

ASSESSING THE EFFECTIVENESS OF INSTITUTIONAL MANAGEMENT IN THE ADAPTATION OF INCLUSIVE EDUCATION SYSTEMS: QUALITY EDUCATION, REDUCED INEQUALITIES AND STRONG INSTITUTIONS IN KAZAKHSTAN



 **Mussa Niyazov** ^(a)  **Ainash Mussabekova** ^{(b)1}  **Aigerim Shametova** ^(c)  **Marzhan Turlubekova** ^(d) 
Aina Aidarova ^(e)

^(a) School of Economics, Esil University, Astana, Kazakhstan; E-mail: Nmussa1997@gmail.com

^(b) Assistant Professor, School of Economics, Karaganda Buketov University, Karaganda, Kazakhstan; E-mail: ainash.musabekova.82@mail.ru

^(c) Candidate of Economic Sciences, Associate Professor, School of Economics, Abylkas Saginov Karaganda Technical University, Karaganda, Kazakhstan; E-mail: ashametova.74@mail.ru

^(d) PhD Student, Karaganda University of Kazpotreboysuz, Karaganda, Kazakhstan; E-mail: bestiels83@gmail.com

^(e) Candidate of Economic Sciences, Professor, M. Auezov South Kazakhstan University, Shymkent, Kazakhstan; E-mail: ab_moon@mail.ru

ARTICLE INFO

Article History:

Received: 25th March 2026

Reviewed & Revised: 25th March 2026
 to 20th September 2026

Accepted: 25th September 2026

Published: 30th September 2026

Keywords:

Inclusive Education, Special Educational Needs, Institutional Adaptation Index, Segmented Regression, Educational Coverage, Quality Education, Reduced Inequalities, Strong Institutions, Kazakhstan

JEL Classification Codes:

I21, I24, I28, H52, J24

Peer-Review Model:

External peer review was done through double-blind method.

ABSTRACT

The rapid growth in the number of children with special educational needs places increasing pressure on the institutional capacity of education systems, and the timeliness of coverage responses to changes in the target group has become a central concern for quality education and reducing inequalities. Formal expansion of inclusive Education is often not matched by a proportional adaptation of infrastructure, staffing, and financing, making the effectiveness of institutional management difficult to measure. This study examines the institutional adaptation of Kazakhstan's inclusive education system to changes in the target group size and the temporal structure of the demand–coverage relationship. The study employs annual official time-series data for 2011–2025 on the number of children with special educational needs and the share of children with disabilities covered by individual educational programmes, applying dynamic analysis, compound annual growth rates, elasticity coefficients, segmented regression with a structural-break dummy variable and lagged correlation, and proposes an Institutional Adaptation Index (IIA). The results show that the IIA declined from 100% in 2011 to 53.3% in 2023 while the uncovered share of the target group rose from 44.7% to 62.8%; in 2024–2025 the index recovered to 88.8% and 94.4%, the uncovered share fell to 17.6%, the structural break is significant ($R^2 = 0.970$; $F = 159.20$; $p < 0.001$), and the strongest association appears at a two-year lag ($r = 0.827$; $p < 0.001$). The findings suggest that the system moved from a prolonged accumulation of a relative institutional gap to its accelerated reduction, with a delayed response characteristic of strong institutions emerging after a lag.

© 2026 by the authors. Licensee CRIBFB, USA. This open-access article is distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0>).

INTRODUCTION

The modern transformation of Education entails a progressive shift from a model focused on ensuring formal access to educational services to one grounded in the principles of equal educational opportunities, individualized learning and the full participation of every child in the educational process. International policy discourse has moved from treating equity and quality as competing objectives to viewing them as complementary attributes of high-performing systems (Senior & Sahlberg, 2025), and inclusive Education is now framed as a systemic property of Education rather than a set of compensatory measures for particular groups (Yang et al., 2025). The direct link between inclusion, quality education and reduced inequalities within the 2030 Agenda has made sustainable inclusive Education a rapidly growing field of research (İşıkğöz & Öztunç, 2026).

¹Corresponding author: ORCID ID: 0000-0001-6787-8967

© 2026 by the authors. Hosting by CRIBFB. Peer review is the responsibility of CRIBFB, USA.
<https://doi.org/10.46281/bjmsr.v11i6.2957>

To cite this article: Niyazov, M., Mussabekova, A., Shametova, A., Turlubekova, M., & Aidarova, A. (2026). ASSESSING THE EFFECTIVENESS OF INSTITUTIONAL MANAGEMENT IN THE ADAPTATION OF INCLUSIVE EDUCATION SYSTEMS: QUALITY EDUCATION, REDUCED INEQUALITIES AND STRONG INSTITUTIONS IN KAZAKHSTAN. *Bangladesh Journal of Multidisciplinary Scientific Research*, 11(6), 17-29. <https://doi.org/10.46281/bjmsr.v11i6.2957>

The relevance of this study stems from the fact that expanding inclusive Education is not merely a pedagogical challenge but an institutional, social and economic one. Causal evidence shows that inclusive placement raises grade promotion and secondary completion for students with disabilities (Malhotra, 2025), while disparities in access and completion persist into labour-market outcomes when systems fail to adapt (OECD, 2024). Leadership and governance conditions are among the most important system-level factors that determine whether equitable learning is delivered in practice (UNESCO, 2024). In Kazakhstan, the composition of the workforce's competencies, rather than the volume of Education alone, has been shown to drive productivity, making early educational inclusion of children with special educational needs a human capital question as much as a rights question (Ramazanova et al., 2026). The growing number of children requiring special educational arrangements therefore necessitates a corresponding development of infrastructure, workforce capacity, funding and interagency cooperation, and the speed at which the system adapts to changes in potential demand becomes a critical issue of institutional management.

The current stage of inclusive education development is characterized by a shift from debating the right of children with special educational needs to learn in mainstream settings to examining the conditions under which formal inclusion translates into genuine educational and social inclusion. Systematic evidence demonstrates that placement does not guarantee participation: children with disabilities show markedly lower involvement than their peers even when enrolled in the same settings (Dott & Licandro, 2025), and structural, organizational, and pedagogical barriers continue to separate presence from participation and learning (González-Afonso et al., 2026). Definitional ambiguity, under-resourcing, and unclear evidence of outcomes stall implementation in many countries (Woolfson, 2025), and even jurisdictions with strong anti-discrimination legislation report completion rates for students with disabilities well below those of their peers (Hay & Beamish, 2025). An increase in the number of participating schools and children is therefore not, in itself, a sufficient criterion of policy effectiveness.

A related strand of research documents the decoupling of policy from practice. Declared support for inclusion among teacher educators may exceed 90 percent. At the same time, actual pedagogical adaptation remains below one-third, a pattern of ceremonial conformity that preserves institutional legitimacy without changing practice (Hazir et al., 2026). In decentralized systems, rights-based commitments are re-interpreted through administrative rationalities and resource limits, producing selective inclusion that varies by district and school (Zidniyati et al., 2026), and evaluation findings are rarely fed back into policy improvement cycles (Khatib et al., 2026). Intermediary governance bodies may shift responsibility to school staff while obscuring structural constraints owned by higher levels of government (Morén & Ramberg, 2024), and the speed and sustainability of policy adoption depend on the coupling of interorganisational networks rather than on the content of policy alone (Trinidad, 2025). Across the Asia-Pacific region, the policy–implementation gap, resource constraints, and weak stakeholder coordination remain the principal barriers to advancing inclusion (Beamish et al., 2024).

These international findings are directly relevant to Kazakhstan, where inclusive Education has been a declared priority of state policy since the early 2010s. Regional audits show that inclusion still functions as a bolt-on combination of general and special Education in which the medical model remains dominant (Mamerkhanova et al., 2025). Large-scale surveys of Kazakhstani teachers report fairly positive self-efficacy for inclusive practice (Butabayeva et al., 2025). However, attitudes across Central Asia remain heterogeneous (Prisiazhniuk et al., 2024) and are closely tied to job satisfaction, administrative support and burnout (Kozlova & Ryabichenko, 2024). Rural schools face shortages of specialist staff, materials and infrastructure (Bekbolatova et al., 2026); parents describe inconsistent specialist availability as a systemic barrier (Turganbayeva et al., 2026); teachers in Almaty act simultaneously as advocates and gatekeepers amid under-resourcing (Orynassarov et al., 2026); and higher Education institutionalizes inclusion largely through a compensatory approach (Zhanarstanova, 2026). Evaluations of the state education programmes for 2011–2021 confirm that the quantitative expansion of inclusion has outpaced the development of its qualitative conditions (UNICEF Kazakhstan, 2024).

The scientific problem addressed in this study is that the existing analytical apparatus does not allow the pace of institutional adaptation of an inclusive education system to be measured against the pace of change in the group it is meant to serve. Data on children with disabilities in Europe and Central Asia remain fragmented and non-comparable (UNICEF Europe and Central Asia Regional Office, 2024); education management information systems frequently fail to convert collected data into usable evidence (El Mazbouh et al., 2025); and measured coverage depends heavily on the identification instrument used (de Kadt et al., 2025). At the same time, recent studies on Kazakhstan demonstrate the analytical value of index-based time-series measurement of inequality and institutional change using official statistics, whether for the gender gap in youth employment (Baidalinova et al., 2026), for quasi-public-sector reform (Abauova et al., 2026) or for regional public-service capacity (L. Togaibayeva et al., 2026). No comparable instrument exists for inclusive Education, in which the absolute numbers of organizations, specialists, or enrolled students are still used as the principal evidence of progress.

This study aims to quantify the institutional adaptation of the inclusive education system of the Republic of Kazakhstan to changes in the size of the target group over 2011–2025 and to identify the nature and temporal structure of the relationship between potential demand and educational coverage. To achieve this aim, the study uses annual official statistics on the number of children with special educational needs and on the share of children with disabilities covered by individual educational programmes. It applies dynamic and comparative analysis, compound annual growth rates, elasticity coefficients, segmented regression with a structural-break dummy variable and lagged correlation analysis. An Institutional Adaptation Index (IIA), defined as the ratio of the base index of coverage to that of the target group, is proposed as a compact measure of the effectiveness of institutional management.

The remainder of the paper is organized as follows. The literature review synthesizes recent international and Kazakhstani research on the institutional, professional, resource, family, and measurement dimensions of inclusive Education and formulates hypotheses. The materials and methods section describes the data, variables and analytical procedure. The results section presents the dynamics of the target group and coverage, the Institutional Adaptation Index,

growth-rate and elasticity comparisons, the segmented regression and the lagged correlations, and reports the verification of the hypotheses. The discussion section interprets the findings in relation to previous studies, and the conclusions summarise the contribution, implications, limitations, and directions for future research.

LITERATURE REVIEW

The theoretical basis of this study lies at the intersection of institutional theory, the economics of Education and the measurement of inclusion. The review below is organized around the sequence of conditions through which a change in the size of the target group is translated into educational coverage: the institutional and governance framework, the readiness of the teaching workforce, the resource and funding mechanism, the role of the family, and the information base on which management decisions rest.

From the perspective of neo-institutional theory, education systems respond to external demands for inclusion first by adopting formal structures that secure legitimacy, and only later, if at all, by changing core practices. The empirical distinction between ceremonial conformity and substantive adaptation has been documented in teacher education, where the gap between declared and enacted inclusive pedagogy exceeds sixty percentage points (Hazir et al., 2026). Similar decoupling arises when inclusion is enacted through administrative rationalities that ration access (Zidniyati et al., 2026) or when policy stages are implemented without an evaluative feedback loop (Khatib et al., 2026). Post-Soviet systems add a specific layer to this problem: legislative texts oscillate between rights-based access and defectological correction (Hanssen & Alekseeva, 2024), and the persistence of the medical model and Soviet-era professional mindsets slows the transition from segregated to inclusive provision (Abdullayeva, 2025). Inclusion is therefore best understood as the product of intersecting and sometimes competing stakeholder agendas across governance levels (Ydesen & Daniels, 2026), in which the coupling of interorganisational networks determines the speed and uniformity of adoption (Trinidad, 2025).

The link between the quality of governance and institutional performance is well established outside Education. Panel evidence from financial institutions shows that board structure has a significant effect on performance. In contrast, formal independence indicators do not (Hasan et al., 2024), which parallels the distinction between formal and substantive inclusion. In the Kazakhstani public sector, the development of civil servants' competence strongly predicts satisfaction. At the same time, workplace amenities have a negligible effect (Dauyeshova et al., 2026), and the reform of the quasi-public sector produces measurable multiplier effects on growth and institutional effectiveness only gradually (Abauova et al., 2026). Institutional adaptation is thus a process with its own inertia whose effectiveness must be measured dynamically.

The readiness of the teaching workforce remains the most extensively studied condition of inclusion. Primary school teachers' attitudes remain mixed and depend on the nature of students' needs (Lindner et al., 2023), and the success of educators working with students with disabilities depends on professional potential, pedagogical support and professional needs acting together (Nagro et al., 2023). The absence of a universal instrument that fully reflects the principle of inclusion for all means that even readiness estimates depend on the measurement approach used (Kielblock & Woodcock, 2023). Specialized competencies are required to work with students with special educational needs (Nistal Anta et al., 2024), and fears of disability rooted in the medical model shape teaching practice regardless of qualifications (Lyra et al., 2023). Self-efficacy has emerged as the decisive predictor of inclusive practice: it mediates the effect of school climate on attitudes (Azevedo et al., 2025), outweighs demographic characteristics (Burak et al., 2026), and jointly with strength-based beliefs predicts inclusive attitudes (Diseth, 2025). A meta-analysis confirms the joint importance of attitudes and self-efficacy (Long et al., 2025), and training programmes that include direct contact with students with disabilities are the most effective in raising confidence (Marcos-Rivero et al., 2026). Skill adjustment through upskilling and reskilling converts a workforce into a dynamic capability able to respond to environmental change (Zayed et al., 2022), and the transformation of education systems under external shocks is constrained, above all, by infrastructure and capacity rather than by intent (Khan et al., 2022).

Evidence from Kazakhstan corroborates these patterns. Validation of the teacher efficacy for inclusive practice scale on more than six thousand teachers shows that experience and professional development are significant predictors of efficacy (Butabayeva et al., 2025), while latent profiles of teachers across Central Asia reveal a movement away from segregation strategies alongside persistent heterogeneity (Prisiazhniuk et al., 2024). School-based collaborative professional development builds a common language of inclusion but is limited by compressed schedules (Kasa et al., 2026); competence-based training raises the social-pedagogical competence of future primary teachers (A. Togaibayeva et al., 2026), and the formation of digital competences in pedagogical universities produces the largest gains among students with the lowest baseline ability (Zabiyeva et al., 2026). The integration of educational technology into inclusive learning depends on educator competence and policy coherence rather than on infrastructure alone (Ergunova et al., 2026).

The resource and funding mechanism constitutes the third condition. The initial effect of per-capita school funding on the teaching of students with special educational needs in Kazakhstan has been shown to depend on how the funding formula accounts for additional needs (Kasa et al., 2023). A systematic review of funding models finds that they are typically hybrids shaped by governance priorities with recurring tension between mainstream and special education streams (Swärd & Ramberg, 2026). Registry evidence indicates that special education provision is socially patterned, with children of less-educated parents more likely to receive it (Halvorsen et al., 2025). Resource centres deliver assessment, individual plans and parent training but suffer staffing shortages and geographic inequity (Han & Lei, 2025); resourced provision in mainstream schools oscillates between an inclusive service and a separate safe space (Strogilos & Ward, 2024). The cooperation between learning support assistants and teachers depends on clear roles and organizational support (Ufermann et al., 2025). In Kazakhstan, special education professionals identify workforce training as the principal barrier (Bilyalov et al., 2024), and rural teachers adapt instruction willingly but lack specialist staff and materials (Bekbolatova et al., 2026).

The role of the family is the fourth condition. Parents facilitate safe and high-quality inclusion through school choice, participation in decision-making and advocacy (Mann et al., 2024), and their input shapes inclusive provision (Benson et al., 2024); their perceptions of inclusive schools should therefore be incorporated when evaluating policy (Alsulami & Ault, 2024). Kazakhstani parents define inclusion as learning together with individualized support and social acceptance (Turganbayeva et al., 2026), while some families turn to home education due to teacher shortages and isolation (Mukashev & Somerton, 2024). Comparative evidence from Eastern Europe and the South Caucasus shows that parents of children with special needs support inclusion most and are most critical of its actual state (Iarskaia-Smirnova et al., 2025); home-school cooperation is uneven even in well-resourced systems (Koskela & Sinkkonen, 2025); and in low- and middle-income contexts, family engagement and governance policy are jointly identified as core conditions of inclusion (Salehiamiri et al., 2025). Collectively, these studies indicate that a management model based solely on administrative statistics is insufficient.

The fifth condition is the information base. The OECD (2023) views inclusivity as a systemic attribute that requires coherent policies for funding, management, teacher training, and monitoring, and proposes a shift from standardized to needs-based resource allocation. The WHO and UNICEF (2023) emphasize cross-sectoral collaboration among Education, health and social protection, and UNICEF (2023) identifies the lack of comparable data on the number of children, their functional limitations and their participation as a distinct barrier, with the consequence that indicators of disability status, special educational needs and enrolment should not be treated as a single statistical dataset. The 2025 global disability inclusion report confirms that Education remains an area of persistent or widening gaps (UNICEF, 2025). Assessment documents tend to foreground individual deficits and omit contextual factors (Kristiansen & Uthus, 2025). Disability is almost absent from Kazakhstani primary school textbooks (Dukeyev & Orynassarov, 2026), while vocational provision remains insufficiently inclusive (Assanbayev & Makoelle, 2024). Multidimensional indicator frameworks developed for social protection demonstrate that formal coverage may coexist with substantial deprivation gaps (Nguyen et al., 2026), a caution that applies directly to inclusive Education.

Finally, the methodological literature provides precedents for the analytical approach adopted here. Interrupted time-series designs with a limited number of time points can reliably detect level changes. In contrast, the detection of slope changes depends on the number of observations (van Leeuwen et al., 2024), and the interpretation of segmented regression coefficients depends on the chosen parameterization (Wang et al., 2025). Comparative interrupted time series has been used to evaluate flexible school reform (Pham et al., 2025). Time-series models with structural breaks reveal that the effects of education spending and quality emerge with a lag (Elseraty et al., 2026), and global panel estimates yield small but significant long-run elasticities of output with respect to education spending (Contreras et al., 2026). Asymmetric and lagged responses of macro-level outcomes to policy and structural shocks are well documented in linear and non-linear autoregressive distributed lag models (Junsheng et al., 2024; Masud et al., 2025), and institutional internationalization has been shown to improve education quality through gradual capacity building (Shayery et al., 2022).

In summary, the literature converges on three propositions: inclusion is an institutional process subject to decoupling and inertia; the conditions of substantive inclusion (teacher readiness, resources, family engagement) lag behind formal expansion; and the information base rarely allows coverage to be compared with need over time. What remains unresolved is how to measure the pace of institutional adaptation relative to the pace of change in the target group, whether that adaptation exhibits structural shifts, and how long the institutional response takes. The present study addresses these gaps for Kazakhstan.

The purpose of the study is to assess the institutional adaptation of the inclusive education system of the Republic of Kazakhstan to changes in the size of the target group over 2011–2025, to identify the nature and temporal structure of the relationship between potential demand and educational coverage, and to determine the direction of the system's further development. The following hypotheses are formulated:

H₁: Long-term trends in inclusive education coverage are not proportional to changes in the size of the target group, so periods arise when the relative institutional gap between potential demand and the education system's capacity widens.

H₂: A statistically significant shift in the development trajectory of inclusive education coverage occurred in 2024–2025 compared with the preceding period.

H₃: The institutional response of the inclusive education system to changes in the scale of potential demand involves a time lag, so that changes in the size of the target group and the expansion of coverage do not occur synchronously.

H₄: Accelerated growth in coverage during 2024–2025 narrows the previously accumulated relative institutional gap, while high quantitative coverage is not in itself a sufficient condition for high-quality and sustainable inclusion.

MATERIALS AND METHODS

The study adopts an observational, non-experimental research design based on the analysis of national annual time series. The object of the study is the inclusive education system of the Republic of Kazakhstan and the processes of its institutional adaptation to changes in the number of children who create potential demand for special educational conditions and support services. The observation period 2011–2025 yields fifteen annual observations at the national level.

The empirical data were obtained from the official statistics of the Bureau of National Statistics of the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan (2025). Three indicators as of 1 January of each year were used: the number of children with special educational needs (N_t , persons); the number of recipients of social disability benefits (persons), used as a contextual indicator of the strain on social infrastructure; and the share of children with disabilities covered by individual educational programmes (C_t , percent), which serves as the operational measure of inclusive education coverage. Conceptually, N_t represents potential demand for inclusive educational conditions, whereas

C_t represents the realized institutional response. The complement of coverage, the uncovered share ($U_t = 100 - C_t$, expressed as percentage points), quantifies the gap in educational coverage. All indicators are aggregate official statistics; no individual-level data were used.

The analytical procedure consisted of five steps. In the first step, dynamic and comparative analysis was applied to the raw series: absolute and relative changes, chain growth rates and compound annual growth rates (CAGR) were calculated for the sub-periods 2011–2023 and 2023–2025 in order to compare the dynamics of the target group with the dynamics of coverage and to identify distinct stages of development. The CAGR of an indicator X over n years is given by:

$$CAGR = [(X_{t+n} / X_t)^{1/n} - 1] \times 100 \quad (1)$$

In the second step, base indices with 2011 as the base year ($= 100$) were constructed for the target group and for coverage:

$$I_{Need,t} = (N_t / N_{2011}) \times 100 \quad (2)$$

$$I_{Cov,t} = (C_t / C_{2011}) \times 100 \quad (3)$$

Where $I_{Need,t}$ is the base index for the target group, and $I_{Cov,t}$ is the base index for inclusive education coverage. The Institutional Adaptation Index (IIA) proposed in this study is the ratio of the two base indices:

$$IIA_t = (I_{Cov,t} / I_{Need,t}) \times 100 \quad (4)$$

A value of 100 indicates that the trend in coverage aligns with the trend in the size of the target group; a value below 100 signifies a relative lag of coverage behind demand; and a value approaching 100 from below reflects a narrowing of the relative institutional gap. The IIA thus measures the effectiveness of institutional management in relative rather than absolute terms, following the logic of index-based measurement of institutional change applied in recent Kazakhstani studies (Abauova et al., 2026; Baidalinova et al., 2026).

In the third step, the intensity of the system's response was assessed by the elasticity coefficient, defined as the ratio of the relative annual change in coverage to the relative annual change in the size of the target group:

$$E_t = \% \Delta C_t / \% \Delta N_t \quad (5)$$

Where $\% \Delta C_t$ is the chain growth rate of coverage and $\% \Delta N_t$ is the chain growth rate of the target group in year t . Values of the coefficient are interpretable only when both changes are of the same sign; when the target group changes marginally, the coefficient becomes unstable and is flagged accordingly.

In the fourth step, the presence of a structural break in the coverage trajectory was tested by segmented regression with a dummy variable D_t equal to 1 for 2024–2025 and 0 otherwise, and its interaction with the time trend t ($t = 1$ for 2011):

$$C_t = \beta_0 + \beta_1 t + \beta_2 D_t + \beta_3 (t \times D_t) + \varepsilon_t \quad (6)$$

Where β_0 and β_1 describe the level and slope of the pre-break segment, β_2 captures the change in level and β_3 the change in slope after the break, and ε_t is the error term. Ordinary least squares estimated the parameters. Model quality was assessed by the coefficient of determination (R^2), and the segmented model was compared with a single linear trend by an F-test for the joint significance of β_2 and β_3 . This specification follows the standard parameterization of interrupted time-series analysis (Wang et al., 2025), and its statistical power to detect a level change with 15 annual observations is adequate. In contrast, the estimate of the post-break slope is based on only two observations and should be interpreted with caution (van Leeuwen et al., 2024).

In the fifth step, the temporal structure of the relationship between target group size and coverage was examined using a lagged Pearson correlation. In that coverage in year t was correlated with the size of the target group in year $t - k$ for lags $k = 0, 1, 2$ and 3 years:

$$r_k = \text{corr}(N_{t-k}, C_t), k = 0, 1, 2, 3 \quad (7)$$

Two-tailed p-values were used to assess the statistical significance of the coefficients; the number of paired observations decreases from 15 at lag 0 to 12 at lag 3. The lag at which the correlation is highest is interpreted as the characteristic delay of the institutional response.

The strengths of the method lie in its transparency, its reliance on publicly available official statistics, and its ability to transform descriptive indicators into a relative measure of adaptation that can be replicated across countries and public services. Its limitations are the short annual series, the aggregate national-level analysis, the reliance on administrative definitions of special educational needs and coverage, and the fact that the IIA captures the quantitative alignment of

coverage with demand but not the quality, territorial accessibility, or outcomes of inclusion. These limitations are taken into account in the interpretation of the results.

RESULTS

Table 1 presents the dynamics of the number of children with special educational needs, the number of recipients of social disability benefits and the share of children with disabilities covered by individual educational programmes in the Republic of Kazakhstan over 2011–2025.

Table 1. Number of children with special educational needs, recipients of social disability benefits and inclusive education coverage in the Republic of Kazakhstan, 2011–2025

Year	Children with special educational needs, persons	Growth rate, %	Recipients of social disability benefits, persons	Growth rate, %	Share of children with disabilities covered by individual educational programmes, %
2011	149,043	–	451,173	–	55.3
2012	151,216	1.46	468,322	3.80	47.1
2013	148,652	–1.70	476,437	1.73	44.1
2014	138,513	–6.82	499,682	4.88	44.8
2015	141,952	2.48	499,589	–0.02	42.8
2016	141,821	–0.09	500,093	0.10	42.2
2017	144,783	2.09	518,172	3.61	40.3
2018	147,396	1.81	519,289	0.22	41.8
2019	153,230	3.96	520,146	0.17	40.6
2020	161,156	5.17	528,289	1.57	39.5
2021	161,826	0.42	525,377	–0.55	40.2
2022	175,082	8.19	529,858	0.85	38.3
2023	188,144	7.46	539,147	1.75	37.2
2024	203,717	8.28	546,014	1.27	67.1
2025	235,148	15.43	552,832	1.25	82.4

Note. Data as of 1 January of each year. Growth rates are chain (year-on-year) rates.

Source: Bureau of National Statistics of the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan (2025).

The target group grew from 149,043 children in 2011 to 235,148 in 2025, an increase of 57.8%, with growth accelerating markedly after 2021 (chain growth of 8.19% in 2022, 7.46% in 2023, 8.28% in 2024 and 15.43% in 2025). The number of recipients of social disability benefits rose more slowly and steadily, from 451,173 to 552,832 persons (22.5%). Coverage, by contrast, followed a non-monotonic path: it fell from 55.3% in 2011 to a minimum of 37.2% in 2023 and then rose sharply to 67.1% in 2024 and 82.4% in 2025. The base indices and the Institutional Adaptation Index derived from these series are reported in Table 2.

Table 2. Base indices and the Institutional Adaptation Index of the inclusive education system of the Republic of Kazakhstan, 2011–2025

Year	Target group index (I_{Need}), 2011 = 100	Coverage index (I_{Cov}), 2011 = 100	Institutional Adaptation Index (IIA), %	Uncovered share, percentage points
2011	100.0	100.0	100.0	44.7
2012	101.5	85.2	83.9	52.9
2013	99.7	79.7	80.0	55.9
2014	92.9	81.0	87.2	55.2
2015	95.2	77.4	81.3	57.2
2016	95.2	76.3	80.2	57.8
2017	97.1	72.9	75.0	59.7
2018	98.9	75.6	76.4	58.2
2019	102.8	73.4	71.4	59.4
2020	108.1	71.4	66.1	60.5
2021	108.6	72.7	67.0	59.8
2022	117.5	69.3	59.0	61.7
2023	126.2	67.3	53.3	62.8
2024	136.7	121.3	88.8	32.9
2025	157.8	149.0	94.4	17.6

Note. Indices calculated by Equations (2)–(4) from the data in Table 1; the uncovered share equals 100 minus the coverage share.

The calculations identify two fundamentally different trajectories. From 2011 to 2023, the level of institutional adaptation declined steadily: the IIA stood at 100% in the base year, fell to 83.9% in 2012, 75.0% in 2017, 71.4% in 2019, 66.1% in 2020 and 59.0% in 2022, and reached a minimum of 53.3% in 2023. Over the same period, the base index of the target group rose to 126.2 while the base index of coverage fell to 67.3, indicating that the expansion of inclusive Education lagged significantly behind the growth of potential demand. This finding is corroborated by the uncovered share of the target group, which rose from 44.7 percentage points in 2011 to 62.8 in 2023. The accumulation of the gap stemmed not only from the growth of the target group but also from the system's insufficient pace of adaptation.

The dynamics shifted decisively in 2024–2025. The base index of coverage jumped to 121.3 in 2024 and 149.0 in 2025, the IIA rose to 88.8% and 94.4%, respectively, and the uncovered share fell to 32.9 and 17.6 percentage points. By 2025, the coverage trajectory had closely aligned with that of the target group. However, the index remained below the

parity level of 100, so the gap accumulated over the preceding twelve years had not been fully closed. Figure 1 visualizes the two stages of development.

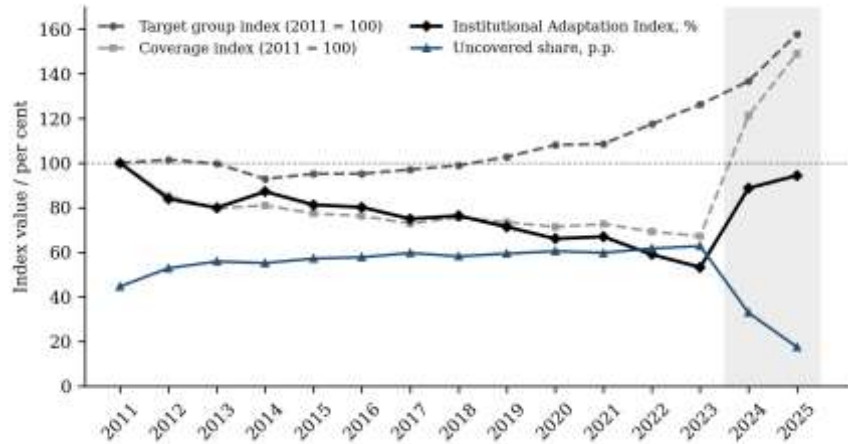


Figure 1. Dynamics of the target group index, the coverage index, the Institutional Adaptation Index and the uncovered share of children with special educational needs in the Republic of Kazakhstan, 2011–2025 (shaded area: 2024–2025 structural break).

Table 3 compares the compound annual growth rates of the two series for the two sub-periods. Between 2011 and 2023, the size of the target group increased by an average of 1.96% per year while coverage declined by an average of 3.25% per year, so that the trends in demand and institutional coverage moved in opposite directions. After 2023, the target group's average annual growth accelerated to 11.80%, while coverage's average annual growth reached 48.83%, more than four times demand's growth. This quantitatively confirms a change in the relationship between the growth of potential demand and the expansion of educational coverage.

Table 3. Compound annual growth rates of the target group and of inclusive education coverage by sub-period

Indicator	2011–2023	2023–2025
CAGR of the number of children with special educational needs, % per year	+1.96	+11.80
CAGR of inclusive education coverage, % per year	–3.25	+48.83
Nature of the relationship between demand and coverage	Coverage lags behind demand	Coverage grows faster than demand

Note. CAGR calculated by Equation (1) from the data in Table 1.

The elasticity coefficients in Table 4 characterize the year-by-year intensity of coverage's response to changes in the target group. Over 2012–2023, the coefficient was negative in nine of twelve years, indicating that coverage contracted in relative terms while the group grew; the two positive values above unity in 2016 (15.19) and 2021 (4.26) arise from marginal changes in the denominator and are flagged as unstable. In 2024, the coefficient reached 9.71, meaning that coverage grew almost ten times faster than the target group, and in 2025 it was 1.48, still above unity. The response in 2024–2025 was thus elastic, in contrast to the predominantly negative response of the preceding period.

Table 4. Elasticity of inclusive education coverage with respect to changes in the number of children with special educational needs

Year	Change in the number of children, %	Change in coverage, %	Elasticity coefficient (E_t)
2012	+1.46	–14.83	–10.17
2013	–1.70	–6.37	3.76
2014	–6.82	+1.59	–0.23
2015	+2.48	–4.46	–1.80
2016	–0.09	–1.40	15.19*
2017	+2.09	–4.50	–2.16
2018	+1.80	+3.72	2.06
2019	+3.96	–2.87	–0.73
2020	+5.17	–2.71	–0.52
2021	+0.42	+1.77	4.26*
2022	+8.19	–4.73	–0.58
2023	+7.46	–2.87	–0.38
2024	+8.28	+80.38	9.71
2025	+15.43	+22.80	1.48

Note. Elasticity calculated by Equation (5). * Coefficient unstable because the change in the number of children is marginal (below 0.5% in absolute value).

The segmented regression specified in Equation (6) was estimated on the fifteen annual observations. The estimated model is:

$$\hat{C}_t = 49.896 - 1.038t - 196.996D_t + 16.338(t \times D_t) \quad (8)$$

The pre-break segment shows a statistically meaningful downward slope of about 1 percentage point in coverage per year. At the same time, the post-break interaction term implies a combined upward shift in coverage in 2024–2025. The coefficient of determination of the segmented model is $R^2 = 0.970$, compared with $R^2 = 0.092$ for a single linear trend over the entire period. The F-test for the joint significance of the break terms yields $F(2, 11) = 159.20$, $p < 0.001$. Therefore, a model that allows for a change in trajectory describes the observed series significantly better than a single linear trend, and the structural break in 2024 is statistically significant.

The lagged correlation analysis is reported in Table 5. The correlation between the size of the target group and coverage is positive and significant across all lags from 0 to 3 years. However, it increases from $r = 0.734$ at lag 0 to $r = 0.787$ at lag 1, then peaks at $r = 0.827$ ($p < 0.001$) at lag 2, before declining to $r = 0.780$ at lag 3. The same ordering is observed for chain growth rates, where only the two-year lag reaches conventional significance ($r = 0.583$; $p = 0.047$). The strongest association therefore occurs when the expansion of coverage is compared with the size of the target group two years earlier.

Table 5. Lagged Pearson correlations between the number of children with special educational needs in year $t - k$ and inclusive education coverage in year t

Lag k , years	Number of paired observations	Correlation of levels (r)	p-value	Correlation of chain growth rates (r)	p-value
0	15	0.734	0.002	0.415	0.140
1	14	0.787	< 0.001	0.481	0.096
2	13	0.827	< 0.001	0.583	0.047
3	12	0.780	0.003	0.091	0.790

Note. Correlations calculated by Equation (7); p-values are two-tailed.

With respect to the hypotheses, the results provide the following verification. H_1 is supported: over 2011–2023, the IIA declined from 100% to 53.3%, and the uncovered share rose by 18.1 percentage points, indicating that coverage was not proportional to the target group and that the relative institutional gap widened. H_2 is supported: the segmented regression identifies a statistically significant structural break in 2024–2025 ($F = 159.20$; $p < 0.001$), with the model's explanatory power rising from 9.2% to 97.0%. H_3 is supported: the highest correlation between the target group and coverage is observed at a two-year lag ($r = 0.827$; $p < 0.001$), which is consistent with a delayed institutional response. The first part of H_4 is supported, since the IIA recovered to 94.4% and the uncovered share fell to 17.6 percentage points by 2025; the second part of H_4 , concerning the insufficiency of quantitative coverage for high-quality inclusion, cannot be tested with the available aggregate data and is addressed in the discussion based on the literature.

DISCUSSIONS

The study's primary hypotheses were supported. The inclusive education system of Kazakhstan underwent a 12-year period in which coverage not only failed to keep pace with the growth of the target group but also declined in relative terms, followed by a 2-year period of accelerated adaptation during which most of the accumulated relative gap was closed. The secondary hypothesis concerning the time lag was also supported, with the strongest association between demand and coverage observed at a two-year offset. The part of the fourth hypothesis concerning the quality of inclusion could not be tested directly and thus remains a proposition grounded in the literature rather than in the present data.

The finding of a prolonged relative lag is consistent with the neo-institutional interpretation of inclusion as a process in which formal commitment precedes substantive change. The widening gap in 2011–2023 coincides with the period when regional audits found inclusion operating as a bolt-on to a still-dominant medical model (Mamerkhanova et al., 2025) and when evaluations of the state education programmes identified quantitative expansion without corresponding qualitative conditions (UNICEF Kazakhstan, 2024). The pattern mirrors the ceremonial conformity documented in teacher education (Hazir et al., 2026) and the selective inclusion produced by administrative rationing (Zidniyati et al., 2026): the system possessed the legal framework and the declared priority, but the growth of the target group exposed the limits of its institutional capacity. The similar experience of other post-Soviet systems, where the transition from defectological to rights-based provision proceeds slowly (Abdullayeva, 2025; Hanssen & Alekseeva, 2024), suggests that the lag is structural rather than specific to Kazakhstan.

The statistically significant structural break in 2024–2025 and the elastic response of coverage in those years indicate that institutional adaptation, once triggered, can be rapid. Two observations qualify this result. First, the post-break slope is estimated from only two observations, so its long-run sustainability cannot be established; simulation evidence shows that with a limited number of time points, level changes are detected reliably, whereas slope changes are not (van Leeuwen et al., 2024). Second, the sharp rise in coverage may partly reflect changes in the administrative identification and registration of children, an issue that the measurement literature considers decisive for observed prevalence and coverage (de Kadt et al., 2025; UNICEF, 2023). The figures should therefore be read as evidence of a change in the institutional regime rather than as a precise count of children receiving substantive support.

The two-year lag between changes in the target group and the coverage response is a new empirical finding for Kazakhstan and is consistent with the mechanisms described in the literature. Expansion of coverage requires the identification of a child, the preparation of an individual educational programme, the availability of trained teachers and support specialists, and the allocation of funding under the per-capita formula (Kasa et al., 2023; Swärd & Ramberg, 2026). Each of these stages takes time: professional development for inclusion is compressed and incremental (Kasa et al., 2026), teacher self-efficacy develops with experience (Butabayeva et al., 2025), and specialist staff remain scarce in rural areas

(Bekbolatova et al., 2026). Delayed and asymmetric responses of system-level outcomes to policy and structural changes are a general feature of time-series evidence in economics and Education (Elseraty et al., 2026; Junsheng et al., 2024; Masud et al., 2025), and the lag identified here is of the same order as the planning and budgeting cycle of the education system.

The results also confirm that the Institutional Adaptation Index provides information that absolute indicators cannot. Between 2011 and 2023, the number of children covered by inclusive Education rose in absolute terms while the index fell by almost half; conversely, the index recovered in 2024–2025 even though the target group grew faster than in any previous year. The index thus separates the effect of expanding demand from the effect of institutional response in the same way that composite indices separate structural change from volume effects in labour-market and governance analysis (Abauova et al., 2026; Baidalinova et al., 2026), and it aligns with the input–process–outcome–feedback framework proposed for sustainable inclusive Education (Yang et al., 2025).

At the same time, the index's limits must be recognized. Systematic reviews show that placement does not guarantee participation (Dott & Licandro, 2025) and that structural, organizational and pedagogical barriers persist even where presence is secured (González-Afonso et al., 2026). Kazakhstani parents report inconsistent availability of specialists (Turganbayeva et al., 2026), teachers act as gatekeepers under resource constraints (Orynbasarov et al., 2026), and multidimensional indicator frameworks show that formal coverage can coexist with large deprivation gaps (Nguyen et al., 2026). A high index value therefore indicates quantitative alignment between coverage and demand, not the adequacy of staffing, geographical accessibility, the quality of psychological and pedagogical support, or educational outcomes. This is why the second part of the fourth hypothesis is retained as a proposition: institutional adaptation is a necessary but insufficient condition of effective inclusion.

Several questions arise from these findings. It remains to be established whether the post-2023 acceleration is sustained once the readily identifiable part of the target group has been covered, whether the two-year lag shortens as the system matures, and how the relative index behaves at the regional level, where disparities in resources and staffing are known to be large. Prospects for the system's development lie in the transition from the extensive expansion of coverage to a predictive management model in which the anticipated dynamics of the target group are aligned in advance with resources, accessibility, quality, and educational outcomes, so that the institutional response no longer trails demand by 2 years.

CONCLUSIONS

The purpose of this study was to assess the institutional adaptation of the inclusive education system of the Republic of Kazakhstan to changes in the size of the target group over 2011–2025 and to identify the nature and temporal structure of the relationship between potential demand and educational coverage. The economic and statistical analysis identified two distinct stages of development. In 2011–2023, the target group grew by an average of 1.96% per year while relative coverage declined by 3.25% per year; the Institutional Adaptation Index fell from 100% to 53.3%, and the uncovered share rose from 44.7 to 62.8 percentage points, indicating the accumulation of a gap between potential demand and the capacity of the system. In 2024–2025, the opposite trend emerged: the index rose to 88.8% and 94.4%; the uncovered share fell to 17.6 percentage points; and coverage grew at an average of 48.83% per year, compared with 11.80% in the target group. Segmented regression confirmed a statistically significant change in trajectory at the end of the period, and lagged correlation analysis revealed the strongest association at a two-year offset, indicating a delayed institutional response.

The main result of the study is the identification of a transition from the accumulation of a relative institutional gap to its accelerated reduction. The paper's unique contribution is the Institutional Adaptation Index, which compares the dynamics of coverage with those of the target group, thereby allowing the effectiveness of institutional management to be measured in relative terms, to detect structural changes, and to reveal the time structure of the system's response. In theoretical terms, the findings substantiate the view of inclusive Education as an institutional process characterized by inertia, decoupling, and lagged adaptation, and demonstrate that quantitative coverage and substantive inclusion must be treated as distinct constructs.

For managers and policy makers, the results imply that the further development of inclusive Education should be associated with a shift from the extensive expansion of coverage to a predictive model of management in which the expected growth of the target group is matched in advance with the training of teachers and support specialists, the per-capita funding of additional needs, the territorial accessibility of services and the monitoring of educational outcomes. The two-year lag identified here provides a practical planning horizon: decisions on staffing and financing should anticipate demand rather than follow it. The index can be calculated at the regional level within the education management information system to identify territories in which adaptation lags. Contributing to quality education, reduced inequalities and strong institutions requires that such indicators of relative adaptation be used alongside indicators of quality and participation.

The study has limitations. The series is short and aggregated at the national level; the definitions of special educational needs and of coverage are administrative and may have changed with the identification practices of the responsible bodies; the post-break trajectory rests on two observations; and the index does not capture the quality, accessibility or outcomes of inclusion. Future research should extend the series as new data become available, disaggregate the analysis by region, level of Education and category of need, test the sensitivity of the index to alternative definitions of the target group, combine it with survey-based measures of teacher readiness and family satisfaction, and apply the approach comparatively to other countries of Central Asia and to other public services facing rapidly changing demand.

Author Contributions: Conceptualization, A.M. and M.N.; Methodology, M.N.; Software, A.M., Validation, A.M., Formal Analysis, A.S.; Investigation, M.T.; Resources, A.A.; Data Curation, M.T.; Writing – Original Draft Preparation, A.M.; Writing – Review & Editing, M.N.; Visualization, A.S.; Supervision, A.A.; Project Administration, M.T.; Funding Acquisition, M.N. Authors have read and agreed to the published version of the manuscript.

Institutional Review Board Statement: Ethical review and approval were waived for this study because the research does not involve vulnerable groups or sensitive issues.

Funding: The authors received no direct funding for this research.

Acknowledgements: The authors thank the Bureau of National Statistics of the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan for the publicly available data used in this study.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The data presented in this study are available on request from the corresponding author. The data are not publicly available due to restrictions.

Declaration of Generative AI and AI-Assisted Technologies in the Writing Process: During the preparation of this work, the author(s) used Grammarly for proofreading and spell checking since the Authors are not native speakers. All intellectual content, analysis, and interpretations were produced solely by the authors. After using this AI tool/service, the author(s) reviewed and edited the content as needed, taking full responsibility for the publication's content.

Conflicts of Interest: The authors declare no conflict of interest.

REFERENCES

- Abauova, G., Mergenbayeva, A., Beisengaliyev, Y., Niyazov, M., & Imashev, A. (2026). Systemic effects of quasi-public sector reform in Kazakhstan: An analytical model of multiplier impact on sustainable economic growth, industry and strong institutions. *Bangladesh Journal of Multidisciplinary Scientific Research*, 11(5), 35–44. <https://doi.org/10.46281/bjmsr.v11i4.2950>
- Abdullayeva, T. (2025). Achieving access to inclusive Education in a post-Soviet country, Azerbaijan: a decolonial disability study. *International Journal of Inclusive Education*, 1–16. <https://doi.org/10.1080/13603116.2025.2567428>
- Alsulami, B., & Ault, M. (2024). Parents' perspectives on inclusive schools for students with disabilities in Saudi Arabia. *Research in Developmental Disabilities*, 151, 104786. <https://doi.org/10.1016/j.ridd.2024.104786>
- Assanbayev, A., & Makoelle, T. M. (2024). Practices promoting the inclusion of adult students with disabilities in the classroom: A case of a technical vocational education and training college in Kazakhstan. *Education Sciences*, 14(5), 529. <https://doi.org/10.3390/educsci14050529>
- Azevedo, H., Barat, B., Coelho, V., Machado, F., Soares, M., Dias, P. C., Cadime, I., & Peixoto, C. (2025). Exploring teachers' attitudes towards inclusive Education: Role of self-efficacy and perceived school climate. *Journal of Research in Special Educational Needs*, 25(4), 1002–1020. <https://doi.org/10.1111/1471-3802.70025>
- Baidalinova, A., Alashbayeva, N., Turekulova, A., Baigireyeva, Z., & Ramazanov, K. (2026). Digital transformation and the gender gap in youth employment: Female labour force participation, human capital and decent work in Kazakhstan, 2005–2024. *Bangladesh Journal of Multidisciplinary Scientific Research*, 11(4), 26–40. <https://doi.org/10.46281/bjmsr.v11i4.2944>
- Beamish, W., Hay, S., & Yuen, M. (2024). Moving inclusion forward for students with special educational needs in the Asia-Pacific region. *Frontiers in Education*, 9, 1327516. <https://doi.org/10.3389/educ.2024.1327516>
- Bekbolatova, B., Eker, A., & Kalygulova, S. (2026). Teachers' implementation of inclusive Education in rural schools of Kazakhstan. *Disabilities*, 6(4), 60. <https://doi.org/10.3390/disabilities6040060>
- Benson, S., Al-Natour, M., & Diaa, M. H. (2024). Parent input: Shaping inclusive Education for students with disabilities. *International Journal of Developmental Disabilities*, 70(6), 1102–1111. <https://doi.org/10.1080/20473869.2024.2381909>
- Bilyalov, D., Movkebayeva, Z., Khamitova, D., & Duzelbayeva, A. (2024). Barriers to inclusion: Insights from special education teachers in Kazakhstan. *Eurasian Journal of Educational Research*, 11(3), 65–80. <https://doi.org/10.14689/ejer.2024.113.04>
- Burak, Y., Ahmetoglu, E., & Sakallı Gümüş, S. (2026). Teachers' attitudes towards inclusion and views on self-efficacy and classroom practices regarding inclusive Education. *Journal of Research in Special Educational Needs*, 26(1), e70047. <https://doi.org/10.1111/1471-3802.70047>
- Bureau of National Statistics of the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan. (2025). *Official statistical information: Social protection and Education*. Retrieved from <https://stat.gov.kz>
- Butabayeva, L., Sharma, U., Forlin, C., Abildina, S., Ismagulova, S., & Nogaibayeva, G. (2025). Inclusive practices in Kazakhstan: validating the teacher efficacy for inclusive practice scale for the local context. *International Journal of Developmental Disabilities*, 1–15. <https://doi.org/10.1080/20473869.2025.2492091>
- Contreras, D., Galindo, A. J., & Lepe, I. (2026). Education spending and economic growth: Short- and long-term effects in a global panel. *Review of Development Economics*, 1–22. <https://doi.org/10.1111/rode.70167>
- Dauyeshova, A., Zhanseitov, A., Amirova, A., Iskenderova, S., & Zhunissova, Z. (2026). Decent jobs and digital governance: A human-centered HRM ecosystem in Kazakhstan's civil service. *Bangladesh Journal of Multidisciplinary Scientific Research*, 11(3), 76–92. <https://doi.org/10.46281/bjmsr.v11i3.2901>
- de Kadt, J., Kaindaneh, S., Pye, S. R., Musa, E., Bechange, S., & Schmidt, E. (2025). Use of Washington Group question sets by teachers to identify functional difficulty in schools in Sierra Leone. *International Health*, 17(Suppl. 1), i42–i49. <https://doi.org/10.1093/inthealth/ihaf094>
- Diseth, Å. (2025). Teachers' attitudes toward inclusion, levels of self-efficacy and beliefs about a strength-based approach to Education. *International Journal of Inclusive Education*, 1–19. <https://doi.org/10.1080/13603116.2025.2593561>
- Dott, J., & Licandro, U. (2025). Multiple views, sobering outcomes: A systematic review on the participation of children with disabilities in early childhood education and care. *Frontiers in Education*, 10, 1666615. <https://doi.org/10.3389/educ.2025.1666615>
- Dukev, B., & Orynassarov, D. (2026). Invisible images: missing disability representation in Kazakhstani primary school textbooks. *Globalization, Societies and Education*, 1–13. <https://doi.org/10.1080/14767724.2026.2666226>
- El Mazbouh, M., Shah, R., & Lee, K. (2025). If evidence matters, why does the data die? Implementing education management information systems (EMIS) in development contexts. *Frontiers in Education*, 10, 1616717. <https://doi.org/10.3389/educ.2025.1616717>
- Elseraty, A. M., Kammoun, A. A., Sallam, M. A. M., Selmey, M. G., Ghallab, Y., Shaheen, A., & Radwan, M. A. (2026). Public education expenditure and economic growth in Egypt: An ARDL bounds testing approach. *Economies*, 14(9), 402. <https://doi.org/10.3390/economies14090402>
- Ergunova, O., Mukhanova, G., Abdybayeva, A., & Somov, A. (2026). Integrating AI and EdTech into inclusive learning: A cross-regional study of Russia and Kazakhstan. *Social Sciences*, 15(3), 199. <https://doi.org/10.3390/socsci15030199>
- González-Afonso, M. C., Perdomo-López, C. D. L. Á., Plasencia-Carballo, Z., Cabanilla-García, J. L., & Pérez-Jorge, D. (2026). Presence, participation and learning in educational inclusion: A systematic mapping review of barriers in school contexts according to Booth and Ainscow. *Education Sciences*, 16(1), 95. <https://doi.org/10.3390/educsci16010095>
- Halvorsen, O. K., Biele, G., Zachrisson, H. D., & Brandlistuen, R. E. (2025). Socioeconomic disparities in special education provision. *European Journal of Special Needs Education*, 40(6), 1110–1128. <https://doi.org/10.1080/08856257.2025.2478336>

- Han, C., & Lei, J. (2025). The operation and development of inclusive education resource centres/rooms in China: A scoping review. *SAGE Open*, 15(2). <https://doi.org/10.1177/21582440251340534>
- Hanssen, N. B., & Alekseeva, A. A. (2024). Inclusion and inclusive education in Russia: Analysis of legislative and strategic documents at the state level between 2012–2014. *Education Sciences*, 14(3), 312. <https://doi.org/10.3390/educsci14030312>
- Hasan, S. M., Tawfiq, T. T., Hasan, M. M., & Islam, K. M. A. (2024). Corporate governance dynamics in financial institution performance: A panel data analysis. *Investment Management and Financial Innovations*, 21(3), 292–303. [https://doi.org/10.21511/imfi.21\(3\).2024.24](https://doi.org/10.21511/imfi.21(3).2024.24)
- Hay, S., & Beamish, W. (2025). Australia's progress toward SDG4 targets for school-age students with disability. *Frontiers in Education*, 10, 1518917. <https://doi.org/10.3389/feduc.2025.1518917>
- Hazir, O., Alan, Y., & Gunlu, Y. (2026). Policy-practice decoupling in Turkish teacher education: Ceremonial conformity in inclusive pedagogy. *Frontiers in Education*, 11, 1782337. <https://doi.org/10.3389/feduc.2026.1782337>
- Iarskaia-Smirnova, E., Bolshakov, N., & Walker, C. (2025). Inclusive Education in Eastern Europe and the South Caucasus: Comparing parental satisfaction. *Children and Youth Services Review*, 169, 108087. <https://doi.org/10.1016/j.childyouth.2024.108087>
- Işıkgöz, M. E., & Öztunç, M. (2026). From inclusion to sustainability: A systematic review of research trends in sustainable inclusive Education (2015–2025). *Sustainable Development*, 1–17. <https://doi.org/10.1002/sd.71001>
- Junsheng, H., Mu, Y., Masud, M. M., Akhtar, R., Saif, A. N. M., Islam, K. M. A., & Hafiz, N. (2024). Navigating the nexus: Unraveling technological innovation, economic growth, trade openness, ICT, and CO2 emissions through symmetric and asymmetric analysis. *Humanities and Social Sciences Communications*, 11, 634. <https://doi.org/10.1057/s41599-024-03092-4>
- Kasa, R., Adilbek, A., & Mambetalina, D. (2023). The initial impact of per-capita school funding on teaching students with special educational needs in Kazakhstan. *Journal of Educational Sciences*, 74(1), 103–117. <https://doi.org/10.26577/JES.2023.v74.i1.010>
- Kasa, R., Tazhiyeva, A., Khamza, A., & Sabitova, A. (2026). Building a common language for inclusion: Collaborative school-based teacher professional development in Kazakhstan. *Nordic Journal of Comparative and International Education*, 10(3), 6673. <https://doi.org/10.7577/njcie.6673>
- Khan, S., Zayed, N. M., Darwish, S., Nitsenko, V., Islam, K. M. A., Hassan, M. A., & Dubrova, O. (2022). Pre and present COVID-19 situation: A framework of educational transformation in South Asia region. *Emerging Science Journal*, 7(Special Issue), 81–94. <https://doi.org/10.28991/ESJ-2023-SPER-06>
- Khatib, A., Fitri, A. Z., Ishomudin, A., Hosnan, M., Syafiqurrahman, Warits, A., & Haqan, A. (2026). Policy implementation of disability education in inclusive schools: A comparative case study of Islamic and public education systems in Indonesia. *International Journal of Inclusive Education*, 1–39. <https://doi.org/10.1080/13603116.2026.2642328>
- Kielblock, S., & Woodcock, S. (2023). Who's included and who's not? An analysis of instruments that measure teachers' attitudes towards inclusive Education. *Teaching and Teacher Education*, 122, 103922. <https://doi.org/10.1016/j.tate.2022.103922>
- Koskela, T., & Sinkkonen, H.-M. (2025). Parental involvement in supporting their children in inclusive Education: Cooperation with school professionals in Finland. *Cogent Education*, 12(1), 2464272. <https://doi.org/10.1080/2331186X.2025.2464272>
- Kozlova, M., & Ryabichenko, T. (2024). Inclusive Education in schools in Russia and Kazakhstan: Attitudes and well-being of teachers as related factors in the formation of an inclusive environment. *Children and Youth Services Review*, 163, 107785. <https://doi.org/10.1016/j.childyouth.2024.107785>
- Kristiansen, A., & Uthus, M. (2025). Portrayals of special educational needs in Norwegian ECEC psychoeducational reports: A document analysis in the context of inclusion. *Frontiers in Education*, 10, 1520651. <https://doi.org/10.3389/feduc.2025.1520651>
- Lindner, K.-T., Schwab, S., Emara, M., & Avramidis, E. (2023). Do teachers favor the inclusion of all students? A systematic review of primary schoolteachers' attitudes towards inclusive Education. *European Journal of Special Needs Education*, 38(6), 766–787. <https://doi.org/10.1080/08856257.2023.2172894>
- Long, Y., Sharma, U., & Subban, P. (2025). Teachers' attitudes and self-efficacy toward inclusive Education in mainland China: A meta-analysis. *Cogent Education*, 12(1), 2526872. <https://doi.org/10.1080/2331186X.2025.2526872>
- Lyra, O., Koullapi, K., & Kalogeropoulou, E. (2023). Fears towards disability and their impact on teaching practices in inclusive classrooms: An empirical study with teachers in Greece. *Heliyon*, 9(5), e16332. <https://doi.org/10.1016/j.heliyon.2023.e16332>
- Malhotra, K. P. (2025). Whose IDEA is this? An examination of the effectiveness of inclusive Education. *Educational Evaluation and Policy Analysis*, 47(4), 1045–1070. <https://doi.org/10.3102/01623737241257951>
- Mamerkhanova, Z., Sakayeva, A., Akhmetkarimova, K., Assakayeva, D., & Bobrova, V. (2025). Development of inclusive Education in the Republic of Kazakhstan: An inside view (case of the Karaganda region). *Frontiers in Education*, 10, 1630225. <https://doi.org/10.3389/feduc.2025.1630225>
- Mann, G., Kennedy-Wood, L., & Gilmore, L. (2024). The role of parents in facilitating safe, quality, inclusive Education for students with intellectual disabilities. *Research and Practice in Intellectual and Developmental Disabilities*, 11(1), 107–120. <https://doi.org/10.1080/23297018.2024.2337756>
- Marcos-Rivero, B., Ortuondo, J., Haegele, J. A., Reina, R., Ascondo, J., Becerril-Atxikallende, I., & Yanci, J. (2026). Impact of inclusive education training programmes on in-service and preservice physical education teachers: A systematic review. *European Journal of Special Needs Education*, 1–21. <https://doi.org/10.1080/08856257.2026.2680128>
- Masud, M. M., Islam, K. M. A., Akhtar, R., & Al-Mamun, A. (2025). Exploring asymmetric effects of blue economy sectors on economic growth: Evidence from a non-linear ARDL analysis. *Aquaculture International*, 33(8), 708. <https://doi.org/10.1007/s10499-025-02383-0>
- Morén, A., & Ramberg, J. (2024). Inclusive education policymaking in a multi-level governance education system: The case of the Swedish Association of Local Authorities and Regions (SALAR). *Nordic Journal of Studies in Educational Policy*, 11(3), 207–217. <https://doi.org/10.1080/20020317.2024.2430031>
- Mukashev, K., & Somerton, M. (2024). Disability and homeschooling: Parents' experiences in Kazakhstan. *Children & Society*, 38(2), 436–455. <https://doi.org/10.1111/chso.12713>
- Nagro, S. A., Macedonia, A., Raines, A., Day, J., Parker, A., Parsons, S., Coogle, C., & Zenkov, K. (2023). A systematic review of teacher factors for successfully educating students with disabilities. *The New Educator*, 19(2), 77–102. <https://doi.org/10.1080/1547688X.2023.2193226>
- Nguyen, T. T. H., Duong, X. T. T., & Mai, D. T. (2026). Multidimensional social welfare, social protection, and decent work among migrant worker families in industrial parks in Bac Ninh, Vietnam. *Bangladesh Journal of Multidisciplinary Scientific Research*, 11(5), 11–25. <https://doi.org/10.46281/bjmsr.v11i4.2948>

- Nistal Anta, V., López-Aguado, M., & Gutiérrez-Provecho, L. (2024). Teacher competences for inclusion of students with special educational needs: A systematic review. *Revista Complutense de Educación*, 35(2), 393–405. <https://doi.org/10.5209/rced.83175>
- OECD. (2023). *Equity and inclusion in Education: Finding strength through diversity*. OECD Publishing. <https://doi.org/10.1787/e9072e21-en>
- OECD. (2024). *Equity in Education and on the labour market: Main findings from Education at a Glance 2024*. OECD Publishing. <https://doi.org/10.1787/b502b9a6-en>
- Orynbassarov, D., Maulen, A., & Rollan, K. (2026). Teachers' perspectives on educational inclusion of students with SEND and their transition to the labour market in Almaty, Kazakhstan. *International Journal of Disability, Development and Education*, 73(4), 659–671. <https://doi.org/10.1080/1034912X.2025.2571766>
- Pham, L. D., Matthews, G. F., & Drake, T. A. (2025). Beyond prescriptive reforms: An examination of North Carolina's flexible school restart program. *Educational Evaluation and Policy Analysis*, 47(2), 436–457. <https://doi.org/10.3102/01623737231218735>
- Prisiazniuk, D., Makoele, T. M., & Zangieva, I. (2024). Teachers' attitudes towards inclusive Education of children with special educational needs and disabilities in Central Asia. *Children and Youth Services Review*, 160, 107535. <https://doi.org/10.1016/j.childyouth.2024.107535>
- Ramazanov, K., Abauova, G., Beisengaliyev, Y., Turekulova, A., & Niyazov, M. (2026). Strategic management of the educational process under artificial intelligence implementation: Quality education, decent work, and human capital for the transforming labor market of Kazakhstan. *Bangladesh Journal of Multidisciplinary Scientific Research*, 11(4), 41–53. <https://doi.org/10.46281/bjmsr.v11i4.2945>
- Salehiamiri, S. M., Khodabakhshi-Koolae, A., & Falsafinejad, M. R. (2025). The opportunities and challenges of inclusive Education for children with special needs with a focus on the role of family: A reflection of multi-stakeholder perspective in a low- and middle-income country. *Journal of Research in Special Educational Needs*, 25(4), 674–687. <https://doi.org/10.1111/1471-3802.12750>
- Senior, C., & Sahlberg, P. (2025). The evolution of the OECD's position on equity in global Education. *International Journal of Educational Development*, 114, 103241. <https://doi.org/10.1016/j.ijedudev.2025.103241>
- Shayery, A. J., Zayed, N. M., Islam, K. M. A., Hossain, M. F., Nitsenko, V. S., & Imran, M. A. (2022). The impact of internationalization to improve and ensure quality education: A case study of Daffodil International University (Bangladesh). *Naukovyi Visnyk Natsionalnoho Hirnychoho Universytetu*, (6), 160–169. <https://doi.org/10.33271/nvngu/2022-6/160>
- Strogilos, V., & Ward, R. J. (2024). Resourced provision in mainstream schools for students with special educational needs and/or disabilities: Inclusive service or safe space? *Journal of Research in Special Educational Needs*, 24(1), 161–174. <https://doi.org/10.1111/1471-3802.12622>
- Swärd, A. M., & Ramberg, J. (2026). Funding special Education for equity: A systematic review on funding models for special Education. *European Journal of Special Needs Education*, 1–22. <https://doi.org/10.1080/08856257.2025.2611287>
- Togaibayeva, A., Ramazanov, D., Yegenissova, A., Yeleussinova, G., Ayaganova, A., Yessengulova, M., & Karimova, A. (2026). Inclusivity-focused training of special education teachers for general primary schools. *Qubahan Academic Journal*, 6(1), 457–467. <https://doi.org/10.48161/qaj.v6n1a2027>
- Togaibayeva, L., Omarova, A., Rakhimberdinova, M., & Zeinullina, Z. (2026). Regional economic resilience: The impact of digitalization on labor productivity dynamics. *Bangladesh Journal of Multidisciplinary Scientific Research*, 11(2), 58–70. <https://doi.org/10.46281/bjmsr.v11i2.2854>
- Trinidad, J. E. (2025). From boardrooms to classrooms: How interorganizational networks influence education policy adoption. *Educational Evaluation and Policy Analysis*, 47(3), 847–872. <https://doi.org/10.3102/01623737241254791>
- Turganbayeva, B., Adilzhanova, K. A., Sovetkanova, D., & Kadirsizova, S. (2026). Inclusive Education: The role of parents and the importance of pedagogical and psychological support. *Frontiers in Education*, 11, 1866833. <https://doi.org/10.3389/educ.2026.1866833>
- Ufermann, L., Domsch, H., & Urton, K. (2025). Perspectives of learning and support assistants on cooperation with teachers in inclusive Education: A systematic literature review. *European Journal of Special Needs Education*, 40(5), 943–959. <https://doi.org/10.1080/08856257.2024.2445407>
- UNESCO. (2024). *Global education monitoring report 2024/5: Leadership in Education – Lead for learning*. UNESCO. Retrieved from <https://www.unesco.org/gem-report/en/publication/leadership>
- UNICEF. (2023). *Children with disabilities in the world: Every child has the right to learn*. UNICEF. Retrieved from https://data.unicef.org/wp-content/uploads/2023/05/Disabilities-Report_5_3-FINAL.pdf
- UNICEF. (2025). *Global disability inclusion report: Accelerating disability inclusion in a diverse and changing world*. UNICEF. Retrieved from <https://www.globaldisabilitysummit.org/wp-content/uploads/2025/03/GIP03351-UNICEF-GDIR-Summary-v5-WEB-Accessible.pdf>
- UNICEF Europe and Central Asia Regional Office. (2024). *In focus: Quality inclusive education*. UNICEF. Retrieved from <https://www.unicef.org/eca/reports/focus-quality-inclusive-education>
- UNICEF Kazakhstan. (2024). *Evidence on inclusive Education in Kazakhstan based on a formative and a big data evaluation*. UNICEF. Retrieved from <https://www.unicef.org/kazakhstan/en/reports/evidence-inclusive-education-kazakhstan-based-formative-and-big-data-evaluation>
- van Leeuwen, F. D., Lugtig, P., & Feskens, R. (2024). The performance of interrupted time series designs with a limited number of time points: Learning losses due to school closures during the COVID-19 pandemic. *PLOS ONE*, 19(8), e0301301. <https://doi.org/10.1371/journal.pone.0301301>
- Wang, Y., Nonzee, N. J., Zhang, H., Ashing, K. T., Song, G., & Crespi, C. M. (2025). Interpretation of coefficients in segmented regression for interrupted time series analyses. *BMC Medical Research Methodology*, 25, 98. <https://doi.org/10.1186/s12874-025-02556-8>
- WHO & UNICEF. (2023). *Global report on children with developmental disabilities: From the margins to the mainstream*. World Health Organization. Retrieved from <https://www.unicef.org/documents/global-report-children-developmental-disabilities>
- Woolfson, L. M. (2025). Is inclusive Education for children with special educational needs and disabilities an impossible dream? *British Journal of Educational Psychology*, 95(3), 725–737. <https://doi.org/10.1111/bjep.12701>
- Yang, C., Wang, T., & Xiu, Q. (2025). Towards a sustainable future in Education: A systematic review and framework for inclusive Education. *Sustainability*, 17(9), 3837. <https://doi.org/10.3390/su17093837>

- Ydesen, C., & Daniels, H. (2026). Inclusive Education in complex landscapes of stakeholders, agendas and priorities. *International Journal of Inclusive Education*, 30(9), i–vii. <https://doi.org/10.1080/13603116.2024.2368685>
- Zabiyeva, K. K., Zhiyembayev, Z. T., Seitova, S., Kalzhanova, G. K., & Yesseikyzy, A. (2026). Formation of digital competences of students in the system of higher pedagogical Education. *Bangladesh Journal of Multidisciplinary Scientific Research*, 11(1), 43–54. <https://doi.org/10.46281/bjmsr.v11i1.2760>
- Zayed, N. M., Edeh, F. O., Darwish, S., Islam, K. M. A., Kryshthal, H., Nitsenko, V., & Stanislavyk, O. (2022). Human resource skill adjustment in service sector: Predicting dynamic capability in post COVID-19 work environment. *Journal of Risk and Financial Management*, 15(9), 402. <https://doi.org/10.3390/jrfm15090402>
- Zhanarstanova, M. (2026). Beyond formal equality: Institutionalizing inclusion in Kazakhstan's higher Education through policy and student perceptions. *Frontiers in Education*, 11, 1893012. <https://doi.org/10.3389/feduc.2026.1893012>
- Zidniyati, Masyhud, M. S., Supranoto, Indriastuti, S., Trihartono, A., & Sawir, M. (2026). Inclusive Education under SDG 4: policy enactment and the governance of selective inclusion. *Cogent Social Sciences*, 12(1), 2717912. <https://doi.org/10.1080/23311886.2026.2717912>

Publisher's Note: CRIBFB stays neutral about jurisdictional claims in published maps and institutional affiliations.



© 2026 by the authors. Licensee CRIBFB, USA. This open-access article is distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0>).

Bangladesh Journal of Multidisciplinary Scientific Research (P-ISSN 2687-850X E-ISSN 2687-8518) by CRIBFB is licensed under a Creative Commons Attribution 4.0 International License.