a comparative analytical methodology combining qualitative and quantitative approaches. Data sources include:

- International assessment reports (PISA, UNESCO, World Bank indicators)
- National statistical data from Azerbaijan and Kazakhstan
- Policy documents and educational strategies
- Peer-reviewed academic publications in the field of pedagogy

Comparative analysis is conducted across several dimensions, including institutional frameworks, curriculum development, teacher training systems, and educational outcomes.

**3. Significance of the Study (added expansion)**

The significance of this research lies in its contribution to:

- understanding post-Soviet educational transformation;
- identifying effective strategies for improving educational quality;
- strengthening international academic collaboration between Azerbaijan and Kazakhstan;

- supporting evidence-based policymaking in education.

### Research Aim, Relevance, and Research Questions

The primary aim of this study is to conduct an in-depth comparative analysis of the educational systems of Azerbaijan and Kazakhstan, with a particular focus on evaluating the quality of education in both countries. The research seeks to explore key dimensions of pedagogical science, including historical development, contemporary standards, institutional structures, and methodologies for assessing educational quality.

The formation and evolution of the educational systems in Azerbaijan and Kazakhstan have been shaped by a complex interplay of political, economic, and socio-cultural factors. Following the dissolution of the Soviet Union, both countries embarked on large-scale educational reforms aimed at transitioning from centralized models toward more flexible, competency-based, and internationally aligned systems (Silova, 2010; Yakavets, 2014). These transformations have been influenced not only by internal policy initiatives but also by international frameworks and organizations promoting educational modernization, such as UNESCO, the World Bank, and the OECD (OECD, 2019; World Bank, 2020).

The relevance of this study is обусловлена (determined) by the urgent need to improve the quality of education in the context of contemporary global challenges, including digitalization, globalization, and increasing competition in knowledge-based economies. Education systems today must adapt to rapid technological advancements and evolving labor market demands, making the enhancement of educational quality a strategic priority for national development (Schleicher, 2018).

For both Azerbaijan and Kazakhstan—as well as for the global academic community—the identification and analysis of successful educational practices is essential. Comparative research enables the transfer and adaptation of effective models across national contexts, thereby contributing to more efficient and innovative educational systems (Bray et al., 2014).

The development of pedagogical science and the improvement of educational quality remain central challenges for post-Soviet countries. Despite their shared historical and cultural background, Azerbaijan and Kazakhstan have adopted different trajectories in the modernization of their educational systems. Azerbaijan has focused on strengthening national curricula and digital transformation initiatives, while Kazakhstan has placed greater emphasis on competency-based education and international benchmarking (Yakavets, 2017; Ministry of Education of Azerbaijan, 2022).

Accordingly, the objective of this article is to provide a comparative analysis of the current state of pedagogical science and the quality of education in these two brotherly countries, with a focus on institutional, methodological, and practice-oriented dimensions.

Within the framework of this study, the following research objectives are addressed:

- to identify the strengths and weaknesses of the educational systems in Azerbaijan and Kazakhstan;
- to analyze differences in pedagogical approaches and teaching methodologies;
- to examine key factors influencing educational quality, including policy frameworks, teacher training, and resource allocation;
- to assess the role of international assessments (e.g., PISA) in shaping national education policies;
- to propose evidence-based recommendations for improving educational outcomes.

Furthermore, the study explores several guiding research questions:

- What are the main differences in teaching and learning approaches in Azerbaijan and Kazakhstan?
- Which structural and contextual factors most significantly influence educational quality?
- How do international standards and assessments impact national education reforms?
- What are the future prospects for the development of pedagogical science in both countries in light of digital transformation and global challenges?

Thus, this research aims to provide a comprehensive understanding of the educational systems of Azerbaijan and Kazakhstan, highlighting both their unique characteristics and shared challenges, while offering practical pathways for further improvement and international collaboration.

### 1. Theoretical Foundations of Pedagogical Science in Azerbaijan and Kazakhstan

The theoretical development of pedagogical science in Azerbaijan and Kazakhstan reflects both a shared Soviet legacy and divergent post-independence reform trajectories. Traditionally, pedagogical science in both countries was grounded in centralized curricula, standardized teaching methods, and a strong emphasis on theoretical knowledge (Silova, 2010). However, since the 1990s, both nations have gradually shifted toward more student-centered, competency-based, and outcome-oriented approaches.

In Azerbaijan, pedagogical research has increasingly focused on issues such as teacher motivation, digital transformation in education, and the integration of information and communication technologies (ICT) into the learning process (Ministry of Education of Azerbaijan, 2022). The adoption of digital tools and e-learning platforms has become a central component of educational reform, particularly in response to global trends and the COVID-19 pandemic (UNESCO, 2021).

In contrast, Kazakhstan has positioned itself as a regional leader in educational innovation, particularly through the implementation of competency-based curricula and the establishment of institutions such as the Nazarbayev Intellectual Schools (NIS) and Nazarbayev University. These institutions serve as experimental platforms for the development and dissemination of advanced pedagogical practices aligned with international standards (OECD, 2019; Yakavets, 2017).

The following table presents a comparative overview of key aspects of pedagogical science in both countries:

**Table 1. Comparative Overview of Pedagogical Science in Azerbaijan and Kazakhstan**

Indicator	Azerbaijan	Kazakhstan
Flagship Educational Institution	Azerbaijan State Pedagogical University	Nazarbayev Intellectual Schools (NIS)
Key Research Directions	Teacher motivation, digitalization, ICT integration	Competency-based education, learning outcomes, assessment systems
Leading Universities	Azerbaijan State Pedagogical University	Nazarbayev University, Abai Kazakh National Pedagogical University
State Program Support	“State Strategy for Education Development until 2030”	“Quality Education: Educated Nation” (2020-2025)
International Programs and Grants	Active participation in Erasmus+, DAAD	Erasmus+, Fulbright, World Bank education programs

The comparison demonstrates that while both countries are actively engaged in reforming their educational systems, Kazakhstan exhibits a stronger orientation toward internationalization and experimental educational models. Azerbaijan, on the other hand, emphasizes systemic modernization and digital transformation within a nationally coordinated framework.

Overall, the evolution of pedagogical science in both countries reflects a broader transition from traditional, teacher-centered paradigms to more dynamic, learner-centered approaches that prioritize critical thinking, problem-solving, and lifelong learning competencies (Schleicher, 2018).

## 2. Quality of Education: A Comparative Analysis

The quality of education represents one of the most critical indicators of national development, reflecting the effectiveness of educational policies, institutional capacity, and pedagogical practices. In both Azerbaijan and Kazakhstan, significant efforts have been made to improve educational outcomes; however, measurable differences remain across key indicators.

**Table 2. Comparative Indicators of Education Quality**

Indicator	Azerbaijan	Kazakhstan
Education Index (HDR, 2024)	0.759	0.817
Adult Literacy Rate	99%	99%
Participation in PISA	Limited participation	Continuous participation since 2009
Average PISA Score (2022, combined domains)	~ 400	~ 420
Weekly Instructional Time (Secondary Education)	32-34 hours	30-32 hours
Teachers' Attitude Toward Reforms	Partial support	Active adaptation

Share of Digital Resources in Education	~ 40%	~ 65%
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Despite similarly high literacy rates, Kazakhstan demonstrates relatively stronger performance in international assessments and digital integration. According to OECD (2023), Kazakhstan’s sustained participation in PISA since 2009 has enabled continuous monitoring and improvement of student performance, whereas Azerbaijan’s more limited engagement has constrained longitudinal benchmarking.

The higher level of digital resource integration in Kazakhstan reflects a strategic commitment to educational modernization through platforms such as e-learning systems and national digital content providers (World Bank, 2022). In contrast, Azerbaijan has made progress through initiatives such as the “Məktəb” platform, although the scale and implementation remain comparatively limited (Ministry of Education of Azerbaijan, 2023).

**Table 3. Institutional and Scientific Foundations**

Indicator	Azerbaijan	Kazakhstan
Main Scientific Institutions	Institute of Education of Azerbaijan	National Academy of Education named after I. Altynsarin
Priority Areas	Inclusive education, digitalization	Integration of traditional and innovative methods, trilingual education
International Cooperation	Erasmus+, TEMPUS	Bologna Process, Academic Mobility

The institutional landscape further highlights differences in strategic orientation. Azerbaijan emphasizes inclusive education and digital transformation, aligning with global Sustainable Development Goals (UNESCO, 2022). Kazakhstan, meanwhile, adopts a more systemic approach, incorporating multilingual education policies and aligning its higher education system with the Bologna Process (Yakavets, 2017).

### 3. International Indicators and Assessment Systems

**Table 4. International Assessment Indicators**

Indicator	Azerbaijan	Kazakhstan
Participation in PISA	Since 2006	Since 2009
Average PISA Score (2022)	~ 400	~ 420
National Quality Assessment System	State attestation, unified exams	Unified National Testing (UNT), external assessments

International assessments such as PISA play a pivotal role in shaping education policy by providing standardized measures of student competencies in reading, mathematics, and science (OECD, 2022). Kazakhstan’s relatively higher performance can be attributed to its systematic use of assessment data in policymaking and curriculum reform (OECD, 2019).

In Azerbaijan, national assessment systems—such as centralized examinations—serve as important tools for monitoring student achievement; however, their alignment with international competency-based frameworks remains an ongoing challenge (Aliyev, 2020).

### 4. Pedagogical Workforce and Teacher Training

**Table 5. Teacher Training and Professional Development**

Characteristic	Azerbaijan	Kazakhstan
Teacher Training Institutions	Baku State University, Azerbaijan State Pedagogical University	Abai Kazakh National Pedagogical University, Nazarbayev University
Professional Development	Training centers under Ministry of Education	“New Format Teacher” program
Key Challenges	Brain drain, mismatch with labor market needs	Imbalance between theory and practice

The quality of education is closely linked to the competence and motivation of teachers. Both countries face challenges related to teacher retention and professional development. Azerbaijan experiences issues such as the outflow of

qualified personnel and insufficient alignment between teacher training and labor market demands (Ministry of Education of Azerbaijan, 2023).

Kazakhstan, while demonstrating stronger institutional support for teacher development through programs such as “New Format Teacher,” still faces challenges in balancing theoretical knowledge with practical teaching skills (Nurmagambetov, 2022).

## 5. State Policy and Educational Reforms

**Table 6. Educational Policy and Reform Directions**

Direction	Azerbaijan	Kazakhstan
Digitalization	“Məktəb” platform	E-learning systems, Bilimland
International Integration	EU-funded projects	Bolashak program, OECD cooperation
Strategic Initiatives	Education Development Strategy (2021–2025)	State Program for Education Development until 2025

Both countries actively pursue integration into the global educational space. Azerbaijan participates in European Union-supported programs such as Erasmus+, while Kazakhstan implements large-scale initiatives such as the Bolashak international scholarship program, which enhances academic mobility and global competitiveness (European Commission, 2023; World Bank, 2022).

## 6. Analytical Discussion

The comparative analysis reveals several key factors influencing the development of pedagogical science and the quality of education in Azerbaijan and Kazakhstan.

First, both countries demonstrate a strong commitment to integrating into the global educational system. This is reflected in their participation in international programs, adoption of global standards, and efforts to modernize curricula (UNESCO, 2022; OECD, 2023).

However, important differences highlight the emergence of distinct national models. Azerbaijan’s educational system places greater emphasis on гуманитарные ценности (humanistic values), cultural heritage, and inclusive education. This approach ensures social cohesion and equitable access but may limit rapid structural transformation.

In contrast, Kazakhstan adopts a more systemic and performance-oriented model, emphasizing digitalization, competency-based learning, and international competitiveness. This strategy has contributed to higher performance in global rankings and more consistent progress in educational outcomes (Yakavets, 2017; OECD, 2019).

Despite these differences, both countries face common challenges:

- shortage of highly qualified teaching staff;
- migration of educators to other sectors;
- weak linkage between academic research and classroom practice;
- the need to align curricula with labor market demands;
- insufficient integration of innovative pedagogical methods.

These challenges are consistent with broader trends observed in post-Soviet education systems (Silova, 2010).

To address these issues, both countries must prioritize:

- continuous professional development for teachers;
- expansion of academic mobility programs;
- strengthening research–practice integration;
- investment in digital infrastructure and innovative pedagogy;
- policy frameworks that incentivize educational excellence.

## Conclusion of Analytical Section

In conclusion, the sustainable development of pedagogical science and the improvement of educational quality require a balanced and forward-looking state policy. Such a policy must go beyond infrastructural modernization and focus on creating a supportive and motivating environment for educators, researchers, and learners.

Only through the integration of innovation, international collaboration, and human capital development can Azerbaijan and Kazakhstan build competitive educational systems capable of meeting the challenges of the 21st century (Schleicher, 2018).

### Conclusion

The development of pedagogical science and the education systems in Azerbaijan and Kazakhstan reflects broader global trends toward modernization, internationalization, and quality assurance in education. Both countries, emerging from a shared Soviet educational legacy, have undertaken substantial reforms aimed at improving educational outcomes, enhancing institutional effectiveness, and aligning their systems with international standards.

Despite facing similar structural and systemic challenges, each country has developed distinct approaches to educational transformation. Kazakhstan has achieved notable progress in the structural reform of its education system, particularly in the areas of assessment mechanisms, competency-based curricula, and teacher training. Its active participation in international assessment programs, especially PISA, has enabled more effective monitoring of educational outcomes and evidence-based policymaking (OECD, 2022; Yakavets, 2017).



**Fig.1.** Kazakhstan: Inclusive, sustainable education through innovation ecosystems | UNICEF Office of Innovation; Source: Unicef.org

In contrast, Azerbaijan has placed greater emphasis on the *гуманизация образования* (humanization of education), integrating cultural, national, and inclusive values into its educational framework. This approach contributes to social cohesion and ensures broader access to education, while gradually incorporating elements of digitalization and innovation (Ministry of Education of Azerbaijan, 2023; UNESCO, 2022).

Kazakhstan has advanced further in developing internationally recognized educational benchmarks, research-based evaluation systems, and academic mobility initiatives. Its strategic investments in global partnerships and ranking-oriented policies have strengthened its position in international educational assessments and comparative rankings (World Bank, 2022).

At the same time, Azerbaijan prioritizes internal system stability, teacher preparation, and gradual reform implementation. While this approach ensures sustainability, it may require further acceleration in adopting global best practices and expanding participation in international evaluation frameworks.

Both countries continue to face common challenges, including:

- shortages of highly qualified pedagogical personnel;
- discrepancies between theoretical training and practical application;
- limited integration of research outcomes into classroom practice;
- the need for stronger alignment between education systems and labor market demands;
- uneven implementation of digital technologies in education.

Addressing these challenges requires a comprehensive and balanced policy approach that integrates innovation, institutional development, and human capital investment.

### Recommendations

Based on the findings of this comparative analysis, the following recommendations are proposed:

1. **Strengthening Academic Mobility.** Expanding international exchange programs for teachers, researchers, and students will enhance knowledge transfer, promote intercultural competence, and support the adoption of global best practices (European Commission, 2023).
2. **Development of Joint Research Projects.** Azerbaijan and Kazakhstan should actively promote collaborative research initiatives in pedagogy and educational sciences, particularly in areas such as digital education, inclusive learning, and competency-based assessment.
3. **Harmonization of Quality Assurance Systems.** Aligning national systems of educational assessment with international standards—while preserving national specificities—will improve comparability, transparency, and overall educational quality (OECD, 2023).
4. **Support for Educational Innovation.** Governments should increase investment in innovative teaching methods, digital platforms, and research-driven pedagogical models at both school and university levels.
5. **Enhancement of Teacher Professional Development.** Continuous professional training programs should be modernized to reflect current educational needs, with a stronger focus on practical competencies, digital literacy, and student-centered learning approaches.
6. **Integration of Research and Practice.** Strengthening the link between pedagogical research and classroom implementation will ensure that scientific findings directly contribute to improving teaching and learning outcomes.
7. **Expansion of Participation in International Assessments.** Increasing engagement in global evaluation programs such as PISA, TIMSS, and PIRLS will allow both countries to benchmark their progress and refine reform strategies based on empirical evidence.

### Ethical Considerations

This study was conducted in accordance with internationally recognized ethical standards for academic research, including the principles outlined by the Committee on Publication Ethics (COPE) and the Declaration of Helsinki (where applicable). The research is based exclusively on secondary data sources, including publicly available reports, international databases (OECD, UNESCO, World Bank), and previously published academic literature. Therefore, no human participants were directly involved, and no personal or sensitive data were collected.

All sources of information have been properly cited and referenced in accordance with APA 7 guidelines to ensure academic integrity and to avoid plagiarism. The authors have made every effort to ensure the accuracy, transparency, and reliability of the data presented. Any potential limitations of the data sources have been critically considered in the analysis.

### Acknowledgements

The author expresses sincere gratitude to the Institute of Education of the Republic of Azerbaijan for its continuous academic support and contribution to the development of pedagogical research. Appreciation is also extended to international organizations such as UNESCO, OECD, and the World Bank for providing open-access data and analytical reports that significantly contributed to this study.

The author would also like to acknowledge colleagues and researchers in the field of comparative education whose scholarly works have informed and enriched this research.

### Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors. The study was conducted independently as part of the author's academic and research activities.

### Conflict of Interest

The author declares that there are no conflicts of interest regarding the publication of this paper. The research was conducted objectively, and no financial or personal relationships have influenced the outcomes or interpretations presented in this study.

### References

1. Ahmadov, H. H. (2014). *The strategy of education development in Azerbaijan*. LAP LAMBERT Academic Publishing.
2. Aliyev, E. M. (2020). Problems of improving the quality of education in Azerbaijan. *Azerbaijan Journal of Education*, 15(2), 45–58.
3. Bray, M., Adamson, B., & Mason, M. (2014). *Comparative education research: Approaches and methods* (2nd ed.). Springer.
4. Bray, M., Adamson, B., & Mason, M. (2014). *Comparative education research: Approaches and methods* (2nd ed.). Springer. <https://doi.org/10.1007/978-3-319-05594-7>
5. DAAD. (2023). *Academic mobility and cooperation in Central Asia*. German Academic Exchange Service.
6. European Commission. (2023). *Erasmus+ annual report 2022*. Publications Office of the European Union.
7. Ismagilova, A. A. (2021). Development of pedagogical science in the post-Soviet space. *Education Bulletin*, 7(1), 22–30.
8. Ministry of Education of the Republic of Azerbaijan. (2022). *Education development strategy of Azerbaijan until 2030*. Baku.
9. Ministry of Education of the Republic of Azerbaijan. (2023). *National education development strategy until 2030*. <https://www.edu.gov.az>
10. Ministry of Education of the Republic of Azerbaijan. (n.d.). *Official website*. <https://www.edu.gov.az>
11. Ministry of Education of the Republic of Kazakhstan. (2023). *Educated nation: National project 2020–2025*. <https://www.gov.kz>
12. Ministry of Education of the Republic of Kazakhstan. (n.d.). *Official website*. <https://www.gov.kz/memleket/entities/sci/about?lang=en>
13. Nazarbayev University Graduate School of Education. (2022). *Analytical report: Education in Kazakhstan*. Nazarbayev University.
14. Nurmagambetov, Z. B. (2022). Kazakhstan model of education modernization. *Pedagogy and Psychology*, 48(3), 67–75.
15. OECD. (2019). *PISA 2018 results (Volume I): What students know and can do*. OECD Publishing. <https://doi.org/10.1787/5f07c754-en>
16. OECD. (2022). *PISA 2022 results*. <https://www.oecd.org/pisa/>
17. OECD. (2023). *Education at a glance 2023: OECD indicators*. OECD Publishing. <https://doi.org/10.1787/e13bef63-en>
18. Schleicher, A. (2018). *World class: How to build a 21st-century school system*. OECD Publishing.
19. Sharipova, G. K. (2021). Development of pedagogical science in CIS countries. *Bulletin of Pedagogy*, 10(4), 55–63.
20. Silova, I. (2010). *Post-socialist education reform: From theory to practice*. Information Age Publishing.
21. Silova, I. (2010). *Post-socialist education reform: From theory to practice*. Information Age Publishing.
22. UNESCO Institute for Statistics. (2024). *Education index data and global indicators*. [https://unesdoc.unesco.org/ark:/48223/pf0000391406\\_eng](https://unesdoc.unesco.org/ark:/48223/pf0000391406_eng)
23. UNESCO. (2021). *Education in a post-COVID world: Nine ideas for public action*. UNESCO.
24. UNESCO. (2022). *Global education monitoring report 2022: Non-state actors in education*. UNESCO. <https://unesdoc.unesco.org/ark:/48223/pf0000381329>
25. World Bank. (2020). *The COVID-19 pandemic: Shocks to education and policy responses*. World Bank.
26. World Bank. (2022). *Education sector analysis: Central Asia*. World Bank Group.
27. Yakavets, N. (2014). Reforming education in Kazakhstan: A policy analysis. *International Journal of Educational Development*, 38, 50–60. <https://doi.org/10.1016/j.ijedudev.2014.05.002>
28. Yakavets, N. (2017). Educational reform in Kazakhstan: The role of Nazarbayev Intellectual Schools. *Educational Management Administration & Leadership*, 45(1), 73–87.