Global Journal of Educational Studies
ISSN 2377-3936
2022, Vol. 8, No. 2

Evaluation of the Quality of Education and Care Programs for Children under the Age of 3 in Greece

Eleni Sotiropoulou (Corresponding author)

Educator, PhD

E-mail: esotiropoulou@uniwa.gr

Georgios Stroungis Venetas

MD, MSc, FEBPRM

E-mail: strouggis@gmail.com

Vasiliki Giannakou

Educator

E-mail: vasogianakou4@gmail.com

Chrysoula Kasapi

Educator

E-mail: xrissa1998@gmail.com

Received: June 17, 2022 Accepted: July 16, 2022 Published: August 5, 2022

doi:10.5296/gjes.v8i2.20262 URL: https://doi.org/10.5296/gjes.v8i2.20262

Abstract

In recent years, the quality of education and care programs for children under the age of 3 has become an important issue of concern to both researchers and the policy-making community. Many organizations such as the OECD and UNICEF highlight the undeniable right of all children to have access to high-quality education and the long-term benefits for their holistic development. The purpose of this study is to explore the views of 426 educators from Greece on the quality of education and care programs for children under the age of 3. To conduct the survey, a questionnaire with 4 rating scales and 33 items was constructed and then posted on the official page of the national association of educators in social networks. This method for

collecting the sample was chosen by the researchers due to the Covid-19 limitations of nurseries at the time of the survey. The results of the survey showed that the quality of the programs was at a relatively moderate level. The highest scores were for the scales for interactions created within the nurseries and the educational activities, while the lowest scores were for 'standards' for services and space requirements and staff-related conditions. Finally, the researchers anticipate that the results of the survey will provide useful information for educators to reflect on and will also contribute to the scientific literature on the quality of programs for children of that age group.

Keywords: Evaluation, Children under the age of 3, Educators, Education and care programs, Greek ECEC

1. The Need for Quality in Education and Care Programs

Quality in education programs and the criteria that define it have been of concern for many years both to the scientific community (e.g., Barros et al., 2016; Anders, 2015; Pianta et al., 2014) and to the organizations that set educational policy at global and European level (e.g., OECD, 2018; European Commission, 2011). In particular, there are several studies in the international literature regarding that topic (e.g., Wenger et al., 2020; Bala, 2019; Pianta et al., 2014; Ghazvini & Mullis, 2010), which attempt to use their findings to contribute to the improvement of programs and education providers. The basis of these debates lies in the fact that the higher the quality of the education program that a child attends, the more long-term positive effects are observed in his or her development (Melhuish et al., 2013; Heckman, 2006).

Although most research is concerned with studying the quality of programs for children over 3 years of age (e.g., Yoshikawa et al., 2016; Botsoglou & Kakana, 2016; Cascio & Schanzenbach, 2013; Oun, 2009; Espinosa, 2002), recent years have witnessed a change in the approach of the policy-making community. Nowadays, organizations such as OECD, UNESCO and UNICEF highlight the importance and necessity for children under 3 to have access to quality education and care programs (e.g., OECD, 2018; UNESCO, 2010). This change in the approach of organizations and the scientific community highlights the crucial role of ECEC in children's development, while highlighting the need to upgrade the education provided at these ages (Capella et al., 2016; European Commission, 2014; Britto et al., 2011; EACEA, 2009).

In fact, the important role of education and care programs for children under the age of 3 was first mentioned by the European Commission (2011a) in its report "Early Childhood Education and Care: providing all our children with the best start for the world of tomorrow". As is well known, ECEC is the key foundation after the family for children's personal development, social integration, and subsequent academic progress (Melhuish et al, 2013). Therefore, high quality programs in ECEC contribute significantly to the social, economic and educational life of Europe and its future citizens (e.g., OECD, 2018; Vandell et al., 2016; European Commission, 2011a), to equal opportunities for children from low socio-economic backgrounds (Bradbury et al., 2016; European Commission, 2011b; Bennett, 2008; Heckman, 2006) and on children's cognitive, emotional and social development (Cascio & Schanzenbach, 2013).

However, it is difficult to provide a clear definition of the quality of education programs, as it depends on many factors; Some scholars (e.g., Slot et al., 2017; Howes et al., 2008) define quality in terms of 'standards' that must be met in these programs, e.g., the quality of procedures. Other scholars (e.g., Barros et al., 2016; Thomason & La Paro, 2009), refer to ECEC building infrastructure and human resources. In addition, there are references to the quality of activities, experiences and interactions offered to children (e.g., Anders, 2015; Pianta et al., 2014; Ghazvini & Mullis, 2010), ECEC routines, etc. (Barros et al., 2016).

According to the European Commission (2014), there are four dimensions to assess the quality of ECEC programs and they are related to (a) quality of services, (b) staff, (c)

program implementation and (d) child development. Furthermore, important aspects to ensure a quality education seem to be: maintaining the proper child-to-educator ratio, creating an attractive learning environment, introducing appropriate activities in the daily schedule to promote the children's development (OECD, 2019; Anders, 2015), involving parents in the learning process, successful transitions (European Commission, 2014), the opportunity for training and professional development of educators, and staff continuity (OECD, 2019; Anning et al., 2005).

Finally, in the context of a more coordinated effort to define the criteria of quality of education programs, various measurement instruments have been developed. These instruments are usually divided into two categories. The first category is called Global Quality Measures and assesses the overall quality of ECEC including aspects such as space, furniture, activities, etc. Such examples include ITERS-R (Harms et al., 1990), ECERS-R (Sylva et al., 2003; Harms et al., 1998), and FCCRS (Harms et al., 2007). The second category is called Quality of Interactions and assesses interactions between staff and children. Such examples include CIS (Arnett, 1989), CLASS Infant (Harme et al., 2014), CLASS Toddler (La Paro et al., 2012), CLASS Pre-K (Pianta et al., 2008), ORCE (NICHD, 1996), ELLCO (Smith et al., 2002), and STRS (Pianta, 2001). These instruments are constantly evolving, and revised versions are subsequently released.

Considering all the above about the crucial role of ECEC in children's development, the present study attempts to explore the views of 426 educators in Greece on the quality of ECEC programs for children under the age of 3.

More specifically, the main research questions are:

- How do educators assess the quality of education and care programs against the 'standards' for services and space requirements of nurseries?
- How do educators assess the quality of education and care programs in terms of the interactions created within nurseries?
- How do educators assess the quality of education and care programs in terms of educational activities and coverage of the developmental domains of children?
- How do educators assess the quality of education and care programs in terms of the environmental conditions for the staff themselves?

In addition, the researchers hypothesize that the above research questions differ depending on the institution in which the educators work (municipal or private) and the region (urban, semi-urban, and rural) in which the nurseries are located.

At this point, it should be mentioned that the majority of studies investigating the quality of nursery programs mainly refer to the age group above 3 years (e.g., Grammatikopoulos et al., 2017; Botsoglou & Kakana, 2016; Yoshikawa et al., 2016; Botsoglou & Kakana, 2016; Cascio & Schanzenbach, 2013; Oun, 2009; Espinosa, 2002). In contrast, research on children under the age of 3, to our knowledge, is limited (e.g., Bjornestad & Os, 2018; Barros & Aguiar, 2010 Bisceglia et al., 2009; Campbell, & Milbourne, 2005; etc) especially in Greece

(Rentzou, 2011). For this reason, the present study attempts to contribute to the scientific literature on the topic under study and to highlight possible problems concerning nurseries in the Greek context.

2. Method

2.1 Research Instrument

Based on previous research literature on criteria for evaluating the quality of education programs (e.g., Harms et al., 2017; Barros et al., 2016; Slot et al., 2017; Anders, 2015; European Commission, 2014; Pianta et al., 2014), researchers propose a questionnaire with 4 exploratory scales and 33 items rated from 1 (inadequate level) to 7 (excellent level).

More specifically, the scales refer to the evaluation of the quality of programs for children under the age of 3, focusing on the following items:

(a) 'Standards' for services and space requirements (e.g., Slot et al., 2017; Barros et al., 2016; Howes et al., 2008): Refers to the basic services provided in nurseries and the space specifications necessary for quality functioning, such as welcome/departure process of children, daily nutrition, child care, sleep/relaxing time, staff-to-child ratios, small groups of children, safety environment, hygiene conditions, indoor space (e.g, appropriate arrangement), appropriate furniture, play corners for children, appropriate educational material, outdoor space and supporting parents.

(b) Interactions (e.g., Harms et al., 2017; Anders, 2015; Pianta et al., 2014): Play an important role in children's education and the learning process and include children interaction, staff-children interaction, staff-parents interaction, and interactions during the daily routines (e.g., diapering, etc.)

(c) Educational activities (OECD, 2019; Harms et al., 2017; Anders, 2015): Includes the most common types of activities implemented in nurseries, such as music and movement, painting, constructions, etc., dramatic play, free play and outdoor play, and coverage of children's developmental domains, namely fine and gross motor, linguistic, cognitive and socio-emotional.

(d) Staff (OECD, 2019; Harms et al., 2017; Anning et al., 2005): Includes environmental conditions in nurseries that relate to staff, such as opportunities for professional growth and training needs, understanding of personal needs, staff continuity and cooperation climate.

Finally, the questionnaire was pilot tested by educators and the Cronbach's alpha index analysis was 0.87. Therefore, according to Cohen et al. (2012) it is considered a reliable research instrument for the study.

2.2 *Research Design and Sampling Procedures*

At the time of the survey, individuals other than staff were not permitted to enter nurseries due to Covid-19 restrictions in place. Thus, the researchers designed the questionnaire on a Google Form and then shared its link to the official page of the National Association of Educators on social networks, whose members are professional educators from all over the

country. The use of the Google Form made it easier for the researchers to conduct the survey, but also to reach out to educators from all over Greece (Agung et al., 2019; Djenno et al., 2015).

Regarding the ethics of the research, at the beginning of the Google Form questionnaire there was an information note for the research participants about: the purpose of the research, their voluntary participation, their withdrawal from the research at any time they wished, the preservation of their anonymity and instructions on how to complete it.

2.3 Participant Characteristics

The sample in the present study consists of 426 educators who are members of the official page of the National Association of Educators in social networks and work in nurseries in Greece.

Regarding the social and demographic characteristics of the sample, the educators were asked to answer about the (a) gender, (b) age, (c) years of work experience, (d) type of academic qualification, (e) institution in which they work (municipal or private nursery) and (f) whether the nursery they work is in an urban, semi-urban or rural area.

Therefore, the results show that (a) 96.6% of the sample is female and 3.4% is male, which generally reflects the gender distribution of educators in Greece, (b) 35.2% of the educators are 31- 40 years old, 35.2% are 41-50 years old, 21.1% are 51 years old and more than 8.5% are 20-30 years old, (c) 36.6% of the sample has 11-20 years of work experience, 33.1% has 0-10 years, 21.1% has 21-30 years, and 9.2% has 31 years or more, (d) 55.6% of the educators have a university degree, 16.2% have a vocational training degree and 28.2% have a postgraduate degree, (e) 58% of the sample work in municipal nurseries and 42% in private nurseries, and (f) 61.1% work in nurseries that are located in an urban area, 21.1% in a semi-urban area and 17.8% in a rural area.

3. Results

3.1 Data Analysis

The educators who participated in the research were asked to respond to the quality of the education and care programs for children under the age of 3 of the nurseries they work in, using a seven-point scale: 1 (inadequate), 3 (minimal), 5 (good), and 7 (excellent) (Table 1).

Table 1. The means of quality evaluation of the education and care programs

	N	Mean	Std. Dev.
A. Standards for services and space requirements	**426**	**4.77**	**1.202**
A1. Welcome/departure process	426	5.29	1.324
A2. Daily nutrition	426	5.16	1.361
A3. Care	426	5.65	1.364
A4. Sleep/relaxing time	426	4.85	1.738
A5. Staff-to-child ratio	426	3.31	1.512
A6. Small groups of children	426	3.41	1.532
A7. Safety environment	426	5.43	1.401
A8. Hygiene conditions	426	5.32	1.427
A9. Indoor space (e.g., appropriate arrangement)	426	5.12	1.495
A10. Furniture	426	4.57	1.480
A11. Play corners for children	426	3.99	1.711
A12. Educational material	426	5.22	1.400
A13. Outdoor space	426	4.68	1.664
A14. Support for parents	426	4.72	1.648
	N	**Mean**	**Std. Dev.**
B. Interactions	**426**	**5.27**	**1.067**
B1. Children interaction	426	5.48	1.147
B2. Staff-children interaction	426	5.72	1.175
B3. Staff-parents interaction	426	4.96	1.646
B4. Daily routines (e.g., diapering, etc.)	426	4.92	1.620
	N	**Mean**	**Std. Dev.**
C. Educational activities	**426**	**5.02**	**1.096**
C1. Fine motor	426	5.49	1.242
C2. Gross motor	426	5.26	1.275
C3. Language	426	5.48	1.122
C4. Cognitive	426	5.65	1.131
C5. Socio-emotional	426	4.56	1.812
C6. Music and movement	426	5.30	1.255
C7. Painting, constructions, etc.	426	5.35	1.342
C8. Dramatic play	426	4.27	1.515
C9. Free play	426	5.46	1.330
C10. Outdoor play	426	4.39	1.942
	N	**Mean**	**Std. Dev.**
D. Staff	**426**	**4.33**	**1414**
D1. Opportunities for professional growth	426	3.56	1.866
D2. Opportunities for training needs	426	4.16	1.844
D3. Understanding of personal needs	426	4.27	1.818
D4. Staff continuity	426	4.66	1.680
D5. Encouraging cooperation within the workplace	426	5.02	1.582

3.2 Research Hypothesis

To investigate the research hypothesis of this study, a statistically significant difference between the sample's workplace (municipal or private nursery) and work area (urban, semi-urban, rural), and items about the quality of educational and care programs (A1-D5) was measured.

The results illustrated a statistically significant difference between municipal and private nurseries educators in the evaluation of childcare. More specifically, there is a statistically significant difference about the quality of services related to daily nutrition of children (F=13.744, df=1, sig.=0.033). The majority of educators (39%) working in municipal nurseries rated the quality of daily nutrition at a very good level (scale 6) (1min - 7max), while the majority of educators working in private nurseries (48%) rated it at a relatively good level (scale 4) (3min - 7max).

There is also a statistically significant difference between the educators regarding the quality of hygiene conditions (F=13.432, df=1, sig.=0.037). The majority of educators working in municipal nurseries (37%) rated hygiene conditions at a very good level (scale 6) (2min - 7max), while the majority of educators working in private nurseries (45%) rated hygiene conditions at an excellent level (scale 7) (1min - 7max).

There is also a difference between the educators regarding the quality of gross motor activities (F=16.990, df=1, sig.=0.05). The majority of educators working in municipal nurseries (34%) rated gross motor activities at a very good level (scale 6) (2min - 7max), while the majority of educators working in private nurseries (60%) rated gross motor activities at an excellent level (scale 7) (3min - 7max).

Still, there is a statistically significant difference between the educators regarding the available hours in the nursery schedule for children's free play (F=15.220, df=1, sig.=0.019). The majority of educators working in municipal nurseries (40%) rated the hours available for children's free play at a very good level (scale 6) (1min - 7max), while the majority of educators working in private nurseries (38%) rated it at an excellent level (scale 7) (3min - 7max).

In terms of testing the second research hypothesis, the results showed that there is a statistically significant difference between the educators' evaluation in relation to the location of the nurseries they work in. More specifically, there is a statistically significant difference between the educators' evaluation of staff-parents interaction and the area in which they work (F=11.210, df=1, sig.=0.018). The majority of educators working in urban areas (48%) rated the quality of staff-parents interaction at a relatively good level (scale 4) (1min - 6max), while the majority of educators working in semi-urban (51%) and rural areas (53%) rated it at a very good level (scale 6) (2min - 7max).

Finally, there is a statistically significant difference between the educators' ratings of outdoor play and the area in which they work (F=17.411, df=1, sig.=0.023). The majority of educators working in urban areas (43%) rated outdoor play activities at a relatively good level (scale 4) (1min - 7max), while the majority of educators working in semi-urban (49%) and rural areas

(55%) rated outdoor play activities at a very good level (scale 6) (1min - 7max).

4. Discussion

The results of the survey showed that overall, the level of education and care programs for children under the age of 3 is moderate, in line with the results of studies from other countries (e.g., Bjornestad & Os, 2018; Barros & Aguiar, 2010). Of the scales that educators were asked to rate, the highest mean is observed in the scale for rating interactions, followed by educational activities, 'standards' for services and space requirements and finally, environmental conditions related to staff.

In more detail, in the scale for 'standards' the results are not so satisfactory, since the overall mean is assessed at a relatively good level but the fact that it is about the quality of the basic functions and standards of the nurseries should not be overlooked. In this scale, the three highest scores are given to: child care, safety environment and hygiene conditions. On the contrary, the three lowest scores are obtained by: play corners for children, small groups of children and staff-to-child ratios. Regarding the safety environment and hygiene conditions the evaluation is higher compared to other studies (Barros & Aguiar, 2010), while the low evaluation mainly of small groups of children and staff-to-child ratio is confirmed by other studies (e.g., Bjornestad & Os, 2018; OECD, 2018; Barros & Aguiar, 2010).

The second scale assesses interactions within nurseries. It has the highest overall mean and is rated at a good level. In this scale, staff-children interactions and children interactions have the highest mean while staff-parents interactions and interactions during the daily routines have the lowest mean. In general, the high quality score of interactions is confirmed by previous studies (e.g., Barros & Aguiar, 2010; Vermeer et al., 2008).

The third scale concerning children's educational activities and development domains, the overall mean is characterized by a good level. In this scale, the three highest scores in the assessment are socio-emotional, language and fine motor domains, while the lowest mean is obtained by outdoor play and dramatic play. The results for the high overall rating of this scale are in contrast to the studies of Vermer et al. (2008) and Barros and Aguiar (2010), where the rating of activities was at a low level.

The last scale for staff environmental conditions scores the lowest in the evaluation. In this scale, the highest mean scores were obtained by cooperation climate and staff continuity, while the lowest mean scores were obtained by opportunities for professional growth and training needs. These results are similar to the results of Barros and Aguiar's (2010) survey.

Also, regarding the first research question, the results of the survey are confirmed by previous research (Rentzou, 2011) and show that there is a statistically significant difference in the evaluation between municipal and private nurseries educators. More specifically, private nurseries educators' rate higher than municipal nurseries educators the hygiene conditions, gross motor activities and the available hours in the nursery schedule for free play, while they rate lower on daily nutrition.

Finally, the results of the survey confirm the second research hypothesis and there seems to

be a difference in ratings between educators working in urban, semi-urban and rural areas. More specifically, educators working in semi-urban and rural areas rate higher on staff-parents' interactions and the children's outdoor play, compared to those working in urban areas. Possibly, the difference in staff-parents' interactions may be explained by the fact that in areas with small populations usually more people know each other and this provides a basis for building relationships and cooperation later in the nursery. Similarly, the difference in hours devoted to children's outdoor activities in relation to the location of nurseries may be explained by the potential of the surrounding area. Besides, there are not a few cases where in large cities, many nurseries have limited outdoor space due to the town planning.

5. Research Limitations and Implications for Practice and Further Research

Although Google Form has been used to conduct many studies (e.g., Agung et al., 2019; Djenno et al., 2015), the limitations of its use should also be mentioned. The educators who were not registered in the specific social media group where the questionnaire was posted could not participate in the survey. The educators who have difficulty using electronic media were also excluded. Finally, the identity of participants could not be verified so the researchers could not be sure that only educators participated.

Despite the fact that a larger sample size is required to generalise the results, this study highlights potential problems in the quality of education and care programs for children under 3 years of age. Thus, special attention should be paid to the adherence to staff-to-child ratios, the creation of small groups of children, play corners for children, support to parents and professional satisfaction of educators, as those are factors that significantly influence the process of learning and care for children (OECD, 2019; Anders, 2015; European Commission, 2014). All the above should be considered by the policy-making community and educators themselves to meet the criteria of quality of programmes for that specific age group.

Finally, it would be beneficial to conduct more research on the quality of education and care programmes for children under the age of 3, because there are not enough such surveys in Greece. For example, interviews can be conducted with the educators to reveal possible problems and perspectives concerning the quality of the programmes and then the results can be used to improve the education provided.

6. Conclusion

In summary, this research attempts to contribute to the investigation of the quality of education and care programmes for children under the age of 3, mainly in Greece. The results of the survey show that the evaluation of the programmes by the educators is overall at a moderate level. The scales that were rated with higher scores concern the interactions within nurseries and the educational activities, but this does not necessarily mean that they are of high quality, since their score on the seven-point scale was 5 (good level). On the other hand, the scales relating to 'standards' for services and space requirements and conditions for staff scored lower. Therefore, it seems necessary to pay the necessary attention to the conditions that contribute to these results and at the same time to investigate for possible solutions to

address them to achieve the highest possible quality of education and care for children under the age of 3 in Greece.

References

Agung, B., Syaefulloh, S., Ridwan, I., Mamun, A., Sumpena, D., & Yulianti, Z. Q. (2019). Google Form-Based Learning Assessment. *Advances in Social Science, Education and Humanities Research*, *253*, 529-531. https://doi.org/10.2991/aes-18.2019.118

Anders, Y. (2015). *Literature review on pedagogy in OECD countries*. Paris: OECD, Publications.

Anning, A., Cullen, J., & Fleer, M. (2005). *Early Childhood Education. Society and Culture*. London: Sage Publications.

Arnett, J. (1989). Caregivers in day-care centers: Does training matter? Journal of Applied *Developmental Psychology*, *10*(4), 541-552. https://doi.org/10.1016/0193-3973(89)90026-9

Bala, S. (2019). Quality education in Haryana: An Analysis. *Think India Journal*, *22*(14), 12323-12328.

Barros, S., & Aguiar, C. (2010). Assessing the quality of Portuguese child care programs for toddlers. *Early Childhood Research Quarterly*, *25*, 527-535. https://doi.org/10.1016/j.ecresq.2009.12.003

Barros, S., Cadima, J., Bryant, D., Coelho, V., Pinto, A., Pessanha, M., & Peixoto, C. (2016). Infant child care quality in Portugal: Associations with structural characteristics. *Early Childhood Research Quarterly*, *37*, 118-130. https://doi.org/10.1016/j.ecresq.2016.05.003

Bennett, J. (2008). *Benchmarks for Early Childhood Services in OECD Countries*. Florence: UNICEF.

Bisceglia, R., Perlman, M., Schaack, D., & Jenkins, J. (2009). Examining the psychometric properties of the Infant-Toddler Environment Rating Scale-Revised Edition in a high-stakes context. *Early Childhood Research Quarterly*, *24*(2), 121-132. https://doi.org/10.1016/j.ecresq.2009.02.001

Bjornestad, E., & Os, E. (2018). Quality in Norwegian childcare for toddlers using ITERS-R. *European Early Childhood Education Research Journal*, *26*, 111-127. https://doi.org/10.1080/1350293X.2018.1412051

Botsoglou, K., & Kakana, D. (2016). Assessing quality in kindergarten using the Environment Evaluation Scale for Early Childhood Education (ECERS-R). *Dialogues! Theory and practice in education and education sciences*, *1*, 4-14. https://doi.org/10.12681/dial.10

Bradbury, B., Corak, M., Waldfogel, J., & Washbrook, E. (2011). Inequality during the Early Years: Child Outcomes and Readiness to Learn in Australia, Canada, United Kingdom, and United States. *IZA Discussion Paper, 6120*, 1-61. https://doi.org/10.2139/ssrn.1965137

Britto, P., Yoshikawa, H., & Boller, K. (2011). Quality of early childhood development programs and policies in global contexts: Rationale for investment, conceptual framework and implications for equity. *Social Policy Report*, *25*(2), 1-31. https://doi.org/10.1002/j.2379-3988.2011.tb00067.x

Campbell, P., & Milbourne, S. (2005). Improving the Quality Of Infant—Toddler Care Through Professional Development. *Topics in Early Childhood Special Education*, *25*(1), 3-14. https://doi.org/10.1177%2F02711214050250010101

Capella, E., Aber, J., & Kim, H. (2016). Teaching Beyond Achievement Tests: Perspectives From Developmental and Education Science. In D. Gitomer, & C. Bell (Eds.), *Handbook of Research on Teaching* (pp. 249-348). Washington: American Educational Research Association. https://doi.org/10.3102/978-0-935302-48-6_4

Cascio, E., & Schanzenbach, D. (2013). The Impacts of Expanding Access to High-Quality Preschool Education. *Brookings Papers on Economic Activity, Economic Studies Program, 47*, 127-192. https://doi.org/10.1353/eca.2013.0012

Cohen, L., Manion, L. & Morrison, K. (2012). *Educational Research Methodology*. Athens: Metaixmio.

Djenno, M., Insua, G., & Pho, A. (2015). From paper to pixels: Using Google Forms for collaboration and assessment. *Library Hi Tech News*, *32*(4), 9-13. https://doi.org/10.1108/LHTN-12-2014-0105

EACEA (2009). *Early Childhood Education and Care in Europe: Tackling Social and Cultural Inequalities*. Brussels: Eurydice.

Espinosa, L. (2002). High-Quality Preschool: Why We Need It and What It Looks Like. *NIEER, 1*, 1-12.

European Commission. (2011a). *Early Childhood Education and Care: Providing all our children with the best start for the world of tomorrow*. Brussels: European Commission.

European Commission. (2011b). *Commission Staff Working Paper. Reducing early school leaving*. Brussels: European Commission.

European Commission. (2014). *Key Data on Early Childhood Education and Care in Europe. Eurydice and Eurostat Report*. Luxembourg: Publications Office of the European Union.

Ghazvini, A., & Mullis, R. (2010). Center-based care for young children: Examining predictors of quality. *The Journal of Genetic Psychology*, *163*(1), 112-125. https://doi.org/10.1080/00221320209597972

Grammatikopoulos, V., Gregoriadis, A., Tsigilis, N., & Zachopoulou, E. (2017). Evaluating quality in early childhood education in relation with children outcomes in Greek context. *Early Child Development and Care*, *88*(12), 1816-1825. https://doi.org/10.1080/03004430.2017.1289192

Harms, B., La Paro, K., Pianta, R., & Lo Casale-Crouch, J. (2014). *Classroom Assessment*

Scoring System (CLASS). Baltimore: Brookes Publishing Co, Baltimore, MD.

Harms, T., Clifford, R., & Cryer, D. (1998). *Early Childhood Environmental Rating Scale–Revised*. Vermont: Teachers College Press.

Harms, T., Cryer, D., & Clifford, R. (1990). *Infant/Toddler Environment Rating Scale*. New York: Teachers College Press.

Harms, T., Cryer, D., & Clifford, R. (2007). *Family child care environment rating scale*. New York: Teachers College Press.

Harms, T., Cryer, D., Clifford, R., & Yazejian, N. (2017). *Infant/Toddler Environment Rating Scale (ITERS-3)* (3rd ed.). New York: Teachers College Press.

Heckman, J. (2006). Skill formation and the economics of investing in disadvantaged children. *Science*, *312*, 1900-1902. https://doi.org/10.1126/science.1128898

Howes, C., Burchinal, M., Pianta, R., Bryant, D., Early, D., Clifford, R., & Barbarin, O. (2008). Ready to learn? Children's pre-academic achievement in pre-kindergarten programs, *Early Childhood Research Quarterly*, *23*(1), 27-50. https://doi.org/10.1016/j.ecresq.2007.05.002

La Paro, K., Thomason, A., Lower, J., Kintner-Duffy, V., & Cassidy, D. (2012). Examining the definition and measurement of quality in early childhood education: A review of studies using the ECERS-R from 2003 to 2010. *Early Childhood Research & Practice*, *14*(1).

Leu, E. (2005). *The Role of Teachers, Schools, and Communities in Quality Education: A Review of the Literature*. Washington: Academy for Educational Development.

Melhuish, E., Quinn, L., Sylva, K., Sammons, P., Siraj-Blatchford, I., & Taggart, B. (2013). Preschool affects longer term literacy and numeracy: Results from a general population longitudinal study in Northern Ireland. *School Effectiveness and School Improvement*, *24*(2), 234-250. https://doi.org/10.1080/09243453.2012.749796

NICHD. (1996). Characteristics of infant child care: Factors contributing to positive caregiving. *Early Childhood Research Quarterly*, *11*, 269-306. https://doi.org/10.1016/S0885-2006(96)90009-5

OECD. (2018). *Engaging Young Children: Lessons from Research about Quality in EARLY Childhood and Care. Starting Strong*. Paris: OECD Publishing. https://doi.org/10.1787/9789264085145-en

OECD. (2019). *Quality Education for All: Lessons and Future Priorities*. Paris: OECD Publishing.

Oun, T. (2009). Quality of Learning Environments in Estonian Preschools. *Problems of Education in the 21th Century*, *15*, 118-124.

Pianta, R. (2001). *STRS Student-teacher Relationship Scale: Professional Manual*. Odessa, FL: Psychological Assessment Resources.

Pianta, R., & La Paro, K., Harme, B., Mashburn, A., & Locasale-Crouch, J. (2014). *Classroom Assessment Scoring System (CLASS) Manual, Infant*. Oxford, England: Blackwell's.

Pianta, R., La Paro, K., & Hamre, B. (2008). *Classroom Assessment Scoring System (CLASS) manual Pre-K*. Baltimore: Paul H. Brookes Publishing.

Rentzou, K. (2011). *Evaluation of the quality of education and care provided in pre-school centers. An approach from the perspective of the researcher, educators and parents* (Unpublished doctoral dissertation). Ioannina: University of Ioannina, Greece.

Slot, P. (2017). *Literature review on Early Childhood Education and Care quality: Relations between structural characteristics at different levels and process quality. Internal document*. Paris: OECD, Publications.

Smith, M., Dickinson, D., & Sangeorge, A. (2002). *Early literacy and language classroom observation scale (ELLCO)*. Baltimore: Paul H. Brookes Publication.

Sylva, K., Siraj-Blatchford, I., & Taggart, B. (2003). *Assessing quality in the early years: Early Childhood Environmental Rating Scale Extension (ECERS-E) four curricular subscales*. London: Trentham Books.

Thomason, A., & La Paro, K. (2009). Measuring the quality of teacher–child interactions in toddler child care. *Early Education and Development, 20,* 285-304. https://doi.org/10.1080/10409280902773351

UNESCO. (2010). *Recognizing the Potential of ICT in Early Childhood Education – Analytical Survey*. Moscow: UNESCO Institute for Information Technologies in Education.

Vandell, D. L., Burchinal, M., & Pierce, K. M. (2016). Early child care and adolescent functioning at the end of high school: Results from the NICHD Study of Early Child Care and Youth Development. *Developmental Psychology, 52*(10), 1634-1645. https://doi.org/10.1037/dev0000169

Vermeer, H., Van IJzendoorn, M., De Kruif, R., Fukkink, R., Tavecchio, L., & Riksen-Walraven, J. (2008). Child care in the Netherlands: Trends in quality over the years 1995–2005. *The Journal of Genetic Psychology, 169,* 360-385. https://doi.org/10.3200/GNTP.169.4.360-385

Wenger, M., Gartner, H., & Brunner, M. (2020). To what extent are characteristics of a school's student body, instructional quality, school quality, and school achievement interrelated? *School Effectiveness and School Improvement, 31,* 548-575. https://doi.org/10.1080/09243453.2020.1754243

Yoshikawa, H., Weiland, C., & Brooks-Gunn, J. (2016). When Does Preschool Matter? *The Future of Children*, *26*(2), 21-35. https://doi.org/10.1353/foc.2016.0010