Quality Matters in Early Childhood Education and Care

KOREA

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OECD

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FOREWORD

This publication is intended to be a quick reference guide for anyone with a role to play in encouraging quality in Korea's early childhood education and care (ECEC) curriculum.

There is a growing body of evidence that children starting strong in their learning and well-being will have better outcomes when they grow older. Such evidence has driven policy makers to design an early intervention and re-think their education spending patterns to gain "value for money". At the same time, research emphasises that the benefits from early interventions are conditional on the level of "quality" of ECEC that children experience.

What does "quality" mean? *Starting Strong III: A Quality Toolbox for Early Childhood Education and Care* has identified five policy levers that can encourage quality in ECEC, having positive effects on early child development and learning.

- Policy Lever 1: Setting out quality goals and regulations
- Policy Lever 2: Designing and implementing curriculum and standards
- Policy Lever 3: Improving qualifications, training and working conditions
- Policy Lever 4: Engaging families and communities
- Policy Lever 5: Advancing data collection, research and monitoring

Of the five policy levers, Korea has selected **Policy Lever 2: Designing and implementing curriculum and standards** for its current policy focus.

This policy profile for Korea would not have been possible without the support of the national authority and the stakeholders involved. The OECD Secretariat would like to thank the national co-ordinator, Mugyeong Moon, for her work in providing information. We would also like to thank all those who gave their time to respond to our many questions, provide comments on preliminary drafts and validate the information for accuracy. We would also like to thank consultant Matias Egeland who worked on sections of the preliminary drafts as part of the OECD team on ECEC.

The online version of the quality toolbox can be found at: **www.oecd.org/edu/earlychildhood/toolbox**. The online toolbox has additional information, such as a country materials page, where actual documents from OECD countries are presented, including curricula, regulatory frameworks and data systems information. All information related to the OECD Network on ECEC is available at: **www.oecd.org/edu/earlychildhood**.

TABLE OF CONTENTS

Tables

Figures

EXECUTIVE SUMMARY

A common curriculum framework helps staff to enhance their pedagogical skills, children to grow with a smooth transition into schooling, and parents to better learn about child development.

A common framework in the form of a curriculum or learning standards helps staff to clarify their pedagogical aims, keep progression in mind, provide structure for the child's day, focus on the most important aspects of child development, and respond adequately to children's needs. It can also ensure continuity between ECEC and primary schooling, by equipping children with the knowledge and skills needed for primary school and further learning. Additionally, a common framework helps parents learn about child development, encourages them to ensure a good home learning environment, and can act as a bridge between staff and parents for information sharing about what children do in centres, thus facilitating needs-based interventions.

On ECEC outcome indicators, Korea, in general, performs well above the OECD average, such as on students' learning outcomes at age 15. However, Korea can improve labour market and demographic outcomes.

Regarding ECEC policy outcomes, Korea performs above the OECD average on several child outcomes: Korea's infant survival rates are high. Enrolment rates in ECEC for three-year-olds and children below the age of three are high, and Korean students outperform most other OECD countries on the PISA assessments for reading, mathematics and science. However, female employment rates are below the OECD average, gender equality in median earnings falls below the average, and fertility rates are among the lowest in OECD countries.

For better ECEC policies, Korea could increase public spending per child, improve the staff-child ratio in kindergartens and staff qualifications in child care. Korea is currently undertaking the development of a co-ordinated curriculum between kindergartens and child care.

Korea spends much less on child care and education for three- and five-year-olds, spends little on family benefits in cash or through tax measures, and has few paternity leave entitlements in place. While kindergarten teachers (staff in teaching positions) are well educated, child care staff are relatively educated at a lower level. While the staff-child ratio in child care is similar to the international average, the ratio is unfavourable in kindergarten.

Korea has different curricula in place for different provisions but is working towards providing more continuous child development in ECEC. Korea has a standardised child care curriculum, which covers all children aged zero to five years in child care. In parallel, there is the national curriculum for kindergarten for three- and four-year-old children attending kindergarten. Aiming at providing children with better continuous development and learning,

Korea recently set out a national, common curriculum for all children aged five in ECEC: the *Nuri Curriculum*. The government has announced to extend the common curriculum to ages three and four. Korea can learn from countries that have a common curriculum, such as Finland, New Zealand and Scotland (United Kingdom).

To benefit from a curriculum change, Korea could consider such actions as revisiting content to reflect parental expectations, latest research findings, emerging subjects and child happiness, and improving the leadership skills of professionals.

Building upon the existing frameworks in place, Korea could further enhance quality in its ECEC curricula. Other country practices would suggest potential areas for reflection such as: 1) reviewing the curriculum approach; 2) improving alignment with primary schooling; 3) revisiting or rethinking the curriculum content by applying latest research findings in policy design; 4) possibilities for improving children's life satisfaction through curriculum; 5) reflection of parental expectations in curriculum; 6) addressing emerging subjects, such as children's health and revisiting the use of ICT in ECEC; and 7) improving the leadership skills of staff and management.

Korea could learn from Finland, New Zealand and the United Kingdom, as they have taken measures including involving parents in curriculum design; implementing one curriculum for ECEC; supporting staff in communicating about the curriculum; and developing assessment practices linked to the curriculum.

Common challenges countries face in enhancing quality in ECEC curriculum include: 1) defining goals and content; 2) curriculum alignment for continuous child development; 3) effective implementation; and 4) systematic evaluation and assessment. Korea has made several efforts in tackling these challenges, mostly focusing on defining and revising the content by, for example, providing autonomy to local authorities for adaptation of the framework to local needs. Korea has also implemented steps to align curricula better through the development of a national curriculum for all five-year-old children in ECEC.

To further their efforts, Korea could consider strategies implemented by Finland, New Zealand and the United Kingdom, such as engaging parents in setting child-specific curricula; developing one curriculum for children in the whole ECEC age range; developing a communication toolkit for staff and materials that target parents; and integrating curriculum as part of the assessment practices by ensuring assessment practices meet the aspirations of the curriculum.

INTRODUCTION

Aim of the policy profile

Early childhood education and care (ECEC) has become a policy priority in many countries. A growing body of research recognises that it makes a wide range of benefits, including social and economic benefits, better child well-being and learning outcomes as a foundation for lifelong learning, more equitable outcomes and reduction of poverty, and increased intergenerational social mobility. But these positive benefits are directly related to the "quality" of ECEC.

Definitions of quality differ across countries and across different stakeholder groups depending on beliefs, values, a country's (or region's) socio-economic context, and the needs of the community of users. While definitions should be interpreted with caution and sensitivity when comparing cross-country practices, the OECD has taken a two-tier approach to define "quality" to proceed policy discussions. Therefore, this policy profile considers quality in terms of "structural quality"[1] and "process quality"[2], and it sets out "child development" or "child outcome" as quality targets.

Based on international literature reviews findings, the OECD has identified five levers as key policies to encourage quality in ECEC:

1) Setting out quality goals and regulations

2) Designing and implementing curriculum and standards

3) Improving qualifications, training and working conditions

4) Engaging families and communities

5) Advancing data collection, research and monitoring

Of the five levers, Korea has selected "designing and implementing curriculum and standards" to be the theme of this policy profile. The selected countries for reference and comparison include Finland, New Zealand and the United Kingdom where data available.

Structure of the report

This report consists of five chapters:

Chapter 1: Where does Korea stand regarding policy outcomes and inputs?

The first chapter presents two spider webs, providing a quick overview of: 1) policy outcomes over the lifecycle of a child, such as participation rates in ECEC, PISA performance scores and labour market outcomes; and 2) policy inputs that indicate which policies you have in place that can influence ECEC and the workforce, such as public spending on ECEC, required ISCED level for ECEC staff and staff-child ratio.

The spider webs can show you where you stand against the OECD average and draw attention to areas (outcomes and inputs) which might require more policy attention.

Chapter 2: What does research say?

This chapter aims to help you to brief political leaders, stakeholders and the media about the latest research and explain why a framework, such as curriculum or learning standards, matter for better child development. It includes an overview of research findings on why curriculum matters, what the effects of different curricula are on child development and the quality of ECEC provision, which aspects matter in curriculum, policy implications from research, and knowledge gaps in current research.

Chapter 3: Where does Korea stand compared to other countries?

Chapter three provides an international comparative overview of where your country stands regarding curriculum frameworks and content. The chapter can provide insight into which aspects of curriculum Korea might consider taking policy action on, and it can raise awareness about policy issues.

Chapter 4: What are potential areas for reflection?

Chapter four provides some potential areas for reflection, which can broaden your perspectives through comparison with other countries as well as the emerging issues in a changing society. This chapter helps you to raise awareness among key stakeholders on areas that might need action or attention – without making them feel "imposed upon" by governments.

Chapter 5: What are the challenges and strategies?

Chapter five presents the challenges countries have faced in designing, revising and implementing curriculum and gives alternative approaches to overcome these challenges. This chapter provides a quick overview of what the reference countries have done to tackle challenges in designing, revising or implementing curriculum.

NOTES

1 Structural quality consists of "inputs to process-characteristics which create the framework for the processes that children experience". These characteristics are not only part of the ECEC location in which children participate, but they are part of the environment that surrounds the ECEC setting, *e.g.*, the community. They are often aspects of ECEC that can be regulated, though they may contain variables which cannot be regulated (Litjens and Taguma, 2010).

2 Process quality consists of what children actually experience in their programmes – that which happens within a setting. These experiences are thought to have an influence on children's well-being and development (Litjens and Taguma, 2010).

CHAPTER 1

WHERE DOES KOREA STAND REGARDING POLICY OUTCOMES AND INPUTS?

Korea performs above the OECD average on several ECEC outcome indicators but underperforms on others. On participation, Korea has a relatively large share of children aged three and under attending some form of ECEC. On child outcome indicators, infant survival rates are high, there is very little child poverty, and Korean students aged 15 perform well on PISA assessments for reading, mathematics and science. Possible policy changes from an international comparative perspective include: increasing participation rates of five-year-olds; improving female labour market participation; and improving gender equality in earnings for women.

On policy input indicators, Korea performs below average on most ECEC quality-related indicators, which can impact curriculum implementation, such as the regulated staff-child ratio in kindergarten and the qualification level of staff with caring responsibilities. However, the qualification level of kindergarten teachers is higher than for that of child care teachers, and the staff-child ratio in child care is similar to the average. Korea could consider enhancing the qualification requirements of staff in child care and implementing better staff-child ratios in kindergarten.

In recent years, the underpinning principles for a policy intervention are shifting from a current-income, social-welfare model to a life-cycle, human capital development model. In the life-cycle model, early childhood education and care (ECEC) is considered to play a critical role.

A growing body of research suggests that ECEC generates a higher rate of return on public intervention than later stages of education, and even more so for disadvantaged children. It argues that ECEC lays the foundation for subsequent stages in life, such as better student performance, less poverty, more equitable outcomes, less dropouts and greater labour market success.

From a labour market perspective, it is argued that access to affordable, quality ECEC permits mothers to take an equal place in the workforce, boosting household income and giving some families vital help out of poverty. It is also argued that this will improve female workforce participation, increasing the tax base for the society in general.

The first spider web chart aims to spotlight the **policy outcomes** of your country with a life-cycle approach. This will be presented in comparison with the OECD average and the highest scored country (at the maximum value of 100) and the lowest scored country (at the minimum value of 0). *First*, the tool can help you to see where you stand against the international standards. *Second*, it can imply which outcomes might require more policy attention in the international comparison perspective, independent of the domestic policy discussions. *Third*, it can set the scene for you to reflect upon how your selected quality focus could help improve the target outcomes.

The second spider web chart aims to spotlight the **inputs** from ECEC policy. This tool can help you to compare how your positioning on the outcomes in the international landscape relates or does not relate to that on the input side. It can also help you to understand that your selected quality focus is part of the policy package, which can – in combination with other policy interventions – have effects if planned well to avoid cancelling out the effects.

In the annexes, Korea is compared with not only other OECD countries but in particular with the reference countries, selected by Korea, wherever the comparative data are available. The selected countries for reference include Finland, New Zealand and the United Kingdom.

Spider web chart on policy outcomes

On the selected outcome indicators on different policy goals, Korea performs above or close to the OECD average regarding infant survival, share of children living above the poverty line, enrolment rates in formal care for under-three-year-olds and three-year-olds, and all PISA assessment performance tests. Korea performs below average on fertility rate, enrolment rate in ECEC of five-year-olds, female employment rates, and gender equality in median earnings (Figure 1.1). A more detailed comparison and additional information can be found in Annex B.

On fertility rate and child well-being

- Fertility rates in Korea are among the lowest in OECD countries and have dropped significantly since 1970.

- Korea performs above the OECD average on infant survival rates as well as the share of children living above the poverty line.

On participation in ECEC

- For children under the age of three, Korea has higher enrolment rates in formal child care services than many other OECD countries. Also for children at age three, Korea has an above-average enrolment rate.

- The enrolment rate in formal ECEC is slightly below the OECD average for children aged five.

On learning outcomes in lower secondary school

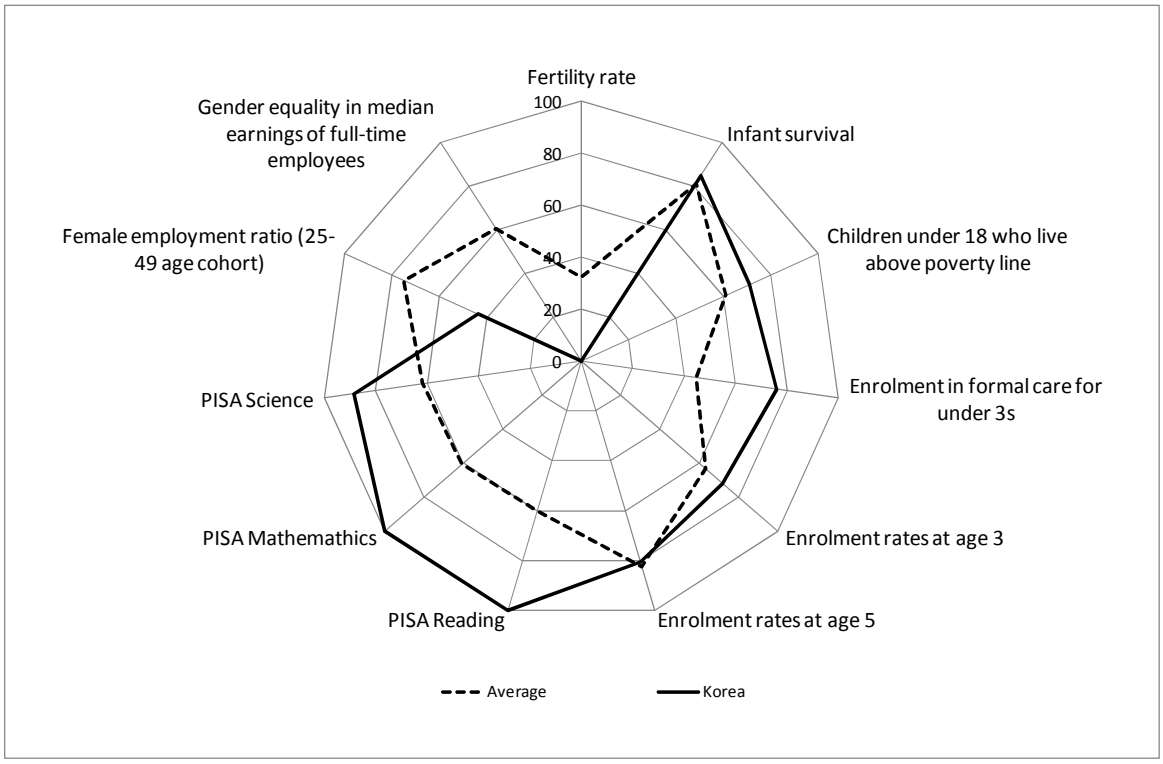
- Korea is among the top performers regarding children's academic achievements at age 15: across all PISA assessments on reading, mathematics and science, Korean students outperform most of their peers in other OECD countries.

On labour market outcomes

- Korea has a below-average female employment ratio in the 25 to 29 age cohort, which means that a relatively low proportion of young women have full-time work.

- Korea has the lowest value for gender equality in median earnings of full-time employees among OECD countries, which indicates there is a large gender pay gap between men and women in Korea.

Figure 1.1. An overview of policy outcomes across sectors



Notes: For each indicator, the absolute performance is standardised (normalised) using a normative score ranging from 0 to 100, where 100 was set at the maximum value and 0 was set at the minimum value, taking into account all OECD countries with available data in each case. The average is calculated by taking into account all OECD countries with available data. See Table 1.1 for maximum and minimum value countries.

Source: See Annex B for sources.

Table 1.1. Maximum value and minimum value on the policy outcomes spider web chart

Indicator on child outcomes	Minimum value	Maximum value
Fertility rate	Korea (1.15)	Israel (2.96)
Infant survival (per 1000 live births)	Turkey (983)	Luxembourg (998.2)
Children under 18 above poverty line (%)	Israel (73.4)	Denmark (96.3)
Enrolment in formal care for the under 3s (%)	Czech Republic (2.2)	Denmark (65.7)
Enrolment rates at age 3 (%)	Netherlands (0.05)	France (100)
Enrolment rates at age 5 (%)	Turkey (50.9)	Australia; France; Ireland; Mexico; New Zealand (100)
PISA (Programme for International Student Assessment) Reading (Score)	Mexico (425)	Korea (539)
PISA Mathematics (Score)	Mexico (418)	Korea (546)
PISA Science (Score)	Mexico (415)	Finland (554)
Female employment ratio (25-49 age cohort)	Turkey (27.4)	Slovenia (86.7)
Gender equality in median earnings of full-time employees	Korea (61.2)	Italy (98.7)

Spider web chart on policy inputs

On the selected child policy indicators, Korea performs below the OECD average on most indicators except for required ISCED level for teaching staff in the education sector (Figure 1.2). A more detailed comparison and additional information can be found in Annex C.

On public spending on young children

- Korea has different public expenditure portfolios for children in different age groups and for different services:
  - The level of public expenditure on child care and education at ages three and five, as a percentage of median working-age household income, is close to the minimum value in Korea. This indicates relatively low public spending levels on ECEC for three- and five-year-old children in comparison with other OECD countries. However, along with implementation of the *Nuri Curriculum*, all five-year-olds in early childhood settings are subsidised from March 2012, and this universal support will be extended to all three- and four-year-olds from March 2013. Hence, it is expected that Korea's public expendure on ECEC will significantly increase.
  - Regarding public expenditure on family cash benefits and tax credits, as a percentage of GDP in 2007, Korea has the lowest expenditure level among OECD countries (minimum value in spider web). The situation is similar when comparing public spending levels per child at ages two and four. However, since 2009, child-rearing allowances for low-income families with children under three has been provided to parents who do not use ECEC services and gradually expended to up to 70% of families with children under three. In addition, starting from March 2012, the Korean government initiated free child care for children aged zero to two.
  - In the total public spending portfolio – including child care, preschool education, cash and tax credits for children between birth and age six – Korea spends much less than its selected reference countries Finland, New Zealand and the United Kingdom.

On parental leave

- Mothers in Korea have an entitlement to paid maternity leave almost equal to the OECD average, and Korea scores below the OECD average for paid paternity leave entitlements. Unpaid maternity and paternity leave entitlements are non-existent in Korea.

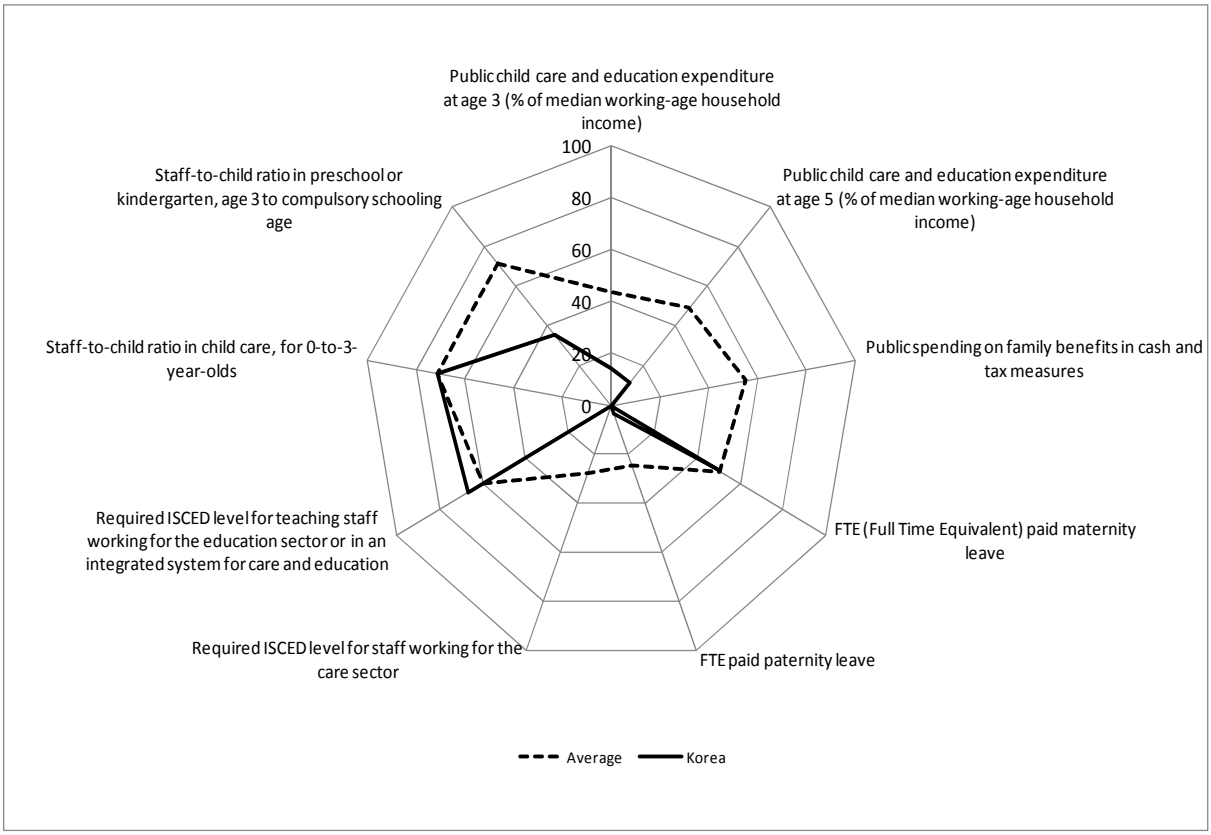
On staff qualifications

- Korea requires ISCED level 3 for staff working in caring positions or the care sector, which is common among OECD countries.
- Staff working in educating/teaching positions or in the preschool sector, have a minimum education requirement of ISCED level 5 which is a higher qualification requirement than in many other OECD countries.

On regulated staff-child ratio

- Korea's staff-child ratio for staff working with zero-to-three-year-olds is equal to the OECD's average. However, the staff-child ratio for staff working in preschool or with three-to-six-year-old children is below the OECD average, indicating that in Korea a staff member has responsibility for a relatively large number of children. In many OECD countries, this ratio is more beneficial.

Figure 1.2. An overview of policy inputs



Notes: For each indicator, the absolute performance is standardised (normalised) using a normative score ranging from 0 to 100, where 100 was set at the maximum value and 0 was set at the minimum value, taking into account all OECD countries with available data in each case. The average is calculated by taking into account all OECD countries with available data. For staff-child ratio, all jurisdictions and regions are included in calculation of the total average. See Table 1.2 for maximum and minimum value countries.

Source: See Annex C for sources.

Table 1.2. Maximum value and minimum value on the policy inputs spider web chart

Indicator on policy inputs	Minimum value	Maximum value
Public child care and education expenditure at age 3 (% of median working-age household income)	Switzerland (2.3)	Sweden (43.4)
Public child care and education expenditure at age 5 (% of median working-age household income)	Slovenia (5.9)	Hungary (46.9)
Public spending on family benefits in cash and tax measures (% of GDP)	Korea (0.2)	Luxembourg (2.6)
FTE (Full Time Equivalent) paid maternity leave (weeks)	Australia; United States (0)	Greece (25.4)
FTE paid paternity leave (weeks)	Chile; Estonia; Ireland (0)	Germany (11.59)
Required ISCED level (Staff working for the care sector)	Belgium; Czech Republic; Finland; Germany; Hungary; Korea; Mexico; Netherlands; New Zealand; Norway; Poland; Slovak Republic; Slovenia; Sweden (3)	Israel; Italy; Japan; Spain; United Kingdom (5)
Required ISCED level (Teaching staff working for the education sector or in an integrated system for care and education)	Czech Republic; Slovak Republic (3)	Italy (6)
Staff-child ratio in formal day care services for 0-to-3-year-olds	Georgia (USA) (1:17)	Finland (1:3)
Staff-child ratio in preschool or kindergarten services for 3-to-6-year-olds	Japan (1:35)	Finland (1:7)

CHAPTER 2

WHAT DOES RESARCH SAY?

*Curriculum and standards can reinforce positive impact on children's learning and development. They can: i) ensure even quality across different settings; ii) give guidance to staff on how to enhance children's learning and well-being; and iii) inform parents of their children's learning and development. Countries take different approaches in designing curriculum. There is a need to think beyond curriculum dichotomies (*e.g.*, academic-oriented vs. comprehensive approaches, staff-initiated instruction vs. child-initiated activities, etc.) and consolidate the "added value" of individual approaches.*

What is curriculum?

Curriculum refers to the content and methods that substantiate children's learning and development. It answers the questions "what to teach?" and "how to teach it?" (NIEER, 2007). It is a complex concept especially in ECEC, containing multiple components, such as ECEC goals, content and pedagogical practices (Litjens and Taguma, 2010).

What is at stake?

There is growing consensus on the importance of an explicit curriculum with clear purpose, goals and approaches for zero-to-school-age children (Bertrand, 2007). Most OECD countries now use a curriculum in early childhood services, especially as children grow older, that is to say, that some structuring and orientation of children's experience towards educational aims is generally accepted. Currently, there is little pedagogical direction for younger children, although many neurological developments take place prior to age of three or four (OECD, 2006). Curricula are influenced by many factors, including society's values, content standards, research findings, community expectations, culture and language. Although these factors differ per country, state, region and even programme, high-quality, well-implemented ECEC curricula provide developmentally appropriate support and cognitive challenges that can lead to positive child outcomes (Frede, 1998).

With trends toward decentralisation and diversification of policy and provision, there is more variation in programming and quality at the local level. A common framework can help ensure an even level of quality across different forms of provision and for different groups of children, while allowing for adaptation to local needs and circumstances. A clear view and articulation of goals, whether in the health, nutrition or education field, can help foster programmes that will promote the well-being of young children and respond adequately to children's needs (OECD, 2006).

Well-defined educational projects also serve the interests of young children. In infant-toddler settings with a weak pedagogical framework, young children may miss out on stimulating environments that are of high importance in the early years. At the programme level, guidelines for practice in the form of a pedagogical or curriculum framework help staff to clarify their pedagogical aims, keep progression in mind, provide a structure for the child's day, and focus observation on the most important aspects of child development (Siraj-Blatchford, 2004).

Debate remains widespread over the "correct curriculum approach" for the youngest and older children in ECEC. This raises important questions about aspects, such as the scope, relevance, focus and age-appropriateness of content; depth and length of descriptions; and input- or outcome-based descriptions. The learning areas that receive most focus in official curricula – particularly in countries where child assessments are used shortly after entry into primary school – are literacy and numeracy. Countries in the social pedagogy tradition do not exclude emergent literacy and numeracy but seek to maintain an open and holistic curriculum until children enter school and, sometimes, well into the early classes of primary school. On the other hand, countries in which early education has been part of, or closely associated with, primary school tend to privilege readiness for school and a more academic approach to curriculum and methodology.

Why does it matter?

Consistency and adaptation to local needs

A common ECEC curriculum can have multiple benefits. It can ensure more even quality levels across provisions and age groups, contributing to a more equitable system. It can also guide and support staff; facilitate communication between teachers and parents; and ensure continuity between pre-primary and primary school levels. However, a curriculum can remain unchanged for years and lack the necessary innovation to adapt to ever-changing "knowledge" societies. It can equally limit the freedom and creativity of ECEC staff (OECD, 2006).

Because ECEC centres are becoming more culturally diverse with children from different backgrounds and home environments, acknowledging that these children might have different needs is important for the effectiveness of a programme. Settings and activities that are designed to accommodate young children's different approaches to learning have been found to reduce disruptive and inattentive behaviour, like fighting with peers and unwillingness to respond to questions or co-operate in class (Philips *et al.*, 2000). The wide range of cultures, communities and settings in which young children grow up makes it essential to engage different stakeholders in developing and refining curricula and to adapt curricula, when needed, to local or cultural circumstances. This is to ensure that curricula actually meet children's needs and truly focus on the child and their development (NAEYC, 2002).

Balancing diverse expectations

It is important that all stakeholders agree on the contents of the pre-primary curriculum. Governments and parents may share common objectives, such as preparing children for school, but they may also disagree on the appropriateness of specific pre-primary subjects for children, such as the integration of ICT in the classroom. In multicultural societies, governments may want to create a skilled and knowledgeable workforce and prioritise shared values for building a sense of community. Meanwhile, minority group families may be more concerned with transmitting native languages and customs to children while respecting specific beliefs on child rearing. Curricula can contribute to balancing different expectations of early childhood development in the curriculum and ensure that expectations and needs of different stakeholders are met (Bennett, 2011; Siraj-Blatchford and Woodhead, 2009; Vandenbroeck, 2011).

Provides guidance, purpose and continuity

Curriculum can provide clear guidance and purpose through explicit pedagogical guidelines. A focused curriculum with clear goals helps ensure that ECEC staff cover critical learning or development areas. It can therefore equip children with the knowledge and skills needed for primary school and further learning and facilitate smooth transitions between education levels (UNESCO, 2004).

Improves quality and reinforces impact

Curriculum can establish higher and more consistent quality across varied ECEC provisions; and having a steering curriculum is found to contribute to decreased class repetition, reduced referral to special education and better transitions to primary school (Eurydice, 2009). At the same time, a high-quality curriculum can reduce the fade-out effect of knowledge gained in preschool (Pianta *et al.*, 2009).

Facilitates the involvement of parents

Curriculum can inform parents about what their children are learning in an education or care setting. It can act as a bridge between ECEC staff and parents for information sharing and needs-based interventions. Parental knowledge of the curriculum can be particularly important for children with special needs or learning difficulties to provide added support at home. One of the most effective approaches to increasing children's later achievement and adjustment is to support parents in actively engaging with children's learning activities at home (Desforges and Abouchaar, 2003; Harris and Goodall 2006). Activities that can be beneficially promoted include reading to children, singing songs and nursery rhymes, going to the library and playing with numbers.

What aspect matters most?

Thinking beyond curriculum dichotomies

Traditionally, ECEC curricula have been categorised into academic and more comprehensive models. An academic approach makes use of a staff-initiated curriculum with cognitive aims for school preparation. A comprehensive approach centres on the child and seeks to broaden the scope for holistic development and well-being (Bertrand, 2007; OECD, 2006). An academic approach can prescribe teaching in critical subject areas but can also limit a child-centred environment characterised by self-initiated activity, creativity and self-determination (Eurydice, 2009; Prentice, 2000). With more flexible aims, a comprehensive approach can better integrate social and emotional well-being, general knowledge and communication skills but risks losing focus of important education goals, as can be seen in Table 2.1 (Pianta, 2010; Bertrand, 2007; UNESCO, 2004).

It is argued that high-quality ECEC settings are related to curriculum practice in which cognitive *and* social development are viewed as complementary and of equal importance. Such integrated curriculum is believed to contribute to high-quality ECEC and improved social behaviour (Table 2.2) (Bennett, 2004; Siraj-Blatchford, 2010). As an example, Sweden is considered to have high-quality ECEC in part because its curriculum contents place the same value on social and cognitive learning (Sheridan *et al*., 2009, Pramling and Pramling Samuelsson, 2011).

It should be noted that "mixed models" that combine different curriculum approaches are not always successfully integrated in practice. In some countries, the implementation of a mixed model curriculum has been found to be less effective than pure "academic" or "comprehensive" approaches. Nevertheless, a clear dichotomy between the "academic" and "comprehensive" approaches is not necessarily warranted. Instead of focussing on "type" of curriculum it may be beneficial to highlight a curriculum's 1) critical learning areas and 2) implementation (Eurydice, 2009).

Table 2.1. Effects of academic and comprehensive curriculum models

Which "model" is most likely to improve a child's...	Academic	Comprehensive
IQ scores	X	
Motivation to learn		X
Literacy and numeracy	X	
Creativity		X
Independence		X
Specific knowledge	X	
Self-confidence		X
General knowledge		X
Initiative		X
Short-term outcomes	X	
Long-term outcomes	X	X

Source: Pianta *et al.*, 2010; Eurydice, 2009; Laevers, 2011; Schweinhart and Weikart, 1997.

Table 2.2. Different curriculum models' effect on school behaviours

	Direct instruction	Child centred (constructivist)	Child centred (social)
Misconduct at age 15	14.9	5.9	8.0
Ever been expelled from high school	16.0%	5.9%	8.0%
Total number of classes failed	9.6	5.0	4.9

Notes: For "Misconduct at age 15", the sum is out of 18 possible criteria of misconduct. For "Ever been expelled from High School", this is the percentage of sample group members that had been expelled from High School. For "Total number of classes failed", this is the number of classes failed by per member of sample group (asked at age 23). Results are from a study of different curriculum models impact on disadvantaged children in New Jersey. The sample groups are randomly selected and have comparable socio-economic backgrounds and other background characteristics. "Child Centred (constructivist)" is a High/Scope curriculum model, "Child Centred (social)" is a Nursery School programme with a focus on social skills. Both curriculum models place stronger weight on child-initiated activities.

Source: Schweinhart and Weikart, 1997.

Critical learning areas

Literacy

The importance of literacy is well-documented as the means through which all other subject areas are acquired (NIEER, 2006). Researchers continually point to the benefits of literacy for language development and reading outcomes (UNESCO, 2007). Literacy has also been consistently linked to improved school performance and achievement, as well as higher productivity, later in life. Evidence suggests literacy should focus on improving vocabulary and listening skills; building knowledge of the alphabetic code; and introduce printing (NIEER, 2006). The OECD has shown that children whose parents often read to them show markedly higher scores in PISA 2009 than students whose parents read with them infrequently or not at all (OECD, 2011). Research also shows that children quickly establish a stable approach to learning literacy. In order to do so, it is essential that they are exposed to texts, pictures, books, etc. in different communicative contexts. For example, structured play that is integrated into children's everyday interests can more easily introduce the fundamentals of written language (Mellgren and Gustafsson, 2011).

Numeracy

There is a general consensus that early mathematics should be implemented on a wide scale, especially for disadvantaged children. Even the youngest children use abstract and numerical ideas (amounts, shapes, sizes) in everyday "play" (Björklund, 2008); and staff can use children's existing knowledge and curiosity to develop mathematical concepts, methods and language (Amit and Ginsburg, 2008). In everyday activities, numeracy should focus on "big ideas" to support mathematical competence, namely numbers and operations; shapes and space; measurement and patterns (Amit and Ginsburg, 2008; NIEER, 2009).

Developing early mathematical skills means that the child discerns relations in space, time and quantities and acquires an ability to use his or her understanding in communication with others when solving problems, in logical reasoning and in representation (Björklund, 2008 and 2010). Longitudinal studies on early numeracy show that a child's understanding of numbers and numeric relationships can predict later acquisition of arithmetical skills and mathematical competence (Aunio and Niemivirta, 2010; Aunola *et al.*, 2004).

ICT

Computer-facilitated activities can have positive impacts on play and learning. They can tap into a child's creativity and motivate curiosity, exploration, sharing and problem solving (UNESCO, 2010). ICT can even eliminate boundaries between oral and written language and allow the visualisation of mathematical concepts and relationships (UNESCO, 2010). But while computer use is positively associated with achievement in math, it can be negatively correlated with reading. Some studies demonstrate that more frequent use of computers among low-achieving readers can hinder literacy progress since computers tend to replace face-to-face instruction, which is critical in literacy development (Judge *et al.*, 2006).

Science

When a child experiences science-related courses early in life, he or she is found to be encouraged to ask questions, think more critically, experiment, develop his/her reasoning skills, read and write. Studies suggest that children become better problem solvers and even experience a raise in their IQ when they are taught principles of logic, hypothesis testing and other methods of reasoning. These dimensions are all tackled in science practices (Bybee and Kennedy, 2005).

Art and music

Arts can boost children's attention, improve cognition and help children learn to envision, *i.e.*, how to think about what they cannot see. The ability to envision can help a child generate a hypothesis in science later in life or imagine past events in history class. Intensive music training can help train children for geometry tasks and map reading. However, there is little attention in research to children's use of art and music practices and its effect on developmental outcomes (Litjens and Taguma, 2010).

Physical and health development

Motor skills, such as crawling, walking and gym classes or play time, are related to children's development of social skills and an understanding of social rules. Health education and hygiene practices are found to have positive effects for children and their parents. Children participating in ECEC programmes with specific hygiene and health guidelines have improved hygiene habits, which often result in healthy weight and height in comparison to children who do not benefit from such practices (Litjens and Taguma, 2010).

Play

It is important to integrate exploration, play and peer interaction into the curriculum. Evidence suggests that "social pretend play" and "child-initiated play" lead to better co-operation, self-regulation and interpersonal skills (Bodrova and Leong, 2010; Nicolopoulou, 2010). Child-initiated play has been specifically linked to symbolic representation (Bodrova and Leong, 2010). Researchers point out that the combination of indoor and outdoor play – involving the use of media, role play, drawing and puppets – provides numerous high-quality development opportunities for children to create and negotiate (Aasen *et al.*, 2009).

Choice, self-determination and children's agency

Research shows that children are more competent and creative across a range of cognitive areas when they are given the *choice* to engage in different well-organised and age-appropriate activities (CCL, 2006). A curriculum can stimulate this behaviour through including cross-disciplinary learning activities that trigger children's curiosity. Fun and interesting themes, such as "Alive!" (the study of living vs. non-living things), can make learning more personal and relevant for young learners (NIEER, 2007). Implementing such activities in small groups can encourage greater autonomy (Eurydice, 2009; Laevers, 2011) and provides more space for spontaneous or emergent learning (NIEER, 2007). Children's participation is not only important in order to facilitate effective learning of different curriculum elements but can be important in its own right and foster democratic values. When placing value on children's agency, it is considered important that children are allowed freedom of expression and that their modes of communication are recognised in everyday interactions (Bae, 2009).

Children's perspectives

Research on ECEC curriculum confirms the importance of children's perspectives not only through their participation in activities – but through their active input in decision making (Broström, 2010; Clark *et al.*, 2003; Sommer *et al.,* 2010). Evidence suggests that consultation with children (only when age-appropriate and possible) can increase their self-esteem and foster social competence (Clark *et al.,* 2003). It can also help ECEC staff and management reflect on their own practice and aspects, such as the design of indoor and outdoor spaces (Pramling Samuelsson and Asplund Carlsson, 2008).

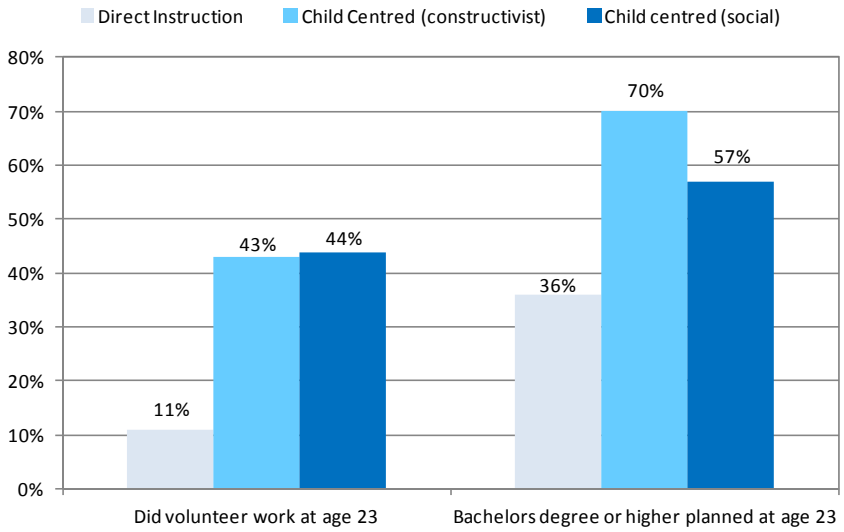
Child-initiated learning

Children learn best when they are active and engaged, when interactions are frequent and meaningful, and when curriculum builds on prior learning (Kagan and Kauerz, 2006; NIEER, 2007). The ability of staff to create a chain of learning events over time with clear direction and concrete activities is also important for consistent development, especially in academic topics (Doverborg and Pramling Samuelsson, 2011).

Evidence suggests that a curriculum with a high level of child-initiated activities can have long-term benefits, including an increased level of community service and motivation to pursue higher education (Figure 2.1).

Figure 2.1. Impact of different curriculum models

On community involvement and motivation to pursue further studies



Notes: Results are from a study of different curriculum models' impact on disadvantaged children in New Jersey. The sample groups are randomly selected and have comparable socio-economic and other background characteristics. "Child Centred (constructivist)" is a High/Scope curriculum model, "Child Centred (social)" is a Nursery School programme with a focus on social skills. Both curriculum models place stronger weight on child-initiated activities.

Source: Schweinhart and Weikart, 1997.

Teacher-initiated learning

Research demonstrates that teacher-initiated learning (common in the academic approach) can reduce early knowledge gaps in literacy, language and numeracy. Numerous studies have concluded that high-quality academic programmes involving explicit teaching can have positive short-term effects on IQ scores, literacy and math (Pianta *et al*., 2009) (Table 2.1). These skills have been found to be strong predictors of subsequent achievement (Brooks-Gunn *et al*., 2007). However, as pointed out above, child-initiated learning can have long-term benefits and is highly important for children's future social development. In order to maximise learning, development and social outcomes, it is suggested that ECEC curricula should combine child-initiated with teacher-initiated contents and activities (Sheridan, 2011; Sheridan *et al*., 2009).

What are the policy implications?

Adapting curricula to local circumstances

A greater extent of local adaptation of curricula can reinforce the relevance of ECEC services. This can be especially important when "national" values or ideas on early childhood development are not shared by all (Eurydice, 2009). Co-constructed responses developed in partnership with teachers, parents, children and communities can greatly enhance the local appropriateness of curriculum aims and objectives (OECD, 2001).

Designing curriculum based on cognitive and neurological science

Cognitive developmental science and neurological research indicate that children learn certain things at particular ages, in a certain sequence. The "peaks" of brain sensitivity may vary across functions/skills as follows (Figure 2.2) (Council Early Child Development, 2010):

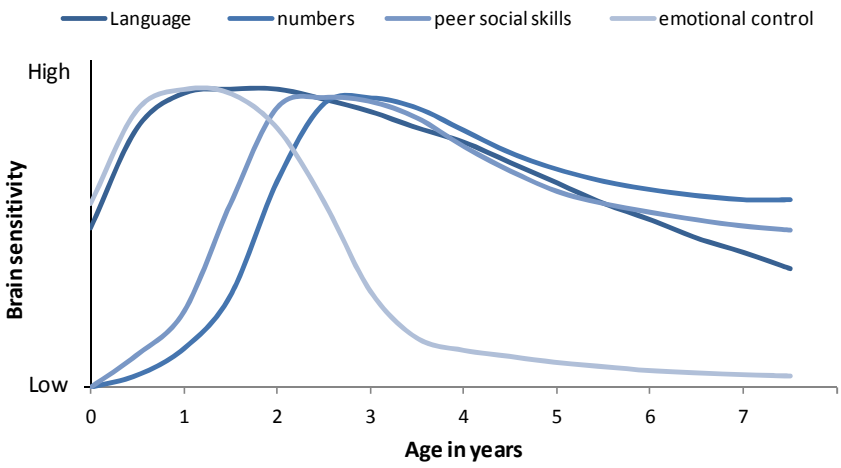
Emotional control and peer social skills

The brain sensitivity to development of emotional control starts from the middle level, increases to the high level from birth to around age one, and declines to the low level where it stays from age four. Peer social skills start with the low level, increase rapidly from ages one to two, gradually decrease and remain at a medium level from age four.

Language and numbers

Language development starts at the middle level, increases to the high level at around ages one to two, slightly decreases towards age four, and will continue to decrease towards the middle and low levels from then on. Numeracy starts with the low level, increases rapidly from ages one to three, gradually decreases but will be maintained at the high level from age four.

Figure 2.2. Sensitive periods in early brain development



Source: Council for Early Child Development (2010).

Recognising the "virtues" of complimentary curriculum models

In practice, comprehensive programmes are thought to better facilitate a child-centred environment where learning builds on existing knowledge from children's perspectives. Children's priorities can be identified in a number of ways, for instance, children can be engaged in taking photographs of the most important "things" in the classroom. Experiments like these have been able to identify the importance of friends, staff, food and outside play. Other information-gathering tools, such as interviews, questionnaires and role-play, reveal that children like to finish their activities and appreciate support for periods of transition between activities (Clark *et al*., 2003). Children can benefit from teacher-led interaction and formal instruction (Eurydice, 2009). However, play-based, as opposed to "drill-and-practice", curricula designed with the developmental needs of children in mind can be more effective in fostering the development of academic and attention skills in ways that are engaging and fun (Brooks-Gunn, 2007).

Considering national characteristics and ECEC structural factors

National characteristics and ECEC structural factors provide insight into the appropriateness of curriculum models. Where staff have little certification and training; and where ECEC provisions are fragmented, staff may benefit from added guidance and a more concrete

curriculum. In countries encouraging child-centred activities and giving space to staff to create local innovations and adaptations, a child-centred model requires practitioners to be adequately qualified and trained to balance wide-ranging (and more abstract) child development areas. Thus, the chosen curriculum must be coupled with adequate staff training, favourable working conditions and appropriate classroom materials (OECD, 2001; 2006).

Ensuring sufficient and appropriate staff training

To enhance children's learning and development, (additional) staff training is needed on curriculum in general, but also on specific areas in which staff might need additional training support, such as multicultural classroom management and adaptation of curriculum contents to diverse linguistic and cultural groups. Furthermore, in a rapidly changing society, knowledge on the use of ICT is becoming more relevant, which can also facilitate early development, especially in reading (Judge *et al*., 2006).

Ensuring that curriculum or standards are well-aligned for children aged zero to six and beyond

It is not only important that curriculum standards are present in ECEC environments but that they are well-aligned for children aged zero to six, or even beyond: an aligned vision of ECEC contents can ensure more holistic and continuous child development.

What is still unknown?

Comparative advantage of different curriculum models

Table 2.1 compares the specific outcomes of "academic" and "comprehensive" curriculum models based on a selection of research findings. It remains unclear which of the two approaches produces the largest long-term benefits on health, college attendance, future earnings, etc. Geographical and political positioning has likely influenced the existing research: American researchers are more likely to support an academic ECEC approach, whereas the trend in Europe points to the importance of non-cognitive learning areas. More research is therefore needed to clarify the mixed research findings across different country-specific ECEC contexts.

Pedagogical strategies to support "play"

Most researchers agree that children's "play" is important for cognitive, social and emotional development. It has been traditionally integrated into subject-based learning, improving literacy, math and science outcomes. However, there is little differentiation between types of "play" (*e.g.*, social, pretend, object) that serve different developmental purposes. A lack of evidence leads many to unfairly separate play ("child-initiated games with no purpose") from curriculum ("teacher-initiated practices with useful benefits") (Bodrova and Leong, 2010).

Non-Western curriculum models and their effects

There is considerable literature on "academic" and "child-centred" curriculum models as seen in North America and Europe. But a Western child-centred curriculum focused on individual benefits can actually contradict other value systems, including those who privilege group interests (Kwon, 2004). Thus, there is a need to research and diffuse alternative national curriculum models that are locally adapted and implemented.

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CHAPTER 3

WHERE DOES KOREA STAND COMPARED TO OTHER COUNTRIES?

Korea has different curricula in place for different provisions: the standard child care curriculum covers all children aged zero to five in child care. In parallel, there is the national curriculum for kindergarten for children aged three to five attending kindergarten. Recently, Korea set out a national, common curriculum for all children aged five, the Nuri Curriculum*, and plans to extend the common curriculum to cover ages three and four, aiming at providing a more continuous child development process for young children in ECEC. Finland, New Zealand and Scotland (United Kingdom) have an integrated curriculum framework covering either all ages in ECEC or children in early education and beyond.*

In addition to the values and principles its frameworks are built upon, Korea's curricula include the input expected from staff members, as well as the expected outcomes of children's development, as guidance for staff. As most other OECD countries, Korea combines academic learning subjects with the development of soft skills in their frameworks, including topics related to reading, Korean language learning, science, as well as arts, play and practical skills. It is one of the few countries teaching children issues related to ICT.

Defining the framework of learning and development is a highly domestic decision, drawing on the country-specific historical, cultural and institutional contexts and therefore there are no particular "recommendations" on what to include from an international perspective. However, international comparison on design and content could provide insight into which aspects of curriculum Korea might consider taking policy action on.

Curriculum design

Framework coverage

Almost all OECD countries have some form of a framework – either in the form of a curriculum or learning standards. The age groups which curricula are defined by differ among countries (Figure 3.1).

The majority of countries and jurisdictions with a split ECEC system[1] have created a learning framework for children in the older age bracket of ECEC: from around age two-and-a-half or three to compulsory schooling. A few countries, such as Korea, have parallel frameworks for child care (ages zero to five) and for early education (ages three to five). A common national curriculum framework has been developed for five-year-old children in kindergartens and child care centres.

Most countries aiming to deliver "integrated" services[2], such as England (United Kingdom), Finland and New Zealand, use a framework that covers age zero (or one in some cases) to compulsory schooling instead of separate frameworks for care and education.

Several countries aim to capture continuous child development in early childhood and beyond. This is reflected in the age coverage of the framework in Scotland (United Kingdom), where the *Curriculum for Excellence* covers ages three to 18 – with age-appropriate content for different age groups.

Recently, Korea has started aiming at providing continuous child development and developed a common curriculum for all five-year-old children in care and/or early education: the *Nuri Curriculum*. The country has plans to extend the coverage of the common curriculum to three- and four-year-olds as well, indicating that the country is working towards providing more continuous child development and learning across different ECEC provisions.

Curriculum approach

Curriculum descriptions can be, in general, categorised into "input"- or "outcome"-based approaches. Among OECD countries, few specify "child outcomes" and "input from the centres", while most ECEC curriculum frameworks include "input from staff", *i.e.*, specific requirements as to what is expected of staff (Figure 3.2). By identifying specific child outcomes or developmental goals, staff can be supported in identifying children's needs, mapping children's development and learning processes.

Korea includes expected child outcomes in their framework as well as the inputs that are expected from staff and the centre itself. Other countries often include similar aspects in their curriculum. New Zealand's *Te Whāriki* framework, for example, covers the values and principles that form the base of the framework and the expectations of staff in ECEC but also addresses expected child developmental outcomes. The framework nevertheless cautions that all children learn and develop differently and that expectations of what children learn, and at what time, need to be flexible. New Zealand, as well as Scotland (United Kingdom), specifically prescribes different activities for and expectations of children according to age

group. Giving specific examples adapted for different age groups, as is done in *Te Whāriki*, supports staff in adapting activities and learning to different age groups.

Content and subjects

Most OECD countries combine academic learning areas with the education of soft skills and socio-emotional learning subjects in their curriculum: almost all countries include topics related to literacy, numeracy, physical education, science and arts in their curriculum. Music, play and practical skills are also popular content areas of the frameworks/guidelines. Korea has included all of these subjects into its curriculum, as have Finland, New Zealand and the United Kingdom.

The relevance of play

While several countries allocate time specific to play in their curriculum, some indicate that play is embedded into other content areas in order to stimulate learning the content areas through play: aspects of playing, whether staff-structured or child-initiated free play, can be integrated when learning math, science or reading (Figure 3.3).

Korea has indicated that play is an element embedded in its curricula, and time is dedicated in each centre's curriculum programme to play. New Zealand emphasises in *Te Whāriki* that play is integral to learning and development. This is also emphasised in Scotland's *Curriculum for Excellence*, as well as their pre-birth to three guidelines, which state that although play is not a subject in the curriculum itself, child-initiated learning should be stimulated through play.

Inclusion of emerging subjects

Few countries have included newly emerging subject matters which respond to changing needs in present-day society. ICT is one of these emerging curriculum areas, since computers and technology are becoming increasingly important in modern day private and professional life. Korea addresses ICT in its curriculum frameworks, as does New Zealand.

Although countries are becoming increasingly multi-cultural with possible issues related to integration or "a feeling of belonging", only few countries include "learning foreign languages" or "ethics and citizenship" as a prescribed element in their framework.

Belonging is a topic that receives great attention in New Zealand's curriculum, as its framework is built largely around the idea of a sense of community. *Te Whāriki* emphasises the importance of learning about cultural heritage and accepting cultural and religious differences.

Figure 3.1. Coverage of ECEC curriculum frameworks or guidelines by age group

	Standards/curriculum for Care
	Standards/curriculum for Education and/or Education and Care
	No standard curriculum is in place for the specified age group
	Compulsory schooling

Age	0	1	2	3	4	5	6	7
Australia	Belonging, Being, Becoming - Early Years Learning Framework for Australia							
Austria								
Belgium (Flemish Comm.)			2.5y Ontwikkelingsdoelen					
Belgium (French Comm.)			2.5y					
Canada (British Columbia)	British Columbia Early Learning Framework for 0-5 year olds					British Columbia Early Learning Framework for 5-6 year olds		
Canada (Manitoba)			Early Returns Curriculum					
						Manitoba Kindergarten Curriculum		
Canada (Prince Edward Island)	Early Learning Framework							
Czech Republic				Framework Educational Programme for Pre-school Education				
Denmark	Preschool curriculum Læreplaner							
Estonia		1.5y	Framework Curriculum of Preschool Education					
Finland	National curriculum guidelines on early childhood education						Core Curriculum for Pre-primary education	
France			2.5y National curriculum for école maternelle					
Germany (Baden-Württemberg)	Orientierungsplan für Bildung und Erziehung für die baden-württembergischen Kindergärten						up to 10	
Germany (Bavaria)	Bildung, Erziehung und Betreuung von Kindern in den ersten drei Lebensjahren			Der Bayerische Bildungs- und Erziehungsplan für Kinder in Tageseinrichtungen bis zur Einschulung				
Germany (Berlin)	Berliner Bildungsprogramm für die Bildung, Erziehung und Betreuung von kindern in Tageseinrichtungen bis zu ihrem Schuleintritt							
Germany (Brandenburg)	Grundsätze der Förderung elementarer Bildung in Einrichtungen der Kindertagesbetreuung in Brandenburg							
Germany (Bremen)	Rahmenplan für Bildung und Erziehung im Elementarbereich							
Germany (Hamburg)	Hamburger Bildungsempfehlungen für die Bildung und Erziehung von Kindern in Tageseinrichtungen						up to 15	
Germany (Hesse)	Bildungs- und Erziehungsplans für Kinder von 0 bis 10 Jahren in Hessen						up to 10	
Germany (Mecklenburg-Western Pomerania)	Bildungskonzeption für 0- bis 10-jährige Kinder in Mecklenburg-Vorpommern						up to 10	
Germany (Lower Saxony)	Orientierungsplan für Bildung und Erziehung im Elementarbereich niedersächsischer Tageseinrichtungen für Kinder							
Germany (North Rhine-Westphalia)	Mehr Chancen durch Bildung von Anfang an - Grundsätze zur Bildungsförderung für Kinder von 0 bis 10 Jahren in Kindertageseinrichtungen und Schulen im Primarbereich in Nordrhein-Westfalen						up to 10	
Germany (Rhineland-Palatinate)	Bildungs- und Erziehungsempfehlungen für Kindertagesstätten in Rheinland-Pfalz						up to 15	
Germany (Saarland)	Bildungsprogramm für saarländische Kindergärten							
Germany (Saxony)	Sächsischer Bildungsplan - ein Leitfaden für pädagogische Fachkräfte in Krippen, Kindergärten und Horten sowie für Kinderttagespflege						up to 10	
Germany (Saxony-Anhalt)	Bildungsprogramm für Kindertageseinrichtungen in Sachsen-Anhalt							
Germany (Schleswig-Holstein)	Erfolgreich starten: Leitlinien zum Bildungsauftrag in Kindertageseinrichtungen						up to 15	
Germany (Thuringia)	Thüringer Bildingsplan für Kinder bis 10 Jahre						up to 10	

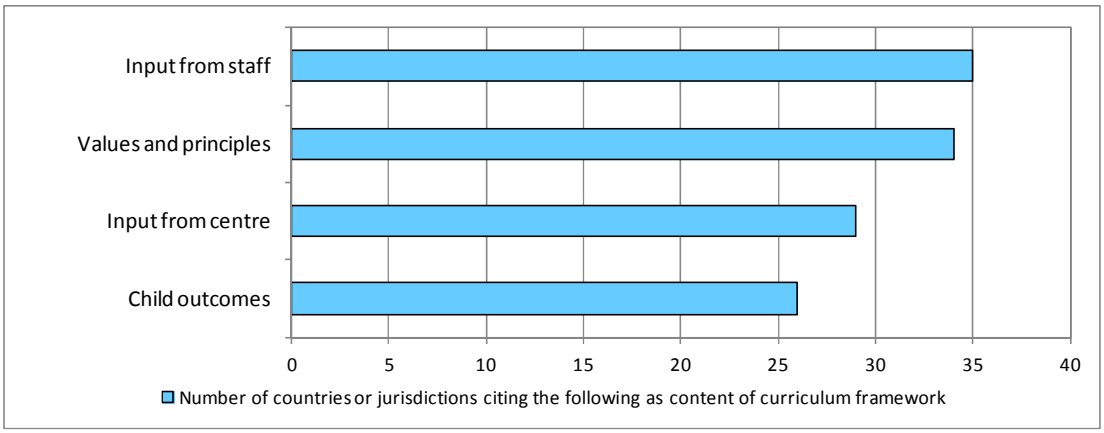
Figure 3.1. Coverage of ECEC curriculum frameworks or guidelines by age group (continued)

Age	0	1	2	3	4	5	6	7
Hungary				National Core Programme of Kindergarten				
Ireland	Early Childhood Curriculum Framework: Aistear							
Israel				Framework Programme for preschool				
Italy		3 months		Guidelines for the curriculum				
Japan				Course of Study for Kindergarten				
	National curriculum of day care centers							
Korea				National curriculum for kindergarten		Nuri Curriculum		
	Standardized childcare curriculum							
Luxembourg				Le plan d'études				
Mexico	Childcare curriculum			Early childhood education curriculum				
Netherlands			2.5y	Development goals/competences				
New Zealand	Te Whāriki							
Norway	Framework Plan for the Content and Tasks of Kindergartens							
Poland				Core Curriculum for Preschool Education				
Portugal				The Curriculum Guidelines for Pre-School Education				
Slovak Republic				The National Education Programme				
Slovenia		National Curriculum for Pre-school Institutions						
Spain	Early Childhood Curriculum							
Sweden		Läroplan för förskolan Lpfö 98					Läroplan för grundskolan, förskoleklassen och fritidshemmet Lgr 11	
Turkey				Pre-school education programme				
United Kingdom (England)	Statutory Framework for the Eary Years Foundation Stage							
United Kingdom (Scotland)	Pre-birth to three - staff guidelines			Curriculum for Excellence		up to 18		
United States (Georgia)			Georgia's Pre-K Content Standards					
United States (Massachusetts)				Guidelines for Preschool Learning Experiences				
United States (North Carolina)				Early Learning Standards for North Carolina Preschoolers and Strategies to Guide Their				
United States (Oklahoma)				Priority Academic Student Skills				

Notes: For Poland, the compulsory school age was lowered from age seven to six in 2009 with a transition period of three years (until 2012), during which time, parents can choose if their child starts school at age six or seven. For Sweden, *Läroplan för förskolan* is the curriculum for the preschool; *Läroplan för grundskolan, förskoleklassen och fritidshemmet* regards the curriculum for the preschool class, compulsory school and out -of -school centres.

Source: OECD Network on Early Childhood Education and Care's "Survey for the Quality Toolbox and ECEC Portal", June 2011.

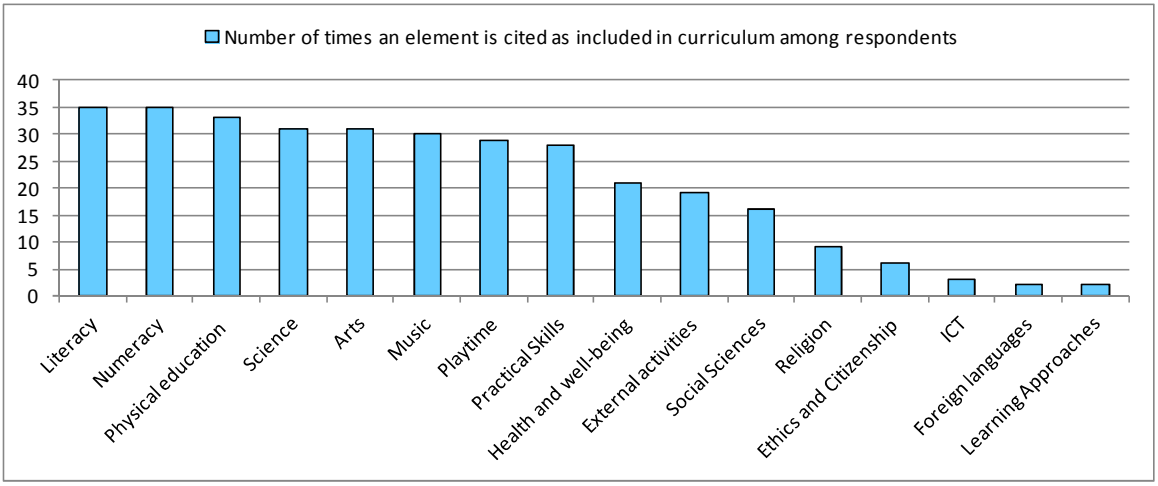
Figure 3.2. Approaches of ECEC curriculum[3]



Note: Respondents may list more than one content category.

Source: OECD Network on Early Childhood Education and Care's "Survey for the Quality Toolbox and ECEC Portal", June 2011.

Figure 3.3. Content areas included in ECEC curriculum[4]



Note: Respondents may list more than one element.

Source: OECD Network on Early Childhood Education and Care's "Survey for the Quality Toolbox and ECEC Portal", June 2011.

NOTES

1 A split ECEC system refers to a division of responsibilities for ECEC over different ministries: the responsibilities for child care and early education are split between different ministries.

2 Integrated services refer to a country where child care and early education are integrated into one service provision. An integrated ECEC system at government level refers to the integration of the responsibilities for ECEC at one ministry: only one ministry is responsible for ECEC.

3 Based on responses from the following countries and regions: Australia, Austria, Bavaria (DEU), British Columbia (CAN), Czech Republic, Denmark, England (UKM), Estonia, Finland, Flemish Community (BEL), French Community (BEL), Georgia (USA), Hesse (DEU), Ireland, Israel, Italy, Japan, Korea, Manitoba (CAN), Massachusetts (USA), Mexico, Netherlands, New Zealand, North Carolina (USA), Norway, Oklahoma (USA), Poland, Portugal, Prince Edward Island (CAN), Scotland (UKM), Slovak Republic, Slovenia, Spain, Sweden and Turkey.

4 Based on responses from the following countries and regions: Australia, Austria, British Columbia (CAN), Czech Republic, Denmark, England (UKM), Estonia, Finland, Flemish Community (BEL), French Community (BEL), Georgia (USA), Germany, Ireland, Israel, Italy, Japan, Korea, Luxembourg, Manitoba (CAN), Massachusetts (USA), Mexico, Netherlands, New Zealand, North Carolina (USA), Norway, Oklahoma (USA), Poland, Portugal, Prince Edward Island (CAN), Scotland (UKM), Slovak Republic, Slovenia, Spain, Sweden and Turkey.

CHAPTER 4

WHAT ARE POTENTIAL AREAS FOR REFLECTION?

Potential areas for reflection can contribute to broadening country perspectives through comparison with other countries and highlight emerging issues in a changing society. Based on other country practices and international data, potential areas for reflection for Korea include: 1) reviewing the curriculum approach; 2) improving alignment with primary schooling; 3) revisiting or rethinking the curriculum content by applying the latest research findings in policy design; 4) improving children's life satisfaction through curriculum; 5) reflecting parental expectations in curriculum; 6) addressing emerging subjects, such as children's health and revisiting the use of ICT in ECEC; and 7) improving leadership skills of staff and management.

In this chapter, some potential areas for reflection are presented to reflect on your curriculum and its content. These areas can contribute to broadening your perspectives through comparison with other countries, and highlight emerging issues in a changing society.

Curriculum design

Curriculum approach

Different curriculum programmes have been developed over the last decades, resulting in different learning approaches. Some of the most widely-known curricula are described in Table 4.1. Each approach has different learning methods, a different focus or view on the teacher or child, room for flexibility, and pedagogical philosophy or perspective.

Some curricula are more outcomes-based and focus largely on preparing children for school (*e.g.*, the direct instruction curriculum and the readiness for school approach), while other curricula emphasise the importance of a holistic development (*e.g.*, Nordic curriculum tradition) or integration in society (*e.g.*, the socialisation curriculum).

- On what values are your current curricula based, *e.g.*, cultural values, expectations of parents, expectations of society? Do you think your current curricula are based on more up-to-date values and modern-day expectations of society, or does their approach need revision?
- How can you reach consensus among stakeholders (parents, policy makers, etc.) and practitioners on this?

Table 4.1. Summary of major ECEC curriculum programmes/approaches/traditions

Name of programme/approach	Background theory or theorist	Main features
Didactic Curriculum/ Direct Instruction Curriculum	B.F. Skinner	Classic method of learning with mainly teacher-initiated activities which includes frequent repetition.
Socialisation Curriculum	Johann H. Pestalozzi and Friedrich Froebel	Views learning as an input by the environment. The main goal is socialisation, and the approach relies on unstructured play since it is believed that children must direct their own learning and will learn if developmentally ready.
Constructivist Curriculum/ Interactive Curriculum	Jean Piaget and Lev Vygotsky	Views learning as an active exchange between child and environment that progresses in 'stages', with a crucial role for adults and peers as stimulus in learning.
Developmentally Appropriate Practices (DAP)	National Association for the Education of Young Children (NAEYC)	A balance of child-initiated learning and guidance from staff members. The approach provides a wide range of different activities which are carried out in groups, or independently. It focuses on socio-emotional, physical and cognitive development. All practices are based on i) theories of child development; ii) individual needs; and iii) the child's cultural background
Readiness for School Approach	Jean Piaget, etc.	Emphasis on monitoring and/or assessing children's development with the goal to prepare children (knowledge-wise and/or socio-emotionally) for formal education - ensuring that children will not start school with development arrears.
Outcomes-Based Education/ Performance-Based Education	William Spady, etc.	A child-centred learning philosophy that focuses on empirically measuring student performance (outcomes) and puts an emphasis on setting clear standards for observable, measurable outcomes.
Te Whāriki (New Zealand)	Helen May and Margaret Carr	Te Whāriki adopts a specific socio-cultural perspective on learning that acknowledges the different cultural and social contexts in New Zealand and a social and interactive way of learning is highly important. The curriculum is built around five 'pillars' of child development for which developmental, cultural, and learning goals are formulated.
Nordic Curriculum tradition	Social pedagogy	The core of the Swedish curriculum is the dialogue between adult and child and creative activities, discussions and reflections. The curriculum sets goals for early education, but is flexible so that it can be adapted to local and individual needs.
Experiential Education (EXE)	Ferre Laevers	The degree of emotional well-being and the level of involvement are crucial for EXE. It emphasizes on concentration, intrinsic motivation and working in groups and stimulating children in their practices and thinking, and to give them autonomy.
High Scope Curriculum	David Weikart, etc. drawing on child development theories (Piaget, Vygotsky), progressive educational philosophy (Dewey), cognitive-developmental psychology (Clements, Gelman, Brenneman) and brain research (Shore, Thompson, Nelson)	The core idea is that children learn better by active experiences that express their interests. When children make their own choices for practices and activities, they 'naturally' engage in different interest areas and experiences that are keys to development. Routine is important in this, and children's development is observed and reported on daily.
Reggio Emilia Programme	Loris Malaguzzi	The programme aims to develop learning competencies through creative communication and dialogue, so that children will develop thinking capacity and construct their own theories and understandings, while content knowledge is considered secondary to learning: there are no planned goals or standards indicating what should be learned.
Montessori Programme	Maria Montessori	Programme is organized into five basic categories: practical life, sensorial, math, language and culture – and is based on the child's own natural inner guidance and interest in learning. The educator's involvement is reduced to the least amount possible.
Waldorf Steiner Education	Rudolf Steiner	The approach emphasizes the role of the imagination in learning, developing thinking that includes a creative as well as an analytic component. The education emphasizes learning through practical activities and materials are kept simple to employ and strengthen their imagination and creativity.

Source: OECD (2001), *Starting Strong*; OECD (2006), *Starting Strong II*; OECD (2010), EDPC/ECEC/RD(2010)6; OECD (2010), EDPC/ECEC(2010)3/REV1; public websites.

Alignment with primary schooling

Korea is aiming at increasing the horizontal and vertical coherence between the different curricula the country has in place for ECEC and primary schooling. Other countries have already taken steps in aligning their curriculum with primary schooling so as to stimulate continuous development and education and smoothen the transition from ECEC to primary schooling (Figure 3.1).

In New Zealand's *Te Whāriki* curriculum, each development strand (or area) has explicit links to the primary school curriculum and learning areas. These links clearly describe what children are expected to do in primary school and how this relates to the experiences in ECEC and what activities staff can implement to facilitate this transition.

Scotland (United Kingdom) has integrated the curriculum for all children in education, including the children in early education: their *Curriculum for Excellence* covers ages three to 18 while ensuring contents are made age-appropriate.

- Are there any possibilities to link the content and approach of the curricula (*e.g.*, the *Nuri Curriculum*) in ECEC more thoroughly with the curriculum in place for primary schooling?
- If yes, what needs to be done and in what order? What are the opportunities and constraints?

Curriculum content

Early brain development

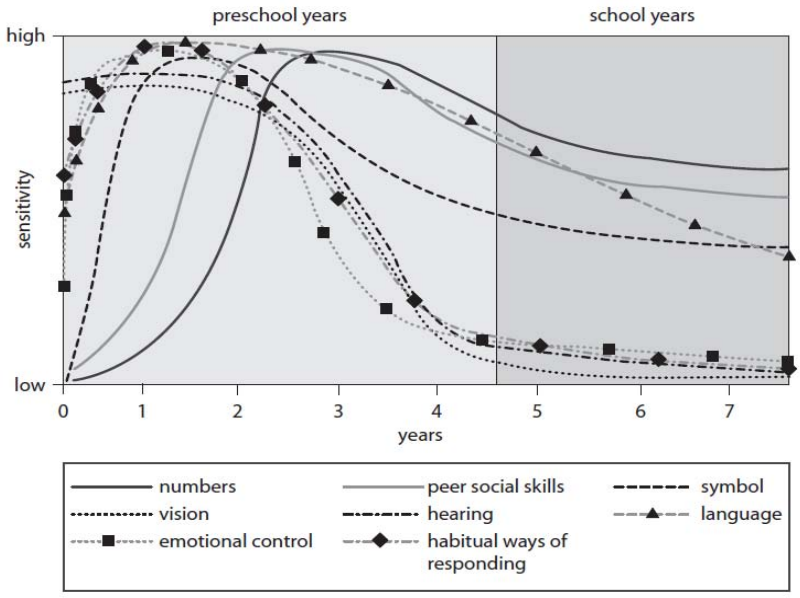
Cognitive developmental science and neurological research indicate that children learn certain things at particular ages in a certain sequence. The "peaks" of brain sensitivity may vary across different functions/skills but mostly occur before the age of four (Figure 4.1).

- **Vision and hearing**: It starts from the middle level, gradually increases from birth to age two and will be maintained at the low level from age four.
- **Habitual ways of responding, emotional control and social skills**: It starts from the middle level; increases to the high level from birth to around age one and will be maintained at the low level from age four. It starts with the low level, increases rapidly from age one to age two, gradually decreases but will be maintained at the high level from age four.
- **Symbol**: Symbols refer to visual features of a printed word, learning symbols and adding meaning to them. It rapidly increases from birth until the age of one or two then gradually decreases and remains at a stable level from the age of four.
- **Language and numbers**: Language development starts at the middle level, increases to the high level at around ages one to two, slightly decreases towards age four and will continue to decrease towards the middle and low levels from then on. Numeracy development starts at a low level, increases rapidly from age one to age three then gradually decreases but will be maintained at the high level from age four.

Depending on the nature of brain experiences in early years, children will have strong or weak foundations for their future development. Although the brain continues to develop throughout life, new learning does not occur at the same speed as it does during the early years:

- How do you apply the findings from cognitive and neurological research into ECEC curriculum?
- What pedagogical approaches can be promoted or introduced to maximise child development during these sensitive periods?
- How is research being reflected in ECEC practices or policy design? Are research findings being disseminated to policy makers and stakeholders? Could this be improved? If yes, how?

Figure 4.1. Sensitive periods in early brain development



Source: Council Early Child Development (2010) from the World Bank's *Investing in Young Children, an Early Childhood Development Guide for Policy Dialogue and Project Preparation,* 2011.

Children's self-report on life satisfaction

An expected outcome of education policy is holistic child development, which is an important aspect of the curriculum framework in the Nordic (Scandinavian) countries. Holistic development includes academic achievements, socio-emotional development, healthy physical growth, inter-personal communication capacity, inter-cultural acceptance and personal happiness. Life satisfaction is an important factor that can affect various aspects of child development or a child's holistic development process.

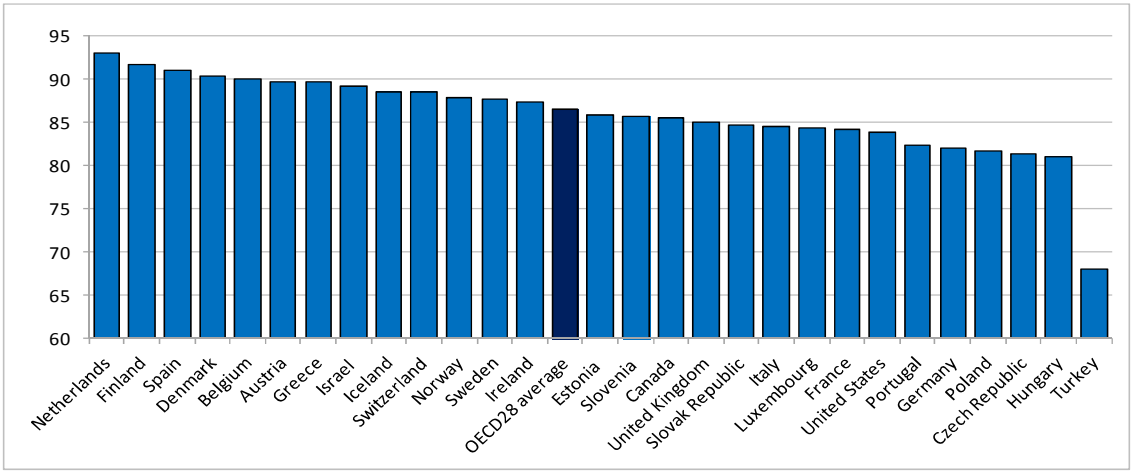
In many OECD countries, the majority of children aged 11 to 15 years value their life as "above average", *i.e.*, with a grade of six or above on a scale of zero to ten (Figure 4.2). Although life satisfaction can be affected by various factors, early education might be able to contribute to providing children with a healthy, stable, satisfying life and learning environment. Regarding ECEC in Korea and the curricula in place:

- Do you think there is a possible association between a child's self-report on life satisfaction and their experiences in (early) education services?
- If so, do you think your curricula for ECEC can contribute to providing positive, meaningful learning experiences in a child's early years? Do you see any possibilities to enhance quality in children's early life experiences through an ECEC curriculum? Factors which could be taken into account, might be: the approach of

your curriculum (academic vs. holistic orientation), the implemented assessment practices, personalised attention, play possibilities, addressing special needs, etc.

Figure 4.2. Children reporting life satisfaction

Proportion of children, aged 11 to 15 years, ranking their life as 6 or above on a scale of 0 to 10, 2005-06



Source: Currie *et al*. (2008), HBSC International Report from the 2005/2006 Survey; Information on data for Israel: http://dx.doi.org/10.1787/888932315602 from OECD (2011), *Doing Better for Families*, OECD Publishing. *Statlink*: http://dx.doi.org/10.1787/888932392761.

Changing expectations of parents

Opinions of staff and ECEC activities are important and can provide inputs to ECEC programming and even contribute to enhancing quality. Parental expectations change over time; and for parental satisfaction purposes, as well as for the purpose of meeting societal expectations, it might be useful to reflect upon parental expectations – to a certain extent – of ECEC programmes.

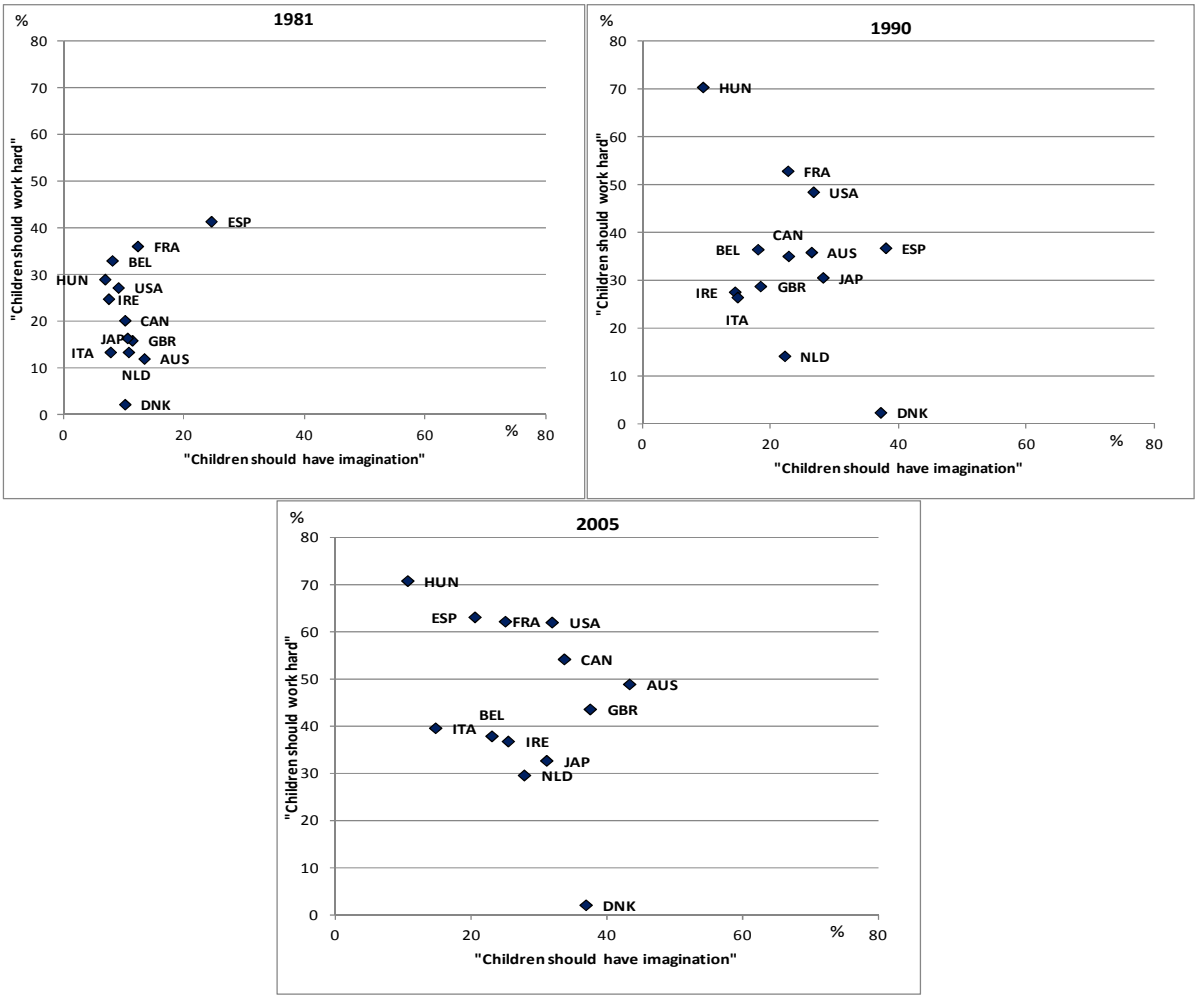
"Working hard" and "having imagination" are two typical features of parental expectations of children. The World Values Survey[1] indicates the parental expectations of values, such as "having imagination" and "working hard", have risen over time (Figure 4.3). Parental surveys or questionnaires are implemented by several OECD countries (Table 4.2) and can reveal what parents expect of the early education of their children as well as provide valuable feedback for ECEC provisions and staff. Korea conducts parental satisfaction surveys in kindergartens every three years.

In addition to distributing surveys, parents can be more directly involved in decision-making matters in ECEC (Table 4.3), such as participating in director boards or parent boards, as is the case in Finland and New Zealand. In Finland, parents are directly involved in developing a child-specific curriculum programme for their children and have a say in which activities or areas should be the focus of the child-specific curriculum.

- Do Korea's parental satisfaction surveys include any questions or reveal information regarding parents' expectations of their children's education and skills?
- If yes, are such parental expectations reflected in the current ECEC curriculum? If not, what are the possibilities for Korea to include parental expectations in the existing surveys or implement surveys on parental expectations on a regular basis?
- Through which other methods can parental expectations be analysed and reflected in the ECEC curriculum? Parent-staff meetings, involving in decision-making bodies, involving in design of curriculum, otherwise?

Figure 4.3. Expectations of parents regarding their children's education and skills

"Children should have imagination" versus "Children should work hard" in 1981, 1990 and 2005, as a percentage of respondents



Note: Data from the World Values Survey is presented from 1981, 1990 and 2005 or the nearest available year for each country. For each country, the distribution of the respondents sample fits the distribution of the population. *Statlink*: http://dx.doi.org/10.1787/888932321473 and http://dx.doi.org/10.1787/888932321492.

Source: OECD (2010), *Trends Shaping Education 2010*.

Table 4.2. Parental satisfaction surveys on provision of ECEC services

Types of provisions	Administrator of the survey	Frequency	Country
Kindergarten/ Preschool	ECEC centre	every 3 years	Korea
		missing	Norway, Slovenia
	Local authority	1 to 2 times per year	Sweden
		every 2 years	Denmark
		missing	Prince Edward Island (CAN)
	Institute of evaluation	missing	Spain
Child care centres	ECEC centre	every year	Italy
		at least once during the child's participation in child care	Flemish Community (BEL)
		missing	Norway, Slovenia
	Local authority	1 to 2 times per year	Sweden
		every 2 years	Denmark
		missing	Prince Edward Island (CAN)

Note: Countries with an integrated ECEC system are listed under both "kindergarten" and "child care" since their ECEC system integrates care and early education.

Source: OECD Network on Early Childhood Education and Care's "Survey for the Quality Toolbox and ECEC Portal", June 2011.

Table 4.3. Preferred approaches to engaging parents

Making it a legal obligation	Making it a parental right	Putting it in a policy paper	Involving parents in decision making	Allowing parents to be providers
Australia, Belgium, Czech Republic, Estonia, Finland, Germany, Japan*, Manitoba (CAN), Netherlands*, New Zealand, Poland, Portugal*, Prince Edward Island (CAN), Slovak Republic, Slovenia, Spain, Sweden, Turkey	Czech Republic, Korea, Norway, Poland, Prince Edward Island (CAN), Slovenia, Spain, Sweden	New Zealand, Norway, Slovak Republic	Australia, Belgium, British Columbia (CAN), Czech Republic, Denmark, Estonia, Finland, Germany, Ireland, Japan, Korea, Manitoba (CAN), Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Prince Edward Island (CAN), Slovak Republic, Slovenia, Spain, Sweden, Turkey	Belgium, Germany, Korea, Manitoba (CAN), Netherlands, New Zealand, Norway, Poland, Slovak Republic, Sweden

* Only regarding kindergartens/preschools for Japan and Portugal; only regarding child care for the Netherlands.

Source: OECD Network on Early Childhood Education and Care's "Survey for the Quality Toolbox and ECEC Portal", June 2011.

Emerging development areas

Child obesity

Child obesity is one factor that affects child well-being, and in many countries, it is on the rise (Figure 4.4). In 2005-06, between 10-30% of 15-year-olds in OECD countries were considered obese, while this was between 8-19% five years earlier.

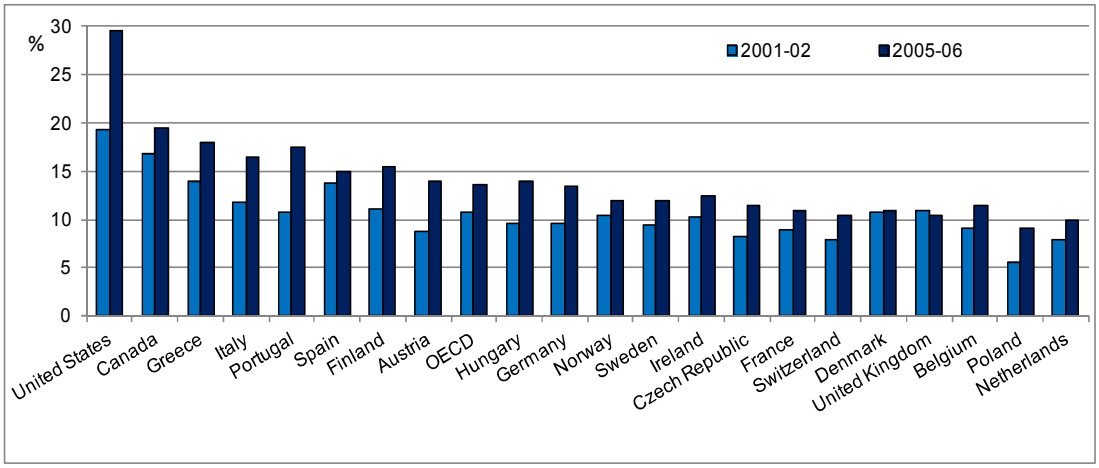
These figures indicate that families and children have less healthy lifestyles and might exercise less compared to a decade ago. Research finds that when children (and parents) are educated about hygiene, health and physical exercise, this improves children's early physical development. Although Korea includes subjects related to "health and well-being" in their ECEC curriculum, as well as "physical education", the approach or contents could be re-visited to better address children's and family's health issues.

Korea's curricula include time or subjects dedicated to health and physical development. ECEC staff are being trained on how to teach these subjects during their initial education preparation, and parents are being educated on this in special parenting programmes. However, Korea could consider closer co-operation with services focusing on health:

- Has co-operation been established with organisations or agencies specialised in children's health and well-being? If not, are there possibilities to establish these? In what ways can you co-operate with such agencies/organisations regarding improving children's health and well-being?

Figure 4.4. Child obesity going up

Percentage of 15-year-olds suffering from obesity



Source: OECD (2009), *Health at a Glance 2009*; *OECD Indicators from OECD (2010), Trends shaping education 2010. Statlink*: http://dx.doi.org/10.1787/888932321397.

Increasing use of ICT

Information and communication technology (ICT) has developed rapidly over the past 40 years. ICT has now become part of our everyday lives. Access to computers at home grew rapidly in OECD countries between 2000 and 2009, although discrepancies can be observed across different countries (Figure 4.5, Panel A). In Korea, Finland, New Zealand and the United Kingdom, over 80% of all households have access to a computer at home.

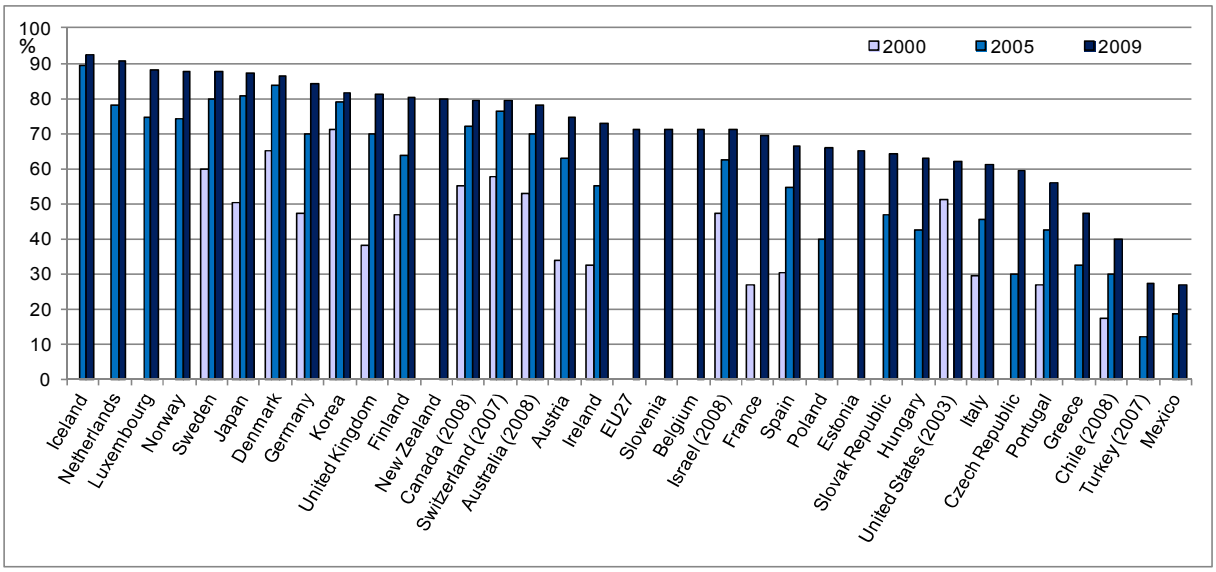
Additionally, the number of computers per student at school increased between 2000 and 2009 in almost all OECD countries (Figure 4.5, Panel B). Korea, Finland, and New Zealand experienced an increase in the number of computers per student between 2000 and 2009.

Since computers are increasingly being used in households and schools and are becoming a more important part of people's everyday and professional lives, staff are now expected to integrate the use of ICT into their professional practice and keep up to date with ICT developments and applications. ICT can foster many benefits, including helping children visualise abstract issues or learn how to read; and it improves children's technological skills.

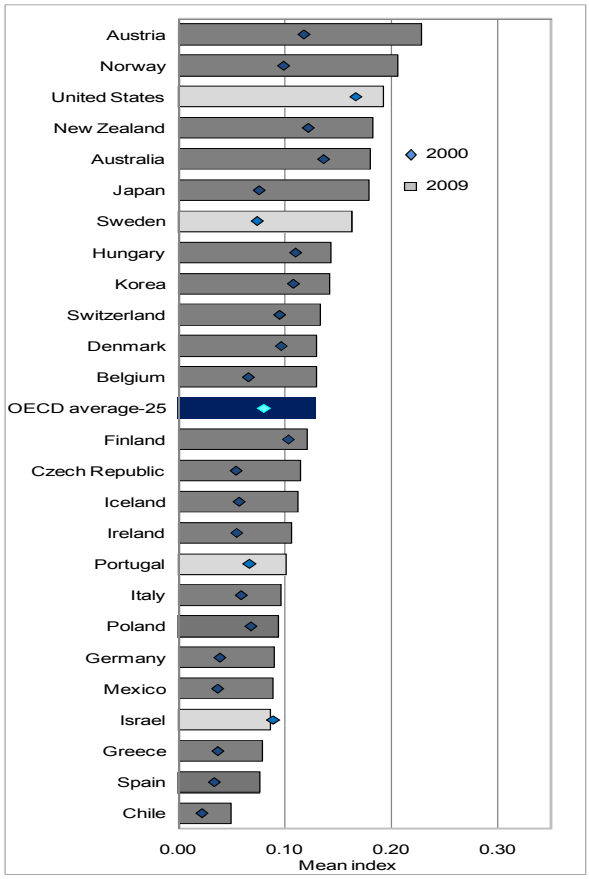
- ICT is included in Korea's ECEC curricula, but should the age at which children start to learn about ICT be revisited? Should children learn this at a younger age? If so, in what way?
- In what way is ICT used as support in teaching children, for example, in visualising abstract issues or reading? In what ways can ICT support children, especially disadvantaged children?
- Are staff adequately trained in teaching young children about ICT? Are they continuously being trained on this so as to ensure their ICT skills and knowledge remain up to date?

Figure 4.5. The use of ICT (including PC, portable and handhelds)

Panel A. Households with access to a computer at home as percentage of all households



Panel B. Computer-per-student ratio at school in PISA 2000 and 2009



Notes: Panel A: Generally, data from the EU Community Survey on household use of ICT, which covers EU countries plus Iceland, Norway and Turkey, relate to the first quarter of the reference year. For the Czech Republic, data relate to the fourth quarter of the reference year. Panel B: Countries are ranked in descending order of the computers-per-student ratio in 2009. Countries where differences between 2000 and 2009 are statistically significant are marked in a darker tone.

Source: Panel A: OECD, ICT database and Eurostat, Community Survey on ICT usage in households and by individuals, July 2010. *Statlink*: http://dx.doi.org/10.1787/888932321530. Panel B: OECD PISA 2009 Database, Tables VI.5.8a and b.

Implementation

Leadership

Although there is an increasing need for the development of leadership skills in many OECD countries, leadership has received only intermittent attention by early childhood theorists and researchers. There might be a lack of awareness among ECEC staff and managers of the importance of leadership skills. Leadership is of great relevance in ensuring high-quality ECEC provision and a high-quality workforce, as leadership strengthens staff performance and can stimulate staff to participate in ongoing professional development.

- Does the initial education programme for ECEC workers and managers include aspects of leadership, including classroom leadership? If not, what are the possibilities to include this in the initial education programmes?
- Do professional development programmes offer training on leadership? If not, what are the possibilities to include this in initial education programmes?
- What measures can you implement to raise awareness among ECEC staff and managers on the importance of good and strong leadership?

NOTES

1 The World Values Survey is a global research project that explores people's values and beliefs, how they change over time and what social and political impact they have. It is carried out by a worldwide network of social scientists who, since 1981, have conducted representative national surveys in almost 100 countries: www.worldvaluessurvey.org.

CHAPTER 5

WHAT ARE THE CHALLENGES AND STRATEGIES?

Common challenges countries face in enhancing quality in ECEC curriculum are: 1) defining goals and content; 2) curriculum alignment for continuous child development; 3) effective implementation; and 4) systematic evaluation and assessment.

Korea has made several efforts to tackle these challenges, mostly focusing on defining and revising the content by, for example, providing autonomy to local authorities for adaptation of the framework to local needs. Korea has also taken steps to align curricula better through the development of a common national curriculum for all children aged five. To further their efforts, Korea could consider strategies implemented by Finland, New Zealand and the United Kingdom, such as engaging parents in setting child-specific curricula; developing one curriculum for children in the whole ECEC age range; developing a communication toolkit for staff and materials that target parents; and ensuring that assessment practices meet the aspirations of the curriculum.

This chapter aims to identify alternatives Korea could consider when facing challenges in curriculum revision and implementation. It first describes common challenges countries are facing. It then presents the different approaches Korea has been using to tackle the challenges. Lastly, it identifies strategies undertaken by Finland, New Zealand and the United Kingdom.

Common challenges

The OECD international survey on quality has identified four common challenges that countries face in designing, revising and implementing a curriculum framework: 1) defining goals and content; 2) curriculum alignment for continuous child development; 3) effective implementation; and 4) systematic evaluation and assessment.

Defining goals and content

When designing a curriculum framework, guidelines or standards, the goals of ECEC have to be defined as well as the actual content of the curriculum. Defining these is a challenge in many countries due to the different visions of stakeholders on what the curriculum should aim at and include. Policy makers, researchers, ECEC professionals and parents consider that different subjects are important, and each have their own cultural values and ideas about early development. Aligning curriculum goals and contents with the current and future needs of society at large can be challenging, especially with changes such as increasing migration and advances in information and knowledge economies.

Most countries set out goals, guiding principles and content in their curriculum framework or guidelines, explicitly stating the aims of the country's ECEC services, curriculum, the roles of different actors involved in ECEC, and the subjects prescribed at national level. This is most often a result of intensive consultations with the different stakeholders in ECEC.

Curriculum alignment for continuous child development

Ensuring continuous child development from birth to primary education is a challenge in countries with a "split system" where child care and early education are administered by different ministries. In these countries, a lack of a curriculum framework for children aged zero to three is often non-existent; or if it exists, is not aligned with the curriculum for children aged three to six. The rationale of the split system is often attributed to differences between the two sectors, such as historical roots, different goals and focus on contents.

Ensuring smooth transition from ECEC to primary education is also a challenge in integrated systems like in New Zealand, Norway and Sweden. Teaching approaches and practices that children experience are often disconnected in ECEC settings and compulsory schooling.

Effective communication and implementation

Gaining wide support for curriculum and implementation is a challenge faced by many countries. Without "buy-in" from those who are to implement a change or a new idea, any reform may fail. And the "buy-in" or "consensus" cannot be built – without sufficient and strategic consultation – at the implementation stage.

It is also a challenge to implement the change or new idea without support. The kind of support required for effective implementation depends on various characteristics of the staff as well as contexts.

Furthermore, preparing conditions for staff to effectively implement the curriculum is another challenge. Insufficient guidelines and resources are likely to enhance difficulties, especially for inexperienced, new staff or staff with lower qualifications. Certain working environments, such as having too many children to look after, may hinder practising the pedagogy set out in the curriculum.

Monitoring or evaluation of effective implementation at the programme level is another challenge for national governments.

Systematic evaluation and assessment

Determining a curriculum's effectiveness and relevance is challenging for many countries due to a lack of capacity at the policy level for conducting evaluations, collecting valid, informative, credible information and data, and assessment procedures and instruments that combine efficiency and being informative.

Korea's efforts

Korea has made considerable efforts to tackle the challenges.

To better define goals and content

Developing clear objectives underpinning the curriculum

Korea's new *Nuri Curriculum* for five-year-olds focuses on five objectives: 1) developing basic physical abilities and establishing healthy and safe daily routines; 2) learning how to communicate in daily life and developing good practices in terms of language use; 3) developing self-respect and learning how to live with others; 4) developing interest in aesthetics, enjoying arts and learning how to express yourself creatively; and 5) exploring the world with curiosity and enhancing children's abilities to solve problems by applying math and science in daily life. These five objectives are reflected in five curriculum areas: physical activities and health, communication, social relationships, arts and inquiry of nature. These five areas are broken down into 20 categories, 62 sub-categories and 136 detailed described contents/objectives, which children at age five should learn and develop. For instance, the area of communication includes four learning areas: listening, speaking, reading and writing. Speaking includes speaking in words and sentences, describing your feelings, ideas and experiences.

Revising curriculum based on research findings and needs of families

Korea's *National Kindergarten Curriculum* has been revised seven times on a regular basis since the first edition in 1969: every revision was based on latest research findings. For each revision, the Ministry of Education commissioned a committee of experts and teachers to implement research in the revision of the curriculum. Based on research undertaken in 2010, the *National Kindergarten Curriculum* placed greater emphasis on creativity and character education. The *Standard Childcare Curriculum* for zero-to-five-year-olds was implemented for the first time in 2007, and a revision was undertaken in 2010 to improve the quality of child care services, diversify operation hours of child care in accordance with family needs, and strengthen the link between child care and elementary schooling. Revisions are based on latest research findings so as to meet changing family and societal needs; and the revised curriculum will be implemented in 2012. Additionally, in September 2011, the Ministry of Education, Science and Technology and the Ministry of Health and Welfare developed and launched the *Nuri Curriculum* for five-year-olds (*Nuri* means "world"), a common curriculum to improve the relevance of both care and education.

Providing autonomy to local authorities for adaptation to local needs

In Korea, each city and provincial education office is given autonomy in implementing the guidelines of the *National Kindergarten Curriculum* according to its own local needs. Based on the guidelines and kindergartens' needs, individual district education support offices prepare practice-oriented supervisory materials, which kindergartens can use. Each kindergarten then organises and implements the curriculum according to its own circumstances and specific wishes.

Involving stakeholders in the revision process to reflect different perspectives

Korea involves various stakeholders when revising a curriculum to reflect different perspectives and needs. Typically, a curriculum development/revision team consists of 20 to 30 experts including representatives of academic associations. They undertake research in order to set directions, goals and content areas in collaboration with 150 to 200 people in consultation/working groups (professors, researchers, superintendents, ECEC practitioners, elementary school curriculum experts, etc). As part of the process, national surveys for teachers and parents were undertaken to have an idea about their opinions and needs. After holding a series of seminars and public hearings, the curriculum framework and specifics have been finalised. It usually takes three years to revise a national curriculum and carry out piloting before implementing the revised version. For the *Nuri Curriculum* for five-year-olds, stakeholders from both the early childhood education and child care sectors, as well as ministry officials, formed a task force and collaborated on the design and content of the curriculum.

For better curriculum alignment for continuous child development

Developing an integrated curriculum for care and early education for five-year-olds

Korea's Common Curriculum for age five, the *Nuri Curriculum*, has been implemented in February 2012. The *Nuri Curriculum* focuses on integrating two separate curricula from kindergarten and child care so that it ensures fair quality of ECEC services for children in both provisions. The curriculum emphasises children's well-being, safety, play activities and citizenship rather than cognitive, academic activities and includes five development areas: motor skills and health, communication, social relationships, art and science. It aims to foster children's creativity through holistic development and is aligned with the curriculum for primary school (grades one and two). A contest in which the public could come up with a title for the curriculum raised public awareness for the new curriculum. Starting from March 2013, Korea will extend the common curriculum to ages three and four.

Working towards vertical and horizontal coherence between different curricula

In developing the *Nuri Curriculum*, Korea emphasised the importance of both vertical and horizontal coherence and consistency in children's development and learning experiences regardless of the type of ECEC institution. Alignment of the *Standard Childcare Curriculum* to the elementary school curriculum, which tended to be relatively weak compared to the *National Kindergarten Curriculum*, will be strengthened. Furthermore, aligning the *Nuri Curriculum*, the *National Kindergarten Curriculum* and the *Standard Childcare Curriculum* for ages three to four is being actively pursued.

For effective communication and implementation

Organising public hearings, seminars and conferences

In Korea, large-scale public hearings and seminars have been held before and after announcing the revised versions of the *National Kindergarten Curriculum* and the *Standard Childcare Curriculum* to inform and discuss changes with a range of stakeholders, including

local government officials, in-service teacher trainers, university professors and representatives of kindergarten and child care centre associations. City and provincial education offices and Child Care Information Centres also organised meetings, seminars and conferences to communicate curriculum changes to teachers and directors at the local level.

Training professionals on implementing the new curriculum

In Korea, 20 000 ECEC professionals were trained in 2011 to implement the *Nuri Curriculum* in 2012. Training sessions focused on the differences between the *Nuri Curriculum* and the existing kindergarten and child care curricula, including basic principles, areas of learning and development, and teaching methods.

Developing different kinds of information materials

Korea is currently developing explanatory guidelines, a teaching manual, DVDs, CD-ROMs, PowerPoint presentations and websites in order to increase the level of familiarity of ECEC staff with the *Nuri Curriculum*. Additionally, weekly curriculum updates inform parents of the fact that learning in early childhood settings is not based on textbooks, rather on a variety of educational activities.

For systematic evaluation and assessment

Setting up a parent monitoring group to monitor ECEC activities

In Korea, a Parent Monitoring Group has been managed by local governments since 2005. This group aims to improve the public service function in operating child care centres, and it evaluates relevant projects/programmes and policies. Parents working as members of this group visit the child care centres in question, observe/monitor their activities and provide child care policy recommendations to the government. Such monitoring takes place at least once a quarter, and the term of group membership is two years.

Possible alternative strategies: Lessons from Finland, New Zealand and the United Kingdom

Alternative approaches from the reference countries can provide “food for thought” in overcoming challenges.

To better define goals and content

Setting clear guiding principles based on community and cultural values

In **Scotland**, the *Pre-Birth to Three: Positive Outcomes for Scotland’s Children and Families* has been developed. The document reflects the principles and philosophy which underpin the *Curriculum for Excellence* for ages three to eighteen. *Pre-Birth to Three* emphasises the importance of family and community engagement. Both curricula emphasise four key capacities: to become successful learners, confident individuals, responsible citizens and effective contributors to society. The *Curriculum for Excellence* includes experiences that are planned for children and young people through their education. These experiences are grouped into four categories: curriculum areas and subjects; interdisciplinary learning; ethos and life of the school; and opportunities for personal achievement.

The *Te Whāriki* curriculum for birth until school entry in **New Zealand** emphasises the critical role of socially and culturally mediated learning and of reciprocal and responsive relationships for children with people, places and things. Human relationships and positive well-being form the base principles of the curriculum as well as empowerment, holistic

development and the family and community. The early childhood curriculum takes up a model of learning that weaves together intricate patterns of linked experience and meaning rather than emphasising the acquisition of discrete skills. The framework consists of four parts: 1) the principles of the curriculum; 2) its five strands; 3) goals for the early childhood years; and 4) examples of the links between early childhood education and the school years and the *New Zealand Curriculum Framework* for schools. The strands and goals are linked to each other and focus on well-being, belonging, contributions of children, communication and exploration. The content is age-appropriate for three different age groups within ECEC, namely infants (birth to eighteen months), toddlers (one to three years) and young children (two-and-a-half years to school entry age). The views on development for each of these age groups have been clarified in the curriculum.

Developing goals for staff or child outcomes for identifying children's needs

New Zealand's *Te Whāriki* curriculum includes several dispositions, named learning outcomes, for each of its five strands: well-being, belonging, contributions of children, communication and exploration. These dispositions are encouraged rather than taught and, similar to the curricula in Nordic countries, reflect the holistic way children grow and learn: cognitive, social, cultural, physical, emotional and spiritual dimensions of human development are interwoven. The early childhood curriculum therefore takes up a model of learning that weaves together intricate patterns of linked experience and meaning rather than emphasising the acquisition of specific skills. The whole context around the child (the physical surroundings, the emotional context, relationships with others, and the child's immediate needs at any moment) will affect and modify how a particular experience contributes to the child's development. This integrated view of learning sees the child as a person who wants to learn, sees the task as a meaningful whole, and sees the whole as greater than the sum of its individual tasks or experiences.

Since the *Te Whāriki* curriculum emphasises social relationships and personal well-being, outcomes are formulated in terms of relationships and well-being and are focused on the skills and abilities children should develop rather than actual attainment targets. For each strand, knowledge, skills and attitudes are described, and examples of experiences are given, which help to meet these outcomes. Examples of outcomes include: confidence and ability to express emotional needs, knowledge about how to keep themselves healthy, and a sense of responsibility for their own well-being and that of others. For staff, questions for reflection are included, which are aimed at guiding staff in stimulating children in their development and improve staff pedagogy and quality. Additionally, for each strand and goals, adults' responsibilities in management, organisation and practice are explained. Each of the strands or learning areas also lists specific links to schooling to stimulate continuity between early childhood education and primary school. This section indicates the skills or attributes children likely need when moving from ECEC to school to ensure continuous development and lifelong learning, *e.g.*, "be able to work co-operatively", "have experience in making choices and decisions, setting their own goals, and using their initiative", "understand basic concepts about rules, rights, and fairness", "have established self-care skills".

England (**United Kingdom**) specifies, in the *Practice Guide* for the *Early Years Foundation Stage,* expected goals for different age groups of children. The goals are made age-appropriate to fit the development stage of young children. Goals are established for birth to 11 months; 8 to 20 months; 16 to 26 months; 22 to 36 months; 30 to 50 months; 40 to 60+ months. They are grouped into six categories: dispositions and attitudes, self-confidence and self-esteem, making relationships, behaviour and self-control, self-care, and sense of community. The *Early Years Foundation Stage* is currently being revised based on the recommendations which were a result of the review that has been conducted on the Foundation Stage. Based on the results of this review, the areas of learning are being

changed and the number of early learning goals reduced to meet the needs of staff and other stakeholders regarding implementation.

Scotland (**United Kingdom**) clearly prescribes in its *Curriculum for Excellence* what children should know and experience at different educational levels. The outcomes and experiences are designed based on eight different subject areas, including expressive arts, health and well-being, languages, mathematics, religious and moral education, sciences, social studies and technologies. Taken as a whole, the experiences and outcomes differ per age group and embody the attributes and capabilities each child should achieve.

Developing age-appropriate content based on children's needs

New Zealand's *Te Whāriki* curriculum defines how progress towards learning in early childhood learning environments can be achieved. To ensure the framework is age-appropriate, the content is made for three different age groups within ECEC: infants (birth to 18 months), toddlers (one to three years), and young children (two-and-a-half years to school entry age). *Te Whāriki* is designed to be inclusive and appropriate for all children and anticipates that children's needs will be met as children learn together in all kinds of early childhood education settings. For children who require resources alternative or additional to those usually provided within an early childhood education setting, an Individual Development Plan or Individual Education Plan (IDP or IEP) is developed.

Te Whāriki takes up a model of learning that weaves together intricate patterns of linked experience and meaning rather than emphasising the acquisition of discrete skills. The framework consists of four parts: 1) the principles of the curriculum; 2) its five strands; 3) goals for the early childhood years; and 4) examples of the links between early childhood education and the school years and the *New Zealand Curriculum Framework* for schools. The five strands of development focus on well-being, belonging, contributions of children, communication and exploration. Each of these five strands are linked with essential skills or learning areas, such as communication, language development, numeracy and mathematics, science, technology, social sciences, arts, health, work and study skills, problem-solving capabilities, social development and self-management,

Also, New Zealand regards the acquisition of observation and reflection skills in young children as important element that is expected to stimulate early development. Their curricula encourage staff to teach children how to think for themselves, reflect on their own ideas and thoughts, and discuss different opinions to create mutual respect and understanding.

Making curriculum less descriptive to leave room for local adaptation

ECEC staff in **Scotland** (**United Kingdom**) found their previous curricula for ages three to five and five to 14 too descriptive, leaving insufficient room for local adaptation. Therefore, the curricula were revised, which resulted in a curriculum for children ages three to 18 with less descriptive outcomes and practices.

Some ECEC workers in **England** (**United Kingdom**) found the *Early Years Foundation Stage* (EYFS) too prescriptive, leaving insufficient room for innovation. Therefore, a review of the EYFS was conducted in 2010-11 to consider how the framework could be simplified, clarified and made less prescriptive. The review also recommended revising the EYFS to improve its accessibility to parents and to promote action to respond to children progressing slower than expected.

Setting up a working committee and steering group for revision of a framework

Finland set up a steering group and working committee of policy makers and representatives of the ECEC sector to discuss and define the contents of an ECEC curriculum. A number of ECEC experts were also invited to contribute to the work and asked to comment on the draft guidelines.

Engaging parents in setting the curriculum

Finland's *Core Curriculum for Pre-primary Education* (2010) states that it is important to provide parents and guardians with opportunities to participate in setting objectives for, planning and evaluating the educational work within pre-primary education. Parents in Finland are involved in the development of the educational plan of their child. Parents set the objectives of the educational plan of their child in co-operation with ECEC staff. Also, parents and ECEC staff work together to plan on how to achieve these objectives. This stimulates engagement of parents and encourages further involvement, as they are familiar with the curricular plan of their child. Staff also inform parents about the curriculum in the centre and provide parents with advice on how they can implement elements of the curriculum at home.

For better curriculum alignment for continuous child development

Reconsidering the age coverage of the curriculum framework

In **Scotland** (**United Kingdom**), the *Pre-Birth to Three: Positive Outcomes for Scotland's Children and Families*, guidelines for ECEC staff, reflects the principles and philosophy which underpin the *Curriculum for Excellence* for ages three to 18. Both curricula build on the same underlying principles: the best interests of children, the central importance of relationships and the need for all children to feel included; and they emphasise four key capacities: to become successful learners, confident individuals, responsible citizens and effective contributors to society. *Pre-Birth to Three* puts emphasis on the importance of family and community engagement and points to the relevance of relationships, responsive care and respect as key features for promoting effective practices for ECEC staff. The *Curriculum for Excellence* includes experiences that are planned for children and young people through their education. These experiences are grouped into four categories: curriculum areas and subjects; interdisciplinary learning; ethos and life of the school; and opportunities for personal achievement.

Developing one curriculum for children in the whole ECEC age range

New Zealand's *Te Whāriki* curriculum has been developed for children from birth to school entry. However, to ensure the framework is age-appropriate, the content is made for three different age groups within ECEC: infants (birth to 18 months), toddlers (one to three years), and young children (two-and-a-half years to school entry age).

England (**United Kingdom**) developed the *Early Years Foundations Stage* for children from birth to five years, replacing three earlier frameworks for different age groups (*Curriculum Guidance for the Foundation Stage*; *Birth to Three Matters*; and *National Standards for Under 8 year-olds*).

Linking the ECEC curriculum to primary schooling curriculum

New Zealand's *Te Whāriki* curriculum is linked to the country's *Curriculum Framework* for schools. The principles in the school curriculum put emphasis on a "natural connection" across learning areas and competencies as well as the positioning of the competencies as parallel domains alongside the strands of *Te Whāriki*. For each of the strands (well-being, belonging, contributions of children, and communication and exploration), links have been made with the learning areas and skills in the school curriculum to smoothen the transition

from preschool to primary school. The emphasis in New Zealand has shifted towards expecting the school "to make connections" with the new entrant child's earlier experience, rather than the child arriving "ready for school". Strengthening the links between the different early childhood education services have encouraged a growing appreciation of each other's differences and similarities.

Aligning qualifications between pre-primary and primary teachers

Finland raised the level of education for kindergarten teachers and connected it more closely to the level for primary school teachers. In 1995, kindergarten teacher education was moved to the university level, as classroom teacher training and other teacher training had already been established in universities. This change created greater synergy and interaction between training for ECEC professionals and training for primary school teachers to better support children's development and learning and foster co-operation between teachers during children's transition from kindergarten to primary school.

For effective communication and implementation

Ensuring stakeholder's engagement to improve curriculum implementation

In **Scotland** (**United Kingdom**), anyone with an interest in education was invited to be part of the feedback and revision process of the *Curriculum for Excellence*. The draft experiences and outcomes were published online and were accompanied by an online questionnaire for individuals, groups, schools and organisations to feed back their thoughts and views. Additionally, 37 focus groups were held, covering each curriculum area and involving practitioners, senior education managers, representatives from professional bodies, industry, parents and learners to discuss the draft experiences and outcomes. The University of Glasgow was commissioned to analyse the feedback on the draft experiences and outcomes.

Piloting before implementing nationwide/state-wide

More than 600 early years establishments and schools in **Scotland** (**United Kingdom**) took part in a formal trialling process to test specific experiences and outcomes from the *Curriculum for Excellence* in practice across all curriculum areas. Schools and centres chose experiences and outcomes to trial based on their planned programmes of work. They submitted reports containing detailed feedback, which was used to inform the revision process.

Developing a communication toolkit for staff

Scotland (**United Kingdom**) developed a communication toolkit for staff with tools that address what the *Curriculum for Excellence* means at different educational stages. The kit includes ready-made materials, such as posters for use at ECEC centres and schools, a series of leaflets with the summary of a case study from the child's and the parent's points of view, a "pupil voice" video and a "practitioner voice" video as well as additional resources and links.

Include practical example experiences in the curriculum

The curriculum framework for ECEC in **New Zealand** provides professionals with examples of experiences that help meet the outcomes of the curriculum. The support guidance is divided into experiences helpful for infants, toddlers and young children to ensure practices and activities are age-appropriate. It provides ideas for activities and what is important to keep in mind for staff working with children. It also sets out questions for reflection for staff members, which help professionals analyse what they could improve when implementing the curriculum.

Providing support materials for free online

In **Scotland** (**United Kingdom**), a national implementation guide and accompanying staff support materials have been developed, including a DVD, a CD and a poster, that are relevant for all adults working with and for babies and young children. This pack is issued to all early years establishments; and the interactive online version[1] combines all materials contained in the pack.

Developing materials that target parents

In **Scotland** (**United Kingdom**), templates to support staff in creating or customising materials for communicating with parents are available online. Learning and Teaching Scotland, a non-departmental public body, also developed information sheets for parents on the importance of different curriculum subjects including literacy, mathematics, transitions between different education systems and outdoor learning. In addition to this, a series of posters were distributed to providers, which can be used to raise awareness among parents about the *Curriculum for Excellence* for the early years.

Explaining the curriculum in understandable language

Finland and **New Zealand** have learnt that it is useful and important to explain the curriculum in simple language, avoiding technical terms. When the curriculum is explained in understandable language, it is found that both staff and parents with different backgrounds have better knowledge about the curriculum. This also results in better implementation of the curriculum by educators and other ECEC staff. New Zealand found that it stimulates expanding the use of the curriculum by parents in home learning activities.

Revising initial education and providing demands-driven training

New Zealand focuses in staff training on the implementation of *Te Whāriki*, the early childhood curriculum, and provides training to improve learning outcomes for all young children, especially those at risk. Teachers are expected to strengthen their teaching practices. The government also provides training to support the implementations of *Kei Tua o Te Pae*, the Assessment for Learning. Teachers are expected to develop effective assessment practices that meet the aspirations of the curriculum.

In **Finland**, municipalities are responsible for determining the content of social welfare training; however, municipalities do not always maintain diversified know-how about the needs of the social welfare sector. Therefore, the government created centres of excellence on social welfare in 2002 to convey expertise to municipalities on this topic and ensure that training content is consistent and relevant. The centres of excellence work in close connection with universities and other education institutions. For example, at the University of Tampere (Finland), continuous training is carried out in co-operation with the city of Tampere and the kindergarten staff (especially the leaders of the kindergartens and the day care centres) as custom-made training. Identifying the demands and need for training derive from the staff and leaders. The training programmes aim to cover a wide range of skills, such as communication with parents, orientation of curriculum contents and materials, and teaching strategies and upbringing practices with a child-centred focus (*e.g.*, how children move, play, experience art, explore, etc.).

For systematic evaluation and assessment

Integrating "curriculum" as part of evaluation or assessment practices

New Zealand implemented *Kei Tua o te Pae*[2], the Assessment for Learning, in which teachers are expected to develop effective assessment practices that meet the aspirations of the curriculum, *Te Whāriki*. The national government offers training on this assessment

practice to ECEC staff. The curriculum programme is evaluated in terms of its capacity to provide activities and relationships that stimulate early development. Such assessment ought to be a two-way process. Children's self-assessment can inform adults' assessment of learning, development and the environment by providing insights that adults may not have identified and by highlighting areas that could be included or focused on for assessment. Children and parents can help in deciding what should be included in the process of assessing the programme and the curriculum.

New Zealand also uses child assessment/development practices as a method in reflecting upon curriculum design and implementation. Children's experiences are described in a Learning Story Framework by staff and children. The framework focuses on assessment in a narrative form, as a story, a connection between the individual learner and the environment. It takes the view that children leave early childhood settings for further education with some well-established learning narratives or working theories: packages of inclination, knowledge and skills to do with being a learner. The initiative has been released with videos, accompanying readings and workshops and have provided a useful way for children and practitioners to reflect on ways to implement curriculum and assessment and develop their own locally-adapted *Te Whāriki*.

In **Scotland** (**United Kingdom**), assessment is one of the strands of work in implementing the *Curriculum for Excellence* and *Pre-Birth to Three*. As part of assessment, self-evaluations have been set up in centres as well as monitoring standards and outcomes over time. The framework of quality indicators set out in *How Good is Our School?* and *Child at the Centre* provides a focus for self-reflecting on professional practice and curriculum for improvement in schools and centres. Additionally, external inspections are organised to monitor curriculum and practices. The government is working with education authorities and other partners to develop processes for sharing assessment information so that education authorities can use the data to learn about the work of their schools and centres and, where appropriate, support changes in curriculum.

Reviewing the curriculum framework linked to quality improvement

England (**United Kingdom**) carried out an independent review of the *Early Years Foundation Stage* (EYFS) in 2011. The government then consulted on its proposals for a revised EYFS and plans to implement in September 2012. The revised EYFS is simpler, clearer and less prescriptive. It will also reflect the latest evidence on child development. The government also proposes to improve the framework's accessibility to parents and to promote action to respond to children progressing slower than expected.

NOTES

1 www.ltscotland.org.uk/earlyyears/prebirthtothree/nationalguidance/index.asp

2 www.educate.ece.govt.nz/learning/curriculumAndLearning/Assessmentforlearning/KeiTuaotePae.apx

ANNEX A. DEFINITIONS AND METHODOLOGIES

A **curriculum framework** (**guidelines** or **standards**) is a tool which can guide the content of and approach to children's care and learning.

Curriculum contents can be organised into subject elements or areas. ECEC elements or subject areas highlight priorities and clarify how care, pedagogies and teachings are organised. In the OECD Network on ECEC's "Survey for the Quality Toolbox and ECEC Portal", countries were asked to choose from a list of nine ECEC elements or subject areas:

1. **Literacy**: refers to all subjects related to reading and writing, including language learning and development, and word recognition.

2. **Numeracy**: refers to all subjects related to numbering and counting, including calculations, number recognition, spaces and shapes.

3. **Science**: refers to all scientific subjects, such as geography and natural science.

4. **Arts**: refers to all subjects related to some form of art, including drawing, colouring, painting and handicrafts.

5. **Music**: refers to all subjects involving music, such as singing, playing musical instruments and dancing to music.

6. **Physical education**: refers to all instructed subjects that require physical effort or are related to physical well-being, such as gymnastics, sports and classes about food or hygiene.

7. **Practical skills**: refers to all practices related to practical skills not mentioned in one of the other subjects, for example, tying shoe-laces.

8. **Playtime**: refers to the time children can play freely, *i.e.*, child-initiated play: the time that a child can decide for him or herself what he/she wants to do and play with (inside or outside).

9. **Activities outside ECEC institutions** (external activities): refers to field trips, such as outings to museums, public parks, libraries, concerts, and art and science centres.

There were an additional seven subject areas identified by countries/regions, including religion, ethics and democratic citizenship; health, personal and/or social well-being; social sciences and/or inter-cultural education; ICT; languages (foreign); and learning approaches.

The findings presented here are based on data from the OECD Network on ECEC's "Survey for the Quality Toolbox and ECEC Portal" (2011). For each graph and table, the countries or regions for which data is used are listed.

ANNEX B. FIGURES FOR THE SPIDER WEB ON POLICY OUTCOMES[1]

Eleven indicators have been selected to compare Korea's child outcomes with other OECD countries based on the available data for international comparison.

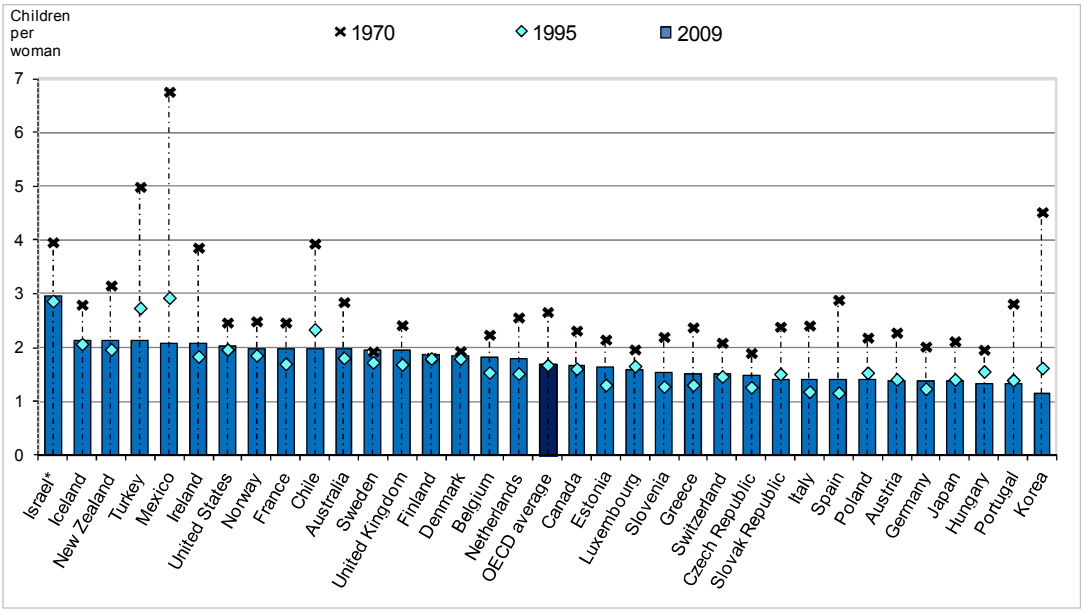
1. Fertility
2. Infant survival
3. Children under 18 who live above poverty line
4. Enrolment in formal care services for children under age three
5. Enrolment in early childhood education and care at age three
6. Enrolment in early childhood education and care at age five
7. PISA reading performance at age 15
8. PISA mathematics performance at age 15
9. PISA Science performance at age 15
10. Female employment rate (25 to 49 age cohort)
11. Gender equality in median earnings of full-time employees

Korea has selected international comparison, mainly focusing on Finland, New Zealand and the United Kingdom, where data are available.

1. Fertility

- Fertility rates decreased significantly between 1970 and 2009 in all OECD countries. Korea's fertility rate has declined since the 1970s to 1.15 births per woman in 2009, which is the lowest rate among OECD countries.
- A fertility rate of 1.15 births is below the replacement rate of 2.1 births and leads to each new generation being less populous than the previous one. This can be, but is not necessarily, related to possibilities for women to combine work and family life, including maternity leave entitlements, ECEC participation options and affordability of care. However, a fertility rate below the replacement rate does not necessarily mean the population is shrinking: population growth also depends on immigration numbers.

Figure B.1. Trends in total fertility rates



Note: 2007 for Belgium and Canada; 2008 for Australia, Germany, Greece and Iceland.

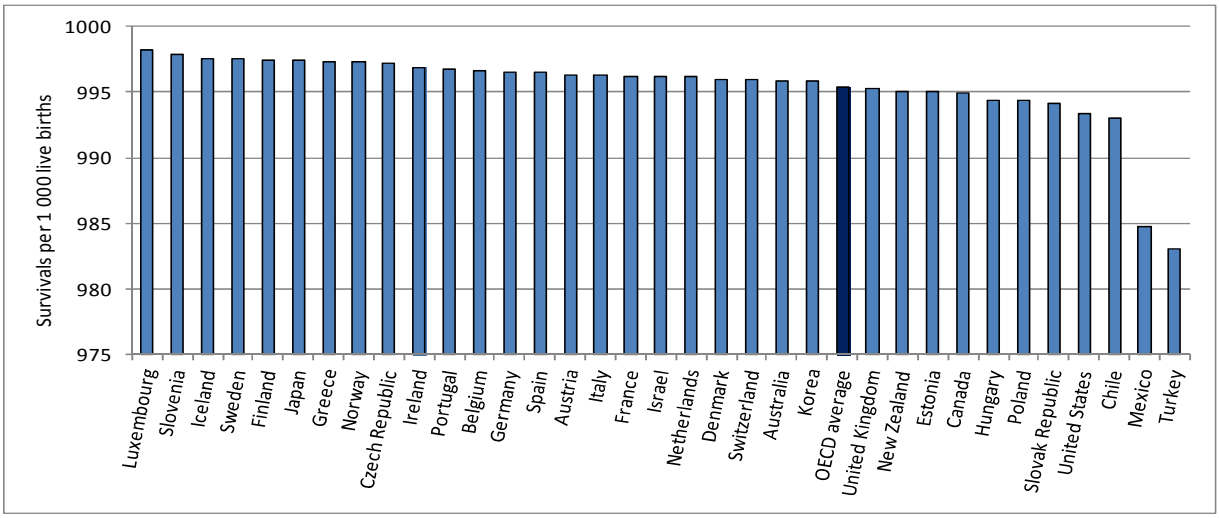
Source: National Statistical Offices, 2010, and Eurostat Demographic Statistics, 2010 from OECD Family database, January 2011.

2. Infant survival

- On average in OECD countries, 99 children out of 100 survive as life-born children (Figure B.2). In Korea, the survival rate is just above the OECD average, and it is lower than Finland's rate but higher than New Zealand and the United Kingdom's survival rates.
- During the last two decades, the infant mortality rates have decreased considerably from around 15 to 5 deaths per 1000 births in the OECD 34-average (Figure B.3). In Korea, the rate dropped from 16 to 4 deaths per 1000 live births.

Figure B.2. Infant survival rates

2008 or latest available year

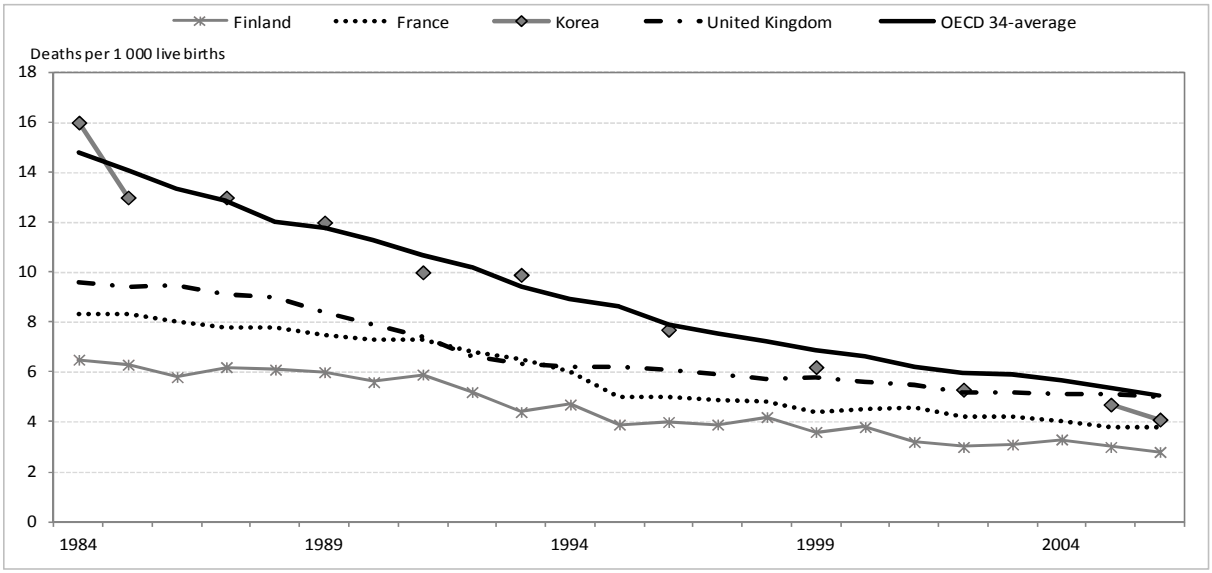


Note: 2007 instead of 2008 for Canada and Ireland; 2006 for Korea and the United States.

Source: OECD Health Data 2010, June 2010.

Figure B.3. Trends in infant mortality rates

A selection of OECD countries, 1984-2006



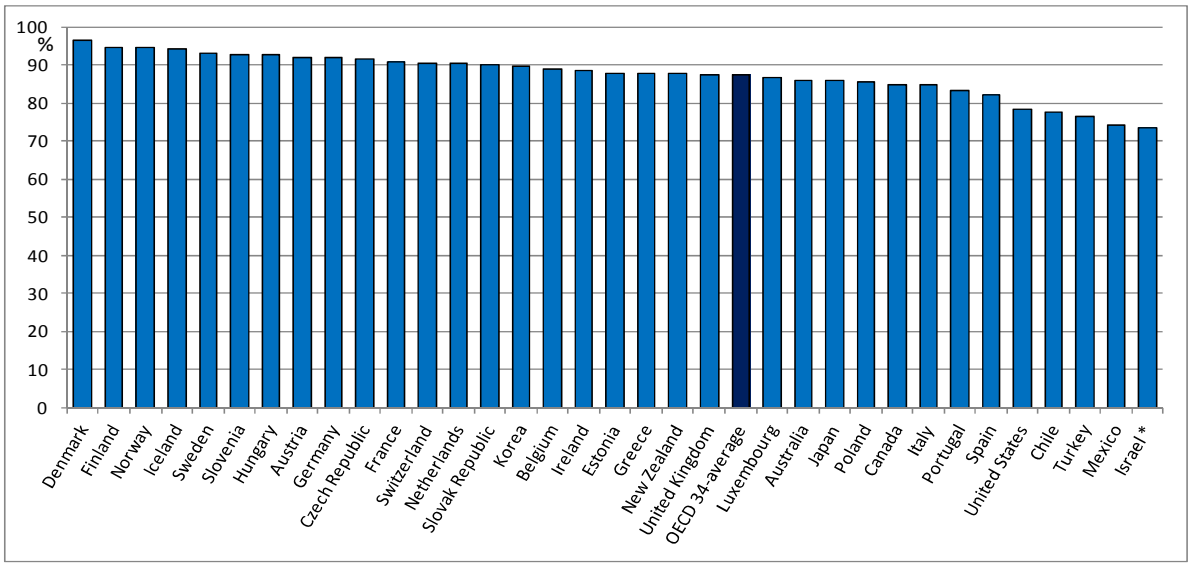
Source: OECD Health Data 2010, June 2010.

3. Children under age 18 above poverty line

- On average, one in eight children lives in a family who earns less than half of the median income in the OECD countries. Finland, along with other Nordic countries, has the largest proportion of children living above the poverty line with 94.6%.
- Korea has a higher share of children living above the poverty line than the OECD average: 89.7% of all children under 18 years old live above the poverty line, which is higher than New Zealand and the United Kingdom's figures.

Figure B.4. Children under 18 years living above poverty line

In 2008 or latest available year



Note: Children <18 above poverty line reports the inverse of poverty for children <18. * Poverty thresholds are set at 50% of the median equivalised disposable income of the entire population.

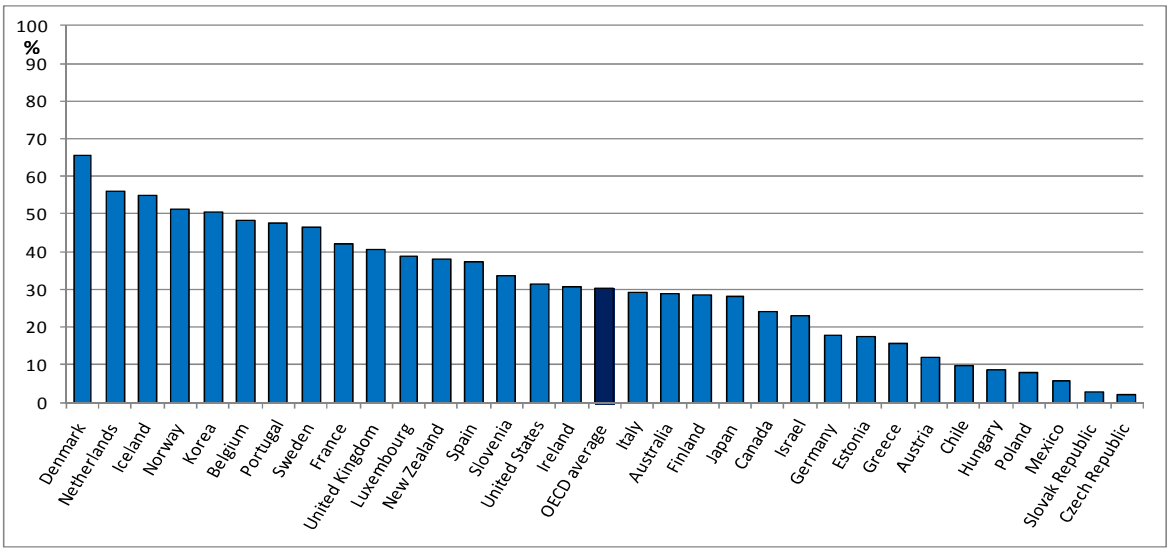
Source: OECD Income distribution questionnaire, version October 2011, for OECD countries; EU-SILC 2009 for non-OECD countries

4. Enrolment rates in formal child care of children under the age of three

- On average, around 30% of children under the age of three are enrolled in formal child care facilities in OECD countries, although enrolment rates vary considerably across countries.
- Korea has an above average enrolment rate (50.5%). Their enrolment rate is also higher than in its reference countries Finland (29%), New Zealand (38%) and the United Kingdom (41%).
- In many OECD countries, children under the age of three are often taken care of in informal child care services, such as family or domestic care services. If enrolment rates in informal care services would be taken into account, enrolment rates for children under the age of three are expected to be higher. However, data on enrolment in informal services is currently unavailable.

Figure B.5. Enrolment rates in formal child care for children under age three

As a percentage, in 2008



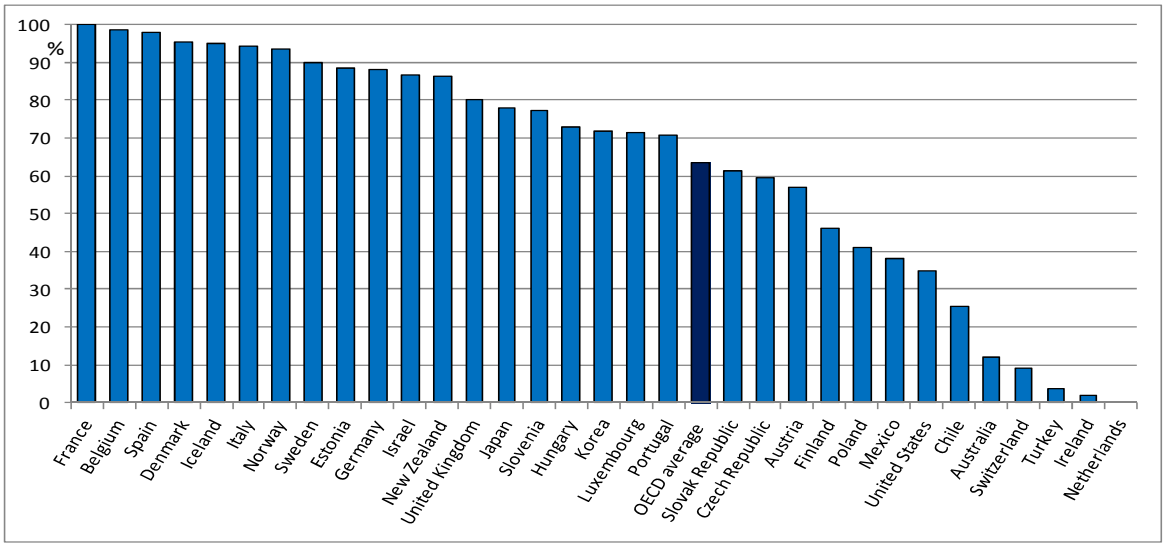
Source: OECD Family Database, November, 2011. Data for Korea come from National Sources for Year 2010.

5. Enrolment rates in formal early education (preschool) at age three

- On average, around 63% of children at age three are enrolled in formal early childhood education services in the OECD countries. Enrolment rates for children at age three vary considerably across countries.
- Enrolment is close to 100% in France and Belgium, where free early education starts around the age of three. On the contrary, it is less than 5% in the Netherlands, Ireland and Turkey where most children still attend child care services instead of preschool when participating in ECEC.
- The enrolment rate for three-year-olds in Korea is above the OECD average (71.9%), and higher than in its reference countries, Finland (46.1%) and United States (34.9%). A larger share of three-year-olds (around 88%) in New Zealand attends some form of early education.

Figure B.6. Enrolment rates in early childhood education at age three

Children attending full-time and part-time services in 2009



Note: OECD average does not include Canada or Greece. Data for Korea come from National Sources for Year 2010.

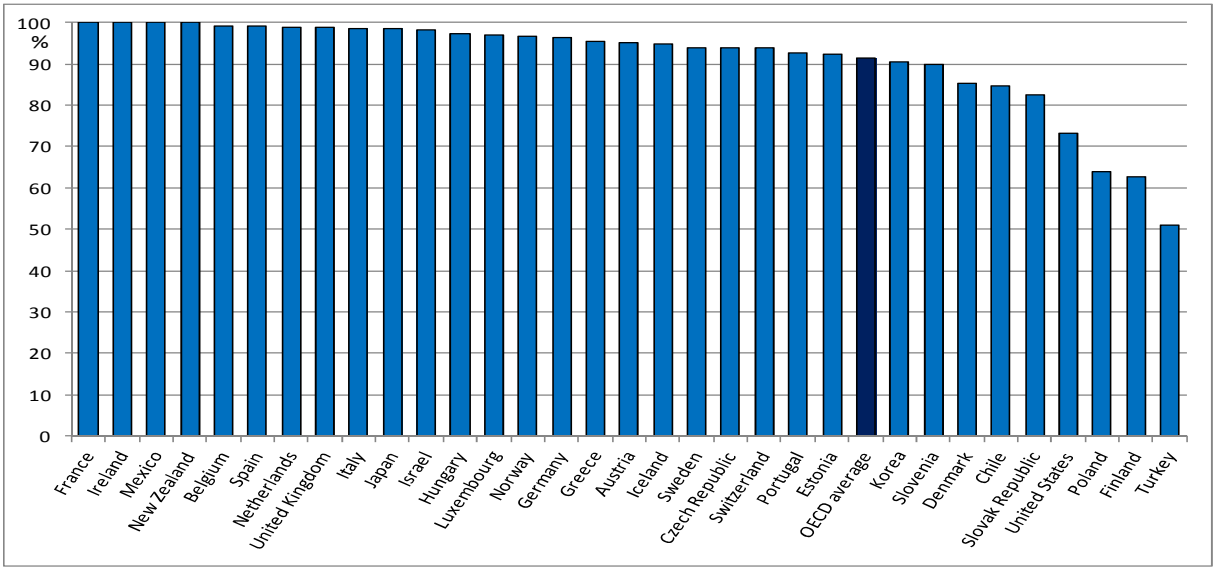
Source: OECD Education Database, November 2011.

6. Enrolment rates in formal early education (preschool) at age five

- In the majority of OECD countries, enrolment rates at age five in early childhood education and care exceed 90%. In Korea, 90.5% of all five-year-olds attend some form of formal ECEC services.
- Finland has a relatively low enrolment rate (62.6%) along with Poland and Turkey. Enrolment rates in New Zealand and the United Kingdom are higher than those in Korea with 100% and 99% respectively, as compulsory school starts at the age of five in both countries.

Figure B.7. Enrolment rates in early childhood education (pre-primary education) at age five

Children attending full-time and part-time service in 2009



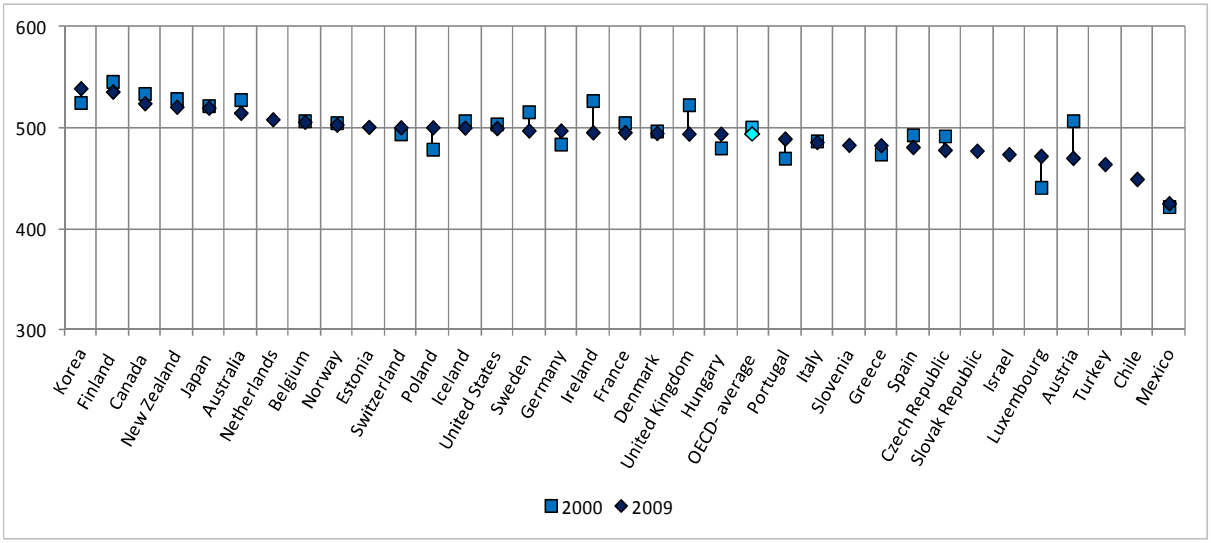
Note: At age five, Canada is not included in the OECD average. Data for Korea comes from National Sources for year 2010.

Source: OECD Education Database, November 2011.

7. PISA 2009 reading performance

- 15-year-olds in Korea have the highest score on the PISA reading assessment and outperform their peers in Finland, New Zealand and the United Kingdom. Between 2000 and 2009, Korea's score increased even further.
- A closer look at the student distribution by proficiency level can provide further insights into the level at which Korean students perform in reading. 15-year-olds in Korea are concentrated in proficiency levels 3 and 4 and have an above average share of students scoring in proficiency level 5 (Figure B.9).
- Finland and New Zealand have an above average percentage of students scoring at proficiency level 4 or above. The United Kingdom has a large share of students performing at level 3 or below.

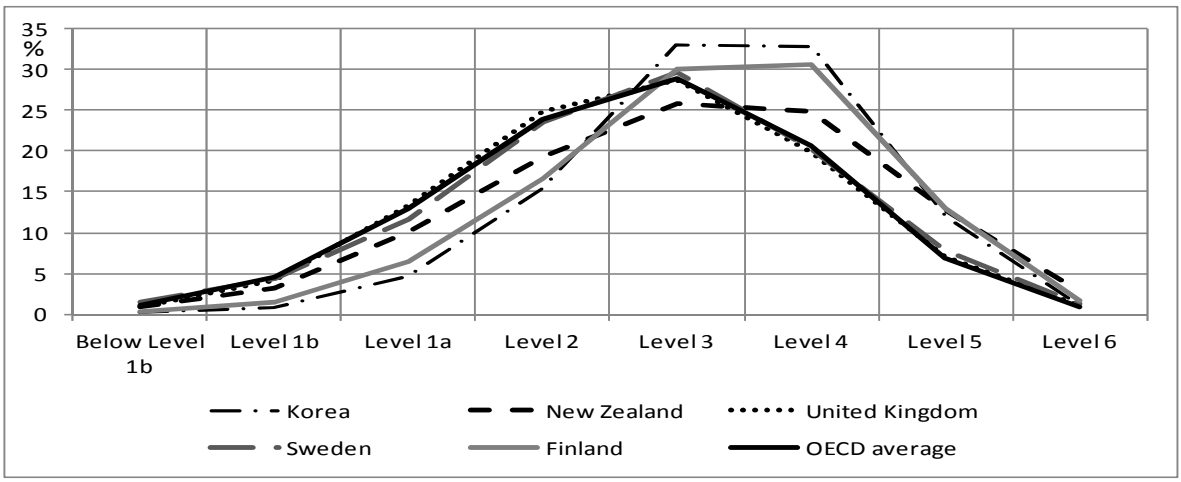
Figure B.8. PISA Reading performance in 2000 and 2009



Source: OECD PISA Databases 2000 and 2009.

Figure B.9. Reading performance dispersion

Percentage of students at the different levels of proficiency in 2009



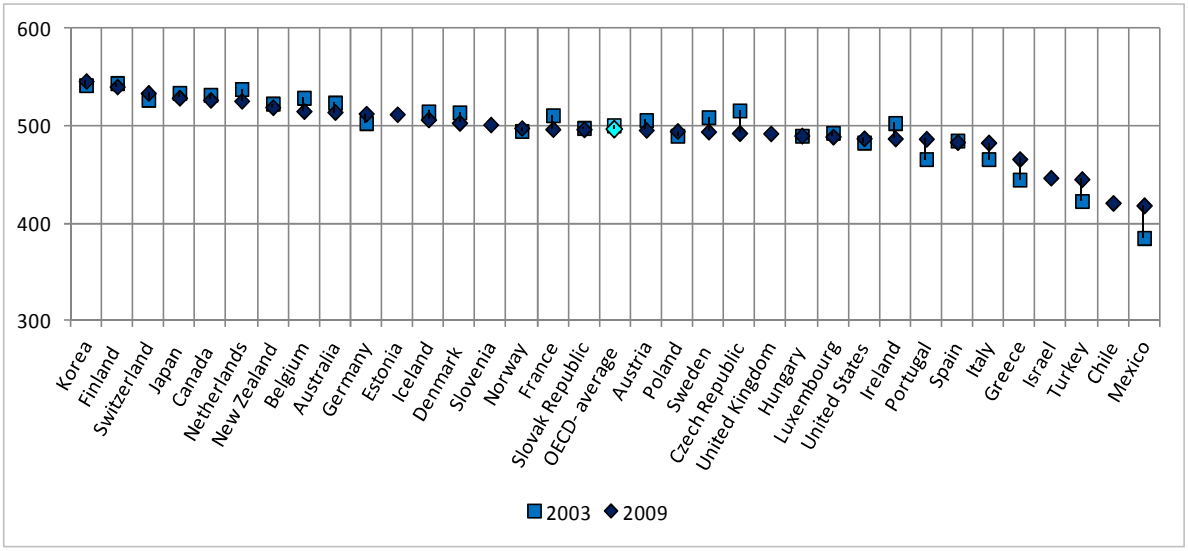
Notes: The OECD Programme for International Student Assessment (PISA) assesses students' reading performance, and knowledge about mathematics and science, when children are in secondary education at the age of 15. For PISA scores corresponding to each level of proficiency, see PISA Database.

Source: OECD, PISA 2009 Database, Table I.2.1.

8. PISA 2009 mathematics performance

- 15-year-olds in Korea are the top-performers regarding the PISA mathematics assessment, together with Finland and Switzerland. Korea and Finland's scores also remained stable over time (between 2000 and 2009). In Ireland, Sweden, France, Belgium, the Netherlands and Denmark, students' scores decreased with 11 to 16 score points.
- On the proficiency distribution scale, Korea has a similar distribution pattern to that of Finland with a larger-than-average proportion of students performing at level 4 or above. Furthermore, the share of students performing at level 2 or below is far below the OECD average and lower than in New Zealand and the United Kingdom.

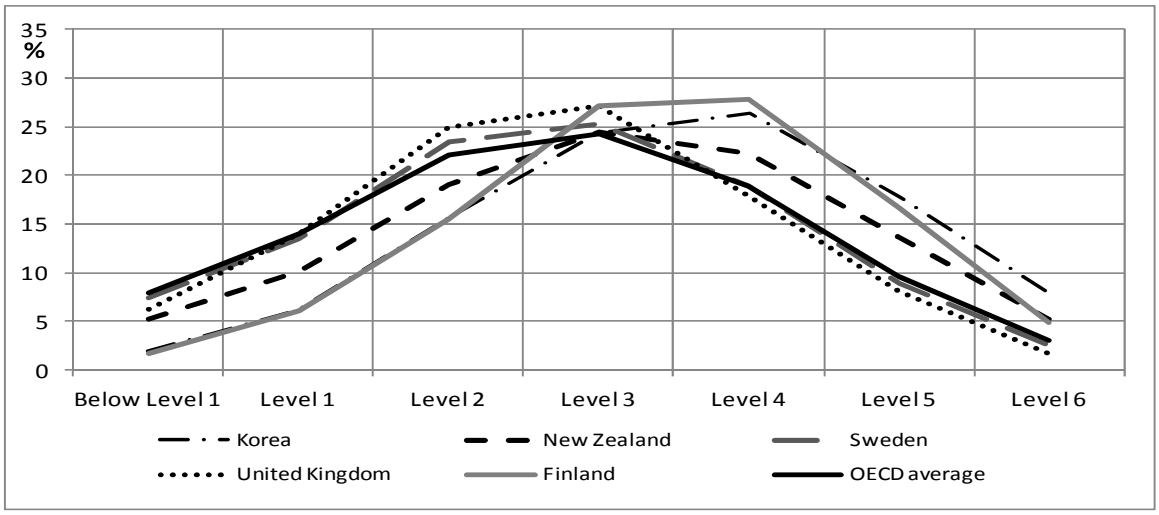
Figure B.10. PISA Mathematics performance in 2003 and 2009



Source: OECD PISA Databases 2003 and 2009.

Figure B.11. Mathematics performance dispersion

Percentage of students at the different levels of proficiency in 2009



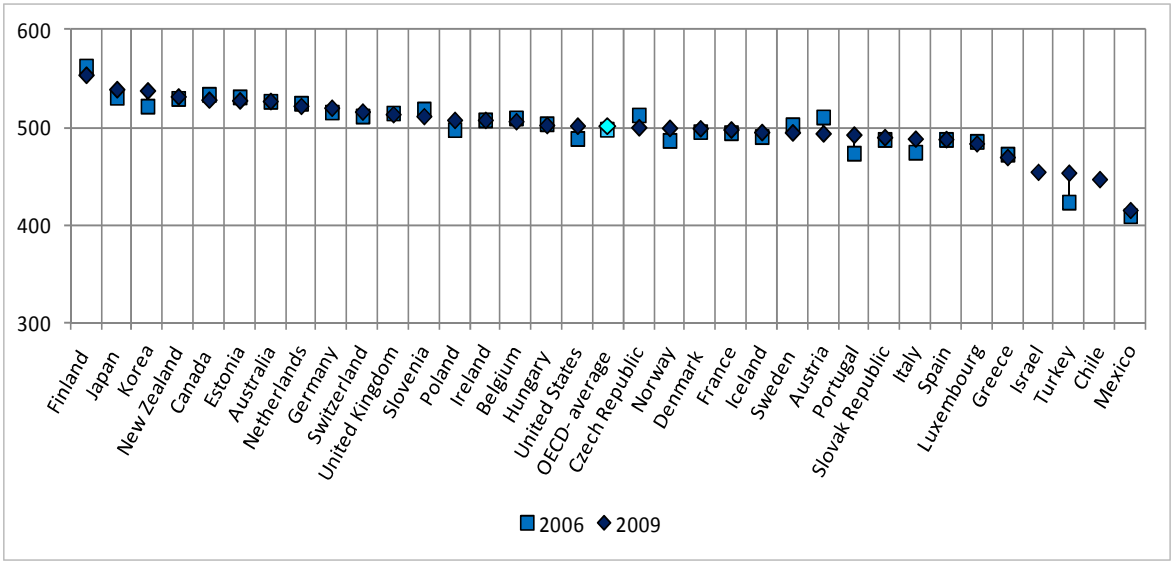
Note: For PISA scores corresponding to each level of proficiency, see PISA Database.

Source: OECD, PISA 2009 Database, Table I.3.1.

9. PISA 2009 science performance

- 15-year-olds in Korea perform well regarding the PISA science assessment, although Korean students are outperformed by their Finnish and Japanese peers. Korea's score improved between 2000 and 2009, while it decreased with 9 score points in Finland.
- On the performance distribution scale, Finland, Korea, New Zealand and the United Kingdom have a larger-than-average proportion of students at proficiency level 4 or above. Furthermore, the share of Korean and Finnish students performing at level 2 or below is below the OECD average and lower than in New Zealand and the United Kingdom assessment.

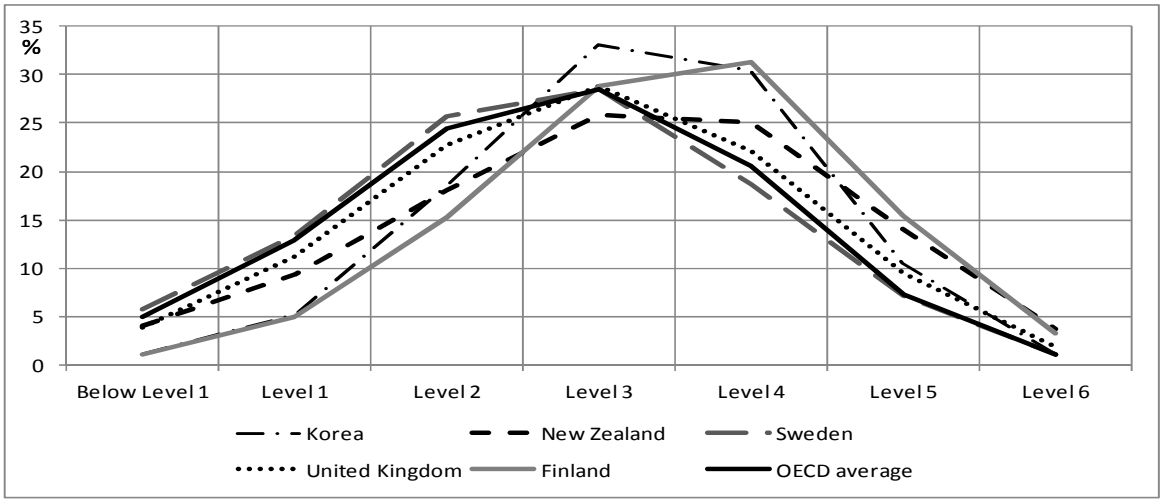
Figure B.12. PISA Science performance in 2006 and 2009



Source: OECD PISA Databases 2006 and 2009.

Figure B.13. Science performance dispersion

Percentage of students at the different levels of proficiency in 2009



Note: For PISA scores corresponding to each level of proficiency, see PISA Database.

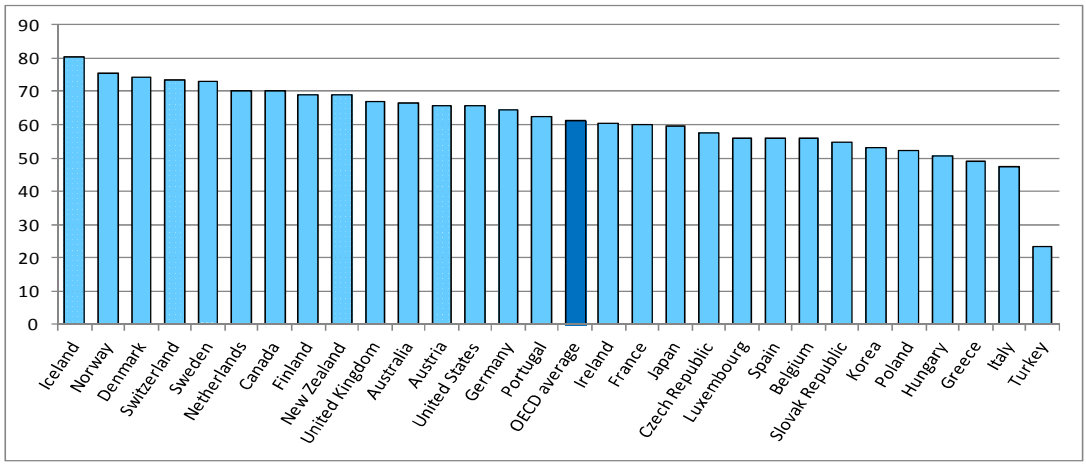
Source: OECD, PISA 2009 Database, Table I.3.4.

10. Female employment rate (25 to 49 age cohort)

- Korea's female employment rate is 53.2%, which is below the OECD average. Korea's female employment rate is also lower than in Finland and New Zealand (both 69%) and the United Kingdom (66.9%).

Figure B.14. Female employment rate (25 to 49 age cohort)

In 2008 or latest available year



Note: Part-time employment refers to persons who usually work less than 30 hours per week in their main job. Data include only persons declaring usual hours.

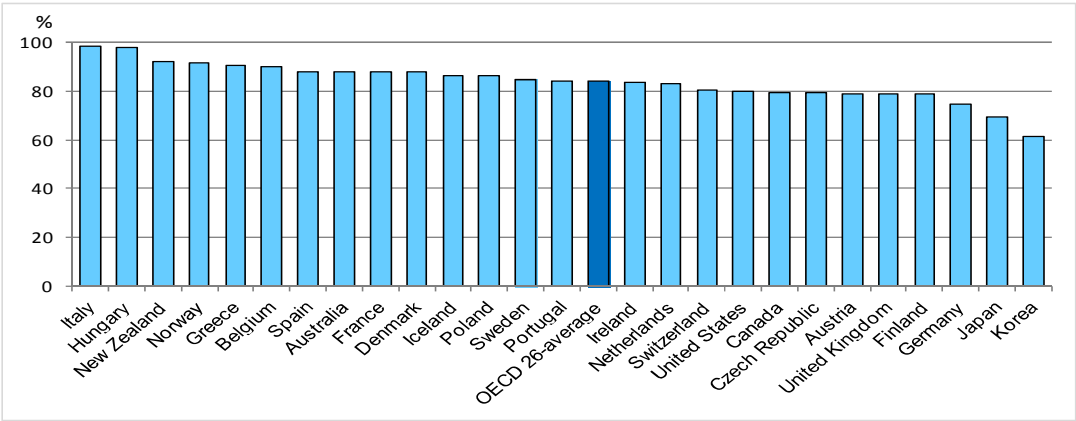
Source: Author's calculations based on OECD Factbook 2009.

11. Gender equality in median earnings of full-time employees

- Among 26 OECD countries, women in full-time employment earn, on average, 82.4% of the median earning of their male counterparts.
- Korea has below-average gender equality in median earnings (62%). This indicates that there are relatively large differences in earnings between men and women in Korea. Finland (78.8%), New Zealand (92.2%) and the United Kingdom (79%) have far greater gender earning equality than Korea, although there is room for progress in these countries as well.

Figure B.15. Gender equality in median earnings of full-time employees

In 2008 or latest available year



Source: OECD Family Database, May 2011.

NOTES

1 The data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

ANNEX C. FIGURES FOR THE SPIDER WEB ON POLICY INPUTS

Nine indicators have been selected to compare Korea's policy inputs with other OECD countries based on the available data for international comparison:

1. Public child care and education expenditure at age three
2. Public child care and education expenditure at age five
3. Public spending on family benefits in cash and tax measures
4. Paid maternity leave
5. Paid paternity leave
6. Required ISCED levels for staff working for the care sector, or in caring positions
7. Required ISCED levels for teaching staff working for the education sector or in teaching positions
8. Staff-child ratio in child care, or zero-to-three-year-olds
9. Staff-child ratio in preschool, kindergarten, or three years to compulsory schooling age

1. Public child care and education expenditure at age three

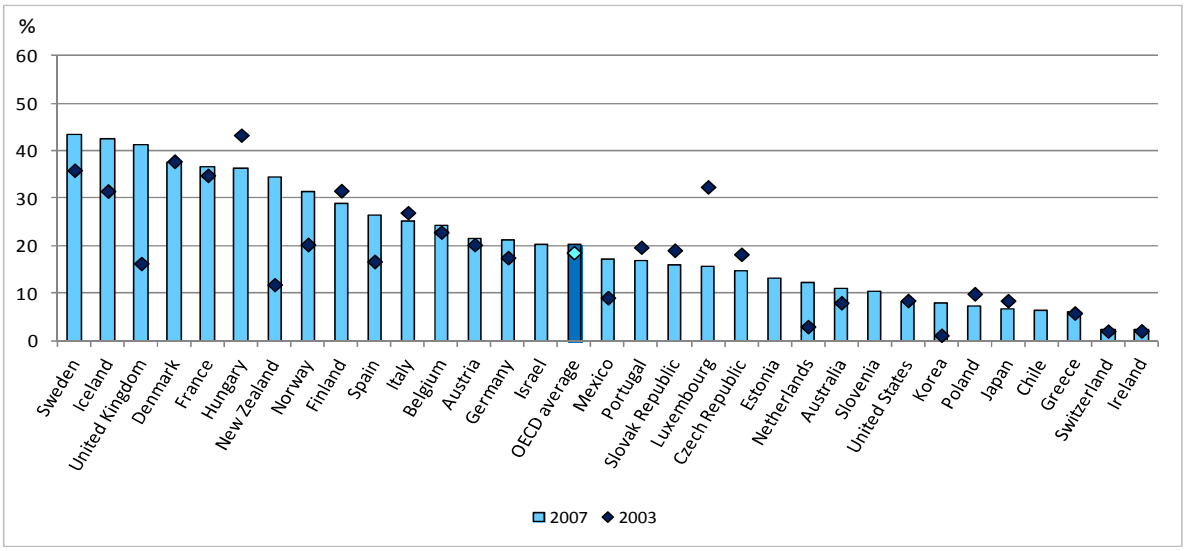
- Lower public spending on child care and education at the early stage might lead to an increase in informal or private ECEC provision. In countries with low public ECEC expenditures, child care fees can become a barrier to enrolling children in the services, although the government can support families in coverage of ECEC costs through other means, such as tax breaks and child-related benefits.
- Korea has a below average public expenditure level on ECEC for three-year-olds, and its expenditure level is also below that of Finland, New Zealand and the United Kingdom. Between 2003 and 2007, an increase in public spending on ECEC for three-year-olds took place in Korea – as in most other OECD countries (Figure C.1).
- Net child care costs vary across OECD countries. Policy measures to support families financially in covering the costs of ECEC and child raising also vary widely. Broadly, four approaches can be indentified:
    1. The costs are set high, and the net costs remain high even after counting child-related benefits and tax credits.
    2. The costs are set high, but the net costs are lower after counting the benefits.
    3. The costs are set low or at the margin of the affordable level, and no effects by the benefits are observed.
    4. The costs are set low or at the margin of the affordable level, and, further, the net costs are made lower.
- Korea takes the third approach for couple families, while taking the fourth approach for sole-parent families (Figures C.2 and C.3). The child care fees are lower than the OECD average (16.3% of the average wage). The net costs of child care for couples remain almost the same after accounting for child-related benefits and tax reductions. On the contrary, the net costs for single parent families reduce

significantly after accounting for child-related benefits and fall below the OECD average.

- For dual earning families, the OECD average child care costs are 27% of the average wage, while the net child care costs are 18.4% of the average wage. In Korea, the child care costs are set at 16.3% of the average wage, slightly below the OECD average. After accounting for child-related benefits and tax breaks, the net child care costs are reduced to 15.1% – also below the OECD average.
- For single-parent families, after distribution of child-related benefits, the net costs decrease significantly to around 5% of the average wage for a full-time single working parent and decrease even more for a part-time single working parent.

Figure C.1. Public spending on early education and child care per child at age three

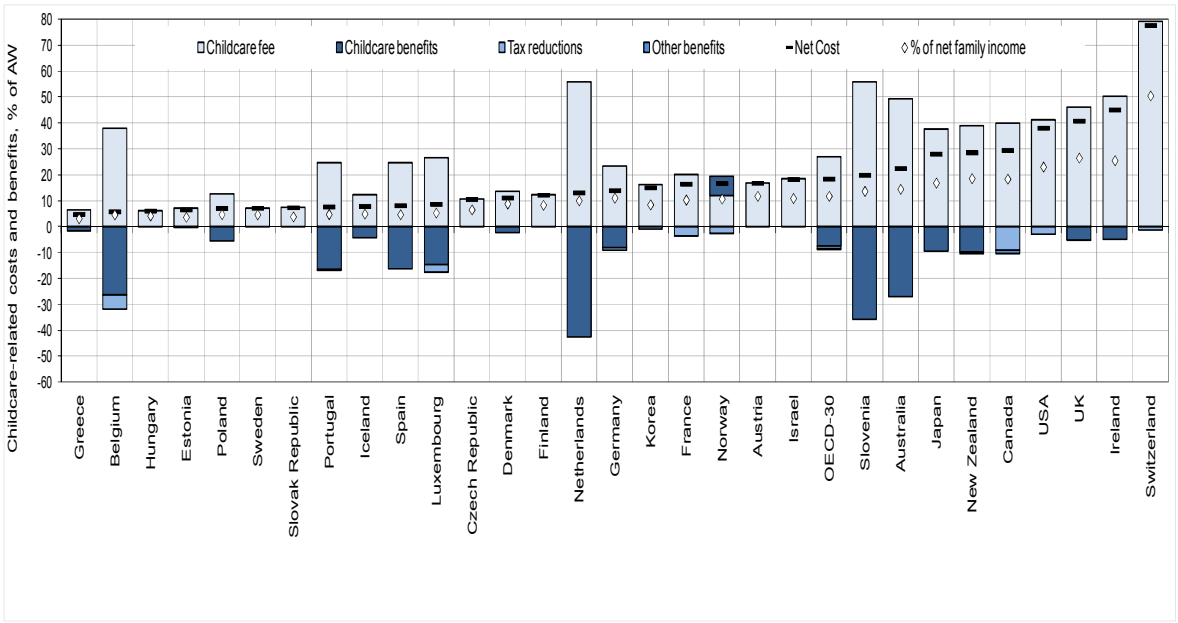
% of median working-age household income (2003 and 2007)



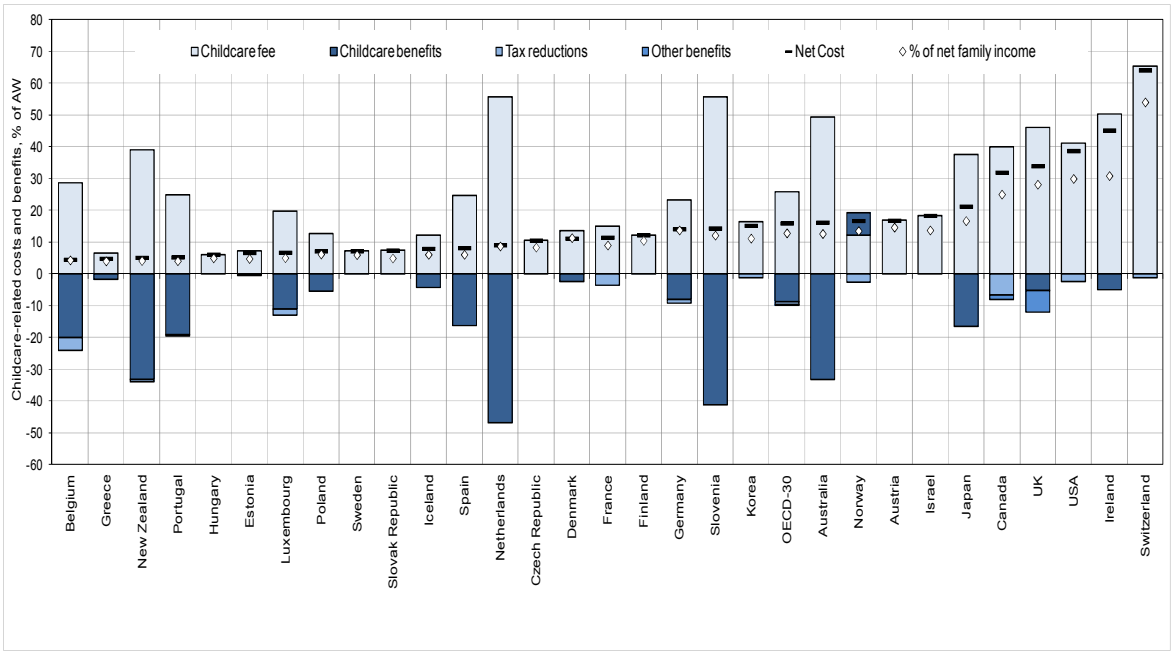
Source: OECD (2009), *Doing Better for Children*, OECD Publishing and OECD (2011), *Doing Better for Families*, OECD Publishing.

Figure C.2. Components of net child care costs for couple families, 2008

Panel A. Both earn 100% of average wage



Panel B. Male earns 100% and female earns 50% of average wage

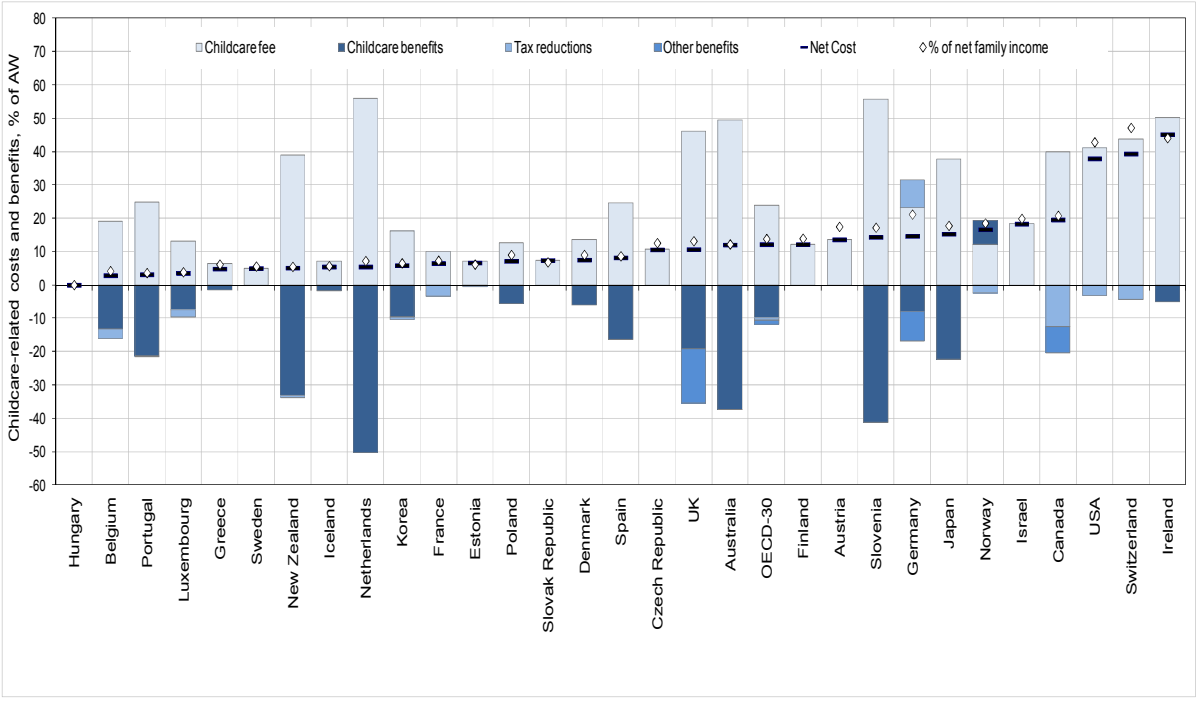


Notes: The child care cost calculations for Austria reflect the situation in Vienna; for Belgium, the French community; Canada, the province of Ontario; the Czech Republic in villages and towns with more than 2 000 inhabitants; for Germany, Hamburg; for Iceland, Reykjavík; for Switzerland, Zürich; for the United Kingdom, England; and for the United States, Michigan. These results do not represent the situation in the rest of the country. For example, net child care costs in the Canadian provinces of Alberta or Québec will be different from Ontario. Information on data for Israel: http://dx.doi.org/10.1787/888932315602.

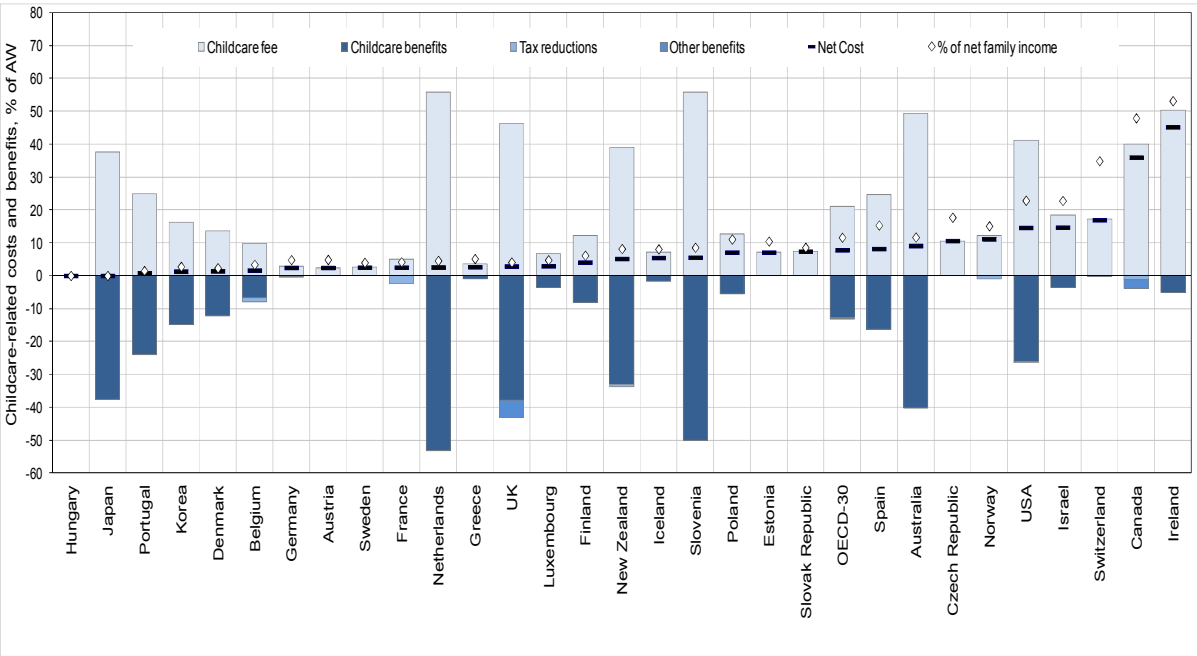
Source: OECD Tax/Benefit models, 2008 from OECD (2011), *Doing Better for Families*, OECD Publishing.

Figure C.3. Components of net child care costs for sole-parent families, 2008

Panel A. Sole parent earns 100% of the average wage



Panel B. Sole parent earns 50% of the average wage



Notes: Results are for 2008. Two children aged 2 and 3. "Family net income" is the sum of gross earnings plus cash benefits minus taxes and social contributions. All fee reductions, including free preschool of child care for certain age groups, are shown as rebates where possible. The child care cost calculations for Austria reflect the situation in Vienna; for Belgium, the French community; Canada, the province of Ontario; the Czech Republic in villages and towns with more than 2 000 inhabitants; for Germany, Hamburg; for Iceland, Reykjavík; for Switzerland, Zürich; for the United Kingdom, England; and for the United States, Michigan. Child care fees used are those determined by government, at either the national or local level, in Belgium, the Czech Republic, Finland, France, Hungary, Iceland, Israel, Japan, Korea, Latvia, Lithuania, Poland, the Slovak Republic and Slovenia. Child care fees for Greece are calculated according to national guidelines. Information on data for Israel: http://dx.doi.org/10.1787/888932315602

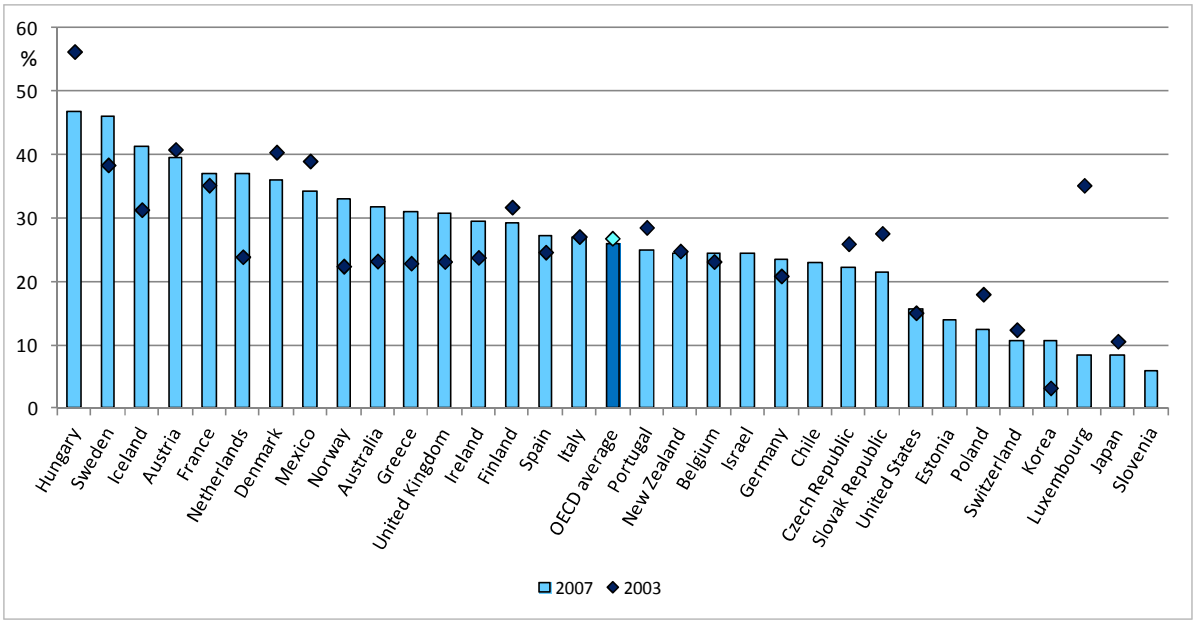
Source: OECD (2008b) Tax/Benefit models from OECD (2011), *Doing Better for Families*, OECD Publishing.

2. Public child care and education expenditure at age five

- Korea has a below-average public expenditure level on ECEC for five-year-olds, even though the spending level increased between 2003 and 2007. Korea's expenditure level is below that of Finland and the United Kingdom who have above-average spending levels. New Zealand has a below-average expenditure level, although their level remains higher than Korea's (Figure C.4).
- The distribution between public and private spending on early education is skewed mostly towards private spending in Korea. This indicates that the share of spending on early education by households is relatively high when compared to other OECD countries. In Finland, New Zealand and the United Kingdom, household spending on early education is lower (Figure C.5).

Figure C.4. Public spending on early education and child care per child at age five

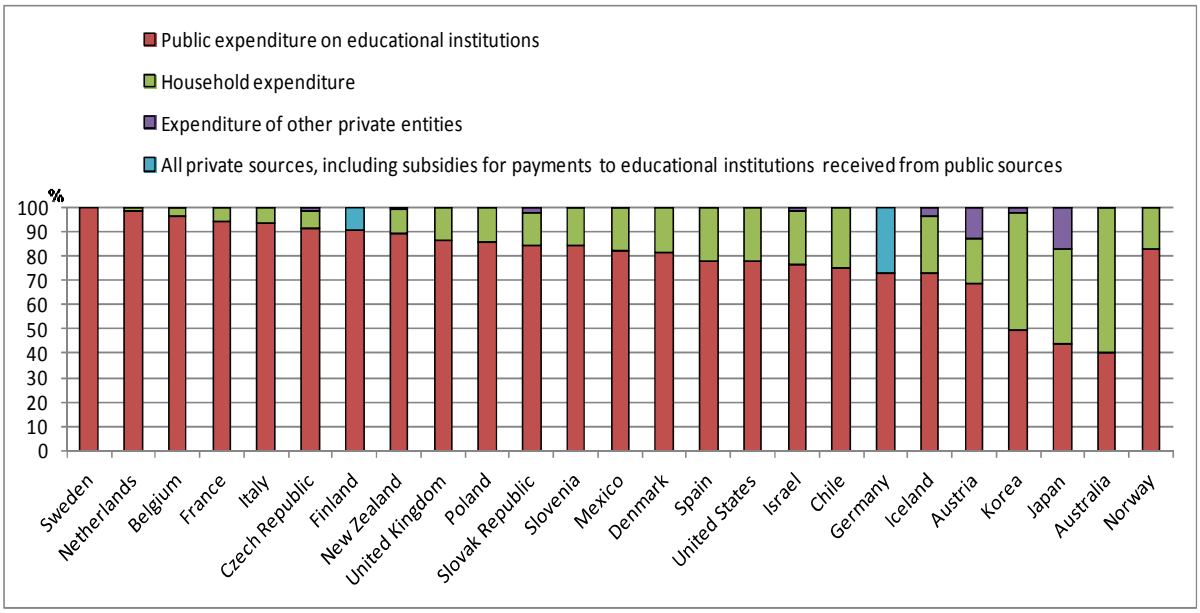
% of median working-age household income (2003 and 2007)



Source: OECD (2009), *Doing Better for Children*, OECD Publishing and OECD (2011), *Doing Better for Families*, OECD Publishing.

Figure C.5. Distribution of public and private spending on early educational institutions

2007 or nearest available year



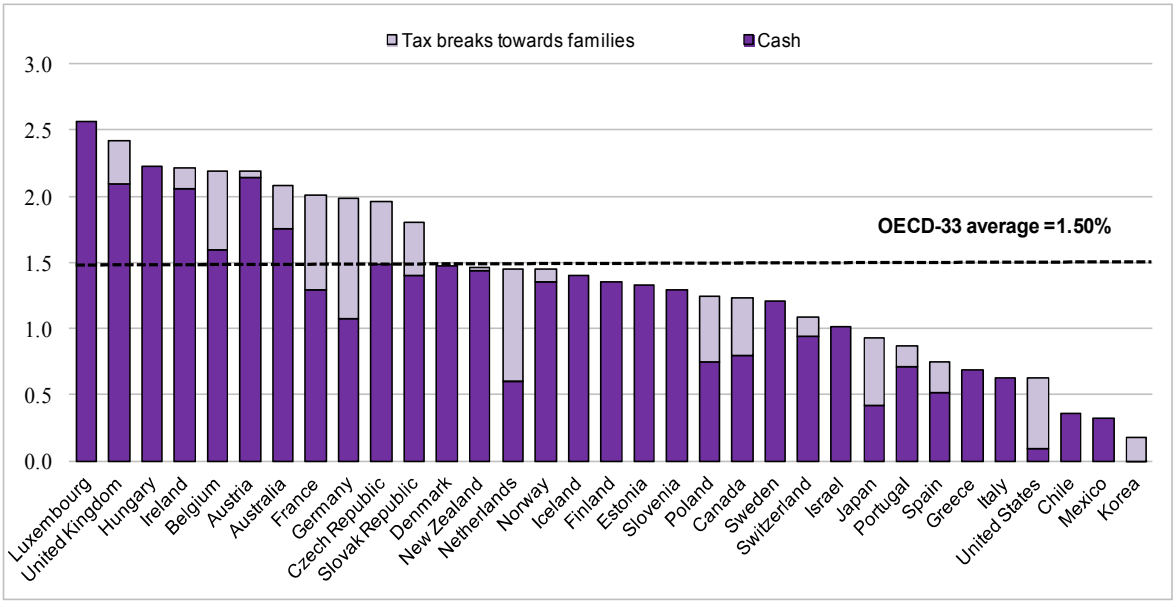
Source: OECD Education Database, 2010. For more details: please see Tables B3.2a and B3.2b; see also Annex 3 for additional notes (www.oecd.org/edu/eag2010).

3. Public spending on family cash benefits and tax measures

- In addition to in-kind ECEC services, OECD countries implement measures to financially support families in covering the costs of ECEC and child rearing by distributing cash benefits and tax credits to families.
- Public spending on such measures is, on average, 1.5% of GDP in total. Korea has the lowest level of public spending on family cash benefits and tax measures among OECD countries with 0.2% of its GDP (Figure C.6).
- In comparison, the United Kingdom spends a relatively large share of its GDP on cash benefits for families. New Zealand has an average expenditure level on cash benefits and tax measures, spending its largest part on cash benefits. Finland has a below-average expenditure level on family cash benefits and tax measures but has a high level of expenditure on providing in-kind services (funding services).

Figure C.6. Public spending on family benefits in cash and tax measures

As a percentage of GDP in 2007



Notes: Public support accounted here only concerns public support that is exclusively for families (*e.g.*, child payments and allowances, parental leave benefits and child care support). Spending is recorded in other social policy areas, such as health and housing support, which also assist families but not exclusively, but it is not included here. Data on tax breaks towards families is not available for Chile, Estonia, Greece, Hungary, Israel and Slovenia.

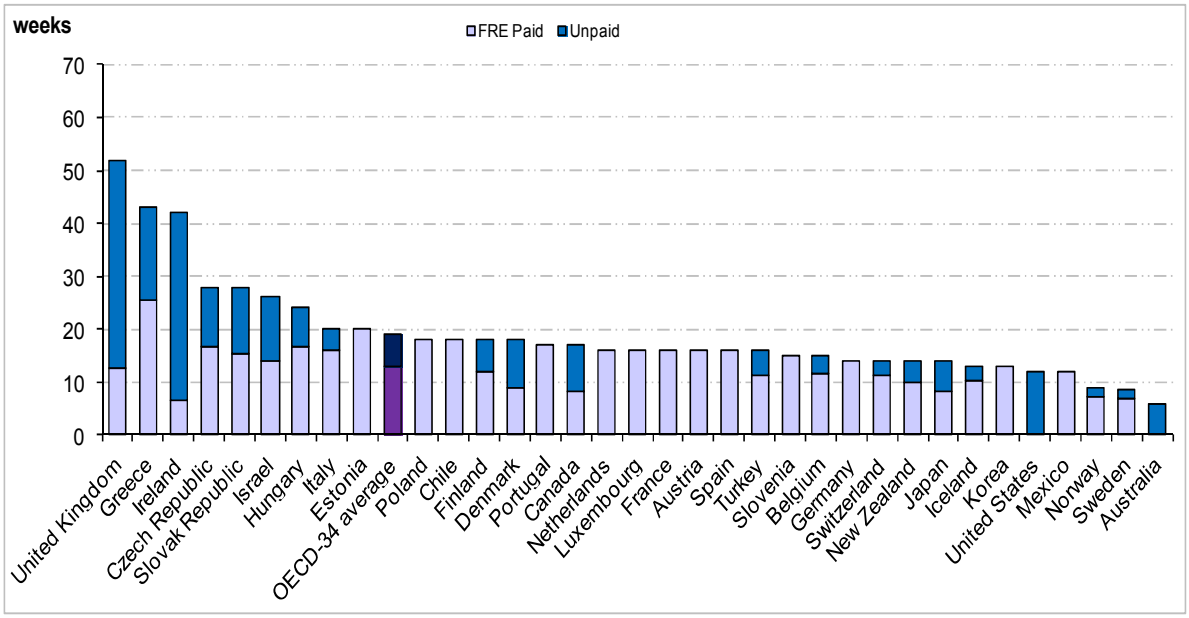
Source: OECD Social Expenditure Database (www.oecd.org/els/social/expenditure), 2010, and ESSPROS, 2010.

4 - 5. Paid and unpaid maternity leave

- On average, mothers have a right to a total of 19 weeks of maternity leave, with a significant variation in length and in the combination of different types of leave (paid versus unpaid).
- Korea provides paid maternity leave for a period of 12.8 weeks, in line with the OECD average and similar to the United Kingdom's paid maternity leave entitlements. In Korea, unpaid maternity leave is non-existent, while this entitlement is largest in the United Kingdom.
- Due to the non-existence of unpaid maternity leave in Korea, its maternity leave entitlements fall below the OECD average. New Zealand's entitlements are similar to Korea's, although fewer weeks are paid for. In Finland, mothers can have 18 weeks of leave, which is also below the OECD average.

Figure C.7. Child-related leave periods: Maternity leave in weeks

Entitled and expressed as a % of maternity leave at FRE pay, 2007/08



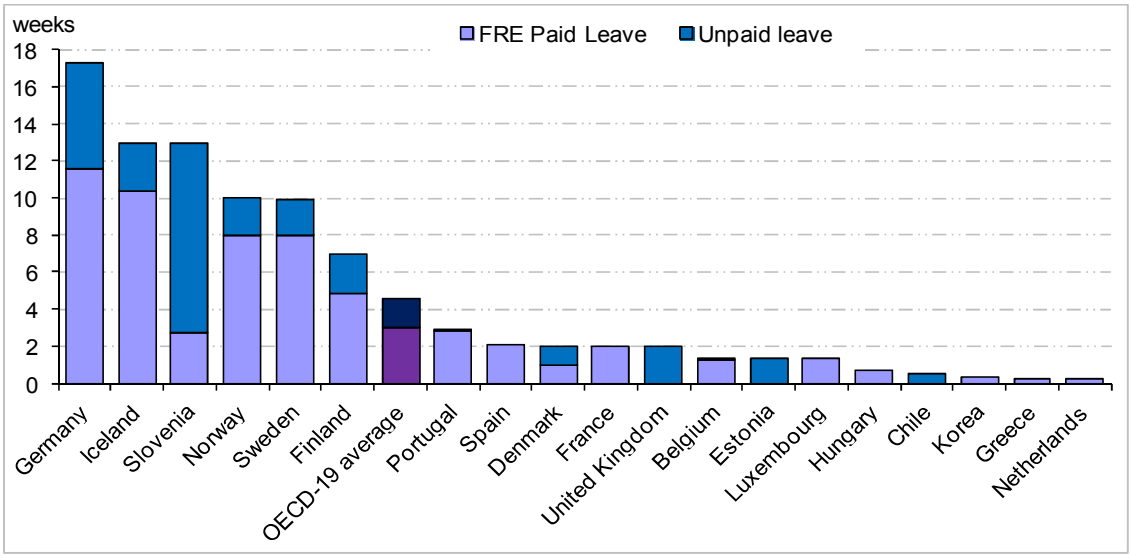
Source: OECD Family database, May 2011.

6 - 7. Paid and unpaid paternity leave

- On average, fathers have a total of 4.4 weeks of paternity leave in the OECD-19, with a significant variation in length and considerably shorter periods than maternity leave.
- Korea is one of the countries with the least generous paternity leave entitlements. The United Kingdom only has unpaid leave in place for fathers, while Finland is much more generous offering seven weeks off, of which the majority is paid for. Germany has the longest paternity leave entitlements in place.

Figure C.8. Child-related leave periods: Paternity leave in weeks

Entitled and expressed as a % of paternity leave at FRE pay, 2007/08



Source: OECD Family database, May 2011.

6 - 7. Required ISCED levels for different types of ECEC staff

- Child care workers in Korea need a minimum qualification equal to ISCED level 3, which is common among OECD countries. Minimum qualification requirements for child care workers (ECEC staff with caring responsibilities) in Finland are similar.
- Preschool (kindergarten) teaching staff are most often higher educated: in Korea, they need a qualification equal to ISCED level 5. This is similar to the qualification requirements for kindergarten teachers and staff with teaching responsibilities in Finland, New Zealand and Scotland (United Kingdom) (Figure C.9).

Figure C.9. Minimum required ISCED level for different types of ECEC staff

	Staff working for the care sector
	Teaching staff working for the education sector or in an integrated system for care and education
	Compulsory schooling

	Age							
Country	0	1	2	3	4	5	6	7
Australia	Child care Worker (4) / Child care Manager (5)							
	Preschool/Kindergarten Teacher (5A)							
Austria	Kindergarten Pedagogue (4A)							
Belgium (Flemish Community)	Child care Worker in the care sector (3)							
			2.5y	Child care Worker in the education sector (3)				
			2.5y	Kindergarten teacher / Pedagogue (5B)				
Belgium (French Community)	Child care Worker (3)							
			2.5y	Pre-Primary Teacher (5)				
Canada (British Columbia)	Early childhood educator (3)							
						Kindergarten teacher (5A)		
Canada (Manitoba)	Early Childhood Educator (5B)							
						Kindergarten teacher (5)		
Canada (Prince Edward Island)	Family Day Carer (3) / Child carer in centre-based care (4)							
					Kindergarten teacher (4)			
Czech Republic	Child care Worker (3)				Pedagogue (3)			
Denmark	Pedagogue (5)							
Estonia		1.5y	Preschool pedagogue (5)					
Finland	Child care worker in kindergarten (2/3 of staff should have at least level 3)							
	Kindergarten Teacher (5B)						Pre-primary Teacher (5B)	
Germany	Child care worker (3)							
	Pedagogue (4A)							
	Pedagogue for childhood or social pedagogue (5)							
Hungary	Child care Worker (3)			Pedagogue (5)				
Ireland				Pre-primary Teacher (5)				
Israel	Child care Teacher (5)							
				Pre-Premary Teacher (5)				
Italy	Educator (child care centres) (5B)			Pre-primary teacher (6)				
Japan	Nursery Teacher (5B)							
				Kindergarten Teacher (5B)				
Korea	Child care Worker (3)							
				Pre-Primary Teacher (5)				
Luxembourg				Pre-Primary Teacher (Instituteur) / Educator (5B)				
Mexico	Indigenous ECEC Teacher (3)			Indigenous preschool Teacher (3)				
	ECE/Preschool Teacher (5)							
Netherlands	Child carer (centred child care) / Official Childminder (3)							
			Playgroup Leader (3)		Kindergarten/ primary school teacher(4)			until 12 y
New Zealand	Playcentre Leader (3)							
	Qualified Education and Care Teacher / Kindergarten Teacher (5B)							
	Teacher for pacific/indiginous children (Kaiako) (5B)							
Norway	Child/Youth Worker (3)							
	Pedagogical Leader (Kindergarten & Family Kindergarten) / Head Teacher (5A)							
Poland	Child care Worker (3)			Kindergarten teacher (5)				
Portugal	Preschool Teacher (5A)							
Slovak Republic	Nursery School Worker (3B)			Kindergarten Teacher (3)				
Slovenia	Family Day Carer (3)							
	Preschool teacher (5B)							
Spain	Early education teacher (5B)			Preschool teacher (5A)				
Sweden		Child minder (3)						
		Preschool teacher (5A)						
Turkey				Pre-Primary Teacher (5A)				
United Kingdom (Scotland)	Child care practitioners (5)							
				Preschool Teacher (5)				
United States (Georgia, Massachusetts, North Carolina, Oklahoma)				Preschool Teacher (5)				

Source: OECD Network on Early Childhood Education and Care's "Survey for the Quality Toolbox and ECEC Portal", June 2011.

8. Staff-child ratio in formal day care services for zero-to-three-year-olds

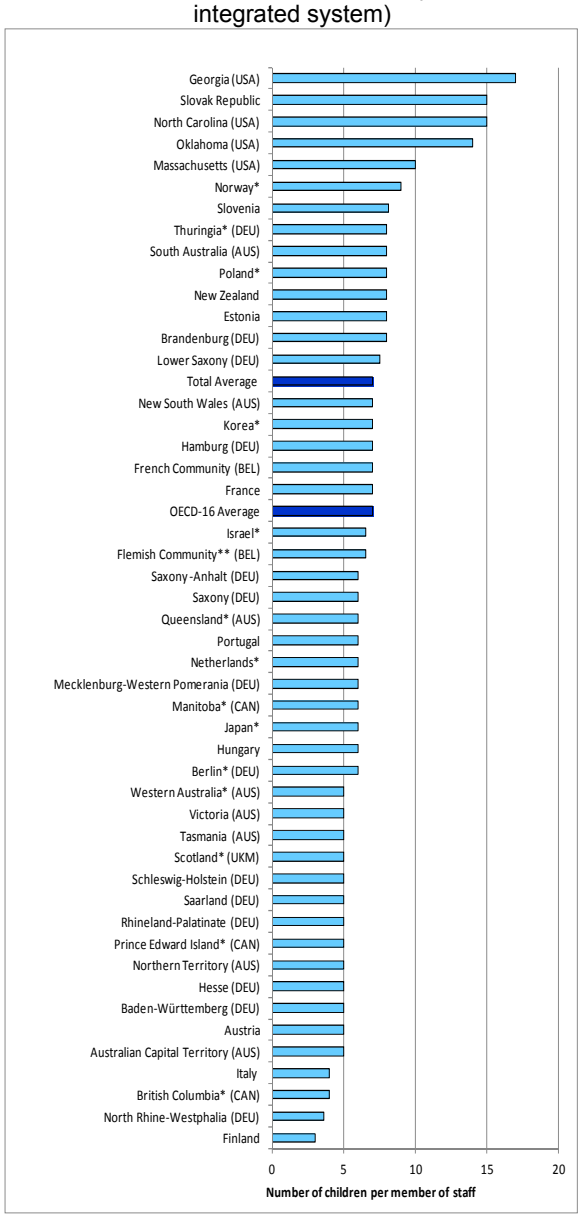
- Infants and toddlers need more intensive care than other young children. Therefore, countries often set different minimum standards for young children in the age category zero to three years than for older children in preschool. The average staff-child ratio for the zero-to-three-year-old age group is that one caregiver looks after seven children in formal day care services.
- Korea's ratio is similar to the OECD average. In Finland, a caregiver looks after the fewest children (four children per staff member), which allows for more time for staff to interact with each young child.
- The ratio is higher in New Zealand with eight children per staff member (Figure C.10, Panel A).

9. Staff-child ratio in kindergarten or preschool services for three-to-six-year-olds

- Regulated staff-child ratios in ECEC are often larger for older children, although the actual ratio can be better than the regulated ratio.
- On average, one preschool teacher is assigned to 15 children in preschool services, with a significant variation across countries. Korea's ratio is above the OECD average, indicating that a staff member looks after a relatively large group of children.
- Finland has the smallest staff-child ratio in preschool (seven children per staff member). New Zealand and Scotland (United Kingdom) also have a small ratio with eight children per staff member. (Figure C.10, Panel B).

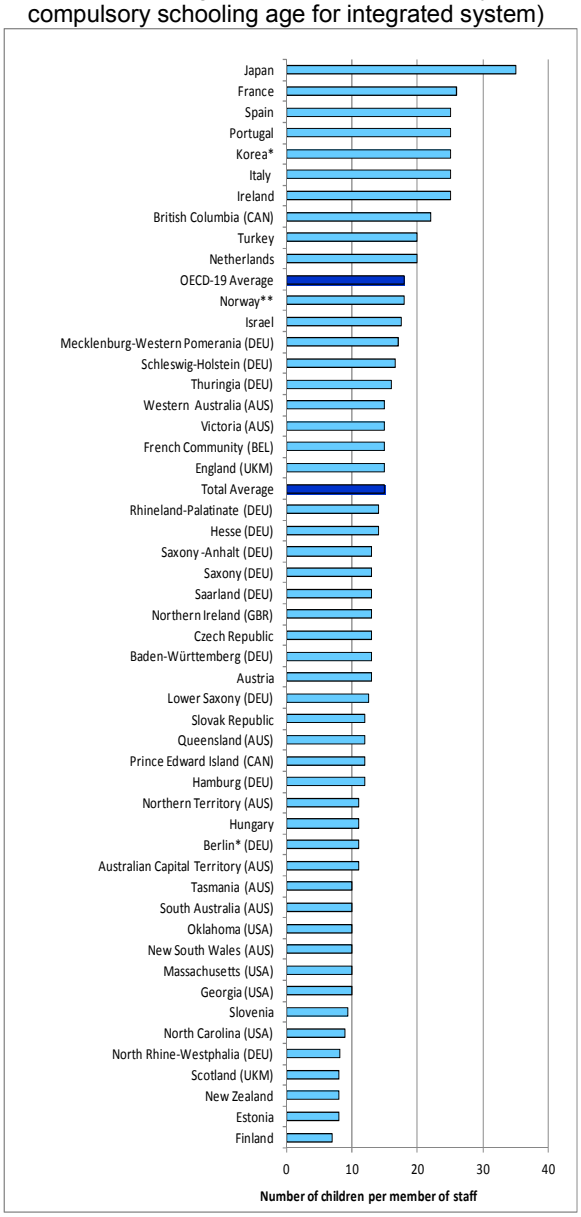
Figure C.10. Child-staff ratio in ECEC services

Panel A. In child care (zero-to-three-year-olds for integrated system)



* Jurisdictions with separate regulations for different age groups, the data given is based on: Berlin (DEU), 2-3-year-olds (attending 5-7 hours per day); British Columbia (CAN), 0-3-year-olds; Israel, 2-3-year-olds; Japan, 1-2-year-olds (while the country has different ratios in place for different ages: the ratio for age 0 is 1:3; age 1-2, 1:6; age 3, 1:20; and age 4, 1:30 – only data regarding 1-2-year-olds is included in the figure); Korea, 2-year-olds; Manitoba (CAN), 2-3-year-olds; Netherlands, 2-3-year-olds; Norway, 0-3-year-olds; Prince Edward Island (CAN), 2-3-year-olds; Queensland (AUS) 2-3-year-olds; Scotland (UKM), 2-3-year-olds; Thuringia (DEU), 2-3-year-olds; Western Australia (AUS), 2-3-year-olds. For Poland, when there is a disabled child in the playroom, the ratio is set at 1:5.
**Subsidised facilities only

Panel B. In kindergarten or preschool (three years to compulsory schooling age for integrated system)



* Jurisdictions with separate regulations for staff-child ratio for different age groups, the data given is based on: 3-6-year-olds attending for 5-7 hours per day regarding Berlin; and 4-year-olds regarding Korea.
** The figure for Norway applies only to qualified kindergarten teachers, whereas regulation stipulates that if other staff will also be present in the kindergarten setting, the number of children per member of staff is effectively lower. The figure for Norway is based on regulation for 3-6-year-olds.

Notes: The Total Average is based on data for all countries and jurisdictions included in the respective figures. For Panel A, OECD-19 Average is only based on data reported for OECD countries, excluding regions and territories, and is calculated based on data from: Austria, Czech Republic, Estonia, Finland, France, Hungary, Ireland, Israel, Italy, Japan, Korea, Netherlands, New Zealand, Norway, Portugal, Slovak Republic, Slovenia, Spain and Turkey. For Panel B, OECD-16 Average is only based on data reported for OECD countries, excluding regions and territories, and is calculated based on data from: Austria, Estonia, Finland, France, Hungary, Israel, Italy, Japan, Korea, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic and Slovenia.

Source: OECD Network on Early Childhood Education and Care's "Survey for the Quality Toolbox and ECEC Portal", June 2011.

ANNEX D. NOTES TO THE SPIDER WEBS

Table D.1. Overview of available indicators per country: Policy outcomes

Country	Fertility	Infant survival	Children under age 18 above poverty line	Enrolment in formal care for children under age 3	Enrolment rates at age 3	Enrolment rates at age 5	PISA Reading/ Maths/ Science	Female employment ratio (25-49 age cohort)	Gender equality in median earnings of full-time employees
Australia	X	X	X	X	X	X	X	X	X
Austria	X	X	X	X	X	X	X	X	X
Belgium	X	X	X	X	X	X	X	X	X
Canada	X	X	X	X	m	m	X	X	X
Chile	X	X	X	X	X	X	X	m	m
Czech Republic	X	X	X	X	X	X	X	X	X
Denmark	X	X	X	X	X	X	X	X	X
Estonia	X	X	X	X	X	X	X	X	m
Finland	X	X	X	X	X	X	X	X	X
France	X	X	X	X	X	X	X	X	X
Germany	X	X	X	X	X	X	X	X	X
Greece	X	X	X	X	m	X	X	X	X
Hungary	X	X	X	X	X	X	X	X	X
Iceland	X	X	X	X	X	X	X	X	X
Ireland	X	X	X	X	X	X	X	X	X
Israel	X	X	X	X	X	X	X	m	m
Italy	X	X	X	X	X	X	X	X	X
Japan	X	X	X	X	X	X	X	X	X
Korea	X	X	X	X	X	X	X	X	X
Luxembourg	X	X	X	X	X	X	X	X	m
Mexico	X	X	X	X	X	X	X	X	m
Netherlands	X	X	X	X	X	X	X	X	X
New Zealand	X	X	X	X	X	X	X	X	X
Norway	X	X	X	X	X	X	X	m	X
Poland	X	X	X	X	X	X	X	X	X
Portugal	X	X	X	X	X	X	X	X	X
Slovak Republic	X	X	X	X	X	X	X	X	m
Slovenia	X	X	X	X	X	X	X	X	m
Spain	X	X	X	X	X	X	X	X	X
Sweden	X	X	X	X	X	X	X	X	X
Switzerland	X	X	X	m	X	X	X	X	X
Turkey	X	X	X	m	X	X	X	X	m
United Kingdom	X	X	X	X	X	X	X	X	X
United States	X	X	X	X	X	X	X	X	X

Note: The table shows the availability of the indicators for each country; “m” is for missing and “X” for available.

Table D.2. Overview of available indicators per country: Policy inputs

Country	Public child care and education expenditure at age 3	Public child care and education expenditure at age 5	Public spending on family benefits in cash and tax measures	FTE paid maternity leave	FTE paid paternity leave	Required ISCED levels for staff at the care sector	Required ISCED levels for teaching staff at the education sector	Staff-child ratio in child care for 0-to-3-year-olds	Staff-child ratio in kindergarten/ preschool services for 3-to-6-year-olds
Australia	X	X	X	X	m	X	X	X	X
Austria	X	X	X	X	X	m	X	X	X
Belgium	X	X	X	X	X	X	X	X	X
Canada	m	m	X	X	m	m	m	X	X
Chile	X	X	X	m	X	m	m	m	m
Czech Republic	X	X	X	X	m	X	X	m	X
Denmark	X	X	X	X	X	m	X	m	m
Estonia	X	X	X	X	X	m	X	X	X
Finland	X	X	X	X	X	X	X	X	X
France	X	X	X	X	X	m	m	X	X
Germany	X	X	X	X	X	X	X	X	X
Greece	X	X	X	X	X	m	m	m	m
Hungary	X	X	X	X	X	X	X	X	X
Iceland	X	X	X	X	X	m	m	m	m
Ireland	X	X	X	X	X	m	X	m	X
Israel	X	X	X	X	m	X	X	X	X
Italy	X	X	X	X	m	X	X	X	X
Japan	X	X	X	X	m	X	X	X	X
Korea	X	X	X	X	X	X	X	X	X
Luxembourg	X	X	X	X	X	m	X	m	m
Mexico	X	X	X	X	m	X	X	m	m
Netherlands	X	X	X	X	X	X	X	X	X
New Zealand	X	X	X	X	m	X	X	X	X
Norway	X	X	X	X	X	X	X	X	X
Poland	X	X	X	X	X	X	X	X	m
Portugal	X	X	X	X	X	m	X	X	X
Slovak Republic	X	X	X	X	m	X	X	X	X
Slovenia	X	X	X	X	X	X	X	X	X
Spain	X	X	X	X	X	X	X	m	X
Sweden	X	X	X	X	X	X	X	m	m
Switzerland	X	X	X	X	m	m	m	m	m
Turkey	m	m	m	X	m	m	X	m	X
United Kingdom	X	X	X	X	X	X	X	X	X
United States	X	X	X	X	m	m	X	X	X

Note: The table shows the availability of the indicators for each country; “m” is for missing and “X” for available.

ANNEX E. METHODOLOGY AND DATA SOURCES FOR THE SPIDER WEBS

Table E.1. Spider web methodological notes and data sources: Policy outcomes

Indicator	Notes	Source
Fertility	Year 2009 or latest available year. 2007 for Belgium and Canada; 2008 for Australia, Germany, Greece, and Iceland.	National Statistical Offices, 2010, and Eurostat Demographic Statistics, 2010. (OECD Family database, 2011).
Infant survival	Year 2008 or latest available year. 2007 instead of 2008 for Canada and Ireland; 2006 for Korea and the United States. Infant survival rates are calculated as the inverse of the infant mortality rates (deaths per 1000 live births).	OECD Health Data 2010, June 2010. (OECD Family database, 2011).
Children under 18 above poverty line	Data refer to 2006 for Japan; 2007 for Denmark and Hungary; 2009 for Chile. Children <18 above poverty line reports the inverse of poverty for children <18.	OECD (2011) OECD Income distribution questionnaire, version October 2011, for OECD countries; EU-SILC 2009 for non-OECD countries
Enrolment in formal care for the under 3s	Year 2008.	For children 0-2: Australia, ABS Childcare service (2008); Canada, National Longitudinal Survey of Children and Youth (2008); Japan, Statistical Report on Social Welfare Administration and Services (2008); New Zealand, Education Counts' statistics (2008); the US, Early Childhood Program Participation Survey (2005); European countries, EU-SILC (2008) except Germany: administrative data; Nordic countries: NOSOSCO (2007-08); Other: National Authorities. For children 3-5: OECD Education database; Canada, National Longitudinal Survey of Children and Youth (2008); Korea, Ministry of Health and Welfare (2010), and Eurostat (2008) for non-OECD countries.
Enrolment rates at age 3 and 5	Year 2009. At age 3, OECD does not include Greece and Canada.	OECD Education Database, November 2011. Data for Korea come from National Sources for Year 2010.
PISA Reading, Mathematics and Science	Year 2009. PISA: Programme for International Student Assessment.	OECD, PISA 2009 Database.
Female employment ratio (25-49 age cohort)	Year 2008 or latest available year. 2007 for Sweden; 2006 for Mexico and Switzerland; 2005 for Australia, Japan, New Zealand and the United States; 2002 for Iceland; 2001 for Canada; 1999 for Denmark.	European Labour Force Surveys (2007-08) for EU countries; Australia: Australian Bureau of Statistics (2005); Canada: Statistics Canada (2001); Denmark: Statistics Denmark (1999); Iceland: Statistics Iceland (2002 for women age 25-54); Japan: Japanese national census (2005); Mexico: Encuesta Nacional de la Dinamica Demografica 2006; Switzerland: Swiss LFS (2006); United States: US Current population survey (2005). (OECD Family Database, 2011).
Gender equality in median earnings of full-time employees	Year 2008 or latest available year. Data refer to 2005 for the Netherlands and to 2007 for Belgium and France. The gender wage gap is unadjusted and is calculated as the difference between median earnings of men and women relative to median earnings of men. Estimate of earnings used in the calculations refer to gross earnings of full-time wage and salary workers. However, this definition may slightly vary from one country to another.	OECD (2010), Employment Outlook. (OECD Family Database, May 2011).

Table E.2. Spider web methodological notes and data sources: Policy inputs

Indicator	Notes	Source
Public child care and education expenditure at age 3 and 5 (% of median working-age household income)	Year 2007.	OECD (2011), *Doing Better for Families*, OECD Publishing.
Public spending on family benefits in cash and tax measures	Year 2007. Public support accounted here only concerns public support that is exclusively for families (*e.g.*, child payments and allowances, parental leave benefits and child care support). Spending recorded in other social policy areas as health and housing support). Spending recorded in other social policy areas as health and housing support also assists families, but not exclusively, and is not included here. Tax breaks towards families not available for Chile, Estonia, Greece, Hungary, Israel and Slovenia.	Social Expenditure Database (www.oecd.org/els/social/expenditure), 2010, and ESSPROS, 2010. (OECD Family database, 2011).
FTE (Full Time Equivalent) paid maternity/paternity leave	Year 2006/07. Information refers to the entitlement for paternity leave in a strict sense and the father quota included in some parental leave regulations (for example, Finland and Iceland). In Finland, the 7 weeks include 3 weeks of standard paternity leave, plus 2 weeks of parental leave that give rights to additional 2 weeks of paternity leave. The individual is assumed to take 26 weeks of parental leave and a remaining period of 130 weeks of child care leave over which home care allowance can be received.	Moss, P. and M. Korintus (2008), International Review of leave Policies and related research, DTI Employment Relations Research Series, No. 100; Missoc tables: Social Protection in EU Member States; OECD Babies and Bosses (various issues) or information provided by National authorities in non EU countries. (OECD Family database, 2011).
Required ISCED levels for staff at the care sector or education sector		OECD Network on Early Childhood Education and Care's "Survey for the Quality Toolbox and ECEC Portal", June 2011.
Staff-child ratio in child care for 0-to-3-year-olds / in kindergarten/ preschool services average for 3-to-6-year-olds	Countries who reported averages for staff-child ratio instead of a minimum requirement in the Survey have not been included in the graphs, as averages do not constitute a regulated minimum requirement. When regulated ratios were indicated as maximum number per children per multiple staff members (*e.g.*, 2:15), the number included in the figure has been calculated based on the maximum number of children for one member of staff (*e.g.*, 2:15 has been re-calculated into 1:7.5). The Total Average is based on data for all countries and jurisdictions included in the respective figures.	OECD Network on Early Childhood Education and Care's "Survey for the Quality Toolbox and ECEC Portal", June 2011.

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Quality Matters in Early Childhood Education and Care

KOREA

Early childhood education and care (ECEC) can bring a wide range of benefits – for children, parents and society at large. However, these benefits are conditional on "quality". Expanding access to services without attention to quality will not deliver good outcomes for children or long-term productivity benefits for society.

This series of country reports focuses on quality issues. Each report tackles a specific theme that was selected by the country reviewed. These reports suggest strengths and point to areas for further reflection on current policy initiatives.

Contents

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