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# TABLE OF CONTENTS

ANNEX TO TOWARDS A CONCEPTUAL FRAMEWORK FOR AN INTERNATIONAL SURVEY ON ECEC STAFF: EVIDENCE PAPER  
ACRONYMS  
INTRODUCTION  
POLICY ISSUES  
Policy Issue 1: Attracting and retaining professional staff  
   General description  
   Main indicators  
   Data available at the international level  
Policy Issue 2: Developing staff in the profession  
   General description  
   Main indicators  
   Data available at an international level  
Policy Issue 3: Ensuring quality learning and well-being environments  
   General description  
   Main indicators  
   Data available at an international level  
Policy Issue 4: Transition to primary schools  
   General description  
   Main indicators  
   Data available at an international level  
BIBLIOGRAPHY
ANNEX TO TOWARDS A CONCEPTUAL FRAMEWORK FOR AN INTERNATIONAL SURVEY ON ECEC STAFF: EVIDENCE PAPER

ACRONYMS

AIS  Adult Involvement Scale
CIS  Arnett Caregiver Interaction Scale
DHS  Demographic and Health Survey (USAID)
ECEC  Early Childhood Education and Care
ECERS  Early Childhood Environment Rating Scale – Revised
FCCERS-R  Family Child Care Environment Rating Scale – Revised
ISUSS  International Survey of Upper Secondary Schools
I/TERS-R  Infant/Toddler Environment Rating Scale – Revised
MICS  Multiple Indicator Cluster Survey (UNICEF)
PISA  Programme in International Student Assessment (OECD)
STRS  Student-Teacher Relationship Scale
TALIS  Teaching and Learning International Survey (OECD)
UIS  UNESCO Institute for Statistics
UNESCO  United Nations Educational, Scientific and Cultural Organisation
UNICEF  United Nations Children’s Fund
WEI  World Education Indicators
INTRODUCTION

1. Well-known studies of early childhood education and care (ECEC) programmes demonstrate that holistic high-quality services delivered to children and their families during the early childhood period can improve early childhood development with lasting impact into adulthood (e.g. Head Start, Carolina Abecedarian Project, High/Scope Perry Preschool Project). These improvements can occur in or across several early child developmental areas for children of pre-school age (for definitions and terminology, see Box 1). Research findings indicate that various quality measures can provide significant developmental benefits, even when controlling for background characteristics, but that not all quality-related factors have the same impact (Vandell and Wolfe, 2000).  

- Why the focus on quality? The power of ECEC interventions in transforming the lives of young disadvantaged children is fundamentally reliant on the quality of care and education opportunities available. The core quality requirements which yield positive child development outcomes are well-known by most researchers and ECEC policymakers (see Box 2 for an overview of defining quality in ECEC classrooms). Yet most programme evidence calling out the need for high-quality ECEC interventions is anecdotal or based on small-scale research projects. Existing solid research is not substantiated in such a way as to extract a precise operational definition of “high-quality”. Moreover, applying the identified “high-quality” elements to a wide variety of early learning programme systems and settings (e.g. centre-based, home-based) is challenging.

- Professional ECEC staff are at the core of enabling quality in ECEC classrooms, which ultimately are highly associated with child development outcomes. Figure 1 shows a simple conceptual model of the relationships that affect early child development outcomes, and ECEC staff feature prominently as two main influences. First, through structural and caregiver characteristics (e.g. qualification levels), ECEC staff influence the quality aspects of the day-to-day operations of an ECEC programme, which indirectly are related to child outcomes. The second main influence of ECEC staff occurs through process features, which include those elements related to the daily care and learning experiences of children in the ECEC programme. For example, ECEC staff-child relationships, implementation of the curriculum, and on-going professional development are linked directly to child development outcomes.

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1 For a comprehensive discussion of the quality-related aspects of early childhood programmes in the United States which impact child development, see Vandell and Wolfe (2000). (Vandell, 1996)
2. The planned development of an international early childhood education and care staff survey will augment the capacity of international research in understanding the relationships established between ECEC staff and child development outcomes.

3. This Annex is a survey of the existing evidence on the associations between these two interconnected features in ECEC centres – professional staff characteristics and child care processes – and child development outcomes. Specially, the Annex focuses on and is organised according to the four emerging policy issues which are relevant to OECD member countries:

   - Policy Issue 1: Attracting and retaining staff to the profession
   - Policy Issue 2: Developing staff in the profession
   - Policy Issue 3: Ensuring quality learning and well-being environments
   - Policy Issue 4: Transition to primary schools

4. The research conducted for this paper was extensive and sought out evidence from well-known evaluations or peer-reviewed articles which identified structural and process quality aspects in ECEC centre-based programmes as they impact child development outcomes. The focus was on evidence published in the past 10 years, although some older canonical articles were incorporated for their unique findings. Searches were limited to the English language (for the most part) and research conducted in OECD member countries. The range of ages regarding children was before age 8, or before entry into primary education.
Box 1: Definitions and terminology

Several definitions and terminologies used in this annex are useful for framing the analysis.

**Early childhood development (ECD)** refers to the broad range of development phases of young children beyond the physical and a narrow set of cognitive goals (e.g. communication). They include:

- Health, hygiene and nutrition;
- Physical development (gross and fine motor skills);
- Cognitive/language skills;
- Socio-emotional skills.

**School readiness** includes academic skills, such as familiarity with the alphabet, vocabulary, early reading, early numeracy, classification, shapes, nature/health as well as socio-emotional maturity/skills. These expected competencies enable children to follow instructions, socialisation, work in a group, use communicative skills and exert impulse control/Self-regulation. The level and specific set of abilities expected in the first grade of primary education vary by country.

The **age range** for the early childhood period discussed in this annex covers the pre-school-age population which are eligible to enrol in ECEC programmes. They are usually considered in two separate groups: the under-3 age group and children from age 3 up to pre-primary-school age. The lower limit in each country is the usual age at which formal ECEC programmes begin; the upper limit also varies per country, depending on the entry age for primary education.

**Quality characteristics of ECEC programmes** which research has found to impact child development can be divided into two main groups:

- **Structural and caregiver features** include the quality aspects related to day-to-day operations of the programme such as group size; child/staff ratios; teacher compensation and qualifications; safety of physical space; administrative accountability and monitoring.

- **Process features** include the quality aspects related to the experiences of the children in the ECEC programme, such as implementation of programme goals and the curriculum; quality of the physical environment; use of learning materials; teacher/child interactions; relationships with parents and caregivers; transition and linkage with primary schools; and continuous professional development.

**Vulnerable children** are usually defined as groups of children who face particularly unfortunate and challenging circumstances, which make access to basic social services and day-to-day survival more difficult. Their situation often is the origin of their social exclusion. Vulnerability can be due to characteristics acquired at birth or of their immediate environment, or a combination of both. As such, factors of disadvantage do not operate in isolation and the combination of several factors of vulnerability can create mutually-reinforcing exclusion. Examples of such groups include:

- children from ethnic/language groups (including Roma children)
- orphans and other vulnerable children (OVC)
- children from poor households
- children living with disability
- children affected by conflict and/or emergencies
- children living in urban slums or street children
- children living in rural/remote areas
- children living in pastoralist/nomadic communities.
Box 2: Defining quality in ECEC classrooms

ECEC programmes are often described as low- or high-quality, based on observations and aspects that enhance early childhood development. The following descriptions provide some concrete examples of the expected classroom observations at each quality level, regardless of the age targeted.

- **Low quality:** The classroom is noisy and chaotic, or has an over orderly discipline atmosphere, both of which prevent children from engaging actively in play-based learning activities. Children are found in large groups, and individual needs are not met appropriately or effectively. Adults do not interact with children in a professional age-appropriate manner, are excessively harsh or disengaged from enabling child development skills (e.g. positive peer interactions, social-emotional resiliency). The activities are teacher-chosen and -led, and children are not necessarily interested or engaged. Materials and activities are in poor condition or not age-appropriate. Nutrition, health and basic sanitation needs are not met. Indoor and outdoor spaces can be dangerous or not adapted for very young children. Parents are disengaged from the centre.

- **High quality:** The classroom appears well-organised and calm, decorated with age-appropriate cheerful images. The staff have close relationships with children, hold discussions with eye-to-eye contact, help negotiate peer interactions, provide guidance in play-based learning activities and engage children with using a lively, enthusiastic attitude. A variety of age-appropriate materials and activities are available for children to choose their interests and to cover the range of early childhood development skills (e.g. fine and gross motor skills). These could be art (e.g. crayons, paints, clay), science (e.g. plants/animals, magnets, science books), music (e.g. simple instruments, records and tapes), language (e.g. books, flannel board stories, picture card games), mathematics (e.g. tape measure, objects to count), manipulatives (e.g. puzzles, sewing cards), dramatic play (e.g. dress-up clothes, pretend office, housekeeping area), and building (e.g. blocks of different sizes and materials). Children have the opportunity to choose their own activity, to play independently or to join in on small group activities. Nutrition, health and basic sanitation needs are met and developed at the speed of the individual child. Indoor and outdoor spaces can safe and adapted for very young children. Parents are engaged with the centre. Children from vulnerable circumstances receive special attention and integrate most activities.

*Source:* Peisner-Feinberg et al. (1999).
POLICY ISSUES

Policy Issue 1: Attracting and retaining professional staff

General description

5. The high turnover rates observed in many ECEC centres in OECD countries is indicative of the systemic problems related to attracting and retaining professional staff. Good working conditions – especially those which aim to improve job security and retention – are beneficial for the profession, but also lead to better child development outcomes. Secure interpersonal attachments between ages 0 and 3 years and ECEC staff are associated with more complex play and improved social interaction (Mathers et al., 2014). Children benefit from the consistency of child care staff due to the stable relationships that are established (NICHD Early Child Care Research Network, 2000; Torquati et al., 2007). The stability and continuity of relationships in ECEC settings are elements of high-quality programmes. Yet, high turnover rates, poor pay and little career progression undermine the quality of care (as well as attraction to the field).

Main indicators

1.1. System indicators on pre-service training requirements, minimum qualifications requirements and recruitment procedures
1.2. Working conditions
1.3. Self-efficacy and job satisfaction

Data available at the international level

6. Minimum (legal) standards for workforce: Structural indicators concerning the minimum (legal) standards and regulations for workforce are collected through the OECD, notably Starting Strong III and Education at a Glance, as well as EURYDICE/EUROSTAT (36 countries). Specific indicators include, for example, accreditation of initial education programmes, formal qualifications required, participation in professional development (mandatory or not), minimum level and length of initial education, and number of years required to obtain maximum basic statutory salary.

7. ECEC staff wages as a percentage of GNP (or GDP) per capita (%): This is mostly calculated for civil servants and contract teachers and can be disaggregated by education level, years of experience, sex, contract type, institution type, geographical location (urban/rural/remote) and other characteristics. Collected for EU countries (EURYDICE/EUROSTAT) and OECD countries and other countries participating in the World Education Indicators (WEI) programme.

8. ECEC gross salaries for full-time, qualified teachers in pre-primary education, basic minimum and maximum statutory salaries: Collected by EURYDICE/EUROSTAT for staff having fulfilled all training requirements per country’s official policy. Also collects data on the level at which teacher salaries are determined.
9. **Share of newly recruited (or teacher training) graduates among total ECEC staff (%)** or a similar measure of new recruits. Often collected at the national level, but no cross-country comparisons available.

Main indicator 1.1 – System indicators on pre-service training requirements, minimum qualifications requirements and recruitment procedures

*General description*

10. Minimum standards for workforce recruitment matter to achieve a basic level of quality provision among centre personnel working directly with children and to reinforce safety standards. The extent and manner in which regulation is monitored varies among countries, across different level of ECEC services and sometimes also between public and private providers.

*Variables*

- Size and profile of teaching workforce: Total numbers of ECEC staff by age, gender, employment status, ECEC setting (OECD Education at a Glance, EURYDICE/EUROSTAT)
- ECEC staff credentials, qualifications and experience required to teach in ECEC, per staff hierarchy level, per ECEC setting (OECD Education at a Glance, EURYDICE/EUROSTAT)
- Initial ECEC staff education: System-level information on the structure of initial ECEC staff education programmes (OECD Education at a Glance)
- Requirements for continuing professional development (EURYDICE/EUROSTAT)
- Adequacy of supply: Reports from ECEC centre principals on staff shortages and practices for coping with them (in ISUSS and PISA).
- Numbers of unqualified ECEC staff as recorded by ECEC centre principals.
- Status and morale of ECEC staff: Reports from ECEC centre principals’ perceptions of the morale of ECEC staff in their ECEC centre.

*Sample and respondents*

11. National, local administrations of ECEC settings, ECEC centre principals and ECEC staff.

*Summary of research evidence*

12. Setting minimum standards is a manner in ensuring some degree of equity for parents and children who live in poorer neighbourhoods or across public and private providers (OECD, 2006). It also can ensure a minimum level of education, care, safety and health conditions for children in ECEC settings (OECD, 2012a).

13. There is significant variation among countries in terms of what is required as a minimum for the ECEC workforce, and this has been changing over time. For example, participation in continuous professional development has recently entered system requirements to improve the ECEC workforce quality, although it might be optional for ECEC staff working with younger children or for assistant-level
ECEC staff. In some countries, continuing professional development is linked to requirements for ECEC staff promotion (European Commission/EACEA/Eurydice/Eurostat, 2014).

14. Setting minimum standards for wages is linked to increasing the motivation of the existing staff, and attracting a higher calibre candidate, which indirectly can improve child outcomes (OECD, 2012a). A few countries do not set standards on all quality aspects: Sweden, which is known for its high-quality ECEC centres, sets minimum standards for ECEC staff qualifications, but not for child-staff ratios or space per child (OECD, 2012a).

15. With regards to home-based care, some countries prefer provisions for specific mandatory training for workers in home-based settings over provisions that require minimum qualifications (European Commission/EACEA/Eurydice/Eurostat, 2014).

Policy and research questions, e.g.

16. Are there standards regarding initial and continuing qualifications and training for ECEC staff? Are these standards set at a national, state or local level? How do these vary by country ECEC system?

17. What national measures are in place to recruit and maintain a highly qualified workforce? What proportion of the staff is trained below/at/above minimum standards (if they exist)?

18. What are the long-term impacts of setting minimum standards on hiring, motivation and retention of ECCE staff?

19. Are child development outcomes linked to minimum standards or qualifications for recruitment? How does this differ among different hierarchical positions available in the ECEC centre?

Main indicator 1.2 – Working conditions

General description

20. Working conditions refer to a set of structural characteristics that can influence the motivation and satisfaction of ECEC pedagogical staff (hereafter, staff) with their chosen profession. These elements can include salary, working hours, contract type, career progression as well as management characteristics. Retention and contract type/employment status are also determinants that impact quality in ECEC provision. Good working conditions have the power to attract and retain highly-qualified and motivated workers, while poor working conditions will create a brain drain effect away from the profession and a push for hiring less qualified workers.

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2 The EURYDICE survey on ECEC provision in European countries found that nearly all countries include some form of professional requirement for continuing professional development, compared to more than half in 2009 (European Commission/EACEA/Eurydice/Eurostat, 2014).

3 Bulgaria, Croatia, Estonia, Greece, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and in some parts of Austria and Germany.

4 Austria (some Länder), Belgium (French Community), Finland, France, Germany, Hungary, Iceland, Poland, Portugal, Switzerland (some cantons), the United Kingdom (excluding Scotland).

5 This generic term encompasses the variety of ECEC child care workers or teachers who are directly responsible for the care and learning of the children in non-parental care. Countries use various names and hierarchical levels of pedagogical staff to describe the teams working in ECEC centres and homes, not including those who are primarily responsible for the governance and management of the centre. Examples include ‘childcare professionals’, ‘teachers’, ‘educators’, ‘caregivers’ and ‘nursery nurses’, as well ‘assistants’, ‘care staff’ and ‘auxiliary staff’. This document does not differentiate among the hierarchical levels, except when the term ‘teachers’ is used to designate the highest pedagogical hierarchy within an ECEC centre.
**Variables**

- ECEC staff turnover rate (share of permanently appointed paid teaching staff lost to the ECEC sector each year)
- ECEC staff rate of absence due to illness
- ECEC staff wages as a percentage of GNP/GDP per capita
- Share of ECEC staff by ECEC setting type

**Sample and respondents**

21. ECEC centre principals and ECEC staff. Potential to involve ECEC staff union representatives.

**Summary of research evidence**

22. A large part of the ECEC sector faces poor **working conditions** and is composed of a poorly motivated workforce. Yet, establishing fair working conditions – such as appropriate pay (a “living wage”) and supportive work conditions – increases the quality of ECEC services, which in turn will improve child development outcomes through the mediation of improved adult-child process interactions (OECD, 2006). The implications of how poor working conditions undermine child development outcomes and programme quality are the subject of limited research.\(^6\) The research presented below suggests that more research is needed on the impact of working conditions.

- Poor working conditions – in particular low wages, long working hours and length of work year – in child care centres relative to pre-schools and kindergarten act as a strong repellent for qualified professionals (Torquati et al., 2007).
- ECEC staff with heavy workloads – as defined by the number of working hours – are more likely to perform less well than those working fewer hours (Schipper et al., 2007).
- Certain working conditions, such as high job insecurity, high job turnover, and part-time work, which are prevalent in the ECEC workforce, are linked to a detrimental effect on mental health (OECD, 2012b).
- Non-financial incentives, such as vacation days, work hours and work-life balance, lead to better job satisfaction, which is related to higher quality in ECEC centres (Kilgallon et al., 2008; Taguma et al., 2012a).

23. The role of **wages** in determining ECEC staff quality has not yet reached a consensus. ECEC staff with higher wages tend to have higher level of credentials and possibly a specific early childhood certification. Higher wages in the profession attract better candidates, who are more likely to be satisfied with their job and less likely to leave (lower turnover rates), which indirectly can improve child development outcomes. In the United States, one study found that the marginal increase in hourly rates was positively linked to ECEC staff’s decisions to stay on (Moon and Burbank, 2004).

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\(^6\) Some factors such as years in current position, number of job changes, contract type, working hours and other work, are likely to influence child development outcomes, but limited research is available in these areas.
24. Conversely, ECEC staff with lower wages are more likely to need a second job, making them less committed and more strained in their ECEC position (OECD, 2012a). Low wages are also related to higher turnover rates (Huntsman, 2008; Moon and Burbank, 2004; Taguma et al., 2012b).

25. But higher wages and credentials are not always associated with activities leading to improved child development outcomes, as the following two examples show. One study of public pre-kindergartens in the United States found that higher-earning teachers spent more time running lower quality activities (i.e., full group activities) than lower-earning teachers (Pianta et al., 2005). But a multistate study in the United States found that better-paid teachers in infant and toddler centre-based programmes were strongly associated to having higher quality processes, namely teacher sensitivity and responsiveness. In the latter study, teachers’ wages were more strongly associated with high-quality centres than teachers’ education or child-staff ratio (Phillipsen et al., 1997).

26. Critics argue, however, that higher salaries are indicative of other concurrent factors influencing child development outcomes. For example, higher salaries might be linked to better educated ECEC staff, who are more likely to be competitive in the labour force and seek out work in stronger programmes. Torquati et al. (2007) report that wage compensation is linked to higher education levels or child-development specific coursework, but only for ECEC staff working with infants and toddlers. Higher wages were not associated with higher-quality environments in an already highly-regarded pre-school programme in the United States (Honeycutt, 2008).

27. The level of salaries received by ECEC staff are also a factor of the administrative level at which the basic statutory salary is determined. In Croatia, Estonia and Iceland, pre-primary teachers’ salaries are established at the local level. In Finland, the level of salaries are determined by negotiations between trade unions and local education authorities, while in Sweden they are determined at an individual basis, guided by local-level agreements (European Commission, 2014).

28. The employment status of ECEC workers varies across and within OECD countries. What determines the value of the profession is based on numerous factors and can be complex to extricate in research documents. For example, family day care workers, who usually care for the youngest children (under age 3 or 4 years), are highly undervalued within the profession, even among their peers employed in centre-based settings. The split system between day care and centre-based ECEC reinforces the division in professionalism. The United Kingdom’s solution to such a problem was to enact a national minimum wage for ECEC employment so that child care staff were no longer paid less than early education personnel (UNESCO, 2006). To raise the value attributed to the profession and counter gender stereotypes, the “professional identity” of the ECEC workforce needs to change (OECD, 2006).

29. Retention among child care staff is generally quite low and high turnover rates are endemic in the ECEC profession. Frequent changes or other instability of the caretaker has been linked to lower socio-emotional and language development, poorer interactions with peers and poorer attachment with ECEC staff (Mathers et al., 2014; OECD, n.d.; Shonkoff and Phillips, 2000). High turnover rates have also been linked to children spending less time in meaningful (i.e., developmentally challenging) activities: children wandered aimlessly or were less engaged in social activities with peers (Moon and Burbank, 2004).

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7 Pedagogies centred on group activities are associated with lower levels of child development outcomes compared to child-centred activities. See Policy Indicator 3.1.

8 Improved interactions with children are associated with improved child development outcomes. See Policy Indicator 3.2.

9 Family day care workers are accredited to take care of children in their own home. Children ages 0 to 3 are often in this ECEC setting in Belgium and France for example.
Improving working conditions so as to increase retention rates would be particularly beneficial to very young children. Specific practices which minimise changes in ECEC staff are particularly beneficial for the development of infants and toddlers and are positively related to child development outcomes (Dalli, 2014; Huntsman, 2008). Practices to increase wages could be effective in reducing turnover, as ECEC staff with higher wages were less likely to have high turnover rates (Torquati et al., 2007).

Policy and research questions, e.g.

31. What is the quality of working conditions and how do they relate independently to child development outcomes?

32. Do working conditions and wages differ significantly among ECEC setting (e.g., child care staff, pre-school personnel)?

33. Is there a national minimum or statutory wage for ECEC employment? What is the minimum and maximum statutory wage?

Main indicator 1.3 – Self-efficacy and job satisfaction

General description

34. Self-efficacy is defined as the ability to believe in one’s capacity to succeed and reach goals or solve problems. It is linked to the person’s self-confidence and ability to endure difficult circumstances and directly relates to how long a person can undergo a challenge. Job satisfaction relates to staff members’ sense of fulfilment and gratification obtained from the chosen profession as well as from the work environment. Self-efficacy and job satisfaction would seem reasonable as critical elements in determining the quality of the ECEC workforce, but research is still lacking in terms of the link with child development outcomes. This section links these two elements as presented in current research related to ECEC staff (OECD, 2014a).

Variables

- Efficacy in classroom management techniques
- Efficacy in instruction
- Efficacy in student engagement
- Satisfaction with ECEC as a profession
- Satisfaction with current work environment

Sample and respondents

35. ECEC centre principals and ECEC staff

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10 Different terminology might be used, depending on the country. Here the term ‘child care staff’ is used to indicate non-education programme staff for children younger than the official pre-primary entrance school age. ‘Pre-school personnel’ are usually teachers, who can have similar training requirements as primary school teachers.

11 This section is based on TALIS which uses several sub-questions to measure these aspects (see Box 7.1 in OECD, 2014)
Summary of research evidence

36. **Self-efficacy** can be a motivating factor for ECEC staff, despite mediocre working conditions and external forces such as poverty or stressful family circumstances in the children’s lives. Positive attitude among ECEC staff and the ability to retain internal control are elements which enable staff to provide children with positive learning experiences (Honig and Hirallal, 1998).

37. **Job satisfaction** increases with better working conditions, including higher wages, overtime pay and non-financial incentives (see previous section 1.2 and Taguma et al. (2012). For ECEC staff surveyed in Australia, sustaining job satisfaction and motivation is linked to their interest in working with students, positive relationships developed with work colleagues, and work environment (e.g., vacation time, work-life balance) (Kilgallon et al., 2008). Job satisfaction can also be related to the quality of the classroom environment. The number of adults in a classroom is found to be related positively to the quality of the classroom, which in turn increases the opportunities for team discussions and supervision (Taguma et al., 2012b).

38. Stress levels for ECEC staff lead to job dissatisfaction and poorer performance. Workers with a heavier workload are likely to provide lower quality care to children than their colleagues with lighter workloads (SCHIPPER et al., 2007). An American survey of teachers (including kindergarten) found that stress levels had increased and job satisfaction had dropped by nearly 25 percentage points in a five-year period (Markow et al., 2013).

Policy and research questions, e.g.

- Do teachers think that they earn a “fair” wage relative to other professions?
- How do ECEC staff feel about their training helping them secure possible career advancement opportunities?
- How do child development outcomes relate to self-efficacy, current job satisfaction and satisfaction with an ECEC career choice?
- How does self-efficacy change based on ECEC staff characteristics (e.g., by hierarchy level, sex, socioeconomic characteristics, years of experience)
- How is the quality of the classroom environment (including class size and child-staff ratio) related to job satisfaction?
- How is the quality of school learning processes related to job satisfaction and self-efficacy?

Policy Issue 2: Developing staff in the profession

General description

39. The pedagogical staff in the ECEC centre are the key contact with children, responsible for their care, nurturing and developmental experience. As the principal input into the ECEC system, the quality of the pedagogical staff has been at the core of many researchers’ attempts to define “high quality” (Box 2). Staff knowledge of age-appropriate learning needs, curriculum and activities to support learning and child development, and the ability to effectively implement this knowledge, are at the core of a high-quality caregiver. ECEC staff training (pre-service and in-service) establishes the knowledge base that is expected
of pedagogical staff to provide a strong learning environment for the child, which in turn ultimately should support improved child development outcomes.

**Main indicators**

2.1. Pre-service (or initial) formal education and qualification (e.g. level of formal education, duration of education, content/concentration of programme)

2.2. In-service (continuing) education

2.3. General satisfaction and perception of skills learnt in education and training

**Data available at an international level**

40. Percentage of trained teachers among current stock of teachers in pre-primary education (UIS, OECD Education at a Glance): Total number of teachers who have received the minimum organised teacher-training (pre-service or in-service) required for teaching at pre-primary level of education in a given country, expressed as a percentage of the total number of teachers at the given level of education. This indicator is collected at a national level, using school registers, teacher records, school census or surveys for data on teaching staff. Data can usually be disaggregated by gender, geography (rural/urban) and type of institution (public/private).

41. Distribution of the qualification among ECEC staff hired, by staff category: Collected by EURYDICE in 2013 for special report on ECEC (32 countries, see European Commission/EACEA/Eurydice/Eurostat, 2014).

42. Teaching practicum required to obtain credential/licence: Available for pre-primary teachers (OECD Education at a Glance).

Main indicator 2.1 – Pre-service (or initial) formal education and qualification (e.g. level of formal education, duration of education, content/concentration of programme)

**General description**

43. Teachers and other ECEC staff usually require completion of a formal education programme to be eligible to work with children in ECEC centres or homes. The qualification and number of years differs per country, research has shown that staff education, qualifications and other training are linked to child development outcomes and, as such, ECEC staff qualifications and credentials are part of those structural features which resonate most with policymakers for benchmarking, improvement and measurement of ECEC quality. Curricular reforms often include the improvement of teacher training programmes with the expectation that teachers will have improved pedagogy and practice after completing pre-service education (UNESCO, 2006).

**Variables**

- Level of required qualifications by ECEC setting, by hierarchy, by age of children
- Duration of pre-service requirement (months), by ECEC setting, by hierarchy

**Sample and respondents**

44. ECEC centre principals and ECEC staff.
Summary of research evidence

45. The role of ECEC staff qualifications and credentials – as determined by pre-service education – in establishing quality ECEC programmes and impacting child development outcomes is subject to an ongoing debate among academics. On one side of the debate, researchers have identified higher staff education as moderate or strong indicators of higher-quality ECEC classrooms or higher-quality teacher process behaviours, both of which can be linked to improved child outcomes (Early et al., 2007; Fontaine et al., 2006; Phillipsen et al., 1997). The following examples supporting this tenet identified quality links with ECEC staff education levels and either classroom quality or child development outcomes.12

- Teachers’ education level was positively related to teachers’ ratings of language and literacy skills of children (Dotterer et al., 2013).
- Having a credential in early childhood education was linked to higher overall quality in ECEC centres (Torquati et al., 2007).
- The duration of pre-service education was strongly associated with higher language scores at age 7 in a 10-country study of pre-schools (Montie et al., 2006).13
- ECEC staff with a 4-year university degree have higher classroom environment scores per the ECERS-R (Early et al., 2007).
- In developed countries, there is some evidence that teachers with college degrees are more likely to apply child-centred pedagogies and promote children’s verbal skills than those with a high school degree (Faour, 2010).
- Professional, trained ECEC staff are more likely to engage with children in an age-appropriate manner than nonprofessional staff in the development of socio-emotional skills (e.g. turn-taking, coping, negotiating) and verbal skills (e.g. assertive, conversational phrases) (Katz, 1983; Shonkoff and Phillips, 2000).
- Staff with higher levels of education and greater experience providing care had significantly higher caregiving ratings (Vandell and Wolfe, 2000).
- While most studies focus on the education level of the lead teacher, there also exists some evidence that the general education level of the ECEC staff team working with young children is associated with the quality of child development outcomes and staff-child interactions (Bennett, 2008a).
- High-quality ECEC centres with strong child development outcomes were found to hire teachers who have knowledge and understanding of child development (Naudeau et al., 2011).

46. On the other side of the debate are those researchers who have found more recent evidence that ECEC staff education is not predictive of improved classroom quality measures or higher child development outcomes (Early et al., 2007; Gialamas et al., 2014a). They criticise the studies such as those mentioned above because specific levels of education are not distinguished, and that the quality or focus of

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12 For a summary of pre-2000 studies, see Vandell and Wolfe (2000).
13 The IEA Pre-Primary Project sampled than 800 ECEC centres in Finland, Greece, Hong Kong, Indonesia, Ireland, Italy, Poland, Spain, Thailand, and the United States. Teachers’ education was measured by the total number of years in education with no specification for the type of education. No information was provided on the qualifications required for hiring teachers.
pre-service programmes is not qualified. ECEC staff qualifications can be possibly confounded with other ECEC staff-related factors, such as interaction processes, class size and child-staff ratios (Belsky et al., 2007; Center on the Developing Child, 2007; Vandell and Wolfe, 2000).

47. Recent evidence suggests that educational attainment has less of a consistent pattern of association in predicting child outcomes than years in service or education level (Pianta et al., 2009). This evidence does not contest that training and education of ECEC staff are essential to teach the skillset and knowledge to achieve quality, but argues that pre-service teacher education does not appear to be a sufficient factor or a strong enough marker to guarantee teacher effectiveness or high-quality programmes (Burchinal et al., 2008). Moreover, evidence suggests that staff-child interaction processes and the staff’s ability to create a high-quality pedagogical environment are critical to achieve desired child development outcomes (see Policy Issue 3).

Policy and research questions, e.g.

- Are child development outcomes linked to the qualifications and skills held by staff? How does this differ among different hierarchical positions available in the ECEC centre?

- What is the impact of a diverse workforce on child development outcomes, in particular for children from vulnerable backgrounds?

Main indicator 2.2 – In-service (continuing) education

General description

48. Effective professional development continues with in-service training, which is critical to stimulating practice-oriented learning, rapidly improving the capacity of ECEC staff to impart learning and implement activities and keep a workforce that is knowledgeable about the latest care and education practices. Regular training and professional development also might help to reduce the high turnover rates which are endemic to the profession.

49. ECEC professionals can participate in in-service training or continuing education while employed or working in an ECEC setting. The training can have different objectives and types, with or without a credentialing component, and can improve the process quality of the ECEC professional. It provides a valuable opportunity to apply new approaches with the support of an ECEC staff member or other mentor. The content of ECEC staff training – whether in-service or pre-service – is another feature revealed in research which has links to improving child development outcomes.

Variables

- Number of required hours of continuing education per year

- Type of continuing education available for ECEC professional (e.g. mentoring, continuing certification, training, seminars, conferences)

- Share of ECEC staff participating in in-service training, by hierarchy

- Barriers preventing prevention on in-service professional development
Sample and respondents

50. ECEC settings and ECEC staff can provide the information on the hours dedicated to ECEC training while employed as well as the type of training involved.

Summary of research evidence

51. The lack of consistent associations between ECEC staff qualifications and quality ECEC programmes suggests that other elements are interacting with the delivery of services by professionals. These include the content of pre-service training, in-service training, continuing certification and mentoring. Opportunities to participate in professional development or in-service training vary among OECD member countries (Bennett, 2008a; Taguma et al., 2012a). Some studies find significant links between elements of professional development and ECEC centre quality or child development outcomes, even though it is not always clear how these processes function (Sheridan et al., 2009). The results of these case studies suggest the importance of continuous professional development which has the ability to improve existing ECEC practices and create positive support for the profession. The findings include the following:

Content of pre-service and in-service training

- Early childhood development coursework during ECEC staff training is linked to more significant results in child outcomes (e.g. language development, social, physical) than years of experience in in child care service or education level (Honig and Hirallal, 1998).

- The content of pre-service and in-service training is associated with a more effective ECEC workforce and to improved child development outcomes (Burchinal et al., 2008).

- Teachers with a four-year college degree AND a teaching certificate in early childhood education were more likely to have higher quality classroom environments and provide more activities than teachers with no formal training in early childhood (Pianta et al., 2005).

In-service training

- Receiving focused training related to early childhood curricula or practices increases teachers’ quality interactions with children and improves pedagogical practices in ECEC centres, but not all interventions are equally effective (Burchinal et al., 2002; Eurofound, 2014).

- Professional training which focuses on mental health and behavioural problems of young children would benefit ECEC staff and reduce the chances that children are expelled from a programme. Such training would strengthen ECEC staff’s capacity to have improved relationships with children and to be able to identify and treat emergent mental health issues (National Scientific Council on the Developing Child, 2008).

- An in-service professional development initiative to increase staff competencies and credentials was linked to improved quality in child care centres. For example, statistically significant changes were identified in improving personal care routines of children, language-reasoning skill development, and the use of space and furnishings for play and rest (Fontaine et al., 2006).

- Unqualified ECEC staff can gain ECEC qualifications while working part-time in France (University of East London and University of Ghent, 2011).
• In Poland, a programme to increase supply of pre-schools in rural areas included local training for teachers and parents to increase their pedagogic skills (University of East London and University of Ghent, 2011).

Mentoring

• A staff mentoring programme increased classroom quality and improved the teacher-child relation, especially in terms of sensitivity and discipline appropriateness (Fiene, 2002).

• On-site mentoring combined with intensive curricula shows promising results in improving classroom quality and child development outcomes (Burchinal et al., 2008).

• Mentoring of less-experienced staff by more experienced ECEC colleagues can enhance sensitivity to working with infants (Dalli, 2014).

52. ECEC staff might only be motivated to partake in in-service training if there is an incentive such as a wage increase, better working conditions, shorter working days/years or accomplishing additional tasks of interest. It is also important that their schedule is relieved to accommodate for the additional work-related hours (OECD, 2010).

Policy and research questions, e.g.

• Is there a national policy on continuing education for ECEC staff?

• How do continuing education policies relate to child development outcomes? To ECEC staff motivation and morale? To ECEC staff working conditions?

• Do recruitment standards include information on the coursework content or require an early childhood specialisation?

Main indicator 2.3 – General satisfaction and perception of skills learnt in education and training

General description

53. A degree in early childhood education (or similar) can assist ECEC staff with the theoretical and practical background to increase their effectiveness. Generally, research has focused on the links between degrees and ECEC programme quality (see Main indicator 2.1 above), but it is rather the quality of the training programme itself than the degree itself which can support new ECEC staff. There is little research in this area, however, linking to child development outcomes.

Variables

• Specific training subjects covered in pre-service programmes

Sample and respondents

54. ECEC centre principals and ECEC staff.
Summary of research evidence

55. In the United States, a survey of senior faculty and programme chairs of early childhood education training programmes found that a great variety in the quality of these pre-service programmes, especially in terms of teaching priorities, practice training with children and developmental theories followed (Hyson et al., 2009). When examining specific teaching skills, a small-scale survey found that nearly half of the primary school teachers (working with children ages 3 to 7 years) in the United Kingdom had not obtained sufficiently high-quality language and literacy training in their pre-service and induction programmes. Good-quality mentoring or in-service training, however, can offset these disadvantages (Ofsted, 2012).

56. Head Start teachers of a variety of educational backgrounds worked with coaches in the ExCeLL programme to learn a variety of specific strategies to develop children literacy and language skills. Although teachers were not asked about the effectiveness of the training, teachers used the material learned and subsequently improvement among children’s vocabulary development was observed (Wasik, 2010).

Policy and research questions, e.g.

- Do ECEC staff believe that their initial education and training has prepared them well for the position?
- Do ECEC staff receive child-centred, play-based training for children? Does the training incorporate differences for children under age 3 years and older?
- Do ECEC staff receive precise methods for teaching phonics or other programmes to develop literacy and language skills?
- Do ECEC staff training incorporate a practicum before employment?

Policy Issue 3: Ensuring quality learning and well-being environments

General description

57. Structural and process features, which have an impact on the quality of day-to-day operations in an ECEC programme, are essential in determining quality learning and child well-being. Although ECEC centres vary across and within countries, evidence suggests that there are several principal elements which produce high-quality learning and care environments.

58. In much of the research cited in this section, as well as in other Policy sections, the physical environment and adult-child interactions are measured using several internationally-validated scales. These classroom observation techniques which are used by many researchers at an international level are presented in Box
Box 3: Measuring the quality of ECEC programmes

Evaluations of the quality of ECEC programmes and projects are most likely to use observational techniques in the classroom. The five scales described below have been validated and used extensively at an international level by researchers. In some countries, they can temporarily replace the existing monitoring gap in the measurement of quality in ECEC and even postpone the need to develop national standards.

- **The Early Childhood Environment Rating Scale – Revised (ECERS-R)** establishes a baseline for structural and process indicators through 43 items covering 7 sub-scales: Space and Furnishings (e.g. indoor space, space for privacy, space for gross motor play); Personal Care Routines (e.g. greetings, naps, health and safety practices); Language-Reasoning (e.g. availability of books and pictures, use of language, encouraging communication); Activities (standard activity types, math concepts plus promoting acceptance of diversity, use of TV/video/computer); Interactions (e.g. child-child, adult-child, discipline); Program Structure (e.g. use of free play, provisions for children with disabilities); and Parents and Staff. Originally developed in the United States, it has been adapted for use in low- and middle-income countries to adapt to cultural, linguistic and other country-specific circumstances. The target population of the ECERS-R is children 2 to 5 years old. It is not used to compare programmes within and across countries, but serves as a baseline to evaluate the quality of a programme. Criticisms of the ECERS-R focus mostly on the appropriateness of using a single aggregate scale (with same values for each item) to measure a complex quality framework.

- **The Infant/Toddler Environment Rating Scale – Revised (I/TERS-R)** is similar to the ECERS-R in terms of structure and purpose, but targets children from birth to age 2 ½ years. The scale consists of 39 items covering 7 similar sub-scales: Space and Furnishings (e.g. indoor space, room arrangement, space for relaxation); Personal Care Routines (similar to ECERS-R); Listening and Talking (e.g. adult interaction for child language development); Activities (standard activity types, plus promoting acceptance of diversity, use of TV/video/computer); Interaction (similar to ECERS-R); Program Structure (similar to ECERS-R); Parents and Staff.

- **The Family Child Care Environment Rating Scale – Revised (FCCERS-R)** is designed to assess the variety of family child care programmes located in a provider’s home. The 37 items are organised into 7 sub-scales: Space and Furnishings; Personal Care Routines; Listening and Talking; Activities; Interaction; Programme Structure; Parents and Provider.

**Main indicators**

1. The quality of structural inputs
2. The quality of how learning processes occur (process inputs)
3. Special practices for specific populations (e.g. children with disabilities, children of immigrant families, Roma children)
Data available at an international level

59. Child-staff ratio, trained child-staff ratio (UIS, also known as pupil-teacher ratio)

60. Early childhood programme enrolment or attendance rates (MICS/DHS as well as OECD Education at a Glance)\(^\text{14}\)


62. Specific training available for ECEC staff working with disadvantaged populations: Collected by EURYDICE in 2013 for special report on ECEC (32 countries, see European Commission/EACEA/Eurydice/Eurostat, 2014).

Main indicator 3.1 – The quality of structural inputs

General description

63. Structural inputs include a variety of factors which define the environment of an ECEC classroom and facility. The following areas are examined in this section: child-staff ratios and group size, facility safety and infrastructure appropriateness, availability of developmentally-appropriate toys, books and materials and presence of a curriculum or programme of activities.

Variables

- Child-staff ratios, trained child-staff ratio by ECEC setting and by age of children
- Group size by ECEC setting and by age of children
- Physical infrastructure:
  - Environmental conditions: e.g. comfort, safety, noise, temperature, air quality, ventilation, lighting, colour, aesthetics, plants and furniture design
  - Space design: e.g. adaptability over time, user friendly, environmentally sustainable, space flexibility (e.g. facilitating pedagogical flexibility)
  - Inclusivity: disability access, common spaces, outdoor spaces, gendered spaces
  - Technology: ICT infrastructure, hardware and software, connectivity, audio systems
- ECERS-R or ITERS-R or other classroom quality assessment scale for observation of learning processes
- Availability and use of parenting components, by type

\(^{14}\) Enrolment rates refer to the ability to sign up or enrol a child in an ECEC programme, while attendance rates measure whether children actually participate in the programme. Enrolment data are usually collected from administrative sources (e.g., schools) while attendance rates are obtained from household surveys which ask parents on the most recent attendance.
Sample and respondents

64. ECEC centres, ECEC staff, independent observer of classrooms and family homes for environment observation, parents.

Summary of research evidence

65. **Child-staff ratios and group size** are cited together as important and consistent predictors of classroom quality and child development outcomes in various OECD countries (Barros et al., 2011; Burchinal et al., 2008; OECD, 2006; Vandell and Wolfe, 2000). Group size, in particular, predicts the quality of the ECEC staff’s behaviour, even when controlling for staff-child suggesting that small groups are more effective pedagogical environments for ECEC staff (Vandell and Wolfe, 2000). Limiting the number of children supervised by adults and the size of groups are logical concerns for basic safety and supervision considerations as well as for meaningful staff-child interactions. When ECEC child-staff ratios are lower (i.e. lower number of children per staff member), there is greater opportunity for individual adults to offer more stimulating, responsive and supportive care. Small group sizes – even when controlling for child-staff ratios – are associated with overall better caregiving (Vandell and Wolfe, 2000).

66. The extensive research in the area of child-staff ratios and group size stems mostly from project-based research. Their findings – some of which are outlined below – are not necessarily conclusive across all types of ECEC programmes or all areas of child development. Specifically, emerging literature tends to highlight that process quality indicators as they relate to ECEC staff-child interactions (see section 3.2) are significant and complementary factors to child-staff ratios and group size.

- In a comparative study of about 3,500 pre-kindergartens (for 4-year-olds) in the United States, lower ECEC child-staff ratios were associated with significant gains in naming letters, but not with receptive vocabulary or expressive language skills (Dotterer et al., 2013).
- Group size was not related to any improvement in language and cognitive performance in the 10-country IEA Pre-primary project (Montie et al., 2006).
- In a large-scale project in the United States, students performed higher in every achievement test when in smaller kindergarten classes than students in larger classes (Nye et al., 2000).
- In Mexico, children in pre-schools with lower child-staff ratios scored higher in cognitive development tests than those in pre-schools with higher child-staff ratios. The former schools were also linked with better trained teachers, more advanced management and multiple classrooms (Myers, 2004).
- Teachers in Mexico who worked in pre-schools where the child-staff ratio had increased to 30:1 indicated that they were unable to provide individualised attention to the children (Yoshikawa et al., 2007).

67. Much of this research in child-staff ratios has been conducted for pre-school children, around ages 3 to 5 years old. The impact of lower child-staff ratios and smaller group sizes on the younger population appears stronger than for the pre-school population (NICHD Early Child Care Research Network, 2000).

68. In many countries, regulations prescribe the maximum number of children arranged and supervised as a group, and most often this varies according to age, with group size for younger children being smaller. In settings where the group size was of the recommended size or below, process quality was
higher (Burchinal et al., 2002; Huntsman, 2008; NICHD Early Child Care Research Network, 2000) in the sense that ECEC staff acted more caring and stimulated action and thinking more often. Reversely, where group sizes were large, poorer process quality was found (Burchinal et al., 2000). Often, however, the group size is not a specific research factor, and is difficult to isolate from other effects such as staff qualifications and child-staff ratios (OECD, 2010).

69. **The quality of the facilities** in an ECEC programme is critical in providing children with a safe and nurturing environment. Features of the physical environment that impact programme quality could include classroom size, space per child, presence of play area, proper ventilation and protection from external dangers (e.g. roads, wild animals), although this notion is not always substantiated adequately in the literature (Blackmore et al., 2011). Keeping children safe and meeting their basic needs should be a primary concern for all ECEC centres. Design considerations for the interior and exterior spaces include the age of the child. For example, infants need objects that attract them to higher spaces, and assist to pull themselves up to practice standing or walking, but they also need to have a lot of unobstructed floor space to move to new objects freely (Biddle et al., 2014).

70. A high-quality environment – as embedded in its layout, design and space – positively impacts children’s creativity, learning, behaviour and cultural interests as well as ECEC staff’s caregiving behaviours (Huntsman, 2008; OECD, 2012a, 2012c). For example, spaces that define clear boundaries between activity areas and group space (indoors or outdoors) are associated with more positive staff-child interactions and increased time spent exploring environments (CCL, 2006). The importance of indoor and outdoor space for physical play is also related to improved learning conditions for children in pre-school. If designed under the right conditions, outdoor play can foster the practices of skills such as conflict resolution, cooperation, sharing and problem solving (Blackmore et al., 2011). The interior physical environment – temperature control, classroom lighting and good acoustics, for example – can maintain or boost ECEC staff moral and reduce attrition (Buckley et al., 2005). Inclusivity and technology are also considerations for early childhood facilities, although there is no evidence linking to child development outcomes.

71. **The availability and quality of learning materials** are important and necessary for children to develop their physical and cognitive abilities. Age-appropriate toys and books enable children to engage in self-discovery, discover concepts of materials, shapes, sounds and colours and learn about spatial relationships (Iltus, 2006; Naudeau et al., 2011). Some programmatic evidence about the direct impact of the availability of learning materials on child’s cognitive outcomes are briefly mentioned here:

- The number and variety of materials available in an ECEC programme in 10 developed and developing countries were associated with higher cognitive performance at age 7, but had no relationship with language ability (Montie et al., 2006).

- In a cross-national study of pre-primary ECEC centres, cognitive performance improves with the number and variety of equipment and materials available to children in pre-school settings (Montie et al., 2006).

- The quality of classroom practices, including materials and activities as measured by the ECERS-R, was associated with the development of cognitive and social-emotional skills among 4-year-olds, with a continued influence into the second grade of primary education (Peisner-Feinberg et al., 2001).

72. **The curriculum, curriculum framework or programme of activities** refers to the content and often (but not always) the methods that engage children in pedagogical activities in ECEC settings. The pedagogical practices and curriculum of a high-quality ECEC programme should define children’s
activities and the intent of those activities, goals related to the child’s holistic development (e.g. health, hygiene, gross and fine motor skills, communication skills, language, cognitive abilities), and how the lead teacher organises and implements the learning programme. A curriculum can also include other aspects related to the programme, such as standards on how to involve parents and the community, or how to adapt for vulnerable children who might have additional learning needs (e.g. physical adaptations for disabilities, language needs for children from indigenous or bilingual families). When set at the national level, a curriculum or curriculum framework can help establish the overall level of quality and expected standards in a public early childhood programme.

73. Two main streams of pedagogy are approached in OECD countries (OECD, 2006). The social pedagogy approach, as found in Scandinavian countries and in Italy’s Reggio Emilia centres, focuses on the holistic personal development of children and supporting families. The pre-primary or early education approach, often applied in Francophone and Anglophone countries (except in New Zealand’s Te Whāriki curriculum), focuses its responsibility on preparing children with the skills to enter primary education (Bennett et al., 2006).

74. Independent of the pedagogical approach chosen, a high-quality ECEC programme is expected to be child-centred, where play – which is complex to define – is the essential vehicle for building competencies in all areas of child development and foundations for life-long learning (Bennett, 2004; Wood, 2013). ECEC staff with child-centred approaches to learning were related to higher quality classroom environments (Pianta et al., 2005). A play-based education programme in Australia reduced the gap in numeracy and literacy achievement between children from different socio-economic backgrounds (Bennett, 2008b).

75. While engaged in various forms of play, children learn about their surroundings, develop concepts of mathematics and literacy and form socio-emotional foundations. Despite the evidence and work centred on the developmental role of play, the pedagogy around play is less well articulated and can be problematic in practice. The success of child-centred play relies on the ECEC staff’s beliefs and ability to implement learned strategies and practices favouring child development outcomes: high-quality educators are responsible for creating the conditions for learning through play (BERA, 2003). The structure of quality play environments varies by age and per children’s temperaments. For babies and toddlers, play-based activities and routines require predictability and repetition to enhance learning opportunities. Established, well-run ECEC classroom routines offer a structure in which children develop confidence in their surroundings and are associated to positive child development (Fuller et al., 2010). For older children or those who play well independently, ECEC staff provide support for learning through play, even with free-choice: teachers also can play, directing the game and serving as a model when the game becomes difficult and frustrating for a child and the game would otherwise be abandoned (Hewes, 2006).

76. A programme structure which enables free choice in activities is associated with improved child development outcomes. In a 10-country study of pre-schools, children’s language skills were higher for those children who had free-choice of activities proposed by ECEC staff over those children in programmes where pre-academic activities and group social activities dominated. Physical and

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15. The definition of play is developed in early childhood pedagogical literature, which is beyond the scope of this review. Some examples of play types include manipulative play (puzzles, creative construction), exploratory play (construction, discovery through touching), physical play (physical movement to develop gross motor skills), and imitation play (kitchen set, dolls).

16. There is a debate as to whether occidental/Western ideas of child development in early education (as identified by theorists such as Dewey, Froebel, Montessori and Piaget) can be universal in their manner and execution. The cultural context as well as socioeconomic and political factors can affect the implementation of such theories (Aboud, 2006; Myers, 2004).

17. The IEA pre-primary project measured the effect of specific activities in centre-based care at age 4 as they were related to child language skills outcomes measured later at age 7. See footnote 13.
expressive activities (e.g. gross and fine motor skills, dramatic play, arts, crafts, music) also had a stronger positive language effect on children than group-organised activities (Montie et al., 2006).  

Centre-based ECEC programmes which add a parenting component increase ECEC access rates and support better child cognitive outcomes than either approach alone. In New Zealand, policies to promote more parent support and development programmes as part of ECEC services increased children’s participation (Kaga et al., 2010). For example, a programme in Turkey, which served families living in shantytowns, had low household income, low parental education and were of rural origin, randomly assigned mother training to children. The “mother enrichment” programme was based on group discussions to support women in their parenting and spousal roles and in a “cognitive” programme to provide mothers with teaching material for developing their children’s language, sensory and perceptual skills. (Kagitcibasi et al., 2001). The addition of mother training to children in pre-schools had higher cognitive skills (as tested in primary school in the six-year follow-up study). Language and mathematics test scores were not higher for children with trained mothers, but their school grades and school attainment were higher.  

Policy and research questions, e.g.:  

- What are the standards regarding child-staff ratios, group size, physical infrastructure? Are these standards set at national, state or local level?  
- Are ECEC staff satisfied with the existing physical conditions? With the quality, quantity, diversity and age-appropriateness of materials available for teaching?  
- Are there national standards regarding interior and exterior ECEC environments? How does this presence/absence relate to child development outcomes?  
- Are there national standards regarding toys and learning materials per age group? How does this presence/absence relate to child development outcomes?  
- Is the national curriculum or curriculum framework developed to meet age-appropriate developmental targets for children? Are curricula linked to specific types of ECEC setting (e.g. centre-based, home-based)?  
- Does the curriculum or curriculum framework include child-centred pedagogies? Is their implementation supported in continued ECEC staff training?  
- What types of pedagogical approaches are linked to improved ECEC staff satisfaction with their job?  
- Does the curriculum or curriculum framework have a component for including parents as partners in the child development process?  

Main indicator 3.2 – The quality of how learning processes occur
General description

78. Learning processes are determined by the manner in which they are executed by professional staff in ECEC programmes. Of particular interest are interactions with children, interactions with parents and other staff, and pedagogical practices. Staff beliefs and attitudes about teaching very young children are also relevant in how they are manifested when engaging with children and parents.

Variables

- Quality of ECEC staff-child interactions (for example, as measured by the CIS, the AIS or the STRS to measure process with children)
- Extent and quality of interactions with parents: Have ECEC staff spent substantial amounts of time with parents, educating them about their children’s development? (e.g., in ECERS-R or I/TERS-R for interactions with children and parent)
- Extent and quality of interactions with other staff (by hierarchical level)
- Type of pedagogical processes employed with children
- Staff beliefs and attitudes about teaching very young children

Sample and respondents

79. Questions under this indicator would be obtained directly from all ECEC staff working with children. Parents could also be sampled to observe on ECEC staff-parent relations, attitudes about learning and impressions on quality. Ideally, classroom or family day care observations would be used to validate the quality of interactions between ECEC staff and children.

80. Some national surveys collect information on ECEC staff-parent and staff-child interactions by interviewing parents and staff (e.g., Germany adaptations of CIS, FCCERS-R and I/TERS-R or Chile’s External Client Satisfaction Survey to measure the quality of the service delivered and families’ satisfaction).

Summary of research evidence

81. Process quality in ECEC programmes, which includes the way in which interactions occur between children and the staff as well as children’s experiences with the learning materials (see Error! Reference source not found.), is a key ingredient in determining child development outcomes. The warmth and caring nature of the interaction, as well as the pedagogical manner in which learning is imparted by the ECEC staff are frequently cited as important process factors which impact child development outcomes. Process features are often difficult to identify in research as separate from other ECEC staff characteristics such as formal education.

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20 See Box for more detail on these assessment instruments.

21 See OECD (2014) for examples of measuring staff-child and staff-parent interactions in Australia, Canada (Quebec), Chile, France, Germany, Korea and the Netherlands.
Despite pedagogical and cultural diversity in ECEC programmes, evidence points to specific forms of **ECEC staff-child interactions** that benefit children greatly. Examples from small and large studies conclude that when ECEC staff interact with children to deliver stimulating developmental opportunities, the relationship becomes a positive factor in increasing cognitive/language development among children (Belsky et al., 2007; Peisner-Feinberg et al., 2001; Pianta et al., 2009). Teachers can employ a variety of strategies—which can be taught as part of teacher training—to help children develop stronger language and literacy skills (Wasik, 2010).

- High-quality interactions (as measured by the ECERS-R scale) are associated with warmth and responsivity of child–teacher interaction, as well as richness and quality of verbal interactions, which predict concurrent and future child abilities (Pianta et al., 2005).

- The amount of time spent in adult-child interactions or child-child interactions improved age-7 language and cognitive scores only when group responses and adult-centred teaching were not common, or when ECEC staff believed in the importance of language development (Montie et al., 2006).

- The strongest predictor for children’s vocabulary in 5th and 6th grades of primary education was “adult talk” for all children in child care settings (Belsky et al., 2007).

- In Turkey, private and public ECEC staff use a more authoritarian style of interaction with children, which leads to a passive engagement of students and limited interactions. While cultural values and norms on children behaviour might be embedded in these interactions, the quality of the pre-school service delivery suffers as a result (Gol-Guven, 2009).

- The closeness of the teacher-child relationship in child care centres has long-lasting positive developmental effects on the cognitive and social skills of children (Peisner-Feinberg et al., 2001).

- ECEC staff who spend time listening to children—in particular to their interests, questions, requests and goals—are more likely to instil sociability and emotional adjustment among children (Honig and Hirallal, 1998).

- A longitudinal study in Australia found that children who had attended higher quality child care centres at ages 2 and 3 years had higher receptive vocabulary scores, math scores and teacher-reported child literacy at ages 4 and 5 years, and the effect, although diminished, persisted for at least for another two years (Gialamas et al., 2014a). Children also exhibited higher levels of task attentiveness and lower levels of behavioural problems (Gialamas et al., 2014b).

Process quality also reflects the way in which children experience the **use of learning materials**, that is how pedagogical staff incorporates them into daily activities and learning modules. Evidence shows that the quality of the pedagogical staff—as defined by their understanding of pedagogical approaches and appropriate use of learning materials—is highly relevant so as to maximise developmental opportunities for children. For example, the use of dialogic reading techniques with children in ECEC centres has the effect of significantly increasing children’s vocabulary, language utterances and other verbal productions, even for children as young as age 2 years. Adults use storytelling (with or without books) as a means to

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22 There are numerous pedagogical theories which relate how teachers should address children in ECEC programmes in order to meet expected learning outcomes. Moreover, cultural factors can interact with pedagogies to favour one form over another among countries or within a country.
promote language development, by using open-ended questions to implicate students and encourage active participation (Brooks-Gunn and Markman, 2005; Valdez-Menchaca and Whitehurst, 1992). Teacher’s use of rare and challenging vocabulary help children learning English more than native English speakers in increasing their relative scores for receptive and expressive language (Sonnenschein et al., 2013).

84. Developing the relationship between parents and ECEC staff can lead the child care provider to interact more with the child and help the child interact better with other children (CCL, 2006). Co-operation between parents and ECEC settings are relatively informal in most cases, although many countries have established information sessions and bilateral parent-teacher meetings (especially for older children).

85. Research supports the development of specific parent-ECEC staff components to facilitate interactions between parents and ECEC staff so as to extend classroom learning experiences into their home. Parents can be encouraged to carry out specific tasks or are introduced to child development or parenting principles, which can have positive effects on children’s literacy or cognitive development (OECD, 2006). Parents using family day care provisions might not have access to some of the parental support programmes available to parents using centre-based care. Several examples are listed below, although only one is linked to child development outcomes:

- A parent behaviour training programme combined with an ECEC staff training component successfully reduced negative behaviours in the classroom and improved supportive parenting techniques in the home. Teachers also benefitted from more positive management techniques in the classroom (Brooks-Gunn and Markman, 2005).

- Guidance on home-learning activities – to guide parents on age-appropriate learning activities for children – is part of the Irish ECEC curriculum and included in parenting classes in Estonia (European Commission/EACEA/Eurydice/Eurostat, 2014).

- Parents in Finland work with ECEC staff to develop the educational plan for their child, and co-operate on how to achieve the set goals (Taguma et al., 2012c).

- In Slovenia, ECEC services can choose to operate ‘schools for parents’ (Šola za starše), which provide parents with courses on children-rearing topics including domestic violence and reading literacy (European Commission/EACEA/Eurydice/Eurostat, 2014).

86. As the use of full-day care programmes become more widespread, other caregivers in centres and in homes (other than teachers) need to spend time reaching out to parents as well (Schweinhart, 2009).

87. **ECEC staff appraisal and feedback** can provide a sense of the staff’s effectiveness and can yield positive focus on improving motivation and performance of individual teachers. ECEC staff appraisal can occur at the completion of the probationary period (when first entering service), at regular intervals to assess performance (e.g., performance management) and as part of a rewards scheme to acknowledge high-quality staff. Generally, appraisal systems are well-received and considered fair by teachers (as indicated by TALIS survey results in lower secondary education). IN particular, they appear to increase staff motivation and performance and, indirectly, student learning outcomes (OECD, 2013a).

88. **Staff beliefs and attitudes about teaching** are particularly relevant to the way in which children learn and develop socio-emotionally. ECEC staff who have a child-centred approach to child development and adult-child interactions are predictive of having more free-time activities, creating higher quality environments (Pianta et al., 2005). During free-time (also known as free-choice) activities, children tend to select in physical and expressive activities over pre-academic activities. Children have more opportunities
– and the necessity – to speak during one-on-one or small-group interactions with other children and ECEC staff so as to understand the rules, establish limits and make plans for play, for example (Montie et al., 2006).

Policy and research questions, e.g.

- How do pedagogical practice as well as ECEC staff beliefs and attitudes about teaching differ across countries and is the implementation of the curriculum mandatory?
- How do pedagogical practice as well as ECEC staff beliefs and attitudes about teaching differ for children younger or older than age 3 years?
- Is there compulsory pre-primary education (context)? If so, how do the structural and learning processes differ from the last non-compulsory year?
- Are ECEC staff able to translate their beliefs about teaching into teaching strategies and curriculum activities in the classroom?
- Do ECEC staff receive continued professional development training to learn about new research on methods and strategies to enhance child development outcomes, including the use of new materials?
- Do ECEC staff receive professional development training on how to involve parents to enhance child development outcomes?
- Is there a legal obligation or policy strategy to involve parents?
- To what extent do ECEC settings use staff appraisals?
- How do ECEC staff perceive the utility of appraisal systems?

Main indicator 3.3 – Special practices for specific populations (e.g. children with disabilities, children of immigrant families, Roma children)

General description

89. ECEC staff need specific competencies to implement pedagogical practices that are inclusive of how disability, language, ethnicity, gender, geographical locations and other differences impact on children’s learning. Having access to supportive measures – for example, through training courses, investment in additional human or physical resources – can assist ECEC staff to implement appropriate teaching strategies for all children.

Variables

- Criteria to identify disadvantaged groups: group-based definition or individual needs assessment
- Identification of initial (pre-service) training for working with children with special needs (e.g., mandatory or not, length, content)
- Description of special practices available for supporting vulnerable populations in ECEC settings
Availability of specific ECEC staff practices to support vulnerable populations (e.g., additional hiring, hiring of specialists, changing child-staff ratio, additional financial and material resources, continuing professional training).

Enrolment rates disaggregated by vulnerable group, per ECEC setting, per gender and by age group (e.g. under/over 3 years)

Sample and respondents

90. ECEC centre principals, ECEC staff and parents.

Summary of research evidence

91. **Vulnerable children** face a set of challenging circumstances which often make access to ECEC services difficult or poorly adapted to their specific needs. Examples of such groups include children with disabilities, children of immigrant families and Roma children (see Box 1). Children from a diverse set of circumstances can face numerous barriers to participation in ECEC programmes, including language, cultural values, perceptions or beliefs about non-parental care and the financial burden of non-parental care. Yet, extensive evidence shows that these vulnerable children benefit the most from high-quality ECEC interventions in various types of settings (OECD, 2010, 2006; UNESCO, 2006). They are also most likely to have the least qualified and least experienced teachers in their ECEC centres (Nusche, 2009).

92. Early intervention can reduce inequalities from disadvantages received at birth or later in early childhood. Children with disabilities in high-quality care had higher motor development and behaviour scores than children who stayed at home with their mothers (Shonkoff and Phillips, 2000). Reading and writing skills also improved for children with special needs who attended the high-quality Tulsa (United States) kindergarten programme (Yoshikawa et al., 2013). ECEC interventions can help overcome language barriers faced by children of immigrant families during their sensitive period of language acquisition (Cunha et al., 2006). Non-parental language programmes have a positive effect on language development of ethnic-minority children in the United States (Hahn et al., 2014). In France, the école maternelle (3 to 6 years old, pre-primary school) increased retention in primary school for children from immigrant families by 17% and increased numeracy and literacy skills (UNESCO, 2010). Some studies have also found that the systematic integration of the home language and the English language in bilingual pre-school education strengthens the acquisition of English language (Yoshikawa et al., 2013).

93. New Zealand’s Te Whāriki (early childhood) curriculum is a national bilingual, bicultural curriculum in place for all childhood services. Curricula and teaching materials were developed with the Maōri to integrate the Maōri language and culture for all children, including infants and toddlers. Te Whāriki also served to integrate the different approaches found in kindergartens, childcare centres and playcentre associations (Kaga et al., 2010). Integration also was facilitated by a significant increase in native Maōri-speaking educators. In a five-year period, the share of Maōri children who entered primary education with some experience in pre-primary education increased from 86% to 91% (UNESCO, 2010).

94. Roma children present a unique challenge across Europe, as the largest ethnic minority in the region. They often accumulate several disadvantages – social isolation, poverty, language barriers, disabilities, chronic ill health – which, when compounded together, create a significant barrier to ECEC participation. Moreover, Roma children can test poorly for entry into school, as they are often at a

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23 The official estimations of the size of the Roma population of early childhood age are considered seriously underestimated.
cultural and linguistic disadvantage. They are segregated into special education classes or special schools, holding a poor education future (Bennett, 2010).

95. Several initiatives across Europe have been developed to support inclusive education practices and incorporate Roma and other disadvantaged children in targeted interventions to increase their access and participation in ECEC programmes. Some features of effective activities and services include:

- Providing support staff of Romani language in classrooms;
- Organising classrooms heterogeneously to mix children in terms of ethnic backgrounds, gender, disability and other characteristics;
- Planning and preparing curriculum and learning support for children, taking into consideration ethnic background and special needs;
- Encouraging parents’ involvement and decision-making processes;
- Placing ECEC services close to Roma settlements and making them affordable;
- Combining language training for immigrant parents while children are in kindergarten;
- Training educators to have positive expectations for Roma children and other disadvantaged children and to work in an unbiased manner (UNESCO and Council of Europe, 2014).

96. Direct support to ECEC staff working with disadvantaged children can occur in a variety of ways:

- In Slovenia, ECEC staff working with children from ethnic minorities have fewer children in the same classroom.
- In the Czech Republic, ECEC staff are eligible for salary incentives if socially disadvantaged children make up more than 15% of all children.
- Countries employ staff from migrant or ethnic/language backgrounds, who can provide language support.
- Lump sums or subsidies are given to ECEC centres to run specific programmes (European Commission/EACEA/Eurydice/Eurostat, 2014)

97. The type of care setting might be a factor in the delivery of quality services in specific circumstances. For example, one study found that infants with disabilities received poorer-quality care in child care centres than in child care homes or relative care, regardless of the presence of early intervention services (Shonkoff and Phillips, 2000).

Policy and research questions, e.g.

- Which children are defined as disadvantaged in terms of access to ECEC? Is this set at the national, state or local level?
- What policies are in place to increase ECEC access to disadvantaged populations?
• To what extent are children with special needs mainstreamed into regular ECEC?

• What are the child development outcomes of different population groups in targeted and non-targeted interventions?

• How many centres offer multilingual programmes for children and/or their families?

• Are ECEC staff trained to work with children and families from various socioeconomic, language and ethnic groups?

• What measures are in place to support ECEC staff in creating an inclusive learning environment, including provisions for children with disabilities?

• Are the ECEC curriculum and settings sensitive to inclusiveness and children from diverse populations? For example, are books culturally-sensitive and do they provide appropriate messages for vulnerable children?

• What measures are in place for ECEC staff to work with disadvantaged parents to increase access to and participation of their children in ECEC programmes as well as transition to primary school?

• How does equity in ECEC relate to quality? What contextual, structural and process factors enhance equity?

Policy Issue 4: Transition to primary schools

General description

98. Transitioning to primary school from an ECEC centre or home provides children with a stimulating experience, but can be quite a challenge if the schools or children are not ready for each other (children-ready schools and school-ready children). The experience of group routines and socialisation in ECEC, for example, provide a solid foundation for children to enter primary school. But teachers in primary education compared to ECEC staff have different expectations for children, focus more on pre-academic activities and have a limited understanding of ECEC pedagogies (O’Kane and Hayes, 2010).

99. Support and preparation of the children before, during and after the transition are critical for ensuring continuity of schooling elements and favour higher retention throughout primary education, especially for children from disadvantaged backgrounds. Consistency and continuity between the two settings is highly recommended, and the role of teaching staff should be to engage in greater partnership to ease the transition (Britto and Limlingan, 2012; O’Kane and Hayes, 2010). ECEC staff beliefs and attitudes about the transition to primary education and the collaborative process in smoothing the transition are discussed below.

Main indicators

4.1. ECEC staff beliefs and attitudes

4.2. Process (collaboration between ECEC and primary schools)

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24 The relative importance of ready schools versus ready children is debated in research and beyond the scope of this review.
**Data available at an international level**

100. New entrants to Grade 1 of primary education with early childhood development experience (as % of all children entering primary education)

Main indicator 4.1 – ECEC staff beliefs and attitudes

**General description**

101. While there is a general acknowledgement that families, schools, teachers, ECEC staff and other professionals should engage in easing children’s transition to primary schools, there is less evidence about how ECEC staff believe this should occur and what role they should hold in the process.

**Variables**

- ECEC staff beliefs about primary school readiness for children
- Primary school teachers’ beliefs about children’s school readiness

**Sample and respondents**

102. ECEC centre principals and ECEC staff.

**Summary of research evidence**

103. Some ECEC staff can have concerns as to how individual children will transition into primary school. Their concern can be about the change in pedagogy focus or in physical environment, but also on how children’s achievements will be supported and how the ECEC educator’s work will be continued by the primary school teacher (O’Kane and Hayes, 2010).

104. Children from disadvantaged backgrounds might have more difficulties during the transition phase, due to the lower expectations that primary teachers might have of their potential. This was observed for Māori children in New Zealand. Even though their performance at the beginning of the year was the same as for the other children, by the end of the year, they had fallen significantly behind in their outcomes. Creating culturally inclusive primary school classrooms was found to be a strong factor in fostering higher achievement among Māori children (Peters, 2010).

105. Teachers in primary education who have experience or training in early childhood education are more effective in the early grades. They are better equipped with the knowledge of developmentally-appropriate teaching and learning (Britto and Limlingan, 2012). Those primary school teachers who make links in the classroom between learning in ECEC settings and in primary school are likely to motivate the children and develop their sense of confidence as learners in a new system (Peters, 2010).

**Policy and research questions, e.g.**

- How do ECEC staff instil confidence in parents for the transition into primary education? Do they feel the pressure “to teach to pass”, and to rely on formal literacy and numeracy instruction?
- Are early childhood specialists trained separately from primary school ECEC staff? If so, do they receive the same level of qualifications or professional status?
• What measures and/or resources are in place to ensure a smooth transition from ECEC to primary school and how do child outcomes compare at this point?

• How can ECEC staff best support children to transition well to primary school?

• When pre-primary classes are located in the primary school building, does this design foster improved child development outcomes? Do pre-primary ECEC staff have different attitudes and beliefs than when schools are in separate locations?

• What pressure(s), if any, do ECEC staff feel with regard to preparing children for primary school that might impact their teaching and pedagogical beliefs?

Main indicator 4.2 – Process (collaboration between ECEC and primary schools)

General description

106. In some countries, ECEC systems and primary schools have developed processes to assist children and their families in the transition to the primary school level. This collaboration aims to improve primary school retention, reduce drop-out and improve the readiness of children per child development needs. Similarly, primary schools can also engage in processes that make them better adjusted to receiving children of a very young age.

Variables

• Share of pre-primary classes which are located in pre-schools

• ECEC and primary curricula developed with references to the other level

• Training of primary ECEC staff in child-centred pedagogies

Summary of research evidence

107. ECEC centres and primary schools have traditionally been considered as separate entities in many OECD countries, often operating under different ministries. Examples of process collaborations between both education levels are not straightforward and probably difficult to replicate in different systemic environments. The examples below show the diversity of possible strategies implemented to deliberately link ECEC to primary school:(UNESCO and Council of Europe, 2014)(UNESCO and Council of Europe, 2014)

• The curricula in Sweden for ECEC and primary education are conceptually linked, including putting the child at the centre of both curricula (Taguma et al., 2013).

• The Te Whāriki curriculum establishes links between ECEC and primary schools. It describes what children are usually expected to do in primary school, links this with their experiences in ECEC and identifies activities which ECEC staff can implement to facilitate the transition (Taguma et al., 2013).

• In the Netherlands, an increasing number of primary schools are co-operating with playgroups (for children ages 0 to 4 years). ECEC staff follow the same in-service training course to align their teaching methods.
• The Step by Step project, which is implemented in 30 Central Eastern European and Commonwealth of Independent States countries, aims to move children together from pre-school to primary school, so that there is continuity in the peer group. Primary school teachers are trained in the pedagogic framework used by pre-school teachers (Arnold et al., 2006).

• In the Slovak Republic, inspections monitor the co-operation between kindergartens and primary school (OECD, 2013b).

• South Africa introduced the Reception Year, a year of compulsory school before the first grade of primary school. Both classes operate in the same location, which facilitates interactions between teaching staff (UNESCO, 2006).

• In Australia, the KidsMatter Primary programme, which focuses on children’s mental health and adjustment risk, improves student well-being, reduces mental health risks and improves student learning during the transition year, as reported by teachers (Hirst et al., 2011).

Policy and research questions, e.g.

• What activities or strategies have been implemented with the goal of integrating ECEC with primary education?

• How have the ECEC and primary curricula taken into account the transition between the two levels? Are there connections in teaching strategies for example?

• Do ECEC staff and primary school teachers work together in school, the home or other programmes to encourage continuity and coherence between the two education levels?

• What strategies are in place to prepare and assist disadvantaged students during the transition to primary education?
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