



## Encouraging Quality in Early Childhood Education and Care (ECEC)

### RESEARCH BRIEF: MINIMUM STANDARDS MATTER

#### What are minimum standards?

Minimum standards are structural inputs that can enable “adequate” or “good enough” quality ECEC provisions. Structural requirements may define the quality of the physical environment for young children (e.g., buildings, space, outdoors, pedagogical materials); the training levels for staff; staff-child ratios; work conditions; etc. (OECD, 2006). A certain minimum level of ECEC provision can be ensured by the clear formulation of standards and enforcement of legislation or regulations (OECD, 2006).

#### What is at stake?

As ECEC expands outside the home, the regulation of services inevitably becomes a public responsibility. All OECD countries impose a preliminary health and safety check on centres or homes licensed to look after young children. However, as the *Starting Strong* reports point out, the extent and manner of regulation differs widely from country to country and often varies within countries according to region or the type of service concerned. Appropriate regulation not only helps define and enforce health, environmental and programme standards but can also ensure some degree of equity for parents and children in poorer neighbourhoods (OECD, 2001 and 2006).

It has been repeatedly shown in international studies, programme evaluations and quality measurements that ECEC programmes can have a positive effect on children’s developmental outcomes on the condition that the level of quality of the service is high (Burchinal et. al. 2010; OECD, 2001 and 2006; Sammons et al., 2002; Shonkoff and Philips, 2000), although setting high-quality standards or raising standards can be costly. If providers raise costs to compensate for higher standards, provisions risk being unaffordable for low-income families. The added costs might also serve as a disincentive for providers to expand access, which can negatively impact the goal of increasing ECEC coverage. High standards may also invite non-formal providers with low quality to enter the market.

On the contrary, lower standards may reduce operating costs and might be an incentive for providers to expand access. However, research demonstrates that children are more likely to have language, social and development problems in low-quality provisions (OECD, 2001 and 2006). Children in high-quality ECEC centres, or programmes with high standards, perform better in literacy and mathematics. These positive effects are strongest for poor children and for children whose parents have little education (OECD, 2006).

Research also concludes that learning in one life stage begets learning in the next: investment in the foundation stage of early childhood increases the productivity of the next stage and so on (Cunha et al., 2005). The complementary effect of one stage on another can be weakened at any moment, for example, by a period of poor education and development. The early childhood stage of learning is of major importance since it forms the foundation of life-long development: in early childhood, positive (or negative)

dispositions towards society and learning are absorbed and the basic life skills acquired, such as co-operation with peers and adults, autonomy, meaning making, creativity, problem solving and persistence.

Furthermore, remedial education interventions targeting young school drop-outs or adults with poor basic skills are far more costly than early interventions such as ECEC and, according to research, are of limited benefit (Cunha and Heckman, 2010). Setting high minimum standards is therefore an investment not only in children but also in the future and society in general (OECD, 2006).

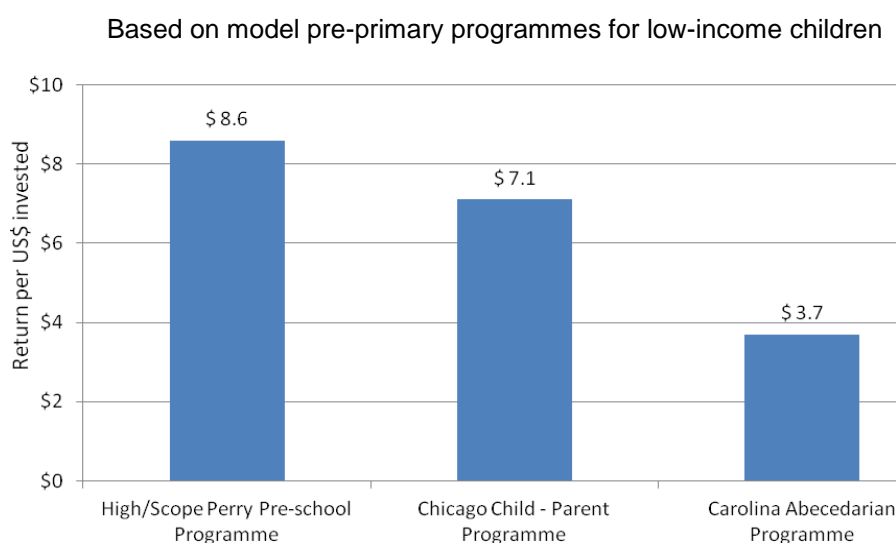
### Why do minimum standards matter?

Minimum standards can guarantee the health and safety of children in ECEC environments. They can ensure the conditions of learning and care by defining duration, staff qualification levels and curriculum to shape staff behaviour (Burchinal *et al.*, 2009; OECD, 2001). National regulatory frameworks with appropriate minimum standards can better “level the playing field” by ensuring all children benefit from a minimum quality of education and care (Belsky, 2011; Eurydice, 2009; Vandembroeck, 2011). Raising standards or setting minimum standards can help reduce knowledge gaps for all, although the effect is greater for low-income, immigrant and minority children (OECD, 2006 and 2011).

Although minimum standards can contribute to high-quality ECEC, countries do not *have* to set standards on all quality aspects; but this is rare. On what aspects countries need minimum standards depends on specific contexts, such as the current level of quality. Sweden, for example, is a country without minimum standards for, *e.g.*, space per child or staff-child ratio given that the level of quality is above the standard; it is indeed known as a country with a high-quality ECEC sector. The country has regulated minimum standards regarding staff qualification and a curriculum, which sets out goals for the quality of ECEC activities (OECD, 2006).

Due to increasing research on quality aspects and standards, there is now a considerable amount of data and information on which quality aspects matter most and influence quality – and through this, child development. The meta analyses of cost-effectiveness studies can shed insights into how different programme standards can produce different outcomes (Figure 1, Table 1). This needs to be interpreted within context, such as the family backgrounds of children who participated in the programmes.

**Figure 1. Returns on investment from high-quality ECEC programmes**



Source: Schweinhart, 2006; Heckmann *et al.*, 2009.

**Table 1. Features of high-quality ECEC programmes**

|                       | <b>High/Scope Perry Pre-school Programme</b> | <b>Chicago Child - Parent Programme</b> | <b>Carolina Abecedarian Programme</b> |
|-----------------------|--|---|---------------------------------------|
| Age range             | 3-4 years                                    | 3-4 years                               | 0-5 years                             |
| Duration              | 2 years                                      | 2 years                                 | 5 years                               |
| Max. class size       | 13   | 17                                      | 12                                    |
| Staff – child ratio   | 1:6.5  | 1:8.5                                   | 1:6                                   |
| Teacher qualification | BA + certification                           | BA + certification                      | BA or equivalent                      |

Source: Schweinhart, 2006; Heckmann *et al.*, 2009.

### What aspects matter most?

There is no doubt that well-resourced ECEC systems have greater potential to systematically raise minimum standards (OECD, 2006), although the exact effect on children from regulating higher structural inputs cannot always be predicted. For example, it is difficult to know how teacher qualifications actually impact teacher success. Individual staff factors, such as intelligence, motivation and job satisfaction, can combine with previous training to predict teacher quality. Having certain and uncertain factors in mind, policy makers still need to make a decision. The following section summarises the key research findings on ECEC structural inputs.

#### Staff-child ratios and group size

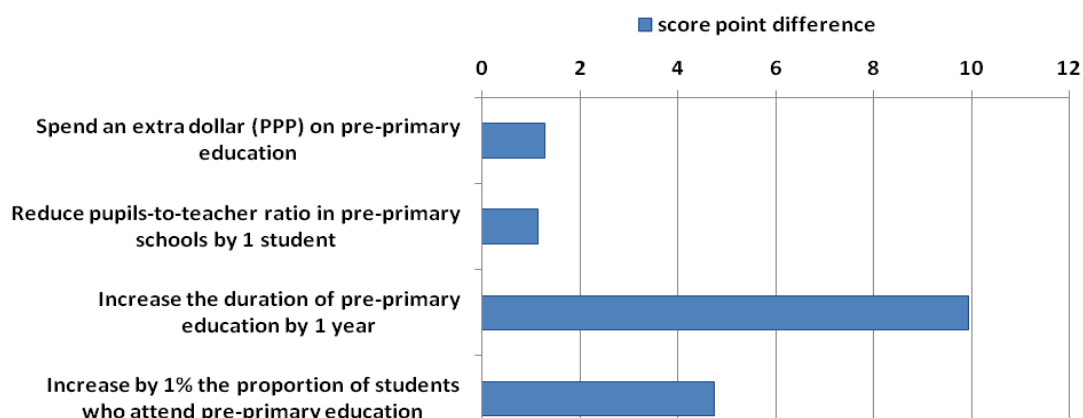
Staff-child ratios play a key role in ensuring quality for better child development (OECD, 2006). It is generally the most consistent predictor of high-quality learning environments because it increases the potential for frequent and meaningful interactions (Pianta *et al.*, 2009; UNESCO, 2004). Children are found to perform better in cognitive areas at age 15 when enrolled in programmes of longer duration with high staff-child ratios and high per child expenditures (Figure 2). High staff-child ratios can also ensure safer environments for children since staff have a lower number of children to look after (Pianta *et al.*, 2009).

Besides staff-child ratios, small group size is considered as a predictor for more individualised attention and frequent interactions (NIEER, 2006; UNESCO, 2004). Younger and disadvantaged children tend to benefit more from smaller group sizes than older or more advantaged children due to increased attention from staff and more interactive dialogue opportunities. However, some studies have shown little relationship between group size and educational effectiveness, suggesting that other inputs may be more influential, such as the staff-child ratio (NIEER, 2004). For example, Chetty *et al.* (2011) have found a weak relationship between pre-primary group size and college attendance and no relationship with future earnings.

**Figure 2. Structural ECEC inputs improve student performance at 15 years**

Based on PISA 2009 results

Average score point difference associated with attending pre-primary education in school systems that:



Note: The score point differences above are statistically significant.

Source: OECD, 2011.

### **Staff qualification level and specialised training**

Setting the minimum qualification level plays a key role in ensuring healthy child development. Most research claims that better educated preschool teachers with specialised ECEC training are more effective in providing stimulating staff-child interactions. It can lead to greater vocabularies and increased ability to solve problems in teaching staff. Besides this, qualified teachers are better able to engage children, elicit their ideas and monitor their progress (NIEER, 2006), and they tend to provide children with more stimulating, warm and supportive interactions leading to longer term positive impacts (OECD, 2001).

Striking the right balance between the level and quantity of a qualified workforce can be a challenge. On one hand, formal education standards need to be high enough to produce high-quality learning environments and lead to desirable, country-specific child outcomes. On the other, higher teacher qualifications might also lead to higher salary expectations. If standards surpass what ECEC providers are able to afford, this might negatively impact quality (Bender *et al.*, 2007).

A clear indication of the impact of practitioner quality comes from EPPE (Effective Provision of Pre-School Education) research in England (United Kingdom). This study found that higher proportions of staff with low-level qualifications were associated with poorer child outcomes on social relationships with peers and children's co-operation and were associated with higher levels of anti-social behaviour. Practitioners with specialised training and higher education were linked to positive child-adult interactions including praising, comforting, questioning and responding to children (Elliott, 2006; Shonkoff and Philips, 2000). However, it is not the qualification *per se* that affects outcomes but the ability of the staff member to create a better pedagogic environment that makes the difference (Elliott, 2006).

### **Staff salaries**

Setting minimum wages for ECEC staff can increase the motivation of current staff and attract highly motivated and qualified professionals to the sector; indirectly, this can improve child development and outcomes (NIEER, 2003). Competitive wages attract a strong professional staff that is more likely to be

satisfied with their jobs, perform well and make long-term career commitments leading to lower staff turn-over rates. The latter generally results in stronger relationships between staff and children, calmer, less aggressive child behaviour, and improved language development (CCL, 2006). Staff with low wages are more likely to take on second jobs, lowering their performance through greater fatigue and less commitment (Centre for Families, Work and Well-being, 2000). A research study demonstrated that fully qualified pre-primary teachers who were given higher salaries equivalent to their primary education colleagues resulted in student performance that was two or more times larger in literacy and math (Pianta *et al.*, 2009).

### **Programme duration**

While there are mixed research findings about the impact of programme intensity (part-time or full-time), the duration of programme participation seems to be more consistently associated with long-term intellectual gains and future achievement (Love *et al.*, 2003; Melhuish *et al.*, 2004; Smith, 2003). Positive signs of increased duration include greater vocabularies, word analysis, math achievement and better memory (Belsky *et al.*, 2007; Glass, 2004). Higher “dose” programmes also have more visible long-term impacts, as they more often reduce “fade out” effects (Eurydice, 2009). As an example, the OECD PISA study found that an extension of participation in ECEC of one year leads to an improvement of ten score points in PISA<sup>1</sup>, an international student assessment test at age 15 (OECD, 2011).

However, some literature has pointed to potential negative effects of non-maternal care on child attachment and security during the first months or years of a child’s life, noting increased chances of externalising aggression and disobedience (Belsky *et al.* 2007; Belsky, 2011). However, such negative behavioural problems are relatively short-lived and can be reduced through good quality and consistent care (Love *et al.*, 2003).

### **Curriculum**

The presence of a curriculum, or learning and well-being standards, can help ensure more consistency among ECEC services in a country or region. Curricula help prioritise certain learning elements and provide common goals for educators and centres (OECD, 2006). This is particularly important in unregulated ECEC environments, which often serve the youngest children.

A well-planned and co-ordinated curriculum is crucial. First, it ensures that important learning areas are covered. Second, the curriculum can act as a tool to shape staff behaviour to ensure continuous child development from age zero to compulsory, or even beyond compulsory, schooling. Such curricula help to promote a more even level of quality across age groups and provision; guide and support professional staff in their practice; facilitate communication between staff and parents; and ensure pedagogical continuity between ECEC and school (OECD, 2006).

### **Physical environment**

Research demonstrates that the design, layout and space of ECEC environments can influence a child’s learning, creativity, behaviour and cultural interests (Dearing *et al.*, 2009). Cross cultural studies of preschool quality highlight that the quality of conditions for children’s learning depend on physical space in addition to staff-child ratios and staff working environment (Sheridan and Schuster, 2001; Sheridan *et al.*, 2009). Specifically, well-defined spaces and boundaries are associated with more positive classroom interactions and increased time spent exploring environments (CCL, 2006). Based on research findings, numerous countries have set minimum “space per child” benchmarks, which gradually decrease with age (Childhood Resource and Research Unit, 2004).

---

<sup>1</sup> The PISA test assigns a score for students on a scale from 0 to 700.

## ***Staff gender and diversity***

Women represent the overwhelming majority ECEC teachers and care givers in OECD countries. But it is important for children – particularly boys – to have a strong male role model in the classroom or centre. A reinforced male presence is critical to counter traditional views of women in child rearing and ensure that school and learning remain gender neutral (OECD, 2006).

Among the predominantly female workforce, there are few teachers coming from minority and ethnic communities. The diversity of staff is beneficial for children to open their minds to new ideas, counter stereotypes and encourage respect for multi-cultural learning (OECD, 2006).

## **What are the policy implications?**

### ***Applying the common regulatory standards for all forms of ECEC provision***

Creating and consistently enforcing standards at different levels of the ECEC system sets a guarantee that a minimum level of safety, health and quality for children is ensured. For equity reasons, regulations need to apply to all settings, whether they are publicly or privately operated, and should cover infant-toddler, preschool and out-of-school provision. At the same time, regulations should recognise that different settings and age groups may require different standards. In order to meet standards, provision will need to be supported by a strong infrastructure of co-ordinated national-, state- and local-level mechanisms to assure adequate financing at a level that attracts and retains highly-trained early childhood staff (OECD, 2006).

One major difference in policy is the degree to which private (for-profit and non-profit) provision is covered in legislation. This is of particular concern, as, in many countries, the majority of children under age three attend settings in the private sector or are in informal arrangements (OECD, 2001).

### ***Ensuring affordable universal access and minimum standards***

Governments are often faced with a challenge to choose between targeted higher quality provisions for disadvantaged groups or relatively low-quality programmes that are available to all (Dearing *et al.*, 2009). In theory, targeted programmes are justified in compensating for social and economic disparity. But, in practice, there are problems trying to track dynamic patterns of disadvantage (Currie, 2001). Thus, targeted programmes focused on family income disparity may not be the best way to reach the groups most in need (Barnett, 2010). Research suggests that governments should sufficiently invest in pre-primary programmes for children ages zero to six, providing all parents with consistent and affordable options for their children. However, there remain competing ideas on the extent of public responsibility for the youngest children (ages zero to three) (OECD, 2006).

A real advantage of encouraging universal coverage is that universally covered ECEC systems generally organise services more equitably, observe higher standards and employ more qualified personnel. Universal access does not necessarily entail achieving full coverage, as, at different ages and in different family circumstances, there will be variation in need and demand for ECEC (OECD, 2006).

### ***Promoting participatory processes in defining minimum standards***

Defining and assuring quality should be a participatory and democratic process, involving different groups, including children, parents, families and professionals who work with children. The way in which quality is developed and the priorities and perspectives which are emphasised may vary across countries; and the enforcement of regulations is more likely to succeed when the authorities engage in consultative policy making and management and build up a general consensus about the need and relevance of standards (OECD 2001; 2006).



## What is still unknown?

### *Long-term impacts of minimum standards*

Which specific minimum standards have the strongest lasting impact on children later in life is unclear. Research needs to provide more conclusive evidence on specific quality inputs, especially those with mixed findings, such as the lasting impact of small ECEC group sizes or the importance of indoor versus outdoor space for children. There is a need for research on the learning environments and physical conditions for young children in ECEC centres, including research on spaces that focus on the needs of young children.

### *Research to reflect complex realities*

Policy makers, families and stakeholders need to have additional literature on key threshold levels where impacts are more or less often felt (Burchinal *et al.*, 2010). There is also little research on which structural inputs work best in combination to improve key cognitive areas and socio-emotional skills. There is also little information on how key inputs are “received” by target groups. For example, we know that younger children (as a whole) can benefit from smaller group sizes, especially disadvantaged children, but evidence is lacking for girls and other sub-groups.

### *Impact of a diverse workforce on child development*

There is no solid research base on the effects of having a diverse workforce on child outcomes. Longitudinal studies could shed light on the impacts of an all-female staff on the subsequent performance of boys and girls in primary school and beyond as well as the impact or relevance of having ECEC staff with immigrant backgrounds on child outcomes.

### *Optimal assurance of non-regulated care services*

There is very little data and there are few monitoring practices on informal child care services, particularly affecting the zero-to-three age group. It is therefore important to explore innovative ways to ensure a minimum level of quality or minimum standards in non-regulated environments for the health, safety and well-being of children.

## REFERENCES

- Barnett *et al.* (2010), "The Effects of Preschool Education: What We Know, How Public Policy Is or Is Not Aligned With the Evidence Base, and What We Need to Know", *Psychological Science in the Public Interest*, Vol.10, No. 2, pp. 49-88.
- Belsky, J., D. Vandell, M. Burchinal, K.A. Clarke-Stewart, K. McCartney, M.T. Owen and The NICHD Early Child Care Research Network (2007), "Are There Long-term Effects of Early Child Care?", *Child Development*, Vol. 78, No. 2, pp. 681-701.
- Belsky, J. (2011), "Child Care and Its Impact on Young Children", *Encyclopedia on Early Childhood Development*, Centre of Excellence for Early Childhood Development and Strategic Knowledge Cluster on Early Child Development, Montreal, available at: [www.child-encyclopedia.com/pages/PDF/BelskyANGxp3-Child\\_care.pdf](http://www.child-encyclopedia.com/pages/PDF/BelskyANGxp3-Child_care.pdf), accessed 22 September 2011.
- Bender *et al.* (2007), "Teachers' Education, Classroom Quality, and Young Children's Academic Skills: Results From Seven Studies of Preschool Programmes", *Child Development*, Vol. 78, No. 2, pp. 558-580.
- Burchinal *et al.* (2010), "Threshold Analysis of Association between Child Care Quality and Child Outcomes for Low-income Children in Pre-kindergarten Programmes", *Early Childhood Research Quarterly*, No. 25, pp. 166-176.
- Canadian Council on Learning (CCL) (2006), "Why is High-Quality Child Care Essential? The link between Quality Child Care and Early Learning", *Lessons in Learning*, CCL, Ottawa.
- Centre for Families, Work and Well-being (2000), *You bet I Care! A Canada-wide Study on Wages, Working Conditions and Practices in Child Care Centres*, Centre for Families, Work and Well-being, Guelph.
- Childhood Resource and Research Unit (2004), "Quality Targets in Services for Young Children", working document for the Quality By Design project, Childhood Resource and Research Unit, Toronto.
- Chetty *et al.* (2011), "How Does Your Kindergarten Classroom affect Your Earnings? Evidence from Project Star", *Quarterly Journal of Economics*, forthcoming.
- Cunha, F., J. Heckman, L. Lochner and D.V. Masterov (2005), "Interpreting the Evidence of Life-Cycle Skill Formation", *IZA Discussion Paper Series 1575*, Institute for the Study of Labour (IZA), Bonn, Germany.
- Cunha, F. and J.J. Heckman (2010), "Investing in Our Young People", *IZA Discussion Papers 5050*, Institute for the Study of Labor (IZA), Bonn, Germany.
- Currie, J. (2001), "Early Childhood Education Programmes", *Journal of Economic Perspectives*, Vol. 15, No. 2, pp. 213-238.
- Dearing *et al.* (2009), "Does Higher Quality Early Child Care Promote Low-Income Children's Math and Reading Achievement in Middle Childhood?", *Child Development*, Vol. 80, No. 5, pp.1329-1349.
- Elliott, A. (2006), "Early Childhood Education: Pathways to Quality and Equity for all Children", *Australian Education review*, 50, 2006.



- Eurydice (2009), *Early Childhood Education and Care in Europe: Tackling Social and Cultural Inequalities*, Eurydice, Brussels.
- Glass, G. (2004), "More than Teacher Directed or Child Initiated: Preschool Curriculum Type, Parent Involvement, and Children's Outcomes in the Child-Parent Centres", *Education Policy Analysis Archives*, Vol. 12, No. 72, pp. 1-38.
- Heckman J.J., S.H. Moon, R. Pinto, P.A. Savelyev and A. Yavitz (2009), "The Rate of Return to the HighScope Perry Preschool Program", *Journal of Public Economics*, Vol. 94, No. 1-2, pp. 114-128
- Love *et al.* (2003), *Child Care Quality Matters: How Conclusions May Vary With Context*, Department of Child, Youth and Family Studies, University of Nebraska, Lincoln.
- Melhuish *et al.* (2004), "The Effective Provision of Pre-School Education (EPPE) Project: Findings from Pre-school to end of Key Stage 1", *Sure Start*, United Kingdom.
- National Institute for Early Education Research (NIEER) (2003), "Low Wages = Low Quality: Solving the Real Preschool Teacher Crisis", *Policy Brief*, NIEER, New Jersey.
- NIEER (2004), "Class Size: What's the Best Fit?" *Policy Brief*, NIEER, New Jersey.
- NIEER (2006), "Increasing the Effectiveness of Preschool Programmes", *Policy Brief*, NIEER, New Jersey.
- OECD (2001), *Starting Strong I: Early Childhood Education and Care*, OECD, Paris.
- OECD (2006), *Starting Strong II: Early Childhood Education and Care*, OECD, Paris.
- OECD (2011), "PISA in Focus 1: Does participation in pre-primary education translate into better learning outcomes at school?", OECD, Paris.
- Pianta *et al.* (2009), "The Effects of Preschool Education: What We Know, How Public Policy Is or Is Not Aligned With the Evidence Base, and What We Need to Know", *Psychological Science in the Public Interest*, Vol.10, No. 2, pp. 49-88.
- Sammons *et al.* (2002), *The Effective Provision of Pre-School Education (EPPE) Project: Technical Paper 8a - Measuring the Impact of Pre-School on Children's Cognitive Progress over the Pre-School Period*, London: DfES/Institute of Education, University of London.
- Schweinhart, L. (2006), "Preschool Programmes", *Encyclopedia on Early Childhood Development*, Centre of Excellence for Early Childhood Development and Strategic Knowledge Cluster on Early Child Development, Montreal, available at: [www.child-encyclopedia.com/pages/PDF/SchweinhartANGxp.pdf](http://www.child-encyclopedia.com/pages/PDF/SchweinhartANGxp.pdf), accessed 22 September 2011.
- Sheridan, S., J. Giota, Y.M. Han, and J.Y. Kwon (2009), "A cross-cultural study of preschool quality in South Korea and Sweden: ECERS evaluations. *The Early Childhood Research Quarterly*, 24, 142-156.
- Sheridan, S. and K-M. Schuster (2001), "Evaluations of Pedagogical Quality in Early Childhood Education - A cross-national perspective", Department of Education, University of Gothenburg, Sweden, *Journal of Research in Childhood Education*, Fall/Winter 2001, Vol. 16, No. 1, pp. 109-124.

- Shonkoff, J.P. and A.D. Philips (2000), *From Neurons to Neighbourhoods*, National Academy Press, Washington DC.
- Smith, A. (2003), "School Completion/Academic Achievement-Outcomes of Early Childhood Education", *Encyclopedia on Early Childhood Development*, Centre of Excellence for Early Childhood Development and Strategic Knowledge Cluster on Early Child Development, Montreal, available at: [www.child-encyclopedia.com/Pages/PDF/SmithANGxp.pdf](http://www.child-encyclopedia.com/Pages/PDF/SmithANGxp.pdf), accessed 22 September 2011.
- UNESCO (2004), "Curriculum in Early Childhood Education and Care", *UNESCO Policy Brief on Early Childhood*, No. 26, UNESCO, Paris.
- Vandenbroeck, M. (2011), "Diversity in Early Childhood Services", *Encyclopedia on Early Childhood Development*, Centre of Excellence for Early Childhood Development and Strategic Knowledge Cluster on Early Child Development, Montreal, available at: [www.child-encyclopedia.com/pages/PDF/VandenbroeckANGxp1.pdf](http://www.child-encyclopedia.com/pages/PDF/VandenbroeckANGxp1.pdf), accessed 22 September 2011.