



Main Results:

The 2017 national quality measurement of early childhood education in Colombia showed:

1. Generally safe conditions are provided to guarantee children's wellbeing.
2. Most centers are supported by a professional in psychosocial care, nutrition and health.
3. Availability of learning materials in the classroom is positively associated with children's development.
4. More than half of the teachers have a professional degree and this is positively associated with children's development.
5. On average, classrooms scored in the medium level on a general observed scale of Pedagogical Quality.
6. The scale of observed Pedagogical Quality and the observed use of classroom activities such as support of language, numeracy and arts are positively associated with children's development.

*About the authors

Carolina Maldonado-Carreño, Associate Professor, School of Education, Universidad de los Andes (ca-maldo@uniandes.edu.co).

Catalina Rey Guerra, Jorge Cuartas, Tatiana Plata-Caviedes and Jesús J. Rodríguez De Luque, Research Assistants, School of Education, Universidad de Los Andes.

Eduardo Escallón Lagarcha, Dean, School of Education, Universidad de los Andes

Hirokazu Yoshikawa, Co-Director, Global TIES for Children Center, NYU.

Direction of Early Childhood- MEN: Ana María Nieto, Director of Early Childhood; Angy Mateus Segura, Advisor; Luz Ángela Caro, Deputy Director of Quality; Diana Ibeth Uruña, Deputy Director of Coverage and Efficiency; Carlos Andrés Aragón, Advisor.

Quality Measurement of the Institutional modality of Early Childhood Education in Colombia

Carolina Maldonado-Carreño, Catalina Rey Guerra, Jorge Cuartas, Tatiana Plata-Caviedes, Jesús J. Rodríguez De Luque, Eduardo Escallón Largacha, Hirokazu Yoshikawa, Direction of Early Childhood – MEN *

Quality early childhood education is the foundation that ensures a proper development for all children. Safe educational environments that provide positive experiences through high quality teaching practices, health and nutrition services, and integration of families and the community influence children's learning and well-being. For this reason, the Ministry of National Education, MEN (Ministerio de Educación Nacional), developed a model to measure the quality of early childhood and preschool education in Colombia. The evidence generated by this model allows monitoring of the human, material and social conditions necessary in early childhood education services to promote the integral development of children between 0 and 6 years old.

This Policy Note summarizes the results of the National Quality Measurement of Early Childhood Education, carried out in 2017 by MEN and the School of Education of Universidad de los Andes. This note also presents some policy recommendations derived from the analysis.

Background

The National Quality Measurement of Early Childhood Education is a process that began in 2015 when the MEN and the universities of New York, Columbia, Yale and Los Andes adapted the MELQO tool (Measurement of Early Learning Quality Outcomes) to the Colombian context and its State policy "De Cero a Siempre", a national Early Childhood Development (ECD) strategy. This adaptation was also built with feedback from Colombia's Inter-Sectoral Commission on Early Childhood (CIP) and the Colombian Family Welfare Institute (ICBF).

In the same year, a pre-pilot was conducted in 30 centers of the ICBF in five departments of the country. The purpose was to create a first version of the Instrument for Measuring the Quality of Early Childhood Education in Colombia (IMCEIC) for the institutional or center-based modality of ECD services. A year later, in 2016, the MEN, the Administrative Department of the Presidency of the Republic (DAPRE) and the Colombian Institute for the Evaluation of Education (ICFES) carried out a pilot study with a representative sample of service units in the Eje Cafetero (Colombian coffee growing region). It involved 101 centers in the cities of Quindío, Caldas and Risaralda. This study also allowed the design and piloting of a teacher training workshop in which the information about the measurement is used as an input for planning better classroom activities. Finally, with these results, the final adjustments were made to the instrument for the National Quality Measurement of Early Childhood Education and the first national application took place in 2017 (Figure 1).



Figure 1. Development of quality measurement in Colombia.

National Quality Measurement Model

The measurement model has two components: 1) Assessment of quality conditions and 2) Assessment of children's development (Figure 2). The former includes structural and process factors. Structural factors include the characteristics of centers that depend on administrative processes such as the availability of resources, human resources and security conditions. On the other hand, process factors are subdivided into two: at the center level and at the classroom level. Center-level factors refer to the relationships established by the center with families and other community actors. Group-level factors include the experiences, interactions and activities that the children encounter in the center. In general, process factors refer to dynamic aspects that require greater efforts to be transformed than structural ones. The second component of the model is the assessment of children's development. This is a population-wide assessment that captures children's cognitive, social, emotional and motor development.

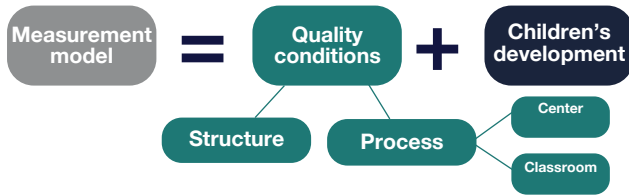
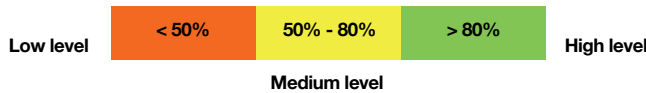


Figure 2. Early childhood and preschool quality measurement model.

Instruments

The Instrument for Measuring the Quality of Early Childhood Education in Colombia (IMCEIC) is the adaptation of the Measure Early Learning Environments (MELE) module from MELQO. It collects information on structural and process quality through a classroom observation guide, and questionnaires for the coordinator, teachers and parents.

The items of the Observation guide are rated on a scale of 1 to 4, in which scores below 2 indicate a low level of quality, scores from 2 to 3 a medium level and scores above 3 a high level. The questionnaire items measure presence of certain conditions. They are indicative of a low level of quality when the frequency on the item is less than 50%, of a medium level when it is between 50% and 80%, and of a high level when it is above 80%.



The Child Development and Learning Assessment Instrument (IVDAN) is composed of a direct child assessment (adapted from the International Development and Early Learning Assessment IDELA, of Save the Children to the Colombian context), together with a questionnaire for the teacher. This assessment is applied by trained assessors and consists of 109 items distributed in 24 activities to assess five domains of children's development:

- ✓ Logical-mathematical reasoning.
- ✓ Language.
- ✓ Social and emotional development.
- ✓ Executive functions.
- ✓ Motor skills.

In addition, the following scales are calculated from teachers' reports:

- ✓ Logical-mathematical reasoning.
- ✓ Learning skills.
- ✓ Social skills.
- ✓ Externalizing behaviors.

Participants

The sample for this study consists of 312 centers randomly selected to be representative of the institutional modality in Colombia. They were located in 64 municipalities across 28 departments (72.7% *Centros de Desarrollo Infantil*, 26.9% *Hogares Infantiles*, and 0.3% *Hogares Empresariales*)¹. Within each center a classroom of children aged 3 to 4 years and a classroom of children aged 4 to 5 years² were randomly selected for a total of 597 classrooms. From these classrooms, 3,687 children were randomly selected (50.6% boys, 49.4% girls) with an average age of 4.4 years (range = 3 to 5.9 years). Most teachers were women (98.8%). Response rates were 98,8%, 99,3%, 98,5%, and 87,4% for children, coordinators, teachers and parents, respectively.

Results

Structural quality

Safety conditions, availability of resources and learning materials, and teachers' education and experience were assessed. When it comes to safety, most conditions were in the high level of quality, suggesting that, on average, children's wellbeing is being guaranteed (Figure 3).

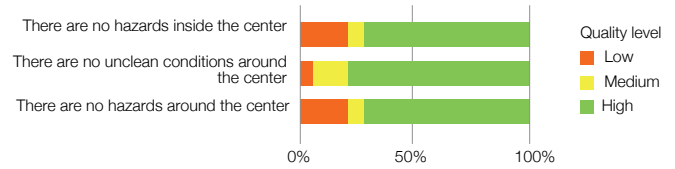


Figure 3. Safety conditions.

Regarding availability of resources, appropriately sized tables and chairs were found in 100% centers, but only 50.3% had playground games at a scale for children. Figure 4 shows that most classrooms had learning materials available. However, less than half of the classrooms had materials to promote symbolic play or materials to raise children's awareness of diversity.

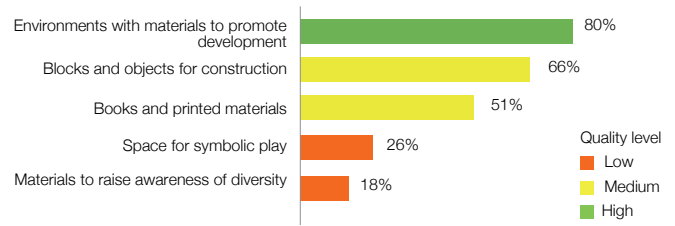


Figure 4. Availability of resources and learning materials in the classroom.

A Learning Materials index was created by summing the availability of 5 kinds of resources. It was found that centers had an average of 2.5 materials of a maximum of 5. Statistical analyses³ showed that the availability of materials in the classroom was positively associated with children's development. As shown in Figure 5, having a higher score in the Learning Materials index was associated with a higher average score in logical-mathematical reasoning and motor skills. In addition, it was also associated with a higher average score in learning skills and social skills, and a lower average score in externalizing behaviors reported by the teacher.

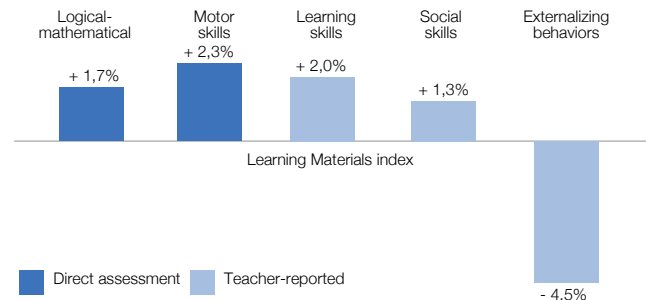


Figure 5. Associations between the availability of materials and children's development.

Regarding teachers' qualifications, figure 6 shows the highest degree earned by teachers. About half of teachers had a professional degree. In addition, teachers had an average of 10.6 years of teaching experience in early childhood education with substantial variation among them (minimum = 0 years, maximum = 38 years).

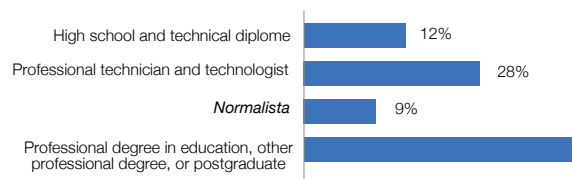


Figure 6. Teachers' educational level.

¹ The sample design and the parents', teachers' and coordinators' surveys were made by the National Consulting Center (CNC).

² With the exception of centers with combined-age groups (4,5%).

³ Multilevel models (for center, classroom and child, with center and classroom random effects) were estimated in which structural and process quality were included as predictors of children's development and some characteristics of children (sex, age) and their families (parental education, household assets index, stimulation index) were included as control variables. All child development scales were standardized to 0 (minimum possible) to 100 (maximum possible) so associations with predictors are reported as percentage increases / decreases in particular child outcomes.

Analyses showed that having a teacher with a professional technician or technologist degree with *normalista* degree or with a professional degree was associated with higher average scores in executive functions when compared to having a teacher with a lower-level high school or technical degree. Positive associations were also found between professional development, teaching experience and children's development (Figure 7).

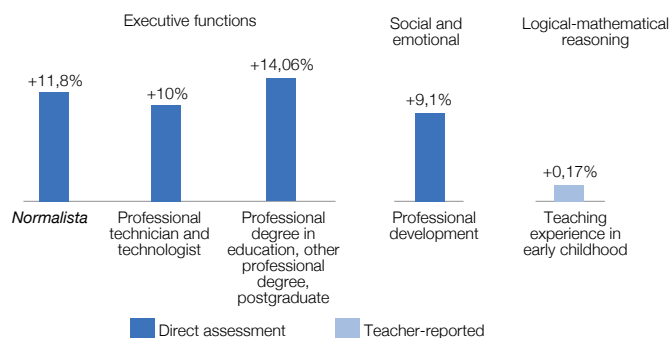


Figure 7. Associations between teacher's qualifications, professional development, teaching experience and children's development.

Finally, it was found that 97% centers had support from a nutritionist, 79.3% had support of a health professional, and 99.5% had support of a psychosocial care professional.

Process quality at the center level

Regarding the relationship of the center with families, it was found that 99.8% organize educational activities such as workshops or meetings. Likewise, 90% of the centers collected information about the community and the context in which children live and used it to meet the needs of families and formulate their pedagogical projects.

In relation to the transition from home to the center and then to school, it was found that most centers carry out actions to support them. Figure 8 shows the main actions.

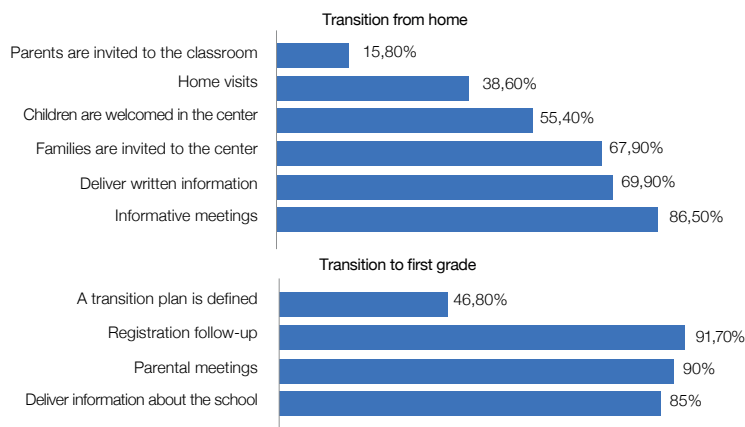


Figure 8. Actions to support transitions.

Process quality in the classroom

Process quality in the classroom refers to the experiences, interactions and activities children encounter in the classroom. Based on the information collected with the observation guide, a Pedagogical Quality scale was created. It includes the aspects presented in figure 9. As can be seen, encouragement of positive interactions among children, dealing with inappropriate behaviors and interactions with individual children were in the high level of quality. On average, the classrooms obtained a score of 2.33 (min = 1.1, max = 3.5) on the Pedagogical Quality scale, corresponding to a medium quality level.

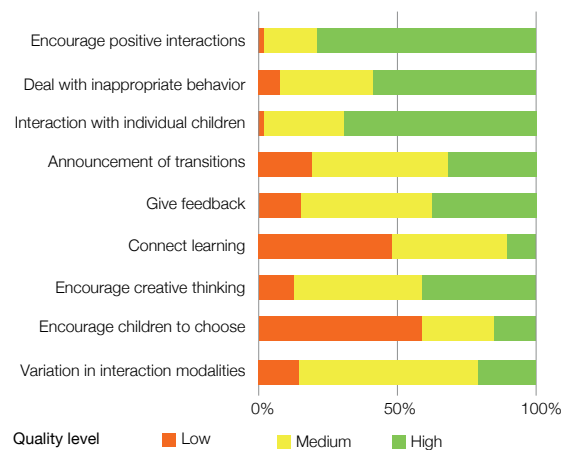


Figure 9. Pedagogical Quality Scale.

Analyses indicate that an increase of one unit in Pedagogical Quality was associated with higher average scores in direct child assessments of logical-mathematical reasoning, language and executive functions (Figure 10). An increase of one unit in Pedagogical Quality was associated with higher average teacher-rated social skills and lower teacher-rated externalizing behaviors.

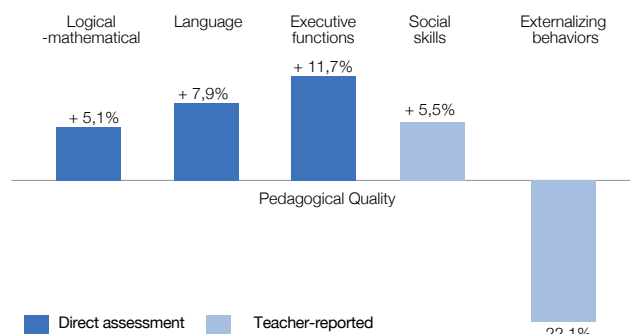


Figure 10. Associations between Pedagogical Quality and children's development.

Classroom activities are also part of process quality. Table 1 shows that the most frequent activities during the observation were related with expression through music and visual arts, reading and gross motor development. The activities that were observed in less than 20% of classrooms were related to logical and scientific thinking and language development (for example, introducing new vocabulary).

Table 1. Classroom activities

Activity	% Centers
Expression through music	96,5
Reading of printed material	83,4
Expression through the plastic arts	72,5
Motor development	67,9
Use of numbers to count	39,6
Storytelling	24,5
Understanding of the natural world	17,6
New vocabulary	12,9
Exploration of geometric shapes	7,8
Sort, sequence or classify	5,3
Writing conventions	4,7
Scientific processes	4,1
Measurement by size, length or weight	1,8

Classroom activities were associated with children’s development. Activities in which new vocabulary is presented and used were associated with higher average scores in language, social and emotional skills and motor skills. Activities in which numbers are used to count were associated with higher average scores in logical-mathematical reasoning and language. In addition, activities related to expression through visual arts were associated with higher average scores in language, motor skills and executive functions. Finally, activities in which children express themselves through music were associated with higher teacher-rated learning abilities and lower teacher-rated externalizing behaviors (Figure 11).

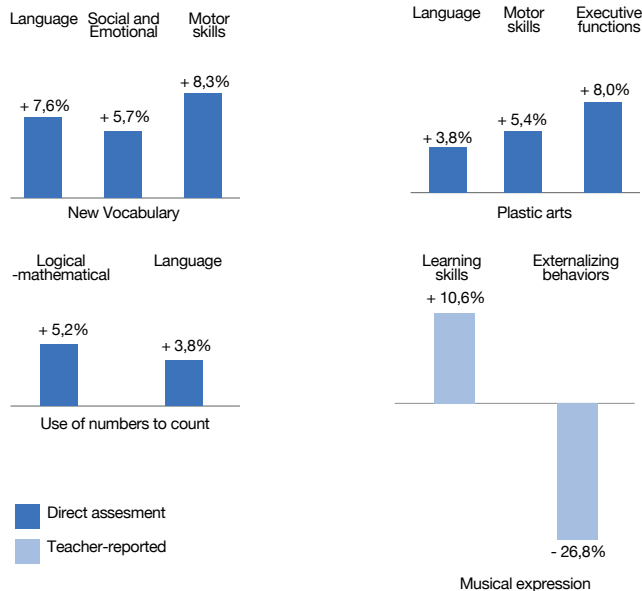


Figure 11. Associations between activities and children’s development.

Analyses suggest some negative associations between classroom activities and children’s development. Specifically, activities aimed at understanding the natural world were associated with lower average scores in social and emotional development (-4.8%) and activities in which new vocabulary is presented were associated with higher scores in externalizing behaviors reported by the teachers (+ 18.7%). Finally, activities related with the use of numbers to count and expression through plastic arts were associated with lower average scores in teacher-rated social skills (-2.50%). Additional studies are needed to explain these associations.

We thank Ana María Rodríguez (2015-2016) and Andrés Motta (2015-2016) from the Ministry of National Education, Sharon Lynn Kagan (Columbia University), Angélica Pongutá (Yale University) and Paola Guerrero (Universidad de los Andes) for their contribution to the process of quality measurement; Deisy Galvis Vasquez, Diana Bejarano Novoa and Nancy Valderrama Castiblanco of the Early Childhood Quality Direction of the Ministry of Education; Lauren Pisani and Clara Pava (Save the Children) for their advice in IDELA; Ana María García, Gladys Muñoz, María Eugenia Pachón, Jovington Yaya, Andrés Perdomo, Rene Lemoine and Carlos Lemoine (National Consulting Center) for the survey’s field work; and to Tiffany Jiménez, Laura Rojas, Jimena Roza, Juliana Sánchez, María Angélica Navia, Carolina Alonso, Maylee Montagut and Edwin Rodríguez for the coordination of the field work for the national measurement.

Policy recommendations

The results of the national study show that efforts of the Colombian national ECD policy De Cero a Siempre to provide comprehensive care (*atención integral*) are being met. Institutional efforts should focus in promoting the quality of interactions between teachers, children and the environment, as well as relationships with families. For this purpose, it is recommended to:

1. Ensure teachers’ professionalization so that they can design pedagogically intentional activities to promote learning and children’s development. Scholarship programs for professional and postgraduate education should be strengthened.
2. Strengthen the offer of pre-service training in early childhood education at the Universities and Escuelas Normales Superiores to incorporate the technical guidelines of the Ministry of Education, in particular the Curricular Guidelines for Early Childhood and Preschool Education.
3. Strengthen the quality of interactions between in-service teachers with children and families through the institutionalization of pedagogical coaching programs.
4. Support innovation projects in education based on alliances between research groups, service providers, schools and government institutions. The promotion of the "Fund for Research and Innovation in the Quality of Early Childhood and Preschool Education" should continue.
5. Continue efforts to implement the guidelines "¡Todos Listos!" to support the transitions of children in the educational system.

With the IMCEIC, the country has a quality measurement tool to support the continuous improvement of the policy, and to identify which aspects of early childhood education are associated with children’s development. It is recommended to:

1. Institutionalize the quality measurement as a tool for monitoring the policy and supporting evidence-based decisions. Designing policy interventions innovation projects in early childhood education, and to strengthen pre- and in-service teachers’ training.
2. Develop tools to measure quality in all services for children under the age of 6, including those for family, community and other modalities.

Editorial Committee

Eduardo Escallón, Dean, School of Education
 José Darío Herrera, Research Director
 Andrés Molano, Editor

In this edition

Eduardo Escallón, Editor

Education notes:

educacion.uniandes.edu.co/index.php/notas-de-educacion

School of Education

educacion.uniandes.edu.co