Quality of Early Childhood Education and Care in Kazakhstan: The First Nationwide Study

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Received in March 2023

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Abstract

Currently, Kazakhstan has the highest enrolment rate in the history of early childhood education and care (ECEC), with 98% enrolment for children aged three to six years old. With this significant expansion of ECEC, there is a lack of sufficient evidence on its overall quality. This study is the first countrywide study aimed to evaluate the ECEC quality in Kazakhstan using the internationally recognized Early Childhood Environment Rating Scale (ECERS-3). We looked at 50 preschool classrooms from all regions of Kazakhstan. The preschools had different combinations of the following characteristics: located in urban/rural areas; state/private; with Russian/Kazakh-language instruction. The scores demonstrated 'below the minimal' quality of ECEC in Kazakhstan. No correlation was found between the quality of ECEC and regions or types of settlement. Findings revealed such problems as deprivation of play, predominance of teacher-led pedagogy, large child-to-staff ratio and others. Children are not offered adequate amounts or variety of cognitively stimulating opportunities that would support their development and learning. There was a statistically significant difference in quality depending on the language of instruction. Kazakh groups were more likely to score worse than Russian ones ($N = 47$, $p = .026$). The reasons for these findings are numerous, both due to the complexity of the 'quality' notion, as well as various issues that influence the quality of ECEC in Kazakhstan.

Keywords

quality, early childhood education and care, Kazakhstan, ECERS-3

For citing

Kiikova G., Bektemirova A., Ramazanova A., Issina Zh., Chukurova S. (2024) Quality of Early Childhood Education and Care in Kazakhstan: The First Nationwide Study. *Voprosy obrazovaniya / Educational Studies Moscow*, no 3 (1), pp. 67–87. https://doi.org/10.17323/vo-2024-16870

The significance of early childhood education and care (ECEC) has attracted much interest in recent times. According to neuroscience, the years zero to five are "windows of opportunities" when the brain is sensitive to language, social, emotional, personal, and physical development [Conkbayir, 2017; Gambaro et al., 2014]. Numerous studies emphasize the value of early interventions from long-term economic and social perspectives and their benefit to diverse stakeholders, especially with respect to disadvantaged children [Bustamante et al., 2021; Heckman, 2011; Garcia et al., 2021]. Moreover, international education studies, such as Trends in Mathematics and Science Study (TIMSS), The Progress in International Reading Literacy Study (PIRLS), and Programme for International Student Assessment (PISA), have demonstrated a strong correlation between students' performance and enrolment in ECEC [IAC, 2020; OECD, 2019]. Essentially, ECEC benefits are consistent when teaching is based on a high-quality curriculum [Heckman, 2011; Sylva et al., 2020; Ulferts et al., 2019]. One of the Sustainable Development Goals adopted by all United Nations Member States is to "by 2030, ensure that all girls and boys have access to quality early childhood development..."[1]. UNESCO highlights the quality of ECEC as a child's right [Marope, Kaga, 2015]. In this article, ECEC means a provision of formal education services for children under school age (1–6 years old). The aim of the study is to measure the quality of ECEC in the country, which could serve as a starting point for improving the quality of preschool education on a national level.

The influence of international organizations, globalization, and research based on cost-benefit analysis and neuroscience bring the discourse on the quality of ECEC to the forefront of the international agenda. It significantly influences ECEC policy worldwide, and Kazakhstan is no exception. However, due to the complexity of the construct of quality and lack of understanding of it, discourses like "earlier is better" entail academization of the early childhood years, where less space is given to play and playfulness, and, as a result, to the experience of a "happy carefree" childhood. Even though there is a serious ongoing debate about the quality of ECEC globally, it remains outside the compulsory education system in many countries.

Background

The study was conducted in the peculiar context of Kazakhstan. Kazakh nomads occupied the present territory of Kazakhstan before becoming a part of the Soviet Union. Kazakh and Russian are the official languages in the country, while English is highly pro-

[1] United Nations (2015) Transforming our World: The 2030 Agenda for Sustainable Development: https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf (accessed 20 August 2024).

moted through the trilingual educational policy. Geographically, Kazakhstan is the ninth biggest and the largest landlocked country in the world with one of the lowest population densities globally of approximately 19 million people. Today, Kazakhstan is the most economically advanced country in Central Asia ruled by an authoritarian government and sandwiched between Russia, China, Iran, and Afghanistan [Sullivan, 2018]. Before 1991, for more than fifty years, Kazakhstan was a part of the Soviet Union. As a result, its Soviet heritage has significantly influenced the current development of the country [Caron, 2019], including its education system [Silova, Niyozov, 2020].

Today, the major strategic goal for Kazakhstan is to become a part of the thirty most developed nations in the world by 2050[2]. In this context, human capital has been identified as one of the cornerstones for achieving this goal, and the quality of education is considered a focal point[3]. Internationally, Kazakhstan ranks quite high in general education performance indicators, enjoying a 99.8% literacy rate and 97% secondary school enrolment rate [UNESCO Institute of Statistics, 2018]. However, according to the multi-dimensional review prepared by OECD [2016], in Kazakhstan, "the skills system has so far failed to generate appropriately equipped labour in sufficient quantity in the labour market for a number of sectors, which limits their growth potential". Thus, human capital development, including in particular high-quality education and healthcare, is one of the priorities for the 2050 Strategy vision. However, despite its massive scale, the ECEC of Kazakhstan remains to be a "Cinderella of the education system" [Dalli et al., 2012].

ECEC Development in Kazakhstan

In Kazakhstan, the national ECEC policy has been mainly focused on increasing the rates of ECEC enrolment. In 2010, the program "Balapan" for 2010 — 2020 was approved; its ambitious goal was to achieve 100% enrolment of children aged three to six in preschool education, which led to rapid spread of ECEC arrangements. This goal was almost achieved in 2019, reaching 98.5%[4] for children aged

[2] Nazarbayev N. (2012) Presidential Address 'Strategy Kazakhstan-2050': https://policy.asiapacificenergy.org/sites/default/files/Presidential%20Address%20'Strategy%20Kazakhstan-2050'%20(EN).pdf (accessed 20 August 2024).

[3] Ministry of Education and Science of Republic of Kazakhstan (2010) The "Balapan" Preschool Education Provision Programmes for 2010–2020.

[4] The Ministry of Education and Science has not explicitly specified the formula for determining the percentage of enrolled children. However, recently representatives of the Ministry have specified in official discussions with the professional society that the percentage of children is calculated from the total number of children whose parents put them on the waitlist for receiving a place in a preschool. This number does not represent all children who live in the country.

three to six [IAC, 2020]. Since 2000, the number of ECEC organisations has increased almost tenfold.

Recently, there have been new initiatives oriented towards improvements in the field of ECEC in Kazakhstan. In 2021, a new Model of development of ECEC was designed by order of the President of Kazakhstan. On August 3, 2022, the Ministry of Enlightenment approved a new State standard for ECEC and is currently developing quality indicators based on the OECD framework ("Starting Strong")[5]. Moreover, the year 2022 was declared "The Children's Year"[6]. It highlighted the importance of childhood and provision of quality services for children.

With the massive expansion of ECEC in Kazakhstan, today the issue of ECEC quality is becoming a major point on the agenda, whereas it was not prioritised previously. There is no licensing system for ECEC in Kazakhstan, which raises concerns regarding the quality of ECEC. A newly established attestation system has demonstrated that 80% of ECEC settings could not pass it[7]. Publications on evaluating the quality of the Kazakhstani ECEC are extremely scarce. This study is the first countrywide study aimed to evaluate the overall ECEC quality using the internationally recognized Early Childhood Environment Rating Scale (ECERS-3).

Definition and Measurement of the Quality of ECEC

The meaning of the term "quality" in ECEC remains highly debated. Different stakeholders have various understandings of quality and place different values on aspects of provision [Penn, 2011]. There are structural and process quality characteristics of a stimulating environment.

The structural quality of an ECEC setting may support process quality but is not on its own sufficient to improve children's learning [Burchinal, 2018]. This may comprise numerous factors, such as staff-to-child ratio, staff qualification, training and wages, age of children, or provision for special education needs and disabilities. However, in their meta-analysis of how teacher qualifications and their professional development impacts quality, Fukkink and Lont [2007] concluded that teachers' skill to create high-quality interac-

[5] Ministry of Education and Science of Republic of Kazakhstan (2022) State Compulsory Standard for Preschool Education: https://adilet.zan.kz/rus/docs/V2200029031 (accessed 20 August 2024).

[6] Tokayev K. (2021) Congratulations of the Head of State Kassym-Jomart Tokayev on the New Year 2022: https://www.akorda.kz/ru/pozdravlenie-glavy-gosudarstva-kasym-zhomarta-tokaeva-s-novym-2022-godom-31111645 (accessed 20 August 2024).

[7] Ministry of Education and Science of Republic of Kazakhstan (2021) Okolo 80% Detskih Sadov iz Chisla Proverennyh ne Proshli Gosattestaciyu: https://www.gov.kz/memleket/entities/edu/press/news/details/296532?lang=ru (accessed 20 August 2024).

tions and environments was more important than the structural characteristics of teachers' qualifications. What appears to matter the most are the educators' understanding of children; their ability to praise, comfort, question and be responsive to children; problem solving and development of targeted lesson plans; ability to develop children's perspectives; good vocabulary and their ability to elicit children's ideas [OECD, 2012].

Process quality, in contrast, refers to the adult-child and child-child interactions and to the environment that are considered to directly affect children's development [Burchinal, 2018; Vandell, Wolfe, 2000]. Aspects of process quality seek to understand what it is like to be a child in the environment by capturing the child's daily experiences [Katz, 2008 in Howard et al., 2018]. In environments that score high in process quality, children are provided with ample opportunities to interact with materials, peers, and adults. All versions of the ECERS are designed to measure process quality [Early et al., 2007].

ECERS-3 is the third and latest edition of the comprehensive and widely used tool for assessing the quality of early childhood education by measuring the environment provisions and adult-child interactions. ECERS-3 focuses on how the developmental needs of three- to five-year-old children are met, including cognitive, social-emotional, and physical domains, as well as children's health and safety [Harms et al., 2015].

In comparison with the previous edition (ECERS-R), ECERS-3 places more emphasis on the teacher's role in assisting children's skills development, and less on the materials. The Indicators at the higher quality scoring continuum focus on teachers providing effective learning opportunities helping children develop maths and literacy skills [Early et al., 2007]. The ECERS-3 still has Indicators related to the provision of materials in some Items of Learning Activities Subscale (e.g., fine motor, art, blocks); nevertheless, new Indicators have been added, and these address staff interactions with children while they are using the materials in the Item (e.g., Indicator 17.3.2 "Staff help solve problems with sharing the materials and have children clean up properly" [Early et al., 2007]).

Some recent research has revealed that connections between the process quality and children's outcomes are more obvious. The relationship between children's outcomes and process quality was consistently noted in the Effective Pre-School, Primary and Secondary Education (EPPSE) project that involved around three thousand children. During the project, ECERS-R and ECERS-E were used to measure the process quality. British Ability Scales II (picture similarities, block building, verbal comprehension, and naming vocabulary) were used to assess children's outcomes, which were then converted into scores in reading and mathematics via the use of

standardised tests [Sylva et al., 2013]. These studies also established that quality early childhood education is especially important for children with special educational needs as it could partly neutralise developmental disabilities [Melhuish, 2004]. Studies in Germany (547 children from 97 preschools) showed similar results with children in preschools with higher quality (assessed by ECERS-R and ECERS-E) being better prepared for school as demonstrated in oral speech tests, readiness for writing, reading and communication [Lehrl, Smidt, 2018].

However, examples from international reviews show that, despite optimistic evidence, findings for effects of process quality in European countries vary significantly within and across studies. Effects vary by outcome domain, type of process measure, and differences in adopted analyses. Therefore, the overall scale of effects remains unknown and further research is needed [Ulferts et al., 2019].

Methods

In 2020, by the initiative of the founders of the OYNA Institute of Childhood non-governmental organisation, the Ministry of Education and Science agreed to commission and fund a nationwide study of ECEC quality in Kazakhstan. The aim of the study was to measure the quality of ECEC settings in Kazakhstan using a standardized observation tool (ECERS-3). This research study was meant to be a starting point for the development of the national system for ECEC quality measurement.

The study was conducted in the following regions and cities: Kyzylorda, Atyrau, East Kazakhstan, Aktobe, North Kazakhstan, Karagandy, Turkestan, Kostanay, Mangystau, Almaty, West-Kazakhstan, Zhambyl, Akmola, and Pavlodar oblasts; Shymkent and Almaty cities. The sample was representative and included urban and rural settings; state and private ownership preschools; classes instructed in Kazakh and Russian. Fifty institutions were drawn from the 3433 preschools across Kazakhstan. The list included all preschools in the chosen cities and rural preschools within two hours of driving distance from the cities. The data was not collected in the capital Astana due to the limitations in time, the number of researchers, and COVID-19 restrictions.

The list of preschools was clustered according to region or city and according to the form of ownership (state/private). Private preschools in our context are the ones that are financed by the government and feed data into the Ministry of Enlightenment's National Educational Database. These preschools have to follow state standards in order to receive the financing. From those clusters, the preschools for observations were randomly chosen. Each of those institutions was sent an invitation letter to participate in the study. Some of the preschools refused to participate due to the COVID-19

restrictions, so the process was repeated, excluding those who had refused from the list. To keep preschools from preparing for the observation beforehand, the classrooms were chosen upon the arrival of the researcher. A list of all relevant classrooms was made, then one was randomly chosen. Classrooms were coded according to region, type of ownership (state/private), language of instruction (Kazakh/Russian), and type of setting (urban/rural). The number of preschools in each of these categories is shown in Table 1 below.

Table 1. **Number of preschools according to category**

	Total	Form of ownership		Type of setting		Language of instruction		
		State	Private	Urban	Rural	Russian	Kazakh	Mixed
Number of preschools analyzed	49	28	21	29	10	16	32	1

Classroom observations were conducted by a group of eight ECERS-3 users who had received reliability training and certification. The inter-rater reliability was above 0.85 on all subscales. Three-hour observation sessions took place in the mornings. All observations were conducted in the classrooms with 15 to 30 children from 48 to 60 monthsx old. Data was collected during October, November, and December 2021. Data collected from one of the classrooms was excluded from the analysis due to the violations of the procedure by the researcher.

Preschool quality was measured using the ECERS-3 [Harms et al., 2015]. The quality of the early childhood environment was assessed through 3-hour long observations and rated using Likert scales from one (inadequate practice) to seven (excellent practice) according to the six Subscales of the ECERS-3: Space and Furnishings, Personal Care Routines, Language and Literacy, Learning Activities, Interaction, and Programme Structure. Overall, there are 468 indicators across the 35 items in the ECERS-3, each of which is scored either “Yes” or “No”, with some cases allowing to assign NA (not applicable).

The data was analysed using Stata/SE 14.0 (StataCorp LP, USA). A p-value < 0.05 was declared as statistically significant. T-tests of the hypothesis were two-tailed. Multiple regression and single variable regressions were run to analyse relationships between variables. The initial total average score of 49 observations was 2.13 (the median score 2.01 with a minimum score of 1.34 and a maximum score of 4.33). All Items were completed for all 49 observations except for *Appropriate use of technology*, where Not Applicable (NA) is possible. The Item *Appropriate use of technology* was not eliminated as it did not impact the results, whereas the language of instruction (Kazakh

or Russian) proved to be a factor that highly influenced the scores of the groups. That is the reason why the observation with a mixed language (Kazakh and Russian) class was eliminated as well. Thus, the analyses were based on 48 observations. Exactly two-thirds of observed settings offered services in Kazakh (32 out of 48).

Ethical procedures were performed in due order. A special Committee on Ethics was created for the study, with three independent members not affiliated with the study, all Ph.D. degree holders and highly competent on the issues of ethical research that involves children. The Committee approved the used instrument and procedures that preceded the actual data collection, including the letter sent to inform the participants about the procedure. The participants were notified that their preschool had been randomly chosen to participate in a nationwide study of preschool quality in Kazakhstan. The letter also stated that the participants could refuse to participate in the study, which would not in any way influence their relationship with the official bodies that regulate preschool education in the country.

Results

1. ECEC quality

Descriptive statistics for the ECERS-3 total, Subscale and Item scores for the sample of 48 ECEC settings are shown in Table 2 below.

Table 2. **Descriptive statistics for ECERS-3 total, Subscale and Item scores**

Subscales and Items	N	Mean	SD	Median	Min	Max
Space and Furnishings	**48**	**1.98**	**0.63**	**1.86**	**1.00**	**4.14**
Indoor space	48	2.79	1.32	2.50	1.00	5.00
Furnishings for care, play, and learning	48	2.27	1.12	2.00	1.00	6.00
Room arrangement for play and learning	48	1.92	1.37	2.00	1.00	7.00
Space for privacy	48	1.48	0.90	1.00	1.00	4.00
Child-related display	48	1.42	0.68	1.00	1.00	4.00
Space for gross motor play	48	2.35	1.19	2.00	1.00	4.00
Gross motor equipment	48	1.65	0.73	1.50	1.00	3.00
Personal Care Routines	**48**	**2.77**	**1.14**	**2.50**	**1.00**	**6.00**
Meals/snacks	48	3.00	1.22	3.00	1.00	6.00
Toileting/diapering	48	2.96	1.62	2.00	1.00	7.00
Health practices	48	2.33	1.65	2.00	1.00	6.00
Safety practices	48	2.77	1.39	3.00	1.00	6.00
Language and Literacy	**48**	**1.83**	**0.60**	**1.70**	**1.00**	**3.40**
Helping children expand vocabulary	48	2.81	1.20	3.00	1.00	6.00

Subscales and Items	N	Mean	SD	Median	Min	Max
Encouraging children to use language	48	2.38	1.30	2.00	1.00	6.00
Staff use of books with children	48	1.23	0.83	1.00	1.00	5.00
Encouraging children's use of books	48	1.21	0.41	1.00	1.00	2.00
Becoming familiar with print	48	1.54	0.71	1.00	1.00	3.00
Learning Activities	**48**	**1.47**	**0.40**	**1.40**	**1.00**	**2.64**
Fine motor	48	1.63	1.06	1.00	1.00	5.00
Art	48	1.27	0.71	1.00	1.00	4.00
Music and movement	48	1.67	0.56	2.00	1.00	3.00
Blocks	48	1.25	0.53	1.00	1.00	3.00
Dramatic play	48	1.33	0.81	1.00	1.00	4.00
Nature/science	48	1.42	0.71	1.00	1.00	4.00
Math materials and activities	48	1.52	0.65	1.00	1.00	3.00
Math in daily events	48	2.10	0.75	2.00	1.00	4.00
Understanding written numbers	48	1.38	0.57	1.00	1.00	3.00
Promoting acceptance of diversity	48	1.19	0.53	1.00	1.00	3.00
Appropriate use of technology	48	1.64	0.50	2.00	1.00	2.00
Interaction	**48**	**2.43**	**1.03**	**2.30**	**1.00**	**5.20**
Supervision of gross motor	48	3.58	1.58	4.00	1.00	7.00
Individualized teaching and learning	48	1.40	0.71	1.00	1.00	4.00
Staff-child interaction	48	2.63	2.06	1.00	1.00	7.00
Peer interaction	48	1.98	1.34	1.00	1.00	6.00
Discipline	48	2.54	1.40	2.00	1.00	6.00
Program Structure	**48**	**2.41**	**0.85**	**2.33**	**1.00**	**5.33**
Transitions and waiting times	48	3.10	1.61	3.00	1.00	7.00
Free play	48	1.38	0.70	1.00	1.00	4.00
Whole-group activities for play and learning	48	2.75	1.23	2.50	1.00	6.00
Total Scale	**48**	**2.15**	**0.64**	**2.02**	**1.34**	**4.33**

The mean score for the sample was 2.15, the median score 2.02 with a minimum score of 1.34 and a maximum score of 4.33 (*SD* = 0.64). The majority of Items' mean scores were low, below 3, which indicates that the quality in ECEC classrooms was below the minimal level according to ECERS-3 standards.

Among the Subscales, *Personal Care Routines* demonstrated the highest score with a mean of 2.77, which is still below the minimal quality level of 3. The Subscale with the next highest score was *Interaction* (2.43), followed by *Program Structure* (2.41), *Space and Fur-*

nishings (1.98), and *Language and Literacy* (1.83). The Subscale with the lowest score was *Learning Activities*, with a mean of 1.47.

In the sample, the Item with the highest score was *Supervision of gross motor*, with a mean of 3.58. The next highest-scored Items were *Transitions and waiting times* (3.10), *Meals/snacks* (3.00), *Toileting/diapering* (2.96), *Helping children expand vocabulary* (2.81), and *Indoor space* (2.79). The two highest average scores were moderately above the minimal level of 3, while the rest fell below 3. These relative areas of strength mainly reflected the requirements that all preschools had to abide by the national standard.

The Item with the lowest score was *Promoting acceptance of diversity*, with a mean of 1.19. The next five lowest-scored Items were *Encouraging children's use of books* (1.21), *Staff use of books with children* (1.23), *Blocks* (1.25), *Art* (1.27), and *Dramatic Play* (1.33). All the average scores were slightly above the inadequate quality level of 1. Four of the six Items were related to the accessibility of Learning Activities and staff's involvement with children using the necessary materials. Evidently, children are not offered adequate amounts of materials and a variety of cognitively stimulating opportunities that would support their development and learning.

Items *Encouraging children's use of books* (0.41), *Appropriate use of technology* (0.5), *Promoting acceptance of diversity* (0.53), *Blocks* (0.53), *Music and movement* (0.56), and *Understanding written numbers* (0.57) showed relatively low variability (SDs less than 1) and low mean scores. These results indicate that there are systemic obstacles that prevent the preschools from achieving higher scores for these Items.

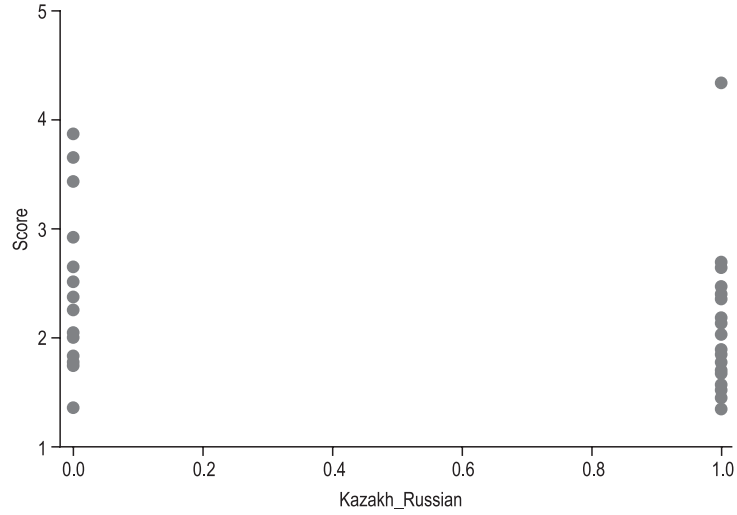
The Item *Staff-child interaction* displayed the highest variability, with the SD of 2.06. Its mean was 2.63, with a minimum score of 1 and a maximum score of 7, which corresponds to excellent quality. 14 out of 48 classrooms managed to reach the score of 5 (good quality) or higher; consequently, this is an indication that there are no systemic barriers to improving the score for Item *Staff-child interaction*, and each separate classroom can attain the highest score.

2. Relationship between variables

While investigating the relationships between the language of instruction, environment, type of ownership and the settings' scores, we found that the highest score (4.33) in the sample was given to the setting in Pavlodar oblast where language of instruction was Kazakh, while all other settings with Kazakh language of instruction scored below 3 (See Figure 1 below).

In multiple regression, urban setting, Russian language of instruction, and state ownership proved to be associated with higher overall scores; however, none of these results was statistically significant. Partially, this can be explained by the correlation between the independent variables (r = –0.1, r = –0.2, r = –0.3). However, when we

Figure 1. **ECERS-3 total scores by languages (0 = Russian, 1 = Kazakh)**



omitted the outlier in Pavlodar region with Kazakh as the language of instruction, the relationship between Russian and the total score in multiple regression proved to be significant (See Table 3 below).

Table 3. **Association between language of instruction, environment, and ownership and ECERS-3 total scores**

Independent variable (Predictor)	Coefficient
Language of instruction (Kazakh)	–0.418 (0.181)**
Environment (urban)	–0.077 (0.204)
Ownership (state)	0.096 (169)
Constant	2.383
R-squared	0.143
F-ratio	0.083*
n	47

Standard errors are reported in parentheses.

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$.

The negative coefficient implies that the Kazakh groups were more likely to score worse than the Russian ones ($N = 47$, $p = 0.026$). For further analysis of the association between the language of instruction, environment, type of ownership and total scores, single variable regressions were run to avoid collinearity in the sample with 48 observations.

Our findings shown in Table 4 below reveal that the Kazakh-instructed settings scored 0.35 points lower on average at 10% significance level.

Table 4. **Association between language of instruction and ECERS-3 total and Subscale scores**

Independent variable (Predictor)	Total ECERS-3 score Coeff.	Space and furnishings Coeff.	Personal care routines Coeff.	Language and literacy Coeff.	Learnings activities Coeff.	Interaction Coeff.	Program structure Coeff.
Language of instruction (Kazakh)	–0.351 (0.192)*	–0.321 (0.189)*	–0.75 (0.334)**	–0.55 (0.165)***	–0.122 (0.124)	–0.263 (0.317)	–0.104 (0.263)
Constant	2.382	2.196	3.266	2.2	1.553	2.6	2.479
R-squared	0.068	0.059	0.099	0.193	0.021	0.015	0.003
F-ratio	0.074*	0.096*	0.029**	0.002***	0.330	0.412	0.694
n	48	48	48	48	48	48	48

Standard errors are reported in parentheses.
*** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$.

It is noteworthy that the Kazakh-instructed settings demonstrated overall lower quality when analysed by individual Subscales. However, the *Learning Activities* and *Program Structure* Subscales showed more consistent scores between the Kazakh and Russian classes.

Single regressions on each Subscale score established that the language could be a predictor for scores in *Space and Furnishings* (with 90% confidence level), *Personal Care Routines* (with 95% confidence level) and *Language and Literacy* (with 95% confidence level) Subscales. The Kazakh language was associated with a 0.35 point decrease in the total score with 90% confidence level ($p = 0.074$). The results suggested that the settings with the Kazakh-instructed classes scored 0.32 points lower on average in *Space and Furnishings* Subscale. If the language used in the observation was Kazakh, the predicted score for *Personal Care Routines* was 0.75 points lower than that for the observation in Russian, *ceteris paribus*. Furthermore, the Eta-squared estimates showed the variation explained by the model was about 10% of the total variation observed. According to the general rule of thumb, Eta-squared of 0.1 corresponds to a medium effect size. If the language used in the observation was Kazakh, the predicted score for *Language and Literacy* was 0.55 points lower than that for the observation in Russian, *ceteris paribus*. The Eta-squared estimates showed the variation explained by the model was about 19.3% of the total variation observed; Eta-squared of 0.19 is considered a large effect size. When we omitted the observation from the outlier region in our regressions, some relationships proved to be even more robust.

There was little to no statistically significant connection between the environment and the total and Subscale scores. The score for *Learning Activities* proved to be unrelated to whether the setting was

urban or rural, holding all other variables constant. In terms of variability, *Learning Activities* had the lowest standard deviation (0.40) as well as the lowest mean (1.47) among the Subscales, which suggests that there are structural factors that impede progress in this Subscale both in urban and rural environments.

The linear regression established that state ownership was associated with a 0.28 point increase in the total score (See Table 5 above); however, the result was statistically nonsignificant (p =0 .134). It was revealed, nevertheless, that the type of ownership could be used to reliably predict the score for *Space and Furnishings* (p = 0.004). The predicted score for the *Space and Furnishings* Subscale was 0.52 points higher if the observation was conducted in a state setting rather than in a private one, *ceteris paribus*. As the Eta-squared estimates showed, the variation explained by the model was about 16.9% of the total variation observed. According to the general rule of thumb, Eta-squared of 0.17 corresponds to a large effect size.

Table 5. **Association between ownership and ECERS-3 total and Subscale scores**

Independent variable (Predictor)	Total ECERS-3 score Coeff.	Space and furnishings Coeff.	Personal care routines Coeff.	Language and literacy Coeff.	Learnings activities Coeff.	Interaction Coeff.	Program structure Coeff.
Ownership (state)	0.283 (0.186)	0.520 (0.170)***	0.434 (0.330)	0.297 (0.171)*	0.188 (0.116)	0.214 (0.304)	0.045 (0.252)
Constant	1.983	1.679	2.513	1.66	1.362	2.3	2.383
R-squared	0.048	0.169	0.036	0.062	0.054	0.011	0.007
F-ratio	0.135	0.004***	0.195	0.089*	0.113	0.484	0.858
n	48	48	48	48	48	48	48

Standard errors are reported in parentheses.

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$.

The *Language and Literacy* Subscale score was 0.3 points higher in a state setting on average with a confidence interval of 90%. The distribution of *Language and Literacy* Subscale had relatively low variability (SD = 0.60), with a mean of 1.83. Among the Items, the relative strengths were *Helping children expand vocabulary* (2.81) and *Encouraging children to use language* (2.38) which focus on staff taking any opportunity to introduce words and expose children to adult language. Besides raising awareness about letters and words, the teachers are expected to help children to communicate with each other and to engage in conversations both with peers and adults. In virtually all ECEC settings, books were insufficient and/or inappropriate.

Discussion

In general, the quality of ECEC in the observed settings was low according to the ECERS-3 scale. There was no compelling difference in the quality of ECEC between regions and urban/rural settings (except for the outliers). Thus, the location of ECEC is not particularly significant. The reasons for that are numerous since various factors influence the quality of ECEC in Kazakhstan.

First, the low quality is related to the national ECEC policy, which has been mainly oriented towards massive expansion with no actions undertaken for quality improvement. Also, the accelerated spread of ECEC may harm the quality of ECEC [NUGSE, 2014]. OECD [2016] recognized the improvements happening in Kazakhstani preschools but also stated that measures should be taken to improve their overall quality. Thus, overemphasizing the scale of ECEC expansion could lead to a side effect associated with the quality of ECEC. The spread of ECEC settings became possible due to a very "lite" inspection process with no licensing procedure [NUGSE, 2014]; and there are no quality assurance procedures in place. The existing monitoring and attestation procedures are outdated and formalized. When developing a new national quality assessment system, it is important to ensure that all these various mechanisms are synchronized and operate together. Essentially, there is a lack of shared and integrated vision in early childhood development [Kiikova, 2021]. Moreover, there is no shared understanding of what the quality of ECEC is. Kazakhstani legal documents do not explain what constitutes the quality of ECEC.

Second, the outdated curriculum and "schoolification" or "academization" in ECEC lead to deprivation of play, which is the main component of children's learning [Chukurova, 2021]. National policy documents reflect other principles than putting the child at the centre of his/her learning[8]. The State Standard of Preschool Education and Care of Kazakhstan[9] has been enforced since 2012 and imposes a very rigid and limiting structure for the ECEC settings to follow. Preschool teachers have a mandatory Typical Learning Plan to follow throughout their day, where each hour of children's routines is strictly ordered and filled with "lessons" with a teacher-in-front approach. Moreover, teachers are paid based on the number of hours taught, which ensures that the Standard and Typical Learning Plan are followed by the minute. Even the learning environment for the children is set in a way that desks/tables and chairs

[8] The new State Standard of Preschool Education and Care was approved on August 3, 2022. However, since the data was collected at the end of 2021, the effects we observe are from the previous policy and documents of the state. All the following discussion does not consider these changes.

[9] Ministry of Education and Science of Republic of Kazakhstan (2018) State Compulsory Standard for Preschool Education. http://adilet.zan.kz/rus/docs/V1800017669#z29 (accessed 20 August 2024).

occupy the largest part of the room [Kiikova, 2021]. Local departments of education control that ECEC settings strictly follow the rules through video cameras that preschools are required to have installed in all their classrooms.

There is a tension between child-centred (internationally recommended directions of change) and adult-centred approaches in the Kazakhstani ECEC [Needham et al., 2018]. The internationally recommended approach promoting children's autonomy, choice and play-based learning is difficult to implement in practice by teachers in preschools, as the foundation for the ECEC curriculum is based on the Soviet system, which is dominated by adult-centred learning. In addition, there are contradictions between the conditions that correspond to the adult-led approach and the intention of the play-based approach [Needham et al., 2018]. For example, there are contact periods (academic hours) which are specified in the curriculum. Moreover, policymakers, teachers and parents themselves have only prior experience of subject-based and teacher-led pedagogy. Therefore, such circumstances are the main barriers for the implementation of the new approaches at preschools. As a result, there are very few preschools which try to implement the child-led approach, most of them trying to integrate the two approaches.

Preschool teachers' work is regulated by the Professional Standard of Technical and Professional Education (2013)[10]. The Standard requires the teachers to "create organizational, technical, and methodological conditions of the educational process: develop planning documents, teaching materials, and visual aids; do the paperwork for the school; compile students' and teachers' portfolios; use technology and information and communication technologies, etc." It is obvious that the Standard focuses on the documents and paperwork rather than defines the professional competencies needed for communicating with children and ensuring other process quality domains. Therefore, this document, as well, is in line with the general adult-centered approach used in the country before the study.

Third, low popularity of the ECEC teacher profession in the country, due to low status and salaries (less than 50% of the average salary), along with many government scholarships offered to low-performing students, lead to low overall quality of teachers [IAC, 2020]. Although educators' salaries increase every year, the amount remains low compared with other professions. This results in high corruption in the ECEC system and a lack of motivation for professional development and growth, which, in turn, leads to high

[10] Professional Standard of Technical and Professional Education. (2013): https://adilet.zan.kz/rus/docs/V1300008819#z121 (accessed 20 August 2024). The Standard was updated in 2022. However, the new version is not considered for the purposes of analyzing the data collected for this study as its effects are yet to be seen.

levels of dissatisfaction and use of physical and psychological violence towards children [Kiikova, 2021]. Better working conditions and higher salaries are required.

Fourth, low quality of pre-service teacher preparation and lack of practice-based consistent professional development led to gaps in knowledge of early childhood development [Kiikova, 2021]. According to Litjens and Taguma [2017], Kazakhstani teaching staff in ECEC needs more professional development and support. Only 32% of Kazakhstani educators have received a bachelor's degree or adequate job-related training to work in the ECEC field [IAC, 2021]. Evidence shows that the behaviour of the ECEC staff is linked to their education and training [OECD, 2006]. Competent teachers can create rich and stimulating environments and extend children's learning opportunities [Vandenbroeck et al., 2016]. Thus, it is important what the content of professional training should include. Raising the effectiveness of teachers in the classroom through professional development activities and supporting teacher-child interactions including praising, comforting, and being responsive to children's needs will contribute to a better quality of services in general [Early et al., 2007]. Moreover, it is possible to compensate for lower academic levels of staff by providing high-quality continuous professional development [Moser et al., 2014].

Finally, practical implementation becomes complicated when there is a relatively large child-to-staff ratio (with an average of 20 children in nursery classes for two-year-olds and 25 children and more in pre-school ones for children aged three and older per one educator), which contributes to the low quality of ECEC as teachers face more challenges, such as large workload and low job satisfaction [OECD, 2016]. In comparison, the ratio of children to staff is 13 to 1 in OECD countries [OECD, 2012]. The issue of a relatively large child-to-staff ratio in Kazakhstan is problematic to address. While 100% enrolment was seen as a positive way to ensure everyone could attend ECEC, this policy never considered how large class sizes would impact quality.

Evidence shows that the most important determinants of children's outcomes appear to be the process aspects of adult-child and child-child interactions [Howard et al., 2018]. For instance, the National Survey of Preschool Education Quality that was conducted in Russia in 2016–2017 and looked at 1,301 preschools, using the ECERS-R as a measurement tool by Le-van et al. [2020], found a significant relationship between the child/adult ratio and the scores for the Language-Reasoning subscale. Kazakhstani ECEC settings had lower than minimal quality scores in *Language and Literacy* subscale — 1.82. This is explained by the fact that it is difficult to maintain a high level of interactions with an individual child when

the environment is not set for children to effectively engage in activities where the teacher would be able to join the child in the process of his/her learning. Obviously, in a large class, it is hard for one teacher to engage in any personal communication with children. Besides, the teacher-in-front approach excludes individual interaction with each student.

Though all preschools demonstrated low quality, the Kazakh language classes demonstrated even lower quality than the Russian language ones, specifically in the subscales such as *Language and Literacy*. This finding is consistent with the results of international assessments, such as PISA, where Kazakh-medium schools demonstrated lower results than Russian-medium ones [OECD, 2014]. The study by Smagulova and Zhakupova [2016] found that "children from Kazakh-medium schools consistently performed worse in all tasks in comparison with their peers from Russian-medium schools" (p.3). Essentially, the language *per se* does not influence the quality. Kazakh-medium educational institutions often lack quality resources, content and professional development programs, which may explain the difference in quality. There are also deep economic and social-cultural factors influencing this difference. According to Smagulova (2021), "Kazakh speakers are more likely to be less well-educated and more likely to be socially disadvantaged in comparison with their Russian-speaking compatriots" (p. 1), and a good command of Russian is associated with a higher income and better life prospects. Language seems to have a large impact on the quality of preschool education, especially in some Items, and needs more research.

There were methodological limitations including the size of a sample. Due to a limited number of researchers certified in use of ECERS-3 scale for research and a limited timeframe provided by the requirements of the project, we favoured the option with a smaller sample and reliable data. However, given that the overall scores were in the similar range and demonstrated the minimal quality (except for two regions), this sample seems to represent the current level of quality of preschools in Kazakhstan.

Based on the limitations mentioned above, for further research it is recommended to measure quality outcomes, even though it is crucial to firstly identify what outcomes are important in ECEC in Kazakhstan. Moreover, future studies related to quality can be conducted at a larger scale with collecting wider demographic data, specifically related to the level of professionalism of teachers. Finally, without understanding the meaning of quality it is not possible to evaluate that quality [Sheridan, 2009]. Therefore, there is a need for a greater understanding of the quality construct of ECEC in Kazakhstan.

Conclusions

This research study is the first countrywide ECEC study in Kazakhstan and the first one to involve researchers certified in the use of ECERS-3. We aimed at collecting reliable data to understand the status quo of ECEC settings' quality in Kazakhstan. The study reveals the main areas for improvement in the system of preschool education in the country. The importance of process quality as measured through interactions between teachers and children is stressed, and the conditions for providing those are outlined.

The ECEC area in Kazakhstan has been influenced by the the county's historical background and predominance of Soviet pedagogy, which is reflected in all legal and policy documents regulating the sphere. In the past ten years, a growing pressure on children for academic achievement and high test results starting from elementary schools has led to the academization of early childhood. The stress on cognitive development and reading and writing skills' development led to preschools looking more like secondary schools. This kind of environment and the practices used by preschool teachers, such as the teacher-in-front approach, are not developmentally appropriate for children of preschool age. The study demonstrated that by the internationally recognized ECEC quality standards, the performance of the Kazakhstani preschool system is rather poor. Our research has shed light on the areas that need to be improved, such as providing safe environments for children, improving hygiene practices, equipping ECEC settings with age-appropriate materials including books that do not include schoolbooks and difficult texts, and organizing the environment in a way that supports children's learning, initiative, and motivation.

It is difficult to provide high process quality without developing structural quality indicators at the outset. That should be a first step which, supported by properly handled professional development of teachers, will lead to overall increases in children's outcomes and eventual quality of their education. Kazakhstan has defined the direction for further changes by approving the Model and the new Standard that have the child at the centre of all processes, which was set in motion based on the findings of this national research. The next steps are defining national criteria of ECEC quality and working on changing the mindset of teachers to be able to use these new approaches towards children's development and learning.

Funding

This work was supported by the National Academy of Education named after Y. Altynsarin in Kazakhstan under the Grant (targeted program funding) for the study OR 11465474 "Scientific foundations for the modernization of the education and science system" carried out in 2021–2023.

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