An adapted ecosystem model for inclusive early childhood education: a qualitative cross European study

Paul A. Bartolo^a, Mary Kyriazopoulou^b, Eva Björck-Åkesson^c, and Climent Giné^d

^aDepartment of Psychology, University of Malta, Malta; ^bEuropean Agency for Special Needs and Inclusive Education, Denmark, Sweden; ^cSchool of Education and Communication, Jönköping University, Sweden; ^dFaculty of Psychology, Education Sciences and Sport Blanquerna, Ramon Llull University, Barcelona, Spain

ABSTRACT

Early intervention for children vulnerable to exclusion is currently focused on the child's effective inclusion in mainstream early childhood education. There is thus a search for developing a shared understanding of what constitutes quality inclusive preschool provision. This was the aim of a qualitative 3-year (2015–17) study of inclusive settings for children from 3 years to compulsory education across European countries, conducted by the European Agency for Special Needs and Inclusive Education. Data consisted of practitioner descriptions of 32 example inclusive preschools from 28 European countries, and more detailed data collected during short visits to eight of the example settings. Qualitative, thematic analysis identified 25 subthemes representing the perceived constituents of inclusive early childhood education provision. These were organised within a framework that intertwined the structure-process-outcome model with the ecological systems model. The resulting adapted ecosystem model for inclusive early childhood education comprises five dimensions: (1) the inclusive education outcomes, (2) processes, and (3) structural factors within the micro environment of the preschool; and the wider (4) inclusive structural factors at community, and (5) at national levels. The framework can be useful for practitioners as well as researchers and policy makers seeking to improve inclusive early childhood education provision.

KEYWORDS

Early childhood education, preschool, inclusion, quality, ecological system, structures, processes and outcomes, model

CONTACT

Paul A. Bartolo paul.a.bartolo@um.edu.mt

Department of Psychology, University of Malta, Msida MSD2080, Malta

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Introduction

It has long been understood that children with disabilities and other children vulnerable to exclusion should have their needs identified and addressed as early as possible. However, important changes have occurred in how those children's needs should be met. Initially, the focus was on working directly with the child. However, this mainly rehabilitative approach is regarded as a first generation approach to early intervention in research and practice (Guralnick, 1997). It was followed in the 1990s by a second generation approach that widened the focus to include also the child's family (see e.g., Meisels & Shonkoff, 1990). More recently, the focus of early intervention has been further transformed into a holistic approach that takes into consideration all the child's everyday environments which include not only the family but also preschool and community experiences (Guralnick, 2008).

These developments occurred particularly in North American and European contexts. Thus the U.S. Division of the Council for Exceptional Children (DEC) and the National Association for the Education of Young Children (NAEYC) in 2009 issued a joint position statement on "Early childhood inclusion". They stated the "right of every infant and young child and his or her family, regardless of ability, to participate in a broad range of activities and contexts as full members of families, communities, and society." They also suggested that the defining features of quality inclusive early childhood programs "are access, participation, and supports" (DEC/NAEYC, 2009). Researchers also attempted to develop an "Early Childhood Inclusion Model" (Winter, 1999), though this was based on an "interdisciplinary examination of relevant research and professional literature" (p. 47) because of a lack of inclusive practice to bank on.

Similarly, the European Agency for Special Needs and Inclusive Education (2005) project on Early Childhood Intervention highlighted the shift from intervention mainly focused on the child to one focused on improving factors in the child's everyday life, i.e. the family, health and educational environments. This was followed by another European Agency (2010) project that highlighted the need for integrated services aimed not only to support the child's development and learning, but also to strengthen the family's own competences and promote the social inclusion of the family and the child.

These developments were accompanied by the development of a wide understanding that early childhood education (ECE) is a priority for all children's development and learning (European Commission, 2014; Pianta, Barnett, Burchinal, & Thornburg, 2009; García, Heckman, Leaf, & Prados, 2016; OECD, 2015). At the same time, there was a continuing emphasis that the benefits of participation in ECE are especially significant for children most vulnerable to exclusion (Frawley, 2014; Dumčius et al., 2014; García et al., 2016; Hall et al., 2009).

Thus, most European countries have committed themselves to guarantee an ECE place for all children and are currently in the process of improving provision significantly (European Commission/EACEA/Eurydice, 2016). By 2015, only one quarter of the 28 EU countries did not yet guarantee a preschool place for all children, and they had plans for such provision. The remaining three quarters either already guaranteed a legal right to a place in ECE for each child soon after its birth, from age 3 years or earlier, or from 5 years or a little earlier. These places are either free of charge or co-financed by parents with low publicly subsidised fees. By 2015, half the EU countries had already reached the EU 2020 target of having at least 95% of all children between the age of 4 years and compulsory education participating in ECE (Eurostat, 2018), with the range being from 73% to 100%.

ECE includes home and centre-based services for children from birth to the start of compulsory education (European Commission/EACEA/Eurydice, 2016). In European countries this varies from ages 5 to 7 years. This study focuses on centre-based ECE settings for children from 3 years to compulsory education (ages 3 to 6 years). Here we use the terms ECE or preschool settings alternatively, the latter being a preferred term in some countries. In Europe pre-school is “typically designed with a holistic approach to support children’s early cognitive, physical, social and emotional development and introduce young children to organised instruction outside of the family context” (European Commission/EACEA/Eurydice, 2017, p.9).

Quality inclusive early childhood education (IECE)

These developments have led to a new search for understanding what constitutes quality inclusive provision both for children with disabilities (see e.g., Barton & Smith, 2015) and other disadvantages, as well as for ensuring the greatest positive outcomes for all children (European Commission, 2014; Guralnick, 2011; Janus & Brinkman, 2010; Sheridan, Giota, Han, & Kwon, 2009; Simeonsson, Björck-Åkesson, & Lollar, 2012).

There are two main concerns regarding inclusiveness, namely access and participation, or “being there” and “engagement ... while there” (Imms & Granlund, 2014, p. 291). Firstly, children with disability and from disadvantaged backgrounds are actually less often enrolled in ECE (Barton & Smith, 2015; European Commission/EACEA/ Eurydice/Eurostat, 2014). Less than 50% of one marginalised group across Europe – Roma children – access ECE services before the age of 4 or 5 years (UNESCO and Council of Europe, 2017). Secondly, when provision is of poor quality, merely attending does not suffice (Driessen, 2017). Rather, “If quality is low, it can have long-lasting detrimental effects on child development” (OECD, 2012, p. 9; European Commission, 2014). There is a clearer realisation that quality inclusive provision needs to enable the “full” participation of each child, which “requires accommodation and acceptance by others and cannot be legislated but must be negotiated with and between individuals” to ensure all children are “doing what ‘everyone else is doing’ because modifications and accommodations have enabled their participation” (Imms & Grandlund, p.291).

Evaluations of quality in ECE have often captured the availability, accessibility and affordability of ECE, measured by quantitative methods (e.g. European Commission/ EACEA/Eurydice/Eurostat, 2014; OECD, 2013). With regards to actual programs for children from disadvantaged groups, the emphasis on evidence-based practice also tends to limit the focus on individual interventions which are more easily measureable. For instance, in “a comprehensive review” of evidence-based practices in Autism Spectrum Disorder, only a few studies on structured play and social skills training made reference to group educational experiences (Wong et al., 2015). Experimental studies of inclusive classroom intervention (Strain, 2017), parent training programmes (Pickles et al., 2016) or cost-benefit analyses (García et al., 2016) of ECE practices remain scarce but impressive: the former two studies showed significant comparative improvement sustained over four and six years in the reduction of negative autism features and improvement in social communication in young children with autism through classroom and/or parent intervention, while the latter reported a 13% per child, per year return on investment through better outcomes in education, health, social behaviour (less crime) and employment, leading to reduced public costs down the line and enhanced workforce competitiveness.

An increasing amount of research on quality preschool practices has generally relied on the use of rating scales. The most widely used are the *Childhood Environment Rating Scale* (ECERS-R)

(Harms, Clifford & Cryer, 2005; Sylva, Siraj-Blatchford, & Taggart, 2010), and the *Classroom Assessment Scoring System* (CLASS) (Pelatti, Dynia, Logan, Justice, & Kaderavek, 2016; Pianta & Hamre, 2009). The latter focuses specifically on the quality of teacher-child relationships that are associated with positive child development without reference to inclusion issues. The ECERS-R considers various aspects of the social and physical environment and some quality aspects related to inclusion such as accessibility, adaptations and modifications of materials and equipment, facilitation of participation and inclusion, individual child programming, and collaboration with parents and professionals. Other observation scales are focused on adjustments for and the experience of children with disabilities (e.g., Soukakou, 2012; Wolery, Pauca, Bashers, & Grant, 2000). Most of these scales tend to be limited to the micro-environment of the preschool setting. When aiming to improve inclusive services, however, there is still a need for a more comprehensive understanding of “inclusive program quality” (Buyse & Hollingsworth, 2009) and to consider the influence of the wider policy and governance environment (Fenech, 2011). The current study was an attempt to explore the conceptualisation of quality inclusive early childhood education (IECE) in European countries through the grounded perceptions and actions of practitioners dedicated to excellence and equity in IECE settings.

The current study

The study presented in this paper was part of a 3-year (2015–17) cross European project on “Inclusive early childhood education” (IECE). It was intended for policy makers and practitioners, the two clients of the European Agency for Special Needs and Inclusive Education (2017a), an independent organisation, co-funded by the ministries of education in all EU member countries and by the European Commission for the improvement of the member countries’ inclusive education policy and practice. Definitions of inclusive education are varied and changing: some focus on the inclusion and exclusion of specific groups, such as children and youth with disability or from minority groups, and others on “inclusive schools and inclusive learning environments for children with all kinds of physical, cognitive and social backgrounds” (Qvortrup & Qvortrup, 2018, p. 803). The literature on preschool inclusion has, for instance, often focused on the inclusion of children with disability (e.g. Barton & Smith, 2015; Odom et al., 2004; Soukakou, 2012). The present study adopted the wider definition, namely that “The ultimate vision of inclusive education systems is to ensure that all learners of any age are provided with meaningful, high-quality educational opportunities in their local community, alongside their friends and peers” (European Agency, 2015, p. 1). This corresponds to the UN overarching 2030 development goal to “Ensure inclusive and equitable quality education and promote lifelong learning opportunities for *all* [emphasis added]” (UN, 2015).

Study aims

This study is an attempt to support researchers, as well as practitioners and policy makers to develop a shared understanding of the characteristics of quality IECE for all children from three years of age to the start of compulsory education. It aims to answer the question: What outcomes, processes, and structures do European early childhood education practitioners regard as comprising quality IECE provision? An account of the findings with relevant quotations from the data has already been published (European Agency, 2016) but this comprised mainly a collage of data with only some introductory and final reference to the literature as it was meant to provide mainly the sharing of reported practices among the project participants; and similarly a project report submitted to EU policy makers (European Agency, 2017a) was focused on describing and making policy recommendations on quality provision rather than on discussing the findings within the relevant research. This paper, therefore, serves to fill the lacuna in those accounts and aims to enable researchers, as well as practitioners and policy makers, to consider the study

findings within a critical account of the research on the attempts to meet the early identification and intervention needs of children with disability or other disadvantages through inclusive preschool provision.

Method

Participants

The project partnership consisted of 32 pairs of IECE experts from each EU country (the EU 28 with the UK having separate representations for England, Wales and Scotland, and the addition of Norway and Switzerland). These comprised a practitioner (varying from teacher to principal to inspector in IECE), and an academic in IECE from each country selected by its Ministry of Education. Only 28 of these pairs of experts selected a preschool in their respective country that they regarded as being exemplary settings of inclusive provision and collaborated with the staff of the preschool to describe how it provided a quality inclusive service (four of them provided two examples each and thus a total of 32 examples). In addition, the stakeholders – policy makers, staff, children and families – in eight of those settings participated as hosts of a study visit by project participants.

Data collection

All EU country experts were invited to propose example IECE settings that could be visited by the project by giving a clear description of a preschool. They were given eleven selection criteria, mainly that the setting was accessible for all children in the locality and provided support as part of the regular activities to promote each child's participation, that it had a skilled workforce, was headed by inclusive leadership, and engaged families as partners. Though these criteria may be seen as already determining what inclusiveness implied, the content of the proposals was open-ended and allowed for different highlights as to how inclusion was perceived and implemented by the proposers – which is what was then picked up in the analysis.

Twenty-eight countries submitted 32 proposals (four countries proposed two examples each) (data in European Agency, 2018a). Each proposal, ranging in length from around 1,000 to 4,000 words, described what the proponents perceived as important factors and challenges in making their service a quality IECE provision.

The core project team evaluated the appropriateness of each example in terms of the inclusive principles reflected in the description, and selected the eight sites that most reflected inclusivity but also that came from different regions of Europe, and from small as well as bigger countries. The eight sites were visited for three days by different subgroups of around ten persons from the 64 project expert participants. Each participant contributed to the observations and interviews with stake-holders and to the discussions at the end of the visit, and sent individual notes about their observations to the coordinator who summarised them into separate reports about each visit that were endorsed by the principals of each setting and then published online (European Agency, 2018b). The four core team project members took part in most of the visits whose detailed data was thus closely linked to the final analysis. All visits received ethical clearance from the local institution, while project participants followed the required ethical standards of respect for participants' wellbeing, ensuring participation was voluntary, and maintaining confidentiality.

It should be noted that the example settings were not selected as representative of the practices in each country, and references to the examples will, therefore, be made by index number (C1-C28) rather than by country name.

Thematic analysis

All data was analysed through qualitative thematic analysis (Braun & Clarke, 2006) aimed at capturing those factors that the stakeholders regarded as comprising the inclusive and other quality elements of their setting. Using *ATLAS.ti* computer-aided qualitative data analysis software, all the text from each example was processed through two major intertwined steps: first all data was segmented and categorised by topic (e.g. “Curriculum”), and then each topic category was analysed for themes (e.g., “Holistic curriculum for all”) relevant to the research question (Braun & Clarke, 2006).

The results of the analysis were subjected to a review by all project participants.

It should also be noted that the analysis followed the project’s focus on good practice: the initial call was for good examples and the analysis searched for patterns of possible successful quality inclusive arrangements rather than dysfunctional situations.

Results: an adapted ecosystem model for inclusive early childhood education

The data analysis identified 25 subthemes representing what the participant European IECE stakeholders perceived as constituents of quality inclusive early childhood education. These ranged from concerns about processes within the preschool setting itself to those about national policies and provision which were seen as influencing the setting. During data analysis the research team found that the best way of organising the findings in a meaningful way for practitioners, policy makers and researchers was through the combination of two relevant theoretical frameworks into an adapted ecosystem model: the structure-process-outcome framework (OECD, 2012; European Commission, 2014); and the ecological systems model (Bronfenbrenner & Morris, 2006; Hebbeler, Spiker, & Kahn, 2012; Odom et al., 2004; Pianta et al., 2009). This led to the classification of the themes into outcomes, processes and structures and their organisation within the ecological systems model. We use the term “ecosystem model” (see Figure 1) for the resulting framework qualitatively to suggest possible explorations of inter-relationships of issues across the framework.

Themes were categories of early childhood education structures, processes and outcomes as often described in the literature on quality early childhood education provision (see e.g. Pianta et al., 2009) but grounded in the data. Table 1 shows how some of the 25 subthemes were raised in all country examples (C1-28) or in the majority of them, while a few were raised in less than half of the examples. However, this was a qualitative study of purposely selected examples of IECE and the numbers should not be simply translated into representations of European institutions. The reports were unstructured: though it was found that fewer themes were identified in the settings that were regarded as relatively less inclusive (e.g. C18), shorter accounts, too, inherently tended to address less issues (e.g. C16): thus one cannot assume that they did not address also other issues. For instance, while only 8 and 9 countries described the “Welcome for each child” and “Inclusive leadership” respectively, these were regarded by the study as of great theoretical and practical significance for inclusion. Similarly, while it was noteworthy that all descriptions

Figure 1. An adapted ecosystem model for Inclusive early childhood education. From *inclusive early childhood education: new insights and tools – contributions from a european study* (p. 37), by European Agency, 2017a. Copyright 2017 by European Agency.

referred to parental involvement, the different ways in which parents were engaged may be more theoretically significant: most engaged parents in ensuring the progress of their child, but no less important were the fewer examples that described the engagement of parents in the delivery of the curriculum or where the setting organised support for the parents in the community. The more significant issues are discussed below.

Figure 1 shows how the 25 subthemes were clustered into five concentric main themes or dimensions in an adapted ecosystem model of IECE, representing: (1) the inclusive education outcomes in the centre, fed by (2) proximal inclusive education processes, and (3) structural factors within the micro environment of the preschool; and the more distant influences of (4) inclusive structural factors at community (or meso and exosystem levels), and (5) at national (or macro) levels.

Dimension 1: outcomes of inclusive education

At the centre of the framework (see Figure 1) there are the three identified main goals and *outcomes* of IECE, namely “Child Belongingness, Engagement and Learning”. Outcomes are usually described in terms of the child’s achieved learning and development (see e.g., Pickles et al., 2016; Strain, 2017), both within the structure-process-outcome models (e.g. Pianta et al., 2009), as well as within the ecological systems model (Odom et al., 2004). Within that perspective, participation is a process for achieving those outcomes. Here, however, the participation process (belongingness and engagement) is regarded in the first place as an outcome of inclusion (see Imms et al., 2017). The suggestion is that the measure of inclusion is the level of participation rather than merely the learning achieved (e.g., participation is the main principle of the UN Convention on the Rights of Persons with Disability (2006)). This dual function of participation was pointed out by Imms and Granlund (2014): “Optimal, positive participation is both a process and outcome desired by those at disadvantage and their social circles as well as

Table 1. Occurrence of each of the subthemes across the examples from 28 countries (C1-C28*).

Countries(C)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	No. of Cs
1. Inclusion Outcomes:																													
Belongingness, engagement and learning	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	28
2. Inclusive Processes:																													
Positive social interaction			✓		✓					✓	✓	✓	✓		✓						✓					✓		✓	10
Involvement in daily activities	✓	✓			✓	✓	✓					✓	✓			✓						✓				✓		✓	11
Child-centred approach	✓			✓						✓		✓	✓		✓				✓	✓		✓			✓	✓			12
Personalised assessment for learning	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	28
Accommodations, adaptations & support.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	28
3. Inclusive Structures within setting:																													
Family involvement	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	28
Welcome for each child	✓								✓			✓										✓	✓	✓	✓	✓	✓		8
Holistic curriculum	✓		✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓	✓	✓	✓	✓		✓	22
Environment for all children	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓			✓	✓	✓		✓	✓	✓	✓	✓		✓	20
Appropriate staff qualification	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	21
Cultural responsiveness	✓		✓	✓	✓		✓	✓	✓	✓			✓		✓				✓	✓		✓	✓	✓	✓	✓		✓	17
Inclusive leadership	✓	✓			✓					✓		✓							✓				✓	✓	✓	✓			9
Collaboration		✓	✓	✓	✓	✓	✓			✓	✓	✓	✓		✓	✓			✓	✓	✓		✓	✓		✓	✓	✓	20
4. Inclusive Structures within the community:																													
Relevant in-service training	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			23
Community commitment																							✓			✓			
Inter-disciplinary co-operation	✓			✓		✓	✓		✓	✓		✓	✓		✓	✓					✓	✓	✓			✓	✓	✓	17
Smooth transitions					✓	✓	✓		✓			✓				✓						✓	✓	✓	✓	✓	✓	✓	12
5. Inclusive Structures at national levels:																													
Rights-based approach	✓	✓	✓	✓		✓		✓		✓		✓												✓	✓	✓			11
Mainstream access for all	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	26
National curriculum standards	✓		✓			✓				✓		✓	✓		✓	✓		✓					✓		✓	✓			12
Initial teacher education						✓				✓				✓			✓					✓	✓						6
Good governance and funding	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓			✓				✓	✓	✓	✓		✓	✓	21
Monitoring and evaluation.	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	26
Research on IECE	✓	✓		✓	✓	✓					✓	✓	✓	✓	✓	✓			✓	✓			✓	✓			✓		15
Total no. of themes addressed per country	20	13	15	17	18	18	16	11	16	20	10	21	20	12	18	11	10	10	15	13	14	19	20	19	19	14	12	12	

*Countries are indicated by index number only (C1-28) because the examples selected are not representative of each country's preschools.

by professionals spanning education, health and human service sectors and policy makers” (pp. 291–292).

Thus the examples underlined the efforts of staff to ensure that each child *belonged* by making him or her feel at home both with staff and peers:

First and foremost the school’s leaders and all teaching staff do their very best to make the children feel safe and secure in a caring environment, where each and every child is loved and cared for. (C13)

An attempt is made ... to introduce all children to each other and promote friendships through games with simple rules, which can be demonstrated by the teacher (so that language is less of a barrier). Games like football, which are well known to all children, allow the development of strong relationships, bonding and socialising. In addition, teachers always participate in these games in an effort to minimise the distance between themselves and the children. (C3)

A similarly underlined goal was to ensure the active *engagement* of each child. This was achieved mainly by attending to each child’s interests, responding to any child initiative, approach to materials or attempts to communicate, as well as by providing choice of materials and environments including both indoor and outdoor play.

Active engagement was in turn ensured by offering each child, whatever his or her characteristics, *opportunities to learn* through:

a high degree of internal differentiation, which makes it possible to structure the everyday routine, as well as the offers and projects in such a way that impetuses and chances for development are created for everyone. The starting points are always provided by the children’s strengths, interests and inclinations, in order to allow them to have experiences of self-efficacy. (C25)

These three intertwined desirable outcomes/processes of inclusive education are recognised both in the literature on inclusion (Ainscow, 2016; Division for Early Childhood ..., 2009; Flecha (2015)), as well as in the literature on quality early childhood education (see Harms, Clifford, & Cryer, 1998; Pianta & Hamre, 2009; Woodhead & Brooker, 2008). The latter literature also gives importance to the child’s personalised and holistic learning, rather than simply the attainment of formal curriculum targets (see Samuelsson & Carlsson, 2008), underlining process as well as content learning as a desirable outcome (Hedges & Cooper, 2014).

Dimension 2: quality processes within the IECE setting

A girdle of five small circles around the centre in [Figure 1](#) represents the major inclusive processes highlighted in the examples: social interaction processes and child involvement in daily activities, and child-centred approaches and personalised assessment and relevant support procedures. Thus, while the ecological model usually emphasises the child’s agency in proximal processes (Griffore & Phenice, 2016), here the inclusive focus is on the enabling processes of the environment.

Social interaction is regarded as the main learning activity:

Everyday activity and social interaction with other people, adults and children, the co-construction of life practice, language and knowledge are the central elements of this educational process. (C25)

Such interaction took place during all activities, including *daily routines* in which all children were involved, as well as free and structured play.

Child-centred learning was evident in the promotion of child initiative and decision making in a predominantly play environment:

Reflection and observation allow us to really respond to the interests of the children and to not make plans without them having a say in it. We discuss the possible activities and projects, and there is room for personal wishes, ideas and propositions, and for the exchange of experiences. (C9)

This was combined with *personalised (often referred to as “individualised”) assessment and support*, such as the following description of one setting:

[C24] use a variety of assessment tools to ensure that each child is accessing a developmentally appropriate curriculum and that the learning environment supports their needs and that all staff in the setting have a holistic picture of each individual child. 1. Well-being involvement and engagement using Leuven scale over the first six weeks of entry into the setting. Practitioners use a ‘traffic light system’: Green – no concerns, Amber – keep an eye (may attend a nurture group or adult support), Red – concerns, discuss with family/other professionals. 2. Early Years on-entry tracking system which assesses all areas of development. 3. ICAN stages of development tool to assess early speech and language used at home and in the setting. (C24)

All five processes are intertwined. For instance, it was found that inclusive outcomes were ensured when assessment and relevant provision of support were based on a child-centred consideration of his or her interests, needs and developmental progress, together with a consideration of how these could be integrated with the regular group’s interaction in daily routines and social and learning activities:

All children, with their diverse support needs, receive an individual education plan. The child’s support measures are planned to suit the group’s activities so that they are easy to implement within the group and highlight participation and the child’s social inclusion. (C6)

This integration of the five processes was exemplified in the strategy adopted at the C15 preschool for the inclusion of a child with visual impairment: there was a plan for an initial build up, over the first month, of the child’s close relationship with a learning assistant, but with immediate intention of gradual release of the relationship towards the peer group as the child was gaining confidence and skills. During the project visit a few months later, the child was observed engaging in an independent peer group activity with two other peers in which she was equally an initiator and a receiver of interaction.

Research has addressed all of these processes though in separate studies: e.g. Pianta and Hamre (2009) on teacher-child interactions; Soukakou (2012) on child-child interactions and support for children with disability; Georgeson et al. (2015, p. 1862) on “child-centred early childhood practice” prizing “individuality, child development or democracy”. Here the combination of these processes is seen as the mark of an inclusive inter-active social and instructional environment for the child.

Dimension 3: supportive structures within the IECE setting

The above processes are, in turn, nested within preschool structures (see the ring around the processes in [Figure 1](#)) for welcoming each child and family with an accessible and holistic learning environment, qualified staff and inclusive leadership and collaboration that also involves the parents very closely.

The *welcome* procedure was extended through a variety of outreach activities for families with infants and partnership with other support organisations and services in the community. On

enrolment, the staff, including the setting's leader, dedicate time to get to know each child and family as individuals. Then care is taken to ensure the child feels welcome, safe and comfortable in the preschool environment and peer group and gets personal time from staff.

Parents were generally involved in the assessment, program planning and evaluation of each child. In one example (C19), inspired by the Italian Reggio Emilia approach (McNally & Slutsky, 2016), they were observed collaborating with teachers in the actual development and delivery of the curriculum. There were also various initiatives for parent education in the community (second circle in Figure 1), such as school-based family literacy activities (Underwood & Trent-Kratz, 2015) and, in one exceptional setting (C22), actually offering family therapy services. The examples confirmed the importance given to family involvement in international ECE policy documents (see e.g. European Commission, 2014; OECD, 2015).

Holistic curricula too were profusely illustrated in all the examples. These went beyond the usual width of curriculum from nutrition and personal care to socio-emotional, cognitive and language development; they emphasised flexibility in the curriculum that would allow its adjustment to fit all children's needs for participation and each child's personal learning journey, with opportunity to enhance their motivation and skills for engaging positively with the physical and social world. The teachers were seen to be doing what Samuelsson and Carlsson (2008) described as "developmental pedagogy" based on play where "the focus should be on the process of communication and interaction" (p. 638).

Along the same lines, importance was given to the affirmation of the *children's background culture*:

Families are encouraged to share their culture and language within the centre, celebrating diversity and enriching the curriculum. Children and staff learn key phrases in a number of languages to ensure all feel welcomed. The centre ensures that learning resources reflect diversity and challenge stereotyping across the nine protected equality characteristics in the country C23. (C23)

A few examples went further: they promoted staff diversity to enhance diverse multicultural understanding and equal valuing of difference (see Childs, 2017).

The above developments were often closely associated with a deliberately chosen *leadership structure* that enabled staff – as well as other stakeholders – to share responsibility and participate collaboratively in a distributed management system (see Persson, 2013):

Staff meet daily to discuss planning in relation to children's interests, skills and next steps in learning. All members of the team evaluate their practice and activities as they go along, reflecting this within daily evaluations. The setting's leader feels it is vital that every staff member is listened to during the daily sessions and staff rotate around the setting on a fortnightly basis and work within different learning zones. (C24)

Such leadership is widely recognised as an essential element of effective education (see Leithwood, Harris & Hopkins, 2006) and particularly IECE (Barton & Smith, 2015).

Dimension 4: supportive structures within the community

The structures and processes within the preschool are in turn supported by structural factors in the surrounding homes and community (second circle in Figure 1). While transitions from early childhood facilities to primary school have been widely addressed (see e.g. OECD, 2017a), the data particularly from the project visits highlighted the importance of the link to homes and

parents as well as the larger social welfare services network and other social and political community agencies and activities (see e.g. Ginn, Benzies, Keown, Bouchal, & Thurston, 2017; Yamauchi, Ponte, Ratliffe, & Traynor, 2017). These are indeed necessary to ensure equitable access to quality IECE provision (Bassok & Galdo, 2016; Hartman, Stotts, Ottley, & Miller, 2017). The examples included: attempts to educate and support the parents to better care for and educate the child (see e.g. Gerber, Sharry, & Streek, 2016; Hoffman & Whittingham, 2017); attempts to better coordinate the social welfare, health and education multidisciplinary services; a search for further relevant professional training for staff and enhanced professional capacity through connection to research institutions; as well as use of local council political and funding support for the improvement of the IECE provision.

Dimension 5: supportive structures at regional/ national levels

Finally, the model's outer layer presents structural factors operating at regional/national levels. Though the data for this study came mainly from practitioners within IECE settings and their colleagues, they made significant reference to the positive and negative influences of regional and national policies and provision. These included rights-based national policies of entitlement as well as provision for accessibility, adequate curricular and governance standards and evaluation systems, and relevant professional preparation and research policies.

A main issue raised in the examples was whether all children, and at what age, were entitled and had relative resources to access early childhood education within their community. A rights-based approach to entitlement was regarded as necessary, particularly for ensuring that all children, whatever their characteristics and family background, could access IECE provision. Reference was also made to the usefulness or otherwise of the development of national inclusive and holistic curricula and standards and monitoring and evaluation systems, the availability of initial teacher education for IECE as well as of relevant support staff. As the example settings were all engaged in improving their provision, reference was also frequently made to the use of and collaboration in projects or research on early childhood education policy and provision. The examples thus also highlighted the important influence of the national prioritization of early childhood education provision that has indeed been growing over the past two decades (see European Commission, 2014; Haddad, 2002; OECD, 2017b).

Discussion

The adapted ecosystem model for IECE presented above was an attempt to carry forward the research, practice and policy development towards meeting the needs for early intervention with children with disability and other forms of disadvantage through quality inclusive preschool provision. It is a further development from Winter's (1999) theoretical model and the DEC/NAEYC (2009) statement on inclusive early childhood education grounded in practice across Europe.

The adapted ecosystem model for IECE can stimulate new ways of applying the structure-process-outcome and ecological systems frameworks to preschool. The application of the latter has hitherto been rather limited to the dynamics within the microsystem (Fenech, 2011, p.112; Odom et al., 2004), or has been applied to one curriculum area only (Chau-Ying Leu, 2008), or to "special education" provision only (Hebbeler et al., 2012). At the same time, interchangeable use of "structures" as ecological "systems" gives more focus to the dynamic influence of macro structures (Bronfenbrenner & Morris, 2006).

The first three dimensions of the IECE model have already been used for the development of a Self-Reflection Tool for preschool practitioners (European Agency, 2017b). This tool has substantial overlap with other available instruments (see reviews in Barton & Smith, 2015; Ishimine, Tayler, & Bennett, 2010). However, it covers more comprehensively the structures, processes and outcomes within the setting that were identified in the IECE ecosystem model. Thus: it is framed around the belongingness, engagement and learning of every child; takes into consideration the welcoming and accessibility features of the physical, social and instructional setting; considers the engagement of each individual child, whatever their characteristics or background culture, in the regular social and learning activities with relevant support as necessary; considers the facilitation of collaborative social interaction and communication between children and

adults and among adults and peers; and highlights the involvement of the parents and carers. Again it is a new way of looking at evidence-based practice: the whole model and self-reflection tool may not appeal to those who are more inclined towards quantitative evaluations; it is a qualitative tool for those who consider the process of collective reflection among stakeholders as a way forward for improving services (see e.g., Bergen & Hardin, 2015). For instance, the self-reflection tool does not include scoring of features in the preschool setting but rather presents the practitioners with open-ended questions about the quality and accessibility of the social and physical environment being offered to children – such as “How are children enabled to feel that they belong to the peer group?”; “Are all children involved in decisions that are important for them?”; “How do you acknowledge all children’s efforts and achievements?” Practitioners are also asked what they would like to change within each area of inclusiveness.

The ecosystem model can also serve as a tool for mapping the possible areas of concern or targets for understanding and improvement of IECE provision, thus enhancing collaboration between different stakeholders by providing “a blueprint for identifying the key components of high quality inclusive programs” DEC/NAEYC (2009). Because it is grounded in practice, it can support “participatory and decentralized policy-planning” (Vargas-Baron, 2016, p. 22). For instance, Hebbeler et al. (2012) too had used ecological theory as a “framework for understanding how IDEA [Individuals with Disabilities Education Act] directly and indirectly influences the provision of services to young children with disabilities and their families”. The IECE ecosystem model can serve a similar purpose, but from the point of view of providing an inclusive quality provision for all the diversity of children. The model incorporates all the principles of the European Commission (2014) and OECD (2015) quality frameworks, but clarifies the possible overlap of local and regional/national responsibilities. For instance, legislation and funding to entitle every child to quality provision must be part of the national ethos and legislation (“Rights-based education” in the outer circle of Figure 1); but, as highlighted by the parents of children with disability interviewed during project visits, legislation could only be effective if coupled with the “Welcome for every child” ethos of the local leadership and setting (inner circle). In a recent survey among US preschool co-ordinators, the most widely reported challenge (by 30% of responders) affecting the inclusion of children with disabilities in mainstream preschools was “attitudes and beliefs” rather than legislation (Barton & Smith, 2015).

Conclusion

The IECE ecosystem model may serve a mapping function for researchers as well as for both the stakeholders at preschool settings and policy makers aiming to improve the quality of the educational experience of all children. At the same time, it must be noted that the attempt to build an overarching framework of IECE through the combination of the structure-process-outcome model and the ecological systems model arose out of the attempt to bring together the different perspectives of the experts in this project and there is a need for further exploration of the results. Particular new areas for investigation are:

(1) The use of participation as both a process and outcome of quality inclusive education changes the usual conceptualisation of outcomes in the two models: it calls for clarification and longitudinal investigation of the assumption that focusing on higher levels of participation actually translates into better acquisition of knowledge and skills that enhance children's life trajectories. (2) The identification of "proximal processes" from an inclusive systems point of view leads to undue diminishment of the importance given in the ecological systems model to the bi-directionality of the interaction in which child characteristics and agency play a prominent part (Bronfenbrenner & Morris, 2006), as well as to the importance of the meaning or coping mechanisms the child employs in the interaction (Spencer, 2006), albeit that these are partly implied in the child-centeredness of inclusive processes. (3) Moreover, the adapted IECE ecosystem model has identified the factors that in the European context were considered as having an impact on the child's participation, but has not provided sufficient study of the interrelationships between the various factors within the same dimension or across dimensions (see also Pianta et al., 2009). Further research can highlight, for instance, the relationship between personalised learning and child outcomes in relation to developmental curriculum targets as well as life trajectories. (4) Finally, collaboration between researchers, practitioners and policy makers in IECE planning and implementation requires further study of the challenges particularly faced also from the policy makers' point of view.

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No potential conflict of interest was reported by the authors.

About the authors

Paul A. Bartolo Ph.D is Associate Professor of Psychology and Coordinator of the training of psychologists at the University of Malta *Mary Kyriazopoulou* MA is a Project Manager at the European Agency for Special Needs and Inclusive Education, Odense, Denmark

Eva Björck-Åkesson Ph.D is Professor of special education and Head Secretary of Education at the Swedish Research Council in Stockholm

Climent Giné Ph.D is Professor Emeritus in the Faculty of Psychology, Education Sciences and Sport Blanquerna, Ramon Llull University, Barcelona, Spain

ORCID

Climent Giné <http://orcid.org/0000-0001-5413-2947>

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