

Experience in Applying the CLASS Method for Assessing the Quality of a Kindergarten's Educational Environment[▫]

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ABSTRACT

Background. The quality of preschool education is of great importance for subsequent children adaptation and academic success. The ECERS-R methodology is available for Russian psychologists for assessing the quality of the educational environment of a kindergarten, with a large array of accumulated data. ECERS-R is aimed at assessing more the physical environment of a preschool educational institution and the nature of the child's interaction with the environment (including social). At the same time, in our opinion, insufficient attention is paid to assessing the emotional climate of interactions between children and teachers and how much teaching is in the child's zone of proximal development.

Objective. To compensate for this deficit, we began work on adapting another tool for assessing the quality of the educational environment — the CLASS methodology, based on the ideas of L.S. Vygotsky about the optimal construction of the educational process.

Design. The study was conducted in 41 preparatory groups of Moscow kindergartens. The CLASS methodology was used to assess the quality of the educational environment; it includes 10 dimensions combined into three domains: Emotional Support, Classroom Organization, and Instructional Support. The ECERS-R method was also used on part of the sample (N = 26 groups).

Results. Analysis of the internal reliability of the instrumentation showed satisfactory results. Although the scores for all three domains are related, the Instructional Support domain scores were significantly lower than the Emotional Support and Classroom Organization domains scores. Comparison of the results of the CLASS and ECERS-R methods

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showed a small number of relationships between the scales of the two methods. At the same time, the CLASS domain Instructional Support is more related to ECERS-R.

Conclusion. The data obtained confirm our assumption that the CLASS method provides significant information about the quality of interaction between the teacher and children in a kindergarten group, which complements the results of ECERS-R; therefore, this tool will be useful for a full assessment of the quality of the educational environment in a kindergarten.

Keywords: Preschool age, educational environment quality, CLASS, ECERS-R

Highlights:

- Use the CLASS method in Moscow kindergartens showed that in most of cases, the quality of Emotional Support and Classroom Organization was significantly higher than the quality of Instructional Support (the average scores for the first two domains are at the middle range, while for the last one — at low range). This suggests that the teachers in Moscow kindergartens are able to create an emotionally supportive and comfortable atmosphere for the children and to organize their work well, but they rarely use methods during lessons that would contribute to the development of their pupils' thinking and speech.
- The significant relationships between the Regard for Student Perspectives dimension and other CLASS dimensions suggest that this scale is the systemic core of the aspects assessed by the method. Perhaps this is because teachers who are more attentive to the interests and opinions of children in the group give them more opportunities for independence and self-expression, and generally possess the skills of developmental education and harmonious upbringing of preschoolers.
- The correlation analysis between the ECERS-R and CLASS scales indicated that the relationship between their contents is ambiguous, since the number of correlations is not numerous and most of the relationships were found only with the fourth ECERS-R scale, Activities, while there were no significant relationships with the Language – Reasoning scale.

АННОТАЦИЯ

Актуальность. Качество дошкольного образования имеет огромное значение для последующей адаптации и успешности школьного обучения. Имеющийся в арсенале отечественных психологов инструментарий оценки качества образовательной среды детского сада с большим массивом накопленных данных — методика ECERS-R, в большей степени нацелена на оценку материально-предметного обустройства дошкольного образовательного учреждения и характера взаимодействия ребенка со средой (в том числе социальной). На наш взгляд, недостаточное внимание уделяется оценке эмоционального климата при взаимодействии учащихся со взрослым и оценке того, насколько предлагаемое обучение находится в зоне ближайшего развития ребенка.

Цель. Восполнение выявленного дефицита инструментария для оценки качества образовательной среды - начало адаптации методики CLASS, основанной на идеях Л.С. Выготского об оптимальном построении учебного процесса.

Материалы и методы. Исследование было проведено в 41 подготовительной группе московских детских садов. В данных группах для оценки качества образовательной среды была использована методика CLASS, которая включает в себя 10 шкал, объединенных в 3 основных параметра: Эмоциональная поддержка, Организация в группе и Методическая поддержка. Также на части выборки (N=26 групп) дополнительно была использована методика ECERS-R.

Результаты. Анализ внутренней надежности инструментария показал удовлетворительные результаты. Хотя оценки по всем трем параметрам связаны между

собой, оценки Методической поддержки оказались значимо ниже оценок Эмоциональной поддержки и Организации работы в группе. Сопоставление результатов методик CLASS и ECERS-R показало небольшое количество связей между оценками шкал двух методик. При этом в большей степени связаны с ECERS-R шкалы CLASS параметра Методическая поддержка.

Выводы. Полученные данные подтверждают наше предположение о том, что методика CLASS дает значимую информацию о качестве взаимодействия педагога с детьми в группе детского сада, которая дополняет результаты ECERS-R, а значит, данный инструмент будет полезен для полноценной оценки качества образовательной среды детского сада.

Ключевые слова: Дошкольный возраст, качество образовательной среды, CLASS, ECERS-R

Ключевые положения:

- Использование методики «CLASS» в московских детских садах показало, что в большинстве случаев качество эмоциональной поддержки и организации занятий было значительно выше, чем качество учебной поддержки (средние баллы по первым двум областям находятся в среднем диапазоне, в то время как по последней — в низком диапазоне). Это говорит о том, что воспитатели в московских детских садах способны создать эмоционально поддерживающую и комфортную атмосферу для детей и хорошо организовать их работу, но они редко используют на уроках методы, которые способствовали бы развитию мышления и речи их воспитанников.
- Значимые взаимосвязи между шкалой «Учет интересов учащихся» и другими шкалами, измеряемыми методикой «CLASS» позволяют предположить, что эта шкала является системным ядром параметров, оцениваемых с помощью методики. Возможно, это связано с тем, что педагоги, которые более внимательны к интересам и мнениям детей в группе, дают им больше возможностей для самостоятельности и самовыражения и в целом владеют навыками развивающего обучения и гармоничного воспитания дошкольников.
- Корреляционный анализ между шкалами ECERS-R и CLASS показал, что взаимосвязь между их содержанием неоднозначна, поскольку количество корреляций невелико, и большинство взаимосвязей было обнаружено только с четвертой шкалой ECERS-R, детской активностью, в то время как значимых взаимосвязей с речью и мышлением обнаружено не было.

RESUMEN

Introducción. La calidad de la educación preescolar es de gran importancia para la adaptación posterior y el éxito académico. El método ECERS-R está disponible para los psicólogos rusos para evaluar la calidad del ambiente educativo de la guardería, con una gran variedad de datos acumulados. ECERS-R tiene como objetivo más bien evaluar las características de los materiales en una institución educativa preescolar y la naturaleza de la interacción del niño con el entorno (incluido el social). Al mismo tiempo, en nuestra opinión, no se presta suficiente atención a la evaluación del clima emocional de las interacciones entre niños y maestros y a la cuestión si el determinado tipo de aprendizaje se encuentra en la zona de desarrollo próximo del niño.

Objetivo. Para compensar este déficit, comenzamos a trabajar en la adaptación de otra herramienta para evaluar la calidad del entorno educativo: la metodología CLASS, basada en las ideas de L.S. Vygotsky sobre la construcción óptima del proceso educativo.

Diseño. El estudio se realizó en 41 grupos preparatorios de guarderías de Moscú. Se utilizó el método CLASS para evaluar la calidad del ambiente educativo; incluye 10 dimensiones combinadas en tres dominios: apoyo emocional, organización de la clase y apoyo pedagógico. También se utilizó el método ECERS-R en parte de la muestra (N = 26 grupos).

Resultados. El análisis de la fiabilidad interna de la instrumentación mostró resultados satisfactorios. Aunque las puntuaciones de los tres dominios están relacionadas, las puntuaciones de los dominios de apoyo pedagógico fueron significativamente más bajas que las puntuaciones de los dominios de apoyo emocional y organización de la clase. La comparación de los resultados de los métodos CLASS y ECERS-R mostró un pequeño número de relaciones entre las puntuaciones de las escalas de los dos métodos. Al mismo tiempo, el parámetro CLASS Apoyo pedagógico está más relacionado con ECERS-R.

Conclusión. Los datos obtenidos confirman nuestra suposición de que el método CLASS proporciona información significativa sobre la calidad de la interacción entre el maestro y los niños en un grupo de guardería, lo que complementa los resultados de ECERS-R; por lo tanto, esta herramienta será útil para una evaluación completa de la calidad del ambiente educativo en una guardería.

Palabras clave: Edad preescolar, calidad del ambiente educativo, CLASS, ECERS-R

Destacados

- El uso del método CLASS en las guarderías de Moscú demostró que, en la mayoría de los casos, la calidad del apoyo emocional y la organización de la clase fue significativamente mayor que la calidad del apoyo pedagógico (las puntuaciones promedio para los dos primeros dominios están en el rango medio, mientras que para el último uno en el rango bajo). Esto sugiere que los maestros de las guarderías de Moscú son capaces de crear una atmósfera cómoda y de apoyo emocional para los niños y organizar bien su trabajo, pero raramente utilizan métodos que contribuyan al desarrollo del pensamiento y el habla de sus alumnos durante la clase.
- Las relaciones significativas entre la dimensión 'Consideración de la perspectiva del alumno' y otras dimensiones de CLASS sugieren que esta escala es el núcleo sistémico de los aspectos evaluados por el método. Quizás esto se deba a que los maestros que están más atentos a los intereses y opiniones de los niños en el grupo les brindan más oportunidades para la independencia y la autoexpresión y, en general, poseen las habilidades de la educación para el desarrollo y la crianza armoniosa de los niños en edad preescolar.
- El análisis de correlación entre las escalas ECERS-R y CLASS indicó que la relación entre sus contenidos es ambigua, ya que el número de correlaciones no es numeroso y la mayoría de las relaciones se encontraron solo con la cuarta escala ECERS-R, Actividad Infantil, mientras que fueron sin relaciones significativas con la escala de Habla y Pensamiento.

RESUME

Origines. La qualité de l'éducation préscolaire est d'une importance capitale pour l'adaptation consécutive et la réussite de la formation scolaire. La méthodologie de l'ÉÉEP-R (l'Échelle d'évaluation de l'environnement préscolaire — révisée), qui est disponible dans l'arsenal des psychologues domestiques pour évaluer la qualité de l'environnement éducatif d'une école maternelle avec un large éventail de données accumulées, vise davantage à évaluer l'organisation matérielle d'un établissement d'enseignement préscolaire et la nature de l'interaction de l'enfant avec l'environnement (y compris social). À notre avis, une attention insuffisante est accordée à l'évaluation du climat émotionnel dans l'interaction des étudiants avec les adultes et à l'évaluation de la mesure dans laquelle la formation proposée se situe dans la zone proximale du développement de l'enfant.

Objetif. Comblar le déficit identifié d'outils d'évaluation de la qualité de l'environnement éducatif est le début de l'adaptation de la méthodologie CLASS, basée sur les idées de L.S. Vygotski sur la construction optimale du processus éducatif.

Mise au point. L'étude a été effectuée dans 41 groupes préparatoires des écoles maternelles de Moscou. Dans ces groupes, la méthodologie CLASS a été utilisée pour évaluer la qualité de l'environnement éducatif, qui comprend 10 échelles regroupées en 3 paramètres

principaux : le Soutien émotionnel, l'Organisation de la classe et le Soutien aux apprentissages. Sur une partie de l'échantillon (N=26 groupes), la méthodologie de l'ÉÉEP-R a été aussi utilisée en complément.

Résultats. L'analyse de la fiabilité interne de l'instrumentation a montré des résultats satisfaisants. Bien que les scores des trois paramètres soient liés, les scores de soutien méthodique étaient significativement inférieurs aux scores de soutien émotionnel et d'organisation du travail en groupe. La comparaison des résultats des méthodes CLASS et l'ÉÉEP-R a montré un petit nombre de liens entre les scores des échelles des deux méthodes. Dans le même temps, le paramètre du Soutien aux apprentissages de la méthode CLASS est davantage lié à l'ÉÉEP-R.

Conclusion. Les données obtenues suggèrent que la méthode CLASS fournit une connaissance de la qualité de l'interaction entre l'enseignant et les enfants du groupe de l'école maternelle qui remplit les résultats de l'ÉÉEP-R, ce qui signifie que cet outil sera utile pour l'évaluation intégrale de la qualité de l'environnement éducatif dans l'école maternelle.

Mots-clés: Âge préscolaire, qualité de l'environnement éducatif, CLASS, l'ÉÉEP-R

Points principaux:

- L'utilisation de la méthode CLASS dans les écoles maternelles de Moscou a montré que dans la plupart des cas, la qualité du Soutien émotionnel et de l'Organisation de la classe était significativement supérieure à la qualité du Soutien aux apprentissages (les scores moyens pour les deux premiers paramètres se situent dans la moyenne, tandis que pour le dernier - à faible portée). Cela suggère que les enseignants des écoles maternelles de Moscou sont capables de créer une atmosphère émotionnellement favorable et confortable pour les enfants et de bien organiser leur travail, mais pendant les cours ils utilisent rarement des méthodes qui contribueraient au développement de la pensée et de la parole de leurs élèves.
- Les relations significatives entre la dimension Respect des Perspectives des Étudiants et les autres dimensions CLASS suggèrent que cette échelle est le noyau systémique des aspects évalués par la méthode. C'est peut-être parce que les enseignants qui sont plus attentifs aux intérêts et aux opinions des enfants du groupe leur donnent plus de possibilités d'indépendance et d'expression de soi, et possèdent généralement les compétences d'éducation au développement et d'éducation harmonieuse des enfants d'âge préscolaire.
- L'analyse de corrélation entre les échelles de l'ÉÉEP-R et de CLASS a indiqué que la relation entre leur contenu est ambiguë, puisque le nombre de corrélations n'est pas élevé et que la plupart des relations n'ont été trouvées qu'avec la quatrième échelle de l'ÉÉEP-R, Activité des enfants, alors que n'y avait pas de relations significatives avec l'échelle de la Parole et de la Pensée.

Introduction

International longitudinal studies show that the quality of preschool education is of great importance for children's readiness for school and their further psychological development and academic success (Hall et al., 2013; Hamre & Pianta, 2003; Hamre et al., 2014; Mashburn & Pianta, 2006; Sylva et al., 2014; Vandell et al., 2010). The search for the most effective instruments for measuring the quality of the educational environment in kindergarten groups is thus an important task for both educational and child psychology (Krivtsova, 2022; Schad & Arnold, 2019; Shiyani, 2013; Smirnova, 2019; Veraksa & Veraksa, 2011).

The most popular and widely used tool for assessing the quality of the kindergarten educational environment in our country is the Early Childhood Environment

Rating Scale–Revised, ECERS-R (Harms, Clifford, & Cryer, 2005; Harms, Clifford, & Cryer, 2016), which was tested in 40 constituent regions of the Russian Federation (Remarenko et al., 2017). However, this article will consider the experience of another methodology for assessing the quality of the educational environment, which seems promising for use in scientific research and practical work in Russian preschool institutions: the CLASS (Classroom Assessment Scoring System) method (Almazova, Bukhalenkova, & Simonyan, 2018; Pianta, La Paro, & Hamre, 2008).

ECERS-R makes it possible to obtain a general assessment of the quality of the educational environment, including information about both the material and subject-matter arrangement of the kindergarten environment and the child’s interaction with the surroundings and the social environment. Unlike ECERS-R, CLASS does not evaluate the availability of various materials, the physical environment or safety, but focuses on the relationship between teacher and pupils, as well as what teachers do with the materials at their disposal, how effectively they use them. The criteria used in the CLASS methodology are based on research showing that the relationship between pupils and adults is a basic mechanism for children’s development and learning (Hamre & Pianta, 2007; Mashburn & Pianta, 2006; Pianta et al., 2002), which coheres well with the ideas of L.S. Vygotsky (Vygotsky, 1984) about the “zone of proximal development” and the leading role of the adult in the mental development of a child.

According to Vygotsky (Vygotsky, 1984), learning and teaching [*obuchenie*] lead to development, and properly organized instruction is based on the child’s zone of proximal development. In essence, learning and teaching are a special way of organizing communication between a child and an adult. The teacher is a conveyor and translator of cultural norms and values, a model of voluntary, self-regulating behavior that children seek to imitate. According to Vygotsky, “human behavior is a product of the development ... of a system of social connections and relations, collective forms of behavior and social cooperation” (Vygotsky, 2005, p. 865); therefore, quality assessment of the educational environment is of great interest, notably the study of social development in a kindergarten group, which the CLASS method is aimed at studying.

The CLASS method was developed in the USA and has been used and tested in thousands of classes, with children from preschool to senior school age (Hamre et al., 2014; Murray & Pianta, 2015). Regardless of the age group under consideration, 10 dimensions are used, forming three main domains: 1) Emotional Support, 2) Classroom Organization, and 3) Instructional Support. Each of the scales is scored on a 7-point scale. Let us consider the value of each of the three main parameters and the scales included in it.

Emotional Support

From the point of view of the authors of the CLASS method, the domain Emotional Support is the set of parameters that describe the social and emotional interaction of the teacher and pupils (Pianta, La Paro, & Hamre, 2008). When scoring this domain, it is important to consider the teacher’s creation of a positive, emotionally accepting atmosphere, a sensitive attitude to the opinions and emotional states of the children, and a flexible and effective response to their difficulties. To score the quality of inter-

action in a group according to the Emotional Support domain, four dimensions are used in the CLASS method:

1. Positive Climate (PC) — reflects kindness, respect, sincere interest and pleasure in the interaction between the teacher and pupils, as well as in the children's communication with each other;
2. Negative Climate (NC) — reflects the level of negative emotions (anger, irritation, threats) in the teacher's communication with the children in the group, as well as extreme manifestations of negative relationships (fights, quarrels, bullying);
3. Teacher Sensitivity (TS) — reflects how often the teacher notices, responds in a timely manner, and helps children when they have learning or emotional problems, or problems at home, as well as the pupils' level of comfort in the group (how freely children ask the teachers for help);
4. Regard for Student Perspectives (RSP) — reflects the extent to which the interests and opinions of pupils are considered by the teacher; how much the teacher manages to maintain and develop the pupils' independence and leadership qualities, not restricting their self-expression.

Classroom Organization

Classroom Organization reflects the effectiveness of the teacher's organization of lessons and the pupils' daily routine, supervision of their behavior, management of their time and attention. The CLASS authors believe that group work is most effective and creates the most opportunities for learning when students are well-behaved, constantly engaged in some kind of activity, interested and passionate about solving the tasks assigned to them (Pianta, La Paro, & Hamre, 2008).

The Classroom Organization domain is assessed by three dimensions:

1. Behavioral Management (BM) — reflects the effectiveness of teachers' methods to prevent and redirect inappropriate pupil behavior;
2. Productivity (Pd) — reflects how effectively teachers organize children's activities throughout the day (how quickly transitions occur between different activities and whether the time during which the children are not busy is minimized), to what extent the daily routine is understandable and familiar to the children;
3. Instructional Learning Formats (ILF) — reflect the extent to which the teacher organizes the teaching and learning process and provides interesting materials in order to involve children as much as possible and maximize their learning opportunities.

Instructional Support

Instructional Support reflects the frequency and effectiveness of the teacher's use of techniques to develop thinking and language in the children. The theoretical basis for the selection of criteria related to Instructional Support in the CLASS methodology is, first of all, studies of the cognitive and speech development of children (e.g., Catts

et al., 1999; Fujiki, Brinton, & Clarke, 2002; Romberg, Carpenter, & Dremock, 2005; Taylor et al., 2003), including works by L.S. Vygotsky (Vygotsky, 1991). These works emphasize the difference between simply learning facts and gaining “useful knowledge,” that is, learning how different concepts and facts are interconnected, organized, and related to one another (Pianta, La Paro, & Hamre, 2008). The authors of the method focus on the development of metacognitive skills — awareness and understanding of thought processes — which are of great importance for the development of children’s ability to learn (Veenman, Kok, & Blöte, 2005; Williams et al., 2002). According to the available research, children’s ability to develop metacognitive skills depends on the extent to which the adult provides them with opportunities to demonstrate their abilities and to develop more complex skills (Davis & Miyake, 2004; Kazanskaya & Romashchuk, 2021; Skibbe, Behnke, & Justice, 2004; Vygotsky, 1984).

The CLASS authors identify three main dimensions to assess the quality of Instructional Support in the kindergarten group:

1. Concept Development (CD) — reflects the extent to which teachers use pedagogical methods that contribute to the formation of high-order thinking skills, as opposed to rote memorization (for example, using questions that encourage children to analyze and make comparisons and predictions; organization of discussions or project work; generalization and integration of different areas of the children’s knowledge);
2. Quality of Feedback (QF) — reflects the extent of the teacher’s mastery of techniques that deepen the children’s understanding of the learning material, stimulate their thinking, and also help to increase their confidence in their strengths and abilities;
3. Language Modeling (LM) — reflects the extent to which teachers stimulate children’s communication and contribute to the development of their language skills.

Thus, the three main parameters of the CLASS method make it possible to assess the main psychological factors that contribute to preschoolers’ successful development and learning: creating an emotionally comfortable atmosphere in the kindergarten group, effective organization of its work, and use by the teacher of methodological techniques that contribute to the development of the children’s cognitive abilities.

The objective of the study was to validate the use of the CLASS method in Russia for the first time.

Materials and Methods

Sample

Observation according to the CLASS method was performed in 41 preparatory groups of kindergartens in Moscow (they were attended by children aged 6-7 years; this is the last group in kindergarten, after which the children go to school). The number of observations in each group was from 2 to 5. The total number of observations was 140. In 26 of these groups, the educational environment was also assessed using ECERS-R.

The number of teachers in the groups varied from 1 to 3. The average age of the teachers was 45.5 years ($SD = 11.8$ years) and their work experience in preschools was an average of 15 years. Of the total, 34.5% had graduated only from a pedagogical college/specialized school, 5% had higher education not related to pedagogy (engineering, law, economics), and the rest had higher pedagogical education.

Methods

The study used the CLASS (Pre-K) and ECERS-R methods to assess the quality of the educational environment.

The CLASS measure (Pianta, La Paro, & Hamre, 2008) involves at least four 30-minute observation cycles per group (total duration = 120 minutes per group) by a specially trained expert. After each observation, the expert assigns scores on a 7-point Likert scale for each of the 10 dimensions of the methodology, according to which 1 and 2 points conditionally refer to a low level, 3–5 points to an average level, and 6–7 points to a high level of interaction quality. For each dimension, the arithmetic mean of the scores for all observations in the group is calculated, and based on the values obtained, scores are calculated using a special formula for the three main domains of the methodology (Emotional Support, Classroom Organization, Instructional Support).

The Russian-language version of the ECERS-R Early Childhood Environment Rating Scale–Revised (Harms, Clifford, & Cryer, 2016) is an expert assessment method based on a specially developed assessment sheet, with which an expert scores 43 indicators of the kindergarten educational environment, organized into seven subscales (scores from 1 to 7): 1) Space and Furnishing, 2) Personal Care Routines, 3) Language — Reasoning, 4) Activities, 5) Interaction, 6) Program Structure, 7) Parents and Staff. Researchers have made great efforts to translate and adapt the ECERS-R for Russia (Shiyan, 2013; Shiyan & Vorobieva, 2015; Shiyan et al., 2016).

Procedure

In all the groups, the experts made observations using each of the methods (CLASS and ECERS-R) during one academic year (with children in the preparatory group of the kindergarten). Observations were performed in the morning; the teachers were not warned in advance about the purpose of the experts' visit to their group.

Results

Using the Cronbach's alpha coefficient, with raw scores (for individual observations of the CLASS method), the consistency of the data was checked for the three domains:

1. Emotional Support — 0.755;
2. Classroom Organization — 0.674;
3. Instructional Support — 0.855.

The data can be considered acceptable for the Classroom Organization domain and reliable for the Emotional Support and Instructional Support domains.

Table 1

Descriptive Statistics of the CLASS Domains and Dimensions

CLASS domains and dimensions	Mean	Standard Deviation	Minimum	Maximum
Positive Climate (PC)	5.15	1.12	3.00	7.00
Negative Climate (NC)	1.81	0.90	1.00	5.50
Teacher Sensitivity (TS)	5.96	0.98	3.00	7.00
Regard for Student Perspectives (RSP)	4.53	1.01	2.33	6.50
Emotional Support (ES)	5.45	0.780	3.13	6.75
Behavioral Management (BM)	5.49	0.80	4.00	7.00
Productivity (Pd)	5.49	0.92	3.33	7.00
Instructional Learning Formats (ILF)	4.96	1.15	2.67	7.00
Classroom Organization (CO)	5.31	0.82	3.44	6.67
Concept Development (CD)	2.45	1.22	1.00	5.67
Quality of Feedback (QF)	3.23	1.24	1.00	5.50
Language Modeling (LM)	3.26	1.03	1.00	5.00
Instructional Support (IS)	2.98	1.07	1.00	5.33

Considering that scores 1 and 2 indicate a low level, 3, 4, and 5 an average level, and 6–7 a high level, we can state that 19 groups (46.3%) were average for Emotional Support and 22 (53.7%) were high; for Classroom Organization, 21 groups (51.2%) were average and 20 (48.8%) were high, and for Instructional Support, 16 groups (39.0%) were low and 25 (61.0%) were average (see *Table 1*).

Since the distribution on almost all the scales and parameters differs from the normal (Kolmogorov-Smirnov criterion), non-parametric statistical tests were also used.

Using the nonparametric Wilcoxon test to compare pairs of dependent samples, we found that the scores for Instructional Support were significantly lower than those for Emotional Support ($W = -5.579$; $p < 0.001$) and Classroom Organization ($W = -5.579$; $p < 0.001$). There were no significant differences in the scores for Emotional Support and Classroom Organization ($W = -1.238$; $p = 0.216$).

We cannot yet verify the factor structure of the method (the distribution of scales by parameters) due to insufficient data. However, correlation analysis will more fully show how the domains are related and how the dimensions are related to each other. Using Spearman's correlation coefficient, we found that the scores for all three domains of the CLASS measure had a medium strength correlation (r from 0.43 to 0.62 at $p < 0.001$). The strengths of the correlations of Instructional Support with Emotional Support and Classroom Organization are smaller than those between Emotional Support and Classroom Organization (see *Figure 1*).

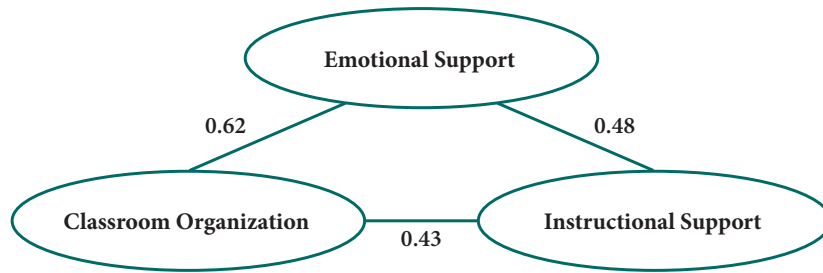


Figure 1. Correlations between CLASS domains scores

Table 2

Relationships between CLASS Dimensions (Spearman correlation coefficient)

CLASS parameters	PC	NC	TS	RST	BM	PD	ILF	CD	QF	LM
PC	1.000	-0.49**	0.58**	0.55**	0.34*	0.24	0.30	0.09	0.25	0.15
NC		1.000	-0.34*	-0.44**	-0.25	-0.31*	-0.42**	-0.24	-0.33*	-0.33*
TS			1.000	0.67**	0.57**	0.39*	0.35*	0.26	0.35*	0.34*
RST				1.000	0.63**	0.48**	0.49**	0.48**	0.56**	0.58**
BM					1.000	0.50**	0.53**	0.50**	0.36*	0.43**
Pd						1.000	0.65**	0.23	0.28	0.19
ILF							1.000	0.40*	0.39*	0.33*
CD								1.000	0.76**	0.83**
QF									1.000	0.79**
LM										1.000

* level of significance $p < 0.05$

** level of significance $p < 0.01$

Designations: PC — Positive Climate; NC — Negative Climate; TS — Teacher Sensitivity; RST — Regard for Student Perspectives; BM — Behavioral Management; Pd — Productivity; ILF — Instructional Learning Formats; CD — Concept Development; QF — Quality of Feedback; LM — Language Modeling.

The scores on the dimensions within each domain are correlated with one another (see Table 2). The scores on the dimensions of different domains, in most cases, are also significantly correlated with one another. The Positive Climate dimension has the smallest number of connections with other dimensions (four dimensions), and the Regard for Student Perspectives scale has the largest number (all nine dimensions).

Comparison of the Results of CLASS and ECERS-R

Correlation analysis (Spearman’s correlation coefficient) was used to check the connections between the quality of the educational environment, measured using the CLASS and ECERS-R methods (Table 3).

Table 3

Relationships between CLASS Domains and Dimensions Scores and ECERS-R Scales Scores

CLASS dimensions / ECERS-R scales	1	2	3	4	5	6	7	ECERS-R total score
PC	-0.03	0.09	0.03	0.06	0.19	-0.05	-0.06	0.05
NC	0.12	0.01	0.17	0.03	-0.13	-0.12	0.002	0.01
TS	-0.11	-0.10	0.05	-0.04	0.09	-0.11	-0.11	-0.08
RSP	0.34	0.21	0.10	0.40*	0.08	0.03	0.16	0.21
Emotional Support	0.06	0.04	-0.02	0.13	0.10	-0.04	-0.03	0.03
BM	0.33	0.24	0.06	0.45*	0.36	0.19	0.36	0.35
Pd	0.07	0.01	-0.16	0.19	-0.09	0.03	0.03	0.01
ILF	0.06	0.09	-0.07	0.21	0.16	0.08	0.11	0.11
Classroom Organization	0.28	0.15	0.01	0.41*	0.14	0.09	0.19	0.21
CD	0.44*	0.36	0.23	0.47*	0.14	0.26	0.21	0.32
QF	0.52**	0.40*	0.08	0.46*	0.09	0.22	0.31	0.33
LM	0.31	0.27	0.15	0.34	-0.05	0.11	0.08	0.17
Instructional Support	0.39*	0.32	0.11	0.39*	0.03	0.18	0.16	0.24

* level of significance $p < 0.05$ ** level of significance $p < 0.01$

Designations: CLASS dimensions: PC — Positive Climate; NC — Negative Climate; TS — Teacher Sensitivity; RST — Regard for Student Perspectives; BM — Behavioral Management; Pd — Productivity; ILF — Instructional Learning Formats; CD — Concept Development; QF — Quality of Feedback; LM — Language Modeling. ECERS-R scales: 1) Space and Furnishing, 2) Personal Care Routines, 3) Language — Reasoning, 4) Activities, 5) Interaction, 6) Program Structure, 7) Parents and Staff. .

Out of the four CLASS dimensions related to the Emotional Support domain (PC, NC, TS, RSP), only one significant correlation was found, between the scores on the scale Regard for Student Perspectives (RSP) and the scores on the fourth scale of the ECERS-R “Children’s Activities”.

Out of the three CLASS dimensions related to the Classroom Organization domain (BM, Pd, ILF), one significant correlation was established, between the scores on the Behavior Management (BM) dimension and the scores on the fourth ECERS-R scale “Children’s Activities”. And the total score for this domain was also significantly correlated with the scores on the fourth ECERS-R scale.

The largest number of significant correlations with the ECERS-R scales was found in the three CLASS dimensions related to the Instructional Support domain (CD, QF, LM). Scores on the Concept Development (CD) dimension were significantly correlated with scores on the scales “Space and Furnishing” (first scale) and “Children’s Activities” (fourth scale). The scores on the Quality of Feedback dimension were significantly correlated with the scores on the scales “Space and Furnishing” (first

scale), “Personal Care Routines” (second scale), and “Children’s Activities” (fourth scale). The overall score for this domain was significantly correlated with the scores on two ECERS-R scales: “Space and Furnishing” (first scale) and “Children’s Activities” (fourth scale) ($p = 0.052$ at the trend level).

Thus, the largest number of significant correlations was found between the ECERS-R scales and the Instructional Support domain of the CLASS method, which characterizes the quality of development of thinking and speech in preschool children in kindergarten groups. Virtually no correlations were found, however, of the Emotional Support and Classroom Organization domains with the ECERS-R scales.

Discussion

This study tested the CLASS methodology, a new way for Russian psychology to assess the quality of the educational environment in kindergartens.

The internal reliability of the data was satisfactory, even with the relatively small sample, which indicates the legitimacy of using not only the scales, but also the parameters of the instrumentation.

Use of this method in Moscow kindergartens showed that in most of cases, the quality of Emotional Support and Classroom Organization was fairly high, but the quality of Instructional Support was fairly low. This result also confirms the analysis of the differences: the scores for Instructional Support were significantly lower than those for Emotional Support and Classroom Organization. This suggests that the teachers are able to create an emotionally supportive and comfortable atmosphere for the children and to organize their work well, but they rarely use methods during lessons that would contribute to the development of their pupils’ thinking and speech. This result may be useful in developing training programs to raise teachers’ qualifications, in which special attention would be paid to how thinking and speech develop in preschool children and how important it is to organize the teachers’ training to promote these abilities, what types of tasks and questions are best used, why it is important to encourage children to talk more with each other and to answer questions in detail, to learn to argue their point of view (Bezrukikh, Verba, Filippova, & Ivanov, 2022).

Table 4

Mean and Standard Deviations of CLASS Assessments of Domains in Russia, the USA, and Canada

Country / Domain	Russia (N = 41)		USA (N = 83)		Canada (N = 80)	
	M	SD	M	SD	M	SD
Emotional Support (ES)	5.45	0.80	5.63	0.60	5.83	0.86
Classroom Organization (CO)	5.31	0.82	5.10	0.68	5.43	0.92
Instructional Support (IS)	2.98	1.07	4.30	0.84	2.57	1.11

Table 4 shows the mean and standard deviations of the scores on parameters of the CLASS method obtained in our study, as well as in the studies of American (Weiland, Ulvestad, Sachs, & Yoshikawa, 2013) and Canadian colleagues (Perlman et al., 2019). It is interesting that the scores for the quality of interaction at Moscow kindergartens were closer to the results obtained by the Canadian researchers. It may be that the more widespread use of CLASS in the United States has led to a greater number of teachers in American kindergartens receiving training in accordance with the requirements of this method (Pianta, La Paro, Hamre, & 2008).

The large number of correlations between the CLASS dimensions allow us to speak, on the one hand, about the internal logic of the indicators used, and on the other, about the importance of considering all the dimensions, since they do not duplicate one another (in their scores), but complement each other, creating a more complete and multifaceted picture of interaction in the kindergarten group. The smallest number of correlations between the Positive Climate dimension and the other dimensions suggests that most teachers working in the Moscow kindergartens enjoy communicating with their pupils, although the ability to create a warm, accepting atmosphere in the group is not always associated with the ability to effectively manage group behavior and develop the pupils' cognitive skills. The significant relationships between the Regard for Student Perspectives dimension and other dimensions suggest that this scale is the systemic core of the aspects assessed by the method. Perhaps this is because teachers who are more attentive to the interests and opinions of children in the group give them more opportunities for independence and self-expression, and generally possess the skills of developmental education and harmonious upbringing of preschoolers. However, to confirm this assumption, this research should be supplemented with a study of the relationship between the results of assessing the quality of interaction in a group and teachers' ideas about child development (Hamre et al., 2012).

The correlation analysis between the ECERS-R and CLASS scales indicated that the relationship between their contents is ambiguous, since the number of correlations is not numerous and most of the relationships were found only with the fourth ECERS-R scale, Children's Activities. This scale contains indicators that reflect types of activities that, on the one hand, give children the freedom to express their own thoughts and feelings (for example, the Art indicator), which may explain the identified relationships with the Regard for Student Perspectives dimension. On the other hand, many types of children's activities described in this scale are associated with experimentation, planning, and prediction (for example, the indicators Nature/Science, Sand and Water), which may explain the connection with the scales of the CLASS Instructional Support domain.

It is important to note that only three ECERS-R scales were significantly correlated with the CLASS scales — Space and Furnishing, Personal Care Routines, and Children's Activities — while there were no significant relationships with the Speech and Thinking scale, which according to its meaning should be associated with the Instructional Support domain, and with the Interaction scale, which should presumably be associated with the Class Organization domain. Probably such contradictory

results are related to the ECERS-R assessment system: on the one hand, high scores for each of the parameters are possible only if very strict requirements for the material environment of the kindergarten are met; on the other hand, ECERS-R experts give scores based not only on their observations, but also from conversations with the teachers about the characteristics of learning and teaching in the group, while CLASS experts' scores are based only on what they saw. It is interesting that the Instructional Support domain and its scales had the greatest number of correlations with the ECERS-R scores, while the Emotional Support and Classroom Organization domains were virtually unrelated to the ECERS-R scores, suggesting that probably these CLASS parameters are not fully taken into account by ECERS-R. Thus, the small number of relationships identified between the results of these methods suggests that by using both methods to assess the quality of the educational environment, they can complement each other and be useful for specialists.

Conclusion

The experience of using the CLASS method has shown its significance and potential benefits for assessing the quality of the educational environment in Moscow kindergartens. This method can be useful for developing programs to improve teachers' qualifications, to assess and improve the quality of education in individual kindergartens, which will help increase the psychological readiness of children for the transition to the next level of education and their further success in life.

Limitations

It is important to note the limitations of the study. First, little data has been collected so far, which does not allow us to test the factor model of the methodology, or to analyze the discriminatory power of the indicators. It will also be important to test the identified relationships and patterns on a larger number of groups in the future. Second, not all estimates by the CLASS method can be considered completely reliable, since in some groups the number of observations was less than the minimum (four) recommended by the CLASS authors. This was due to the routines of the kindergarten children: attending various additional lessons during the morning (music, physical education, lessons with a speech therapist, etc.), which we decided not to assess in this study. Third, this study did not take into account: a) the possible influence of various factors related to the qualifications and experience of the teachers (their level of education, experience teaching in kindergarten), and b) their personality traits and ideas about child development, which can also influence the mental development of preschoolers (Hamre et al., 2012).

In the future, we plan to increase the number of groups, which will allow us to analyze how teachers' ability to create a developing educational environment correlates with their education and work experience. This will help to check the discriminant validity of the methodology, that is, its ability to differentiate among groups with teachers of different professional levels. Another important task for further research is

to compare the results of the assessment of the quality of the educational environment obtained using ECERS-R and CLASS with the development of cognitive abilities in the pupils of the assessed kindergartens.

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