



Learning begins early



Bernard
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FOUNDATION

EARLY CHILDHOOD MATTERS



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EARLY CHILDHOOD MATTERS



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While findings from neuroscience and economics together make a powerful case for societies investing more in children's first 3 years, a huge challenge still lies ahead to persuade policymakers to see this life stage as a strategic priority. Photo • Jon Spaul/Bernard van Leer Foundation

'By the time most kids start preschool, aged around 3, the most important building blocks for learning have already been put in place.'

Learning from birth

Leonardo Yáñez, Programme Officer, Bernard van Leer Foundation

When you hear the phrase ‘early learning’, do you think of preschool? The importance of preschool is increasingly widely acknowledged all over the world. Yet by the time most kids start preschool, aged around 3, the most important building blocks for learning have already been put in place. That’s why this edition of *Early Childhood Matters* focuses on learning from birth to 3 years old.

In the first 3 years of life, children’s brains are far more active than those of university students. Just as their bodies need breast milk, their brains need affection, stimulation, and meaningful interaction – language, touch, eye contact, exploration, play. The more they get these things, the more successfully they will learn to decipher and classify objects, identify language patterns and make themselves understood, and develop relationships based on trust. These are the kinds of cognitive, social and emotional skills that underpin the passage through school and productive life.

While findings from neuroscience and economics together make a powerful case for societies investing more in children’s first 3 years, a huge challenge still lies ahead to persuade policymakers to see this life stage as a strategic priority. Data are scarce – many countries collect statistics about survival and health indicators for the under-3s, but we know much less about the extent to which their parents, communities and environments give them opportunities for exploring, playing and learning. We need more scientific evidence about what policies and interventions work.

And we need more case studies that will help political leaders to understand how best to approach the need for intersectoral coordination, given that multiple ministries – health, education, women, labour – typically need to work together if the early learning needs of 0–3 year olds are to be effectively met.

There are signs of encouragement. President Obama’s recent call for universal preschool in the United States was heard around the world, and helps early childhood advocates to gain the ear of political decision makers.

Further south in the Americas, Dilma Rousseff in Brazil and Ollanta Humala in Peru are among the new wave of Latin American presidents who have not only spoken frequently and passionately about the need to invest in young children, but have also committed resources and begun to roll out national programmes. Cuba, Sweden, Chile and Colombia are other examples of countries which have scaled-up programmes targeting very young children.

At the Bernard van Leer Foundation, we are doing all we can to help this trend along. One of our three strategic goals is to confront the challenge of scaling-up services that foster early learning, without losing the quality – which is always a risk when moving from small-scale projects to wider implementation, especially in tribal, isolated or extremely impoverished communities where there is particular need to respond flexibly to local contexts. Success requires not only political will and financial investment but also technical ability, logistical knowledge and management skills.

In the following articles, you can read about some initiatives that the Foundation is backing, as well as wider developments and context. We begin on page 7 with Joan Lombardi and Rebecca Sayre looking into the available data to give an overview of what we know – and what we don’t – about the state of early learning among children aged 0–3. Next, on page 13, we look at the neuroscience as Saul Cypel explains what is physically happening in the brain of very young children as they learn.

On page 18, David Krittr provides a valuable Vygotskian perspective on early learning, explaining why we should think of it as a process of co-construction between children and the people around them. The WHO and UNICEF are working together on a project called Care for Child Development, which will help caregivers to support their young children’s learning. They explain how on page 23.

We need more data to understand how young children learn and how we can help them, and on page 28 you

can read about how the Inter-American Development Bank is in the process of developing indicators in four Latin American countries. Staying in Latin America, on page 33 we talk to Osmar Terra, a paediatrician turned politician who masterminded the much-lauded *Primeira Infância Melhor* (Better Early Childhood) programme in the Brazilian state of Rio Grande do Sul.

On page 35 you can read about how Colombia is successfully using existing home visiting systems to promote a greater variety of play activities and materials in poor households with young children. On page 40, Venita Kaul explains the efforts that are underway in India to define a right to integrated early childhood development that could serve to underpin the delivery of early learning services.

'We also need more case studies that will help political leaders to understand how best to approach the need for intersectoral coordination.'

Susan Walker and Susan M. Chang, on page 45, look at the available evidence to guide public policy on home visiting and other kinds of early learning intervention. On page 50, we hear about how three municipalities in Peru are implementing home visiting programmes with the help of seed funding and technical support, an effort that has considerable potential to be replicated and scaled up. Back in Brazil, the impressive *Mãe Coruja* Programme in the state of Pernambuco is described on page 54.

How can fathers be more engaged in supporting the early learning of their very young children? That's a question asked by the UK's Fatherhood Institute and Brazil's Promundo in an article on page 57. Next, on page 59, Harouna Ba and Loulou Bangura explore how mobile technology is helping to monitor and improve children's health in remote rural villages, with potential



It is important to get data about the extent to which parents, communities and environments give children opportunities for exploring, playing and learning. Photo • Courtesy Asociación Red Innova

applications also in early learning. Last but not least, Yiğit Aksakoğlu shares the inspiring story of how a day-care centre in the Turkish city of Diyarbakır is transforming attitudes towards parenting in the local community.

We hope these articles will inform and inspire, but we are very aware that we still have much to learn about the best ways of supporting young children's learning in the vital early years. We urge you to join us at earlychildhoodmagazine.org, where you will find the articles from these pages presented in a format you can react to through comments and share through social media.

Providing a path to early success: securing the foundation for learning

By Joan Lombardi, Senior Fellow, Bernard van Leer Foundation, and Rebecca Sayre, International Early Childhood Development Consultant

What policies and programmes can promote learning among the 0–3 age group? This article examines what we know about the status of children of this age; outlines why early childhood policies need to be integrated and comprehensive, providing a continuum of support; and suggests an agenda for change to assure that young children survive and thrive, grow and learn.

The lack of proper nutrition or stimulation in the earliest years – particularly pregnancy to age two – has lifelong negative impacts on a child’s ability to learn, grow and contribute to society.

Jim Yong Kim, President, World Bank Group, 2013

The idea that children begin to learn when they reach the door of the schoolhouse – or even preschool – is gradually being replaced with a growing understanding that ‘learning begins at birth’ (Haddad *et al.*, 1990). Mounting evidence, from neuroscience to economics, is deepening our understanding that what happens during the prenatal period and first 3 years of a child’s life has a profound impact on their capacity to succeed when they encounter more formal education, and beyond into later life.

However, early childhood policies and services have been slow to reflect this growing understanding. For very young children, responsive interactions with parents and other caregivers is where learning begins. It is the relationship with caring adults that provides the earliest educational environment for children. Babies and toddlers depend on caring adults to meet their basic needs, to be responsive to their cues, to help establish a secure attachment. This in turn leads to self-confidence, curiosity, persistence and other behaviours that are so essential to lifelong learning. At the same time, children at home and in childcare need to be bathed in language, right from the start, in order to be able to grow to be successful learners in primary school.

While good health and nutrition are critical to development, particularly during the first few years of life, these essential services alone are not enough. Parenting and family support, as well as quality

childcare for working families, are essential to get children off to a strong start.

This article explains why a recognition that learning begins early calls for more integrated and comprehensive services, and what policy priorities that implies. First, though, it sets the scene by surveying some of what we know about the status of young children globally, in terms of factors that underpin their healthy overall development and therefore, consequently, their capacity to learn.

What do we know about the status of young children?

Every year, more than 130 million children are born, most of them in low- and middle-income countries (UNICEF, 2012a). Although child mortality has fallen by 41% since 1990, in 2011, 6.9 million children died before reaching their fifth birthday, many from causes that are both treatable and preventable. More than one-third of these deaths are attributable to undernutrition; leading causes also include birth complications, pneumonia, diarrhoea and malaria (UNICEF, 2012b).

The factors that threaten or promote a child’s survival are most often those that either support or undermine a child’s healthy development and early learning. Some of the most important among these factors – poverty and inequality, maternal health and well-being, early health and nutrition, and early experiences – are considered below. Unfortunately, data are limited, and where they do exist they are often for the 0–5 age group as a whole, making it difficult to focus on the first 3 years.

Poverty and inequality

An estimated 25% of the population lives below the international poverty level of USD 1.25 per day (World Bank, 2008), with many more barely doing better. In 2007, it was estimated that 200 million children under age 5 in low- and middle-income countries fail to reach their developmental potential due to poverty and stunting (Grantham-McGregor *et al.*, 2007) – see Table 1. Inequality is also growing in wealthier countries, where children and young adults are now 25% more likely to be poor than the population as a whole (OECD, 2008).

Table 1 Prevalence and number (in millions) of disadvantaged children under 5 years by region

	Population younger than 5 years (millions)	Percentage living in poverty	Number living in poverty (millions)	Percentage stunted	Number stunted (millions)	Percentage stunted, living in poverty or both	Number stunted, living in poverty or both (millions)
Sub-Saharan Africa	117.0	46%	54.3	37%	43.7	61%	70.9
Middle East and North Africa	44.1	4%	1.6	21%	9.1	22%	9.9
South Asia	169.3	27%	46.3	39%	65.6	52%	88.8
East Asia and Pacific	145.7	11%	16.6	17%	25.2	23%	33.6
Latin America and the Caribbean	56.5	10%	5.9	14%	7.9	19%	10.8
Central and Eastern Europe	26.4	4%	1.0	16%	4.2	18%	4.7
Developing countries	559.1	22%	125.6	28%	155.7	39%	218.7

Source: Grantham-McGregor *et al.*, 2007

While many children survive the adverse conditions that come with an early life in poverty, such conditions undermine the potential of this developmental period. They can contribute to family stress, compromise family well-being, and prevent access to health services and the enriched experiences that are crucial for early learning. The cumulative impact increases the chances of long-term consequences.

Maternal health and well-being

Mothers and children need a continuum of care from pre-pregnancy through pregnancy and childbirth and through the early years of life (CSDH, 2008). As Save the Children put it in releasing their annual *State of the World's Mothers* report (2012):

If a mother is impoverished, overworked, poorly educated and in poor health, she may not be able to feed the baby adequately, with largely irreversible effects.

Not only maternal health but also maternal education is important to the long-term development of children. Over the past four decades, the global increase in women's education has prevented more than 4 million child deaths. Educated women are more likely to delay child rearing, be able to resist violence, and participate in the political process. Yet female adult literacy continues to be an issue. In at least 63 countries around

the world, young women from poor households are significantly less educated than in other sectors of society (UN Secretary General, 2012).

Early health and nutrition

Lack of access to healthy living conditions and adequate nutrition continues to have a serious impact on the development of young children around the world. An estimated 15% of births result in low-birthweight babies and 27% of the children under age 5 around the world are moderately or severely stunted (UNICEF, 2012a). These children are at an obvious disadvantage for healthy development, as are the many children made vulnerable to disease through inadequate water, sanitation and hygiene. Only 37% of babies around the world are exclusively breastfed within their first 6 months (UNICEF, 2012a) – and while this is often seen as a health issue, responsive breastfeeding also promotes nurturing interactions and stimulation that support development and early learning.

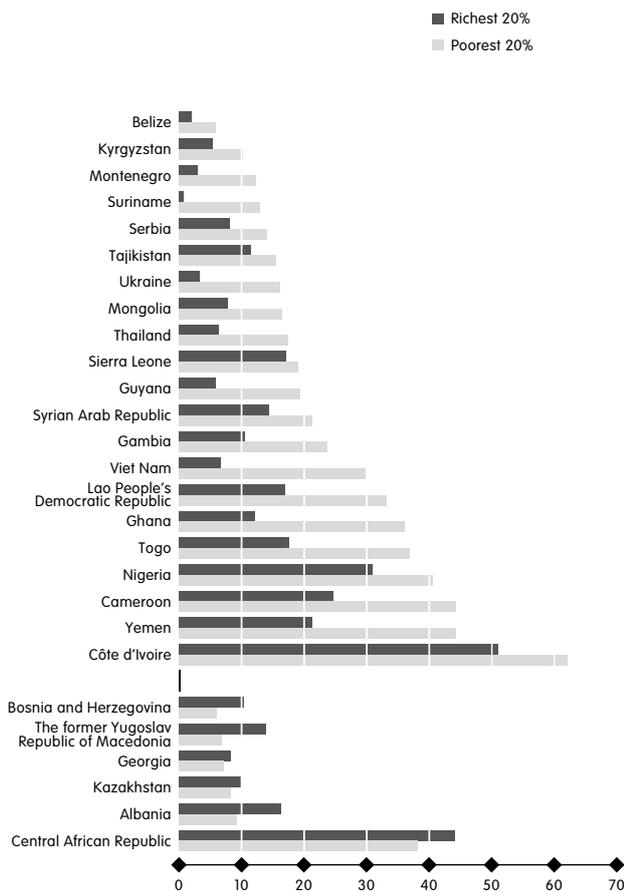
Early childhood experiences

The science of early childhood tells us that what happens in the early years of life can have a profound impact on the developing brain (Shonkoff and Phillips, 2000). The quality of relationships that children have with parents and other caregivers affects areas of development that

are fundamental building blocks for early learning, including social-emotional, cognitive/language and physical well-being (CSDH, 2008). While most parents want the best for their young children, many are unprepared for parenthood – lack of information, family support, and economic resources undermines the kind of responsive parenting practices that allow quality caregiver–child relationships to develop.

Figure 1 Children under 5 left alone or with inadequate care

Percentage of children under 5 left alone or in the care of another child under 10 years old in the past week, by household wealth quintile



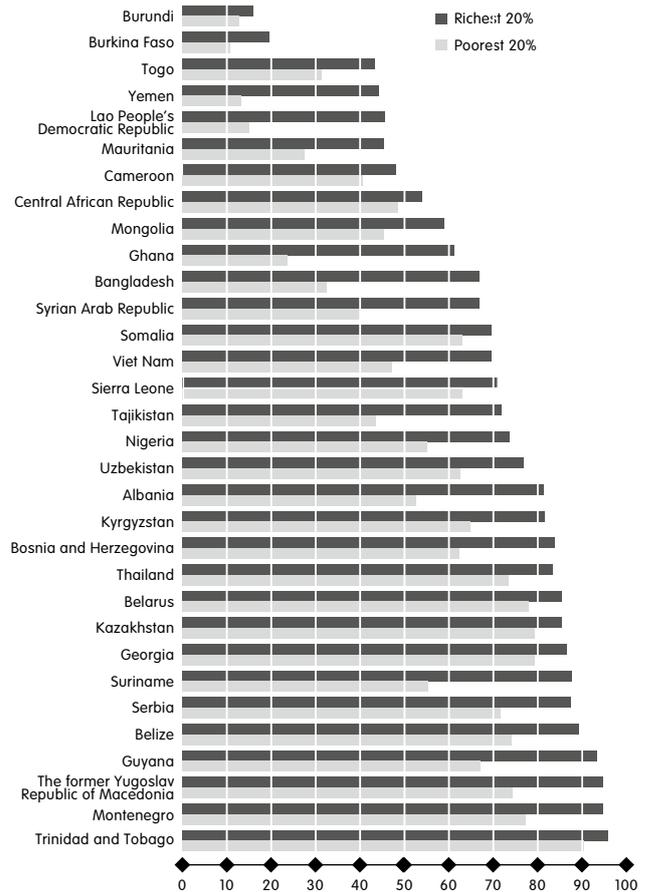
Note: This analysis included 28 countries, one of which (Uzbekistan) did not show a statistically significant difference between the richest and poorest households and was therefore excluded from the graph. Albania, Belize, and Bosnia and Herzegovina showed a statistically significant difference at the 5 per cent level ($p \leq .05$); all other countries showed a statistically significant difference at the 1 per cent level ($p \leq .01$). When the direction of the association was not consistent with the expected pattern, the chart groups the countries accordingly.

Source: UNICEF, 2012c

For example, based on data from more than 30 countries, among children 2–4 years old, violent forms of discipline, including physical punishment and psychological aggression, are widespread (UNICEF, 2012c). Based on data from more than 20 countries on children under 5, the poorest children are at greatest risk of being left alone or with inadequate care (see Figure 1), exposing them to increased risk of injury as well as abuse and neglect (UNICEF, 2012c). Lack of paid leave and

Figure 2 Children under 5 engaged in early learning at home

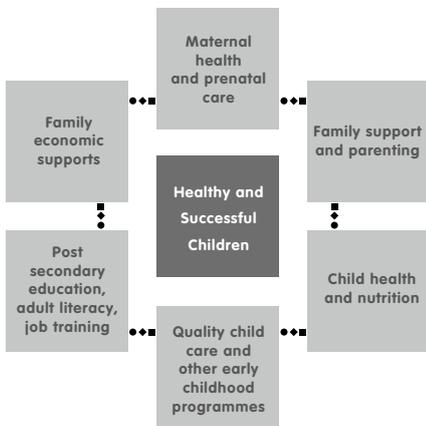
Percentage of children under 5 engaged by an adult household member in four or more activities to promote learning and school readiness in the past three days, by household wealth quintile



Note: This analysis included 34 countries, two of which (Côte d'Ivoire and the Gambia) did not show a statistically significant difference between the richest and poorest households and were therefore excluded from the graph. Burundi and the Central African Republic showed a statistically significant difference at the 5 per cent level ($p \leq .05$); all other countries showed a statistically significant difference at the 1 per cent level ($p \leq .01$).

Source: UNICEF, 2012c

Figure 3 A two generation approach to healthy and successful child development



Source: authors

Figure 4 Essential interventions during young children's development

Parents/ caregivers	Pregnant women	Children			Transition to primary school
		Birth	Age 2	Age 6	
Positive parenting education	Social and child protection	Birth registration			
Enforced domestic violence laws, provisions in judicial system to protect young children, child welfare system, income supports					
Parent education on child health and development	Health	Prenatal care • antenatal visits (at least 4) • skilled attendants at delivery	Expanded program of immunizations	Well-child visits (growth monitoring and promotion)	
Breastfeeding promotion, complementary feeding, dietary diversity	Nutrition	Prenatal nutrition • folic acid • iron supplementation • iodine	Exclusive breastfeeding until 6 months; complementary feeding to age 2	Vitamin A, iodine, iron	
Early stimulation, importance of formal early learning	Education		Early stimulation, at home or through quality child care	ECCE and preprimary education to promote school readiness	
Early childhood outreach should be coordinated with existing health and family support services. Interventions can be center-based, through group programs, or via home visiting			As more children enroll in preprimary school, center-based programs can be used to reach increasing numbers of children.		

Source: Adapted from SABER-ECD Framework, Neuman and Devercelli, World Bank, 2012

quality childcare undermines family well-being and puts children's development at risk.

Based on data from more than 30 countries, on families with children under age 5, children from the poorest households are also less likely than children from the richest households to be engaged in early learning activities (UNICEF, 2012c), see Figure 2 on previous page.

What policies can help lead to early success?

How can policies promote learning from birth? There is increasing evidence from around the world that reducing inequalities requires interventions that are integrated, as well as being of high quality and targeted to the most vulnerable (Engle *et al.*, 2011). The Commission on the Social Determinants of Health called for policies that provide 'equity from the start' and that use a more 'comprehensive approach to the early years of life' (CSDH, 2008). As noted by Margaret Chan, Director General of the World Health Organization:

Three areas are critical foundations for healthy child development: stable, responsive and nurturing caregiving with opportunities to learn; safe, supportive, physical environments; and appropriate nutrition.

(Chan, 2013)

Since the development of young children is shaped by their family and community, policies and programmes must address the needs of two generations – both children and the adults in their lives, most notably their parents and direct caregivers (Ascend, 2012). When it comes to early learning among the 0–3 age group, parenting support, including paid parental leave, family support such as home visiting or parenting groups, and quality childcare, are especially important. In addition, many families need economic support (such as conditional cash transfers) as well as opportunities for maternal education and job training (see Figure 3).

Parenting support can be delivered in a variety of ways: by integrating it into community health or nutrition programmes (such as Care for Child Development, described in the article on page 23), through home visiting programmes (delivered by health, education or social protection) or through group family support programmes such as mothers' groups and special outreach to fathers. A focus on parenting does not have to stop when children enter childcare – in fact, family engagement should be a key element of a quality childcare programme, along with trained staff, adequate space and supplies, and small groups.



While public awareness about the early years has grown, there is still a gap between what science tells us and what the general public understands and demands. Photo • Courtesy Mãe Coruja Programme

It is important to realise that there is no magic age or single programme that can guarantee success. Child development is influenced by cumulative experiences in the early years, with one period building on another. We need to assure a path to success, which includes a series of supports that contribute to child well-being throughout the early childhood period, 0–8 years.

The policies of different countries often vary depending on history, resources and government structure, and there is much potential for countries to learn from each other how best to integrate and align their systems. The World Bank’s Systems Approach for Better Education Results (SABER) – a tool that has been implemented in countries around the world – provides systematic analysis on a comprehensive set of policies and programmes ranging from prenatal care to birth registration, economic supports and pre-primary education, see Figure 4 (Neuman and Devercelli, 2012).

Three next steps to move forward

In recent years, there has been increased public attention to the early years, yet investments in the health and education of very young children still lags farthest behind. What can convince countries and international donors to invest more resources in promoting learning that begins at birth? Three factors are crucial.

1 Improve data

Approximately half of the births in the world still go unregistered (UNICEF, 2012a), the start of serious gaps in data about children’s crucial first 3 years. While UNICEF has made progress in developing indicators for children under the age of 5, and there are an increasing number of birth cohort studies being conducted around the world, new initiatives are needed to expand birth registration, to develop improved measures of child well-being, and to disaggregate international and national data by age, poverty, community, and other demographic characteristics. Only by presenting hard

evidence of the developmental status of children from birth through the first years of life, as well as increasing evidence of what works to improve those developmental outcomes, can we hope to increase investments.

2 Coordinate planning

Given that the domains of development are integrated, early childhood policies must comprehensively address the needs of children. This calls for a coordinated approach across public agencies and throughout the developmental period. Coordinated planning across the sectors of health, education, social protection and child protection is necessary at the international, national and community levels. In recent years, promising examples of intersectoral coordination have emerged in countries such as Jamaica and Chile. Both vertical and horizontal alignment of policies is needed to assure continuity, increase efficiency and encourage better outcomes for children.

'We need to assure a path to success, which includes a series of supports that contribute to child well-being throughout the early childhood period, 0–8 years.'

3 Increase public awareness

While public awareness about the early years has grown, there is still a gap between what science tells us and what the general public understands and demands. In this age of media and emerging technologies, we have new opportunities to increase public awareness and influence the behaviour of parents and policymakers. To make this happen, we need to build partnerships and recruit new allies – from the business community to law enforcement, health professionals, and faith-based organisations. We have to continue to talk about a child's right to a good start in life and the importance of early investments to education, health, and the well-being of nations. Until early childhood becomes everyone's business, it will remain an issue on the sidelines,

without the attention, focus, and sufficient resources to make a difference.

Today more than ever, we understand both the importance of the early years and the key elements of success. No single programme can do it alone. As we move towards the post-2015 period, there is an opportunity to refocus on the earliest years of development. We need to support families across the life course and provide a continuum of quality services that can improve the trajectory that leads to lifelong learning for all children around the world.

References

- Ascend. (2012). *Two Generations, One Future: Moving parents and children beyond poverty together*. Washington, DC: Aspen Institute.
- Chan, M. (2013). Linking child survival and child development for health, equity, and sustainable development. *Lancet* 381: 1514–15.
- Commission on Social Determinants of Health (CSDH). (2008). *Closing the Gap in a Generation: Health equity through action on the social determinants of health*, Final Report of the Commission on the Social Determinants of Health. Geneva: WHO.
- Engle, P., Fernald, L., Alderman, H., Behrman, J., O'Gara, C., Yousafzai, A. *et al.* (2011). Strategies for reducing inequalities and improving developmental outcomes for young children in low-income and middle-income countries. *Lancet* 378(9799): 1339–53.
- Grantham-McGregor S., Cheung, Y.B., Cuetto, S., Glewwe, P., Richter, L., Strupp, B. and International Child Development Steering Group. (2007). Developmental potential in the first 5 years for children in developing countries. *Lancet* 369: 60–70.
- Haddad, W.D., Colletta, N.J., Fisher, N., Lakin, M. and Sutton, M. (1990). *Meeting Basic Learning Needs: A Vision for the 1990s*, Background Document, World Conference on Education for All (WCEFA), Jomtien, Thailand, March 5–9. New York, NY: Inter-Agency Commission for WCEFA.
- Jim Yong Kim. (2013). Reaching the classroom is just the first step. *Huffington Post*, 18 April. Available at: http://www.huffingtonpost.com/jim-yong-kim/reaching-the-classroom-is_b_3103855.html (accessed April 2013)
- Neuman, M.J. and Devercelli, A.E. (2012) *Investing Early: What policies matter? A framework paper for Systems Approach for Better Education Results (SABER) – Early Childhood Development*. Washington, DC: Human Development Network, World Bank.
- OECD. (2008). Income inequality and poverty rising in most OECD countries. Press release, 21 October. Available at: <http://www.oecd.org/els/incomeinequalityandpovertyrisinginmostoecdcountries.htm> (accessed April 2013).
- Save the Children. (2012). *Nutrition in the First 1,000 Days: State of the World's Mothers 2012*. Press release, 8 May. Report available at: <http://www.savethechildren.ca/document.doc?id=195> (accessed April 2013)
- Shonkoff, J. and Phillips, D. (2000). *From Neurons to Neighborhoods: The science of early childhood development*. Washington, DC: National Academy Press.
- UN Secretary General. (2012). *Education First: An initiative of the United Nations Secretary General*. New York, NY: United Nations.
- UNICEF. (2012a). Statistical tables. In: *The State of the World's Children: Children in an urban world*. New York, NY: UNICEF.
- UNICEF. (2012b). *Levels & Trends in Child Mortality: Estimates developed by the UN Inter-agency Group for Child Mortality Estimation*. New York, NY: UNICEF.
- UNICEF. (2012c). *Inequities in Early Childhood Development: What the data say: Evidence from the Multiple Indicator Cluster Surveys*. New York, NY: UNICEF.
- World Bank. (2008). *World Development Indicators 2008*. Washington, DC: World Bank.

What happens in the brain as very young children learn

Saul Cypel, Technical Consultant, Early Childhood Programme, Fundação Maria Cecília Souto Vidigal, São Paulo, Brazil

Neuroscience is increasingly showing that common assumptions about rearing children need to be reviewed and adjusted if we want to nurture individuals who will build societies that are harmonious, hospitable, respectful and productive. This article explains what physically happens in the brain as children learn, before birth and in their earliest years of life, laying foundations on which future structures can be built.

Children's neurological development in early life is a continuous process, as all learning builds on things learned before. For example, a child begins to hold his or her head erect, while supported on a lap, at around the third to fifth month of life. In order to sit up by themselves, children have to be able to support their own head, and also need good upper body posture, a skill that will be acquired only around the sixth to tenth month. Later on, in order to walk, children need to have mastered posture and hip balance through the previous learning stages of being able to stand alone and then take steps; learning that happens between 10 and 18 months of age.

More complex activities, such as auditory and visual discrimination, language and attention, are also highly dependent on previous pillars. This premise is valid for all functional aspects: there are no omissions in these sequences. And these advances do not occur automatically; three interrelated and mutually reinforcing conditions are required for development to occur:

- Neurobiological structure – the nervous system, especially the brain, must be mature and ready for learning.
- Stimulus – children must be encouraged to learn; usually, such stimuli are promoted by parents, relatives and caregivers.
- Affection – a welcoming environment is key for the establishment and continuation of development.

How the brain is formed

The structuring of the nervous system starts in the womb a few weeks after conception, with the formation of the neural tube (Volpe, 2008), from which develop the brain, the brain stem and the spinal cord (Figure 1).

Figure 1 Neural tube

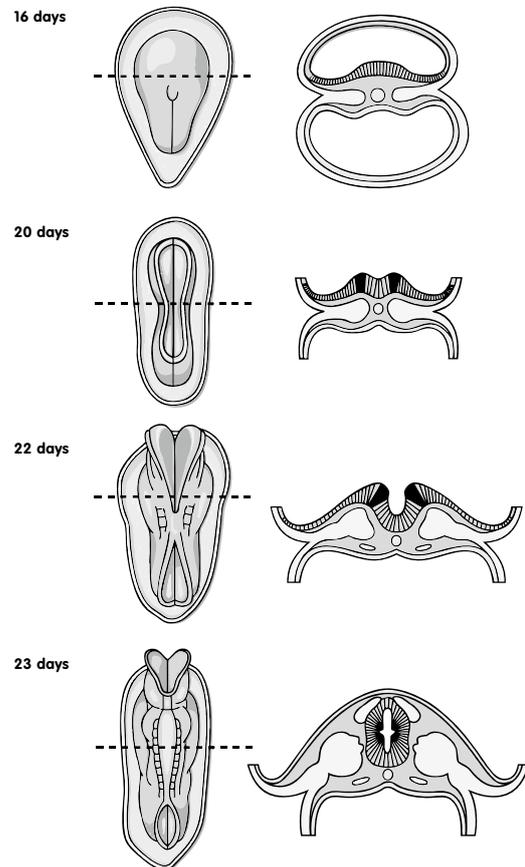


Image: Courtesy LifeART Medical Illustrations

As the weeks go by, visible modifications occur that will lead to differentiation of the various areas of the brain, with the progressive formation of the cerebral hemispheres (Figures 2 and 3).

Simultaneously, the brain's microstructures undergo ever more complex modifications as neural circuits are organised, preparing individuals for the task of learning (Figure 4).

The brain's maturation process happens in four phases:

1 Neuron multiplication

Between the tenth and the fourteenth week of pregnancy, young neurons start an exuberant process of multiplication, forming around 90 billion new neurons.

Figure 2 Brain development during pregnancy

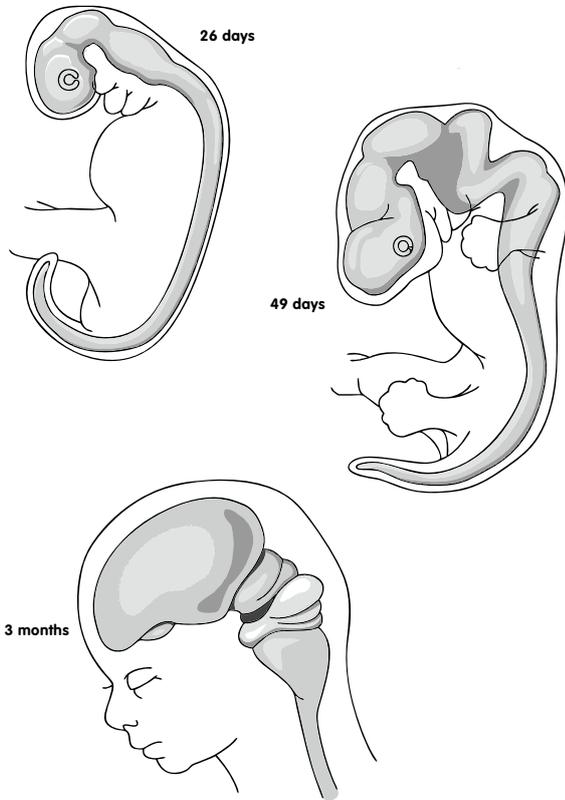


Image: Courtesy LifeART Medical Illustrations

2 Migration and organisation of cell architecture

Once formed, neurons migrate to a final predetermined location in one of the regions of the brain. Each neuron's 'address' is defined on a specific layer in the cerebral cortex, in one of the six existing layers, and must be correctly positioned to make up, on the whole, what is known as 'grey matter' (the outermost layer of the brain).

3 Synapses (connections between neurons)

Once they get to the place where they are designed to be, neurons start interacting with one another through dendrites and axons, forming contacts we call synapses. These connections receive, conduct and disseminate information around the brain, forming an ultra-complex communication network. During the first year of life this network is formed at the incredible speed of 700 new connections per second.

Figure 3 Newborn brain

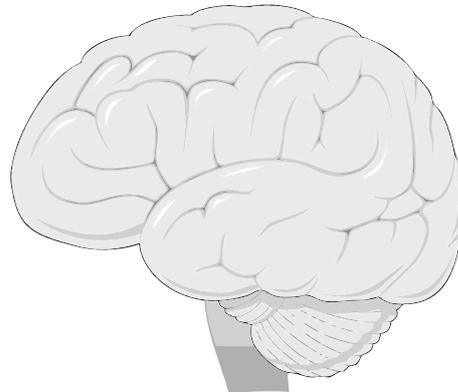


Image: Courtesy LifeART Medical Illustrations

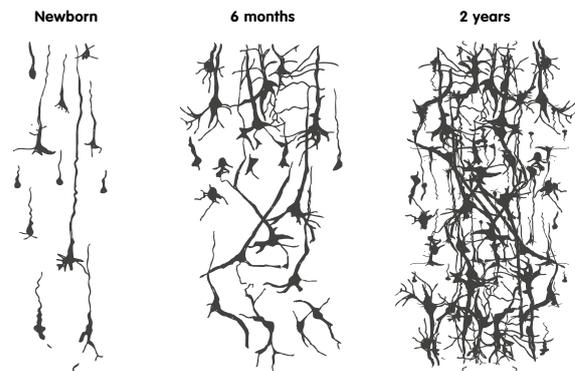
4 Myelination (neuronal coating)

The connections that create brain circuits are progressively coated with a myelin sheath which, like the sheath on electric wires, helps to avoid short-circuits and losses during the transmission of information. Myelination starts very early in life and continues for many decades, offering individuals the possibility always to continue learning (Figure 5).

How brain communication occurs

For a neuron to transmit stimuli to another neuron, it requires a neurotransmitter – that is, a substance that facilitates the traffic of information. The most important neurotransmitters are dopamine, acetylcholine and serotonin. They are produced by specific neuron nuclei located in the brainstem, the structure of the nervous system between the brain and the spinal cord. Neurotransmitters support the smooth

Figure 4 Evolution of brain circuit organisation



Source: Conel, 1959

Figure 5 Neuron and axon with myelin sheath

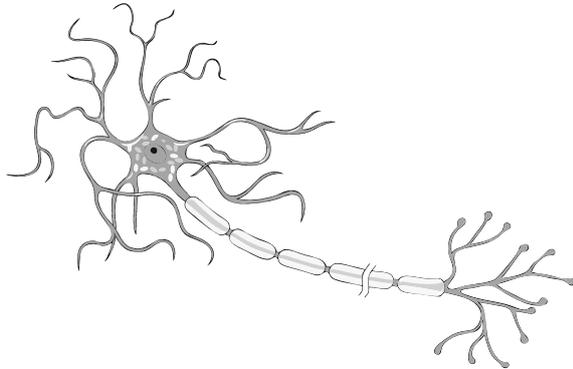


Image: Courtesy LifeART Medical Illustrations

running of brain circuits, promoting communication among different parts of the brain (Figure 6).

Genetics and epigenetics

The processes that modify brain structures during pregnancy are predominantly determined by genetics, as is true for other organs such as the heart and lungs.

The modifications that occur after birth, on the other hand, are also influenced by the relationships that children establish with people around them, mainly caregivers, who are usually the child's father and mother. These bonds have the capacity to model, adjust and reorganise genetic tendencies. Transformations resulting from external influences are called epigenetics. (Mattick and Mehler, 2008); gene components may be activated, or not, by the child's interaction with adults. In this way, what is experienced in the first years of life determines the future of people and, therefore, the future of society (National Scientific Council on the Developing Child, 2010).

As it creates new neurons and connections, the brain at the same time also proceeds to eliminate connections that are not being used, in a process called 'pruning'. Pruning starts immediately after birth and extends until adolescence. This means that learning must be used, or the brain circuits corresponding to it may be eliminated.

Everything in its time

For each kind of learning to occur, there is a 'sensitive' or

Figure 6 Synaptic junction, showing neurotransmitters as black dots

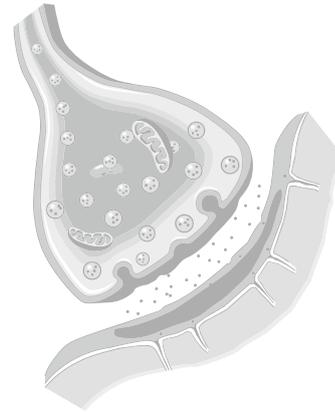


Image: Courtesy LifeART Medical Illustrations

'critical' period. These start at a very early stage (Nelson, 2000) – the critical period for auditory functions and other higher nervous activities such as emotions begins when the child is still in the uterus (Figure 7).

This is not to say that children who do not receive the right stimuli during the sensitive period can never acquire the function at all, as brain plasticity enables us to continue learning throughout our lives. Take language, for example. If, for some reason, the child lacks appropriate stimulation during the more sensitive period, that is, around the first 2 years, but this comes at a later age, the child may develop language skills, albeit perhaps with some difficulty in speech and school learning. If presenting stimuli too late in life may result in losses, presenting them too early – when the brain structure is not yet ready to learn and assimilate the new acquisition – may generate stress that disrupts emotional development (Bock *et al.*, 2005; Gunnar *et al.*, 2006, Shonkoff *et al.*, 2011).

Learning to cry and calm down

At birth, infants' brains are ready to start interacting with their surroundings. From their early relationships – almost always with parents, relatives and caregivers – the process of interaction creates a bond, known as attachment (Bowlby, 1990; Winnicott, 1990, Cypel, 2007). This is the point at which a child, initially totally dependent on the protection and affection of caregivers, begins the process of gradually acquiring autonomy, with their support.

Figure 7 Periods of functional development

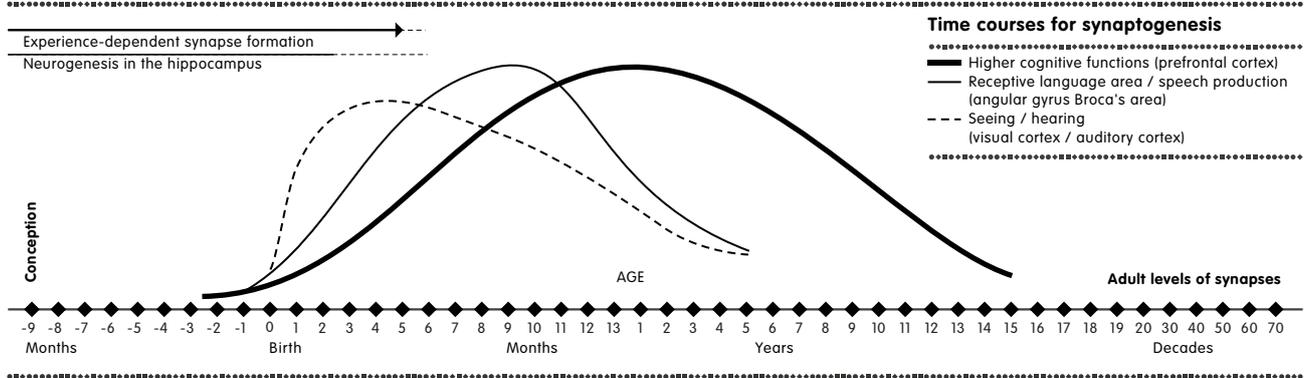


Image: Courtesy C. Nelson

Autonomy is gained progressively, showing specific characteristics at each age, and relying on learning and skills previously acquired, as well as emotions experienced at the time the learning occurred. The first things are learned right after birth, as evidenced by the fact that newborns, while totally dependent, are nonetheless capable of expressing hunger intensely. Crying may seem a simple reaction but it actually requires a complex internal process in the brain (Shore, 2002; Cypel, 2007). The amygdala, located in the temporal lobe, reacts to stimuli such as hunger which represent a risk to survival, generating insecurity and anxiety. Anxiety drives the hypothalamus–hypophysis–adrenal (HPA) axis, which stimulates the suprarenal glands to release hormones: adrenalin, noradrenalin and cortisol. These hormones make babies uncomfortable, accelerate their heartbeat, and make them blush and finally cry, warning the mothers that they are hungry or uncomfortable.

As time goes by, if infants realise that their needs are met, this information will be registered in their memory – they will become less anxious and will not request as many things. We might say that their amygdala is learning to ‘behave better’, as they feel reassured that their needs will be met and they will no longer feel so threatened or at risk. Over the months, a baby will learn to wait when the mother is not immediately available, without becoming desperate or feeling unattended.

Preparing for the future

Around 1 year old, infants are typically encouraged to use a small spoon and feed themselves. Around age 2 most children are capable of eating without being helped. Later, children are able to dress themselves, wait for their turn when playing, and so on. Through interaction with the environment around them, and with the active participation of family members, children develop the autonomy that one day will enable them to socialise adequately. Next comes school and the acquisition of more complex skills, along with the ability to deal with the natural adversities of life during the growing process.

This preparation starts very early in life, with the most elementary rules and limits. Therefore, it is key that the child be exposed to the frustrations that occur naturally. Dealing with routine, rules about what one can or cannot do, learning to wait and that one cannot always get what one wants immediately, are opportunities to prepare oneself for becoming a well-functioning part of society in the future.

All these gains from skills learned are represented in brain circuits – everything that is learned leaves a record in the brain, be it motor skills, emotional skills or any other kind of learning.

Babies begin developing skills and learning how to deal with environmental demands in accordance with their level of maturity (Cypel, 2007). By automatic imitation

at first, they will gradually evolve and assimilate by becoming able to discern and absorb the rules, values and attitudes of the outside world – from putting on socks to tidying up toys and brushing teeth. Each of these actions is preparation for more complex objectives that will come up in adult life, such as organising a trip. To accomplish this task, adults need the capacity to organise, monitor the necessary steps, and put up with frustration, often having to make some corrections to reach the desired objective. This organisational capacity makes up what we call executive functions (Fuster, 1997; Barkley, 2001; D’Esposito, 2002; Cypel, 2006). Physically, the circuits of the executive functions are located in the prefrontal region, aided by the senses (sight, hearing, touch, smell and taste), which are located in different parts of the brain.

Children start to display executive functions from a very early age – their actions have a purpose which requires them to control several phases in the right sequence, correcting the course as needed and checking at the end to see whether the objective has been met. This process becomes progressively more complex, setting up the child’s autonomy and promoting the development of the capacity to think.

Performing a task well requires individuals to keep an objective in mind during the sequence of actions that must be carried out before they achieve the goal. What we call ‘working’ or ‘operating’ memory is conceptually characterised by this capacity to focus on an ultimate objective. The lack of such capacity harms learning and personal development (Cypel, 2006). This can be observed when children ask for help with elementary activities that they should be able to carry out by themselves, such as getting dressed or doing homework – if they continue to have things done for them instead of being encouraged to learn to do things for themselves, they may not acquire the skills that they will need to acquire new learning and develop.

Conclusion

Adequate brain architecture structure during the first years of life is key to preparing individuals and

providing the conditions to reach success in life. We might compare this process to a building where the floors are built one on top of another and the building’s comfort will depend on the quality of the finishing details. While genetics provide the building materials, the environment and the child’s personal experiences determine the success with which those materials are formed into a sturdy and pleasing construction. (Trevarthen and Aitken, 1994; Cypel, 2006).

It is fundamentally important that knowledge about this process should be disseminated in a clear and understandable way to professionals, public managers and opinion makers who can reach families. When parents are more aware of the importance of their role, they may be more likely to parent in ways that help their children’s brains to develop. We should invest in seeking to offer the most favourable conditions for a family environment that fosters the building of an integral and integrated human being.

References

- Barkley, R.A. (2001). The executive functions and self-regulation: an evolutionary neuropsychological perspective. *Neuropsychological Review* 11: 1–29.
- Bock, J., Gruss, M., Becker, S. and Braun, K. (2005). Experience-induced changes of dendritic spine densities in the prefrontal and sensory cortex: correlations with developmental time windows. *Cerebral Cortex* 15: 802–8.
- Bowlby, J. (1990). *Apego e Perda, I: Apego*. São Paulo: Livraria Martins Fontes Editora.
- Conel, J.L. (1959). *The Postnatal Development of the Human Cerebral Cortex*. Cambridge, MA: Harvard University Press.
- Cypel, S. (2006). O papel das funções executivas nos transtornos de aprendizagem. In: Rotta, N. T., Ohlweiler, L. and Riesgo, R.S. (eds) *Transtornos da Aprendizagem: Abordagem neurobiológica e multidisciplinar*. Porto Alegre: Artmed.
- Cypel, S. (2007). Humanization in newborn care: interpersonal relationships and their importance to the neurobiological organization. *Einstein* 5: 69–73.
- D’Esposito, M. (2002). Executive function and frontal systems. In: Schiffer, R.B., Rao, S.M. and Fogel, B.S. *Neuropsychiatry*, (2nd edn). New York, NY: Lippincott Williams & Wilkins.
- Fuster, J. (1997). *The Prefrontal Cortex: Anatomy, physiology and neuropsychology of the frontal lobes*, (3rd edn). New York, NY: Raven Press.
- Gunnar, M.R., Fisher, P.A. and The Early Experience, Stress, and Prevention Network (2006). Bringing basic research on early experience and stress neurobiology to bear on preventive interventions for neglected and maltreated children. *Development and Psychopathology* 18: 651–77.
- Mattick, J.S. and Mehler, M.F. (2008). RNA editing, DNA recording and the evolution of human cognition. *Trends in Neurosciences* 31(5): 227.
- National Scientific Council on the Developing Child. (2010). *Early Experiences Can Alter Gene Expression and Affect Long-term Development*. Working Paper no. 10. Cambridge, MA: National Scientific Council on the Developing Child.
- Nelson, C.A. (2000). The developing brain. In: Shonkoff, J.P. and Phillips, D.A. (eds) *From Neurons to Neighborhoods: The science of early child development*. Washington, DC: National Academy Press.
- Shonkoff, J.P., Garner, A.S. et al. (2011). The lifelong effects of early childhood adversity and toxic stress. *Pediatrics* 129: 232–46.
- Shore, A. (2002). Deregulation of the right brain: a fundamental mechanism of traumatic attachment and psychopathogenesis of posttraumatic stress disorder. *Australian & New Zealand Journal of Psychiatry* 36: 9–30.
- Trevarthen, C. and Aitken, K.J. (1994). Brain development, infant communication, and empathy disorders: intrinsic factors in child mental health. *Development and Psychopathology* 6: 597–633.
- Volpe, J.J. (2008). *Neurology of the Newborn* (5th edn). Philadelphia, PA: W.B. Saunders.
- Winnicott, D.W. (1990). *O Ambiente e os Processos de Maturação: Estudos sobre a teoria do Desenvolvimento emocional*. Porto Alegre: Artes Médica.

A Vygotskian perspective on learning, culture and an education that matters

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A largely unacknowledged, and erroneous, basic assumption is that child development is the same across all cultures and all times. But cognitive development is not just an unfolding of biologically given ability, adding more information and memory capacity, or acquiring language. Nor is it passive absorption of external input. The psychologist Lev Vygotsky (1896–1934) would characterise it as a co-construction between an individual and society in its various manifestations. This article explores what the Vygotskian perspective tells us about early learning in very young children.

Vygotsky (1978, 1934/1987) emphasised the social, cultural, and historical origins of thought. The central process in his theory of human development is linguistic mediation. This is a unique stance, illustrated by Vygotsky's discussion of a child pointing. His stance significantly differs from Piaget's analysis of an infant's earliest attempts to grasp an object. In Piaget's (1952/1963) account, first the child gropes, but gradually eye–hand coordination emerges so there is an increasing congruence between what the child sees and what he or she reaches for. This coordination of the thumb and forefingers continues until the child can reliably reach for an object and grasp it. The focus is on the individual interacting with the physical world.

Vygotsky (1978) also begins with an infant moving his or her hand in the direction of an object, but his discussion illustrates how even the most basic activity is social and cultural in origin. The baby's movement means something to the mother; her response to an unsuccessful grasping movement establishes its function as pointing. Eventually, the child begins to understand that the movement communicates intention. The function changes from an object-oriented movement to communication with another person.

In addition to using language to communicate, we think through language. As children develop, they move beyond pre-verbal 'practical intelligence' to use speech to organise thought. Vygotsky (1978) emphasised that sign use changes how psychological functions are

related to each other and how activities are performed. Young children use direct action to approach problems they cannot solve. Language use is limited to verbally expressing desires or directly addressing an object. This is followed by attempts to use a tool (for example, to hit a problematic object) or talking about something they've done after doing it. Sometimes children will stop their own attempts and ask an adult for help, or ask a question. Asking a question or asking for help keeps the activity going and indicates that a child has a plan, but cannot totally enact it. Once children can talk about something before they do it, they have better control over what they're doing. It helps in understanding both objects and goals, as well as contributing to monitoring one's own behaviour. Speech that originally had a social, communicative function is internalised and used in thought. When speech and action become integrated, the child can use words to create a plan; this affords much greater flexibility in solving a task or attaining a goal.

Play and learning from peers

Play is a major contributor to cognitive and social development, yet it is seldom given adequate attention by school administrators and policymakers. In play, children step away from the here and now; it is not only a symbolic achievement, but also helps children deal with unrealised desires. Vygotsky (1978) thought that imaginary play reconfigures the young child's 'relation to reality'. Rather than stimuli eliciting a response, meanings come to mediate between perception of a situation and action; in other words, action arises from ideas.

Vygotsky argued that, to be fully engaged in play, children have to notice things that they do not usually attend to, increasing awareness of social roles and changing their relations to objects. Instead of acting upon immediate impulses, the child follows the rules of the imaginary situation, and this requires a great deal of self-control. Because the child's desires are related to the imaginary situation, meaning comes to dominate action.

Children cannot always live in an imaginary world. But such immersion provides opportunities for learning that instruction cannot. Play prepares the child to have a relationship to the meanings introduced in school. Furthermore, imaginative play prepares a child to see beyond current realities in society. This has the potential to be the beginning of socialisation towards full participation in a democratic society.

Learning from adults

According to Vygotsky, learning is not a process of direct transmission of information and skills, or passive intake of external information, as in traditional learning theories. Both Vygotsky and Piaget believed that development is an active process, but they differed in how they depicted it. Piaget emphasised individual discovery and invention, or, in his terms, construction of knowledge. Vygotsky (1978) emphasised guidance and personal agency combined in a process of co-construction.

The basic process of guided instruction casts the teacher and learner as interdependent. The teacher's primary function is not the presentation of new information. In the early years, a major responsibility of the adult is properly directing the child's attention. A good teacher must carefully observe how a child approaches a task and intervene in a way that not only validates and encourages correct aspects of the performance, but also re-directs whatever is not successful by suggesting an alternative approach. Systematic supports are provided for a child to accomplish a goal, starting with general cues but providing more specific details as required by the child.

In the earliest social interactions, such as breastfeeding, we witness what Daniel Stern (1977/2002) called the 'dance' between mother and infant. The mother must adjust the baby's position in relation to her own to optimise the baby's suckling movements and facilitate success. Just as in the earlier discussion of pointing, where adult mediation creates a meaningful communicative function, the adult works with what the child can already do.

With development, the child is expected to assume new responsibility commensurate with improved physical coordination. For example, adult facilitation of initial use of utensils for eating might include placing one's hands around the child's as he or she picks up a cup of liquid. Utensils themselves are also modified to aid in the transition, for example child-sized spoons or 'sippy cups' (training cups with a semi-covered opening). Similarly, tying shoes might proceed by the adult partially completing the task so that the child can more easily perform a crucial step. The adult might create two loops in the shoelace and bend one over to create a 'tunnel' through which the child must push the other loop (a difficult task for the child in itself, requiring both continuing to pinch the loop together and threading it through the opening). Such a technique differs markedly from asking the child to observe and replicate an action, and works more effectively.

This instructional approach can also be used when working with a child on more complex tasks. An adult can guide a child in solving a picture puzzle by suggesting features to focus upon (such as a specific curve or searching for part of a central figure). Similarly, adults can ask focused questions or otherwise provide cues to facilitate performance on a classification task, or while coaxing a child to tell a more complete story (an important pre-literacy activity), or helping a child who cannot yet reliably count to decide which of two arrays of items 'has more' (for example by starting a pattern of one-to-one correspondence). Such techniques are not exclusively Vygotskian, although the social nature of learning and the close interdependence of teacher and learner are given much greater emphasis.

The Zone of Proximal Development

The most widely discussed Vygotskian concept among educators is the Zone of Proximal Development, or ZPD. In contrast to modelling of behaviour, adults assist children by cuing or even by showing them how to do something, but in a way that emphasises overcoming obstacles rather than simply copying behaviour demonstrated by an adult. Ellen Langer (1997: 85–87) offers a compelling argument for not just showing



When speech and action become integrated, the child can use words to create a plan. Photo • Jon Spaul/Bernard van Leer Foundation

how and expecting a child to do it. She discusses the presentation of a simple task under two different conditions, one where a solution is demonstrated, another where it is suggested that there are many ways to accomplish the goal. Participants in the first condition mostly replicated what they were shown. In the other condition, a substantially greater range of creative solutions were generated.

According to Vygotsky (1978), first we should look at what children can do on their own, a measure of development that is already completed, which he calls the actual developmental level. This is the endpoint in most testing situations, where a student only gets credit for what they get right; near misses don't count on an IQ or Achievement test. Vygotsky added something new, pointing out that there are problems that a child cannot solve independently, but can solve with assistance. For example, a child might complete something the teacher or a peer has started, or use cues to solve a problem. The distance between the child's current functioning and what the child can do with assistance is the child's potential functioning. This is the Zone of Proximal Development, the area in which development occurs.

Vygotsky (1978) gives the example of two 10-year-old children who both tested at an 8-year-old mental level on

an IQ test. When the children were assisted on problems they did not get right on their own, one child could do problems up to a 9-year-old level and the other could do problems up to a 12-year-old level. Vygotsky thought that these two children were not mentally the same. If you work with one child, she can improve a little. But the other child has potential to work at an advanced level.

The ZPD has profound implications for education. Most adults have some notion of matching the material they are trying to teach to the child's mental level. This is common sense. The danger is that the child is never really challenged. On the other hand, all good educators know that children cannot learn something that is beyond their understanding. But what a child can do with assistance is *not* beyond him or her. Accordingly, teachers, parents, and others working with children should determine what they do on their own and the limits of what they can do with adult assistance, and then concentrate on what lies in between. By using the ZPD as a guide for instruction rather than a more punitive assessment scheme, schools can work toward children's potentials.

Notable cultural differences in the use of such insights with young children have been found. Rogoff *et al.* (1993) conducted a study of contrasting styles of interaction between caregivers and toddlers (12–24 months). Toddler-caregiver dyads of middle-class urban and non-educated rural residents of India, Turkey, Mexico, and middle-class dyads in the USA were characterised in rich detail, revealing differences in how children acquire some semblance of adult knowledge. In formal education, such as that found in Western-style schools, adults specifically structure situations for instructional purposes. Informal instruction typically takes place where children are not excluded, allowing them to observe and participate in activities with caretaker support. For example, Mayan girls in Mexico learn to weave by observing and then assisting (to various degrees) adult women. Adults adjust tasks according to their perception of a child's ability to accomplish them, and support attempts to do new things and acquire new skills.

With the youngest children, much of this support takes the form of directing their attention and participation in task-related talk. This form of guidance is evident both in natural settings and research situations where a child was posed with tasks including operating a novel object and putting on clothes. A particularly interesting finding is that non-middle-class toddlers were superior in sharing their attention among complex ongoing events; this contrasts with the Westernised middle-class pattern of focused attention primarily on one thing.

In a pivotal study of somewhat older US children who differed in socio-economic status, key differences were found in interaction with adults, including the kinds of questions children were encouraged to ask and how adults responded (Heath, 1983). In this case, lower-SES children, segregated from adult activities, were found to be less inquisitive and engaged in less elaborated talk with adults than middle-class children. In this case, the middle-class pattern of interaction has a clear advantage for children at school.

Explicit knowledge of the ZPD is important in developed countries, where children are isolated from adult activities. Curricula are devised by experts largely removed from contact with children. It is especially pertinent as an alternative to the emphasis on testing currently dominating schooling in the USA (see Kritt, 2011). Instead of drill and practice teaching-to-the-test that yields a numerical summary of performance (for purposes of comparison to a group, prior performance, or normative standards), its primary objective is contributing to a child's intellectual development.

Formal instruction and the trajectory of cognitive development

A more complete understanding of a child's current functioning requires an understanding of both the origins of current performance and the trajectory of where development is headed. Spontaneous understandings are acquired very early through personal experience and simple social interactions (Vygotsky, 1934/1987). This thought is functional, sufficient for doing specific things in daily life. Accordingly, young

children think in a situational way that is inflexible. Things that occur together in the child's experience are remembered, and these groupings are defined by visual similarities, not by linguistic categories and distinctions. When they begin to group objects, it is not systematic: first it focuses on one attribute, then on another. In late preschool and early elementary grades, children tend to make collections in a haphazard way. Let's say a child selects a green feather, followed by a red one, next a red apple, and then a blue ball. The connections between items make sense when we take them in that order, but there is no coherence to the group, which is based on appearances and practical experience rather than words and logic.

While young children do not make the distinctions that adults do, it is often difficult to get a student to replace what works perfectly well in everyday life with abstract conceptualisations. During the early years of schooling children are first introduced to what Vygotsky (1934/1987) called 'scientific' concepts, which are part of a formalised system. This is thought divorced from practical experience, flexible and generalisable to many situations. Emotional involvement is removed from deliberation. By adolescence, the student isolates attributes and can consistently use them to form categories. These categories are organised by abstract relations between things, not concrete or functional properties. A category has a lot of coherence and its relation to other categories can be well defined and, often, is implied. We can group things in one way, then in another, and then in another. We could divide up everybody in a room by gender, then by height, then by eye color, then by who is a vegetarian, and so on. Sometimes a person might end up in one group and sometimes in another.

The requirement of adhering to the rules of a rational system is more likely to appear in school than in most real-life situations. Consider the problem: John has three apples and Mary has two apples – how many do they have in all? Children in the early grades might get distracted by surface appearances like the size, and the taste of the apples. By the time children are approximately 7 years and older, they should begin to be able to use logical

rules without regard to specific content, ignoring all of the things that provide texture to real-life experiences. A schooled person approaches a problem by isolating essential aspects of the situation.

Schoolchildren with parents who are not literate may be especially resistant to using this sort of thinking. A favoured method to bridge this gap is the use of manipulatives (for example using buttons as counters) to help a student solve problems by providing a concrete referent or analogue to the abstract problem. But manipulatives are not used spontaneously; the teacher usually has to suggest their use and sometimes how to use them. And even if the student can perform the task with them, it does not necessarily mean that moving on to abstract problem solving in their absence is an automatic next step.

Practical activity and theoretical analysis might be compatible in some situations, but the emphasis in school-like tasks is on putting aside personal experience, which is difficult to do. It is possible that even students who are smart enough simply shut down when confronted with a situation like that. This helps explain why so few students go on to take Maths beyond the basic minimum. When a person's problem solving can no longer rely on specific content, it can lose its relation to everyday reality. In his historic study of unschooled adults in remote rural areas, Luria (1976) noted that sometimes individuals respond that they can use a suggested category system when directed to do so, but do not because it is not meaningful to them.

New conceptual tools such as set theory and algebraic equations facilitate more complex mathematical thinking. Similarly, biological classifications allow us to get beyond surface similarities to make new kinds of distinctions between animals. But these new ways of thinking are not immediately appealing. The teacher must figure out how to make the new way of understanding important to students. Optimally, the child will confront real problems where the older ways of thinking are insufficient and it becomes apparent that the new ways are useful.

Further considerations

Vygotsky's insights into learning and culture are provocative. They suggest new ways of working with children, but cannot be used in a formulaic way. Adults must be sensitive to the child's needs, what children can do and understand, and what they might be able to achieve with focused guidance. For most parents and teachers, simply reading about co-construction and the Zone of Proximal Development cannot be expected to change their practice. They too require guidance in using new ways of interacting with the children in their care.

References

- Heath, S.B. (1983). *Ways with Words: Language, life, and work in communities and classrooms*. Cambridge: Cambridge University Press.
- Kritt, D. (2011). Accountability to whom? Testing and social justice. A response to 'Imagining No Child Left Behind freed from neoliberal highjackers'. *Democracy and Education* 19(2): article 7. Available at <http://democracyeducationjournal.org/home/vol19/iss2/7> (accessed May 2013).
- Langer, E. (1997). *The Power of Mindful Learning*. Cambridge, MA: Perseus Publishing.
- Luria, A.R. (1976). *Cognitive Development: Its cultural and social foundations*. Cambridge, MA: Harvard University Press.
- Piaget, J. (1952/1963). *The Origins of Intelligence in Children*. New York, NY: W.W. Norton.
- Rogoff, B., Mistry, J., Goncu, A. and Mosier, C. (1993). Guided participation in cultural activity by toddlers and caregivers. *Monographs of the Society for Research in Child Development* 58(8): 1-179.
- Stern, D. (1977/2002). *The First Relationship: Infant and mother*. Cambridge, MA: Harvard University Press.
- Vygotsky, L.S. (1934/1987). Thinking and speech. In: Rieber, R.W. and Carton, A.S. (eds) *The Collected Works of L.S. Vygotsky: Vol. 1. Problems of general psychology*. New York, NY: Plenum.
- Vygotsky, L.S. (1978). *Mind in Society*. Cambridge, MA: Harvard University Press.

Health for learning: the Care for Child Development package

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Intersectoral collaboration is essential for reaching young children, with the health sector typically being best positioned to deliver interventions that can promote early learning among the 0–3 years age group. In this article, the authors introduce the World Health Organization and UNICEF Care for Child Development package, an evidence-based set of materials to help health sector workers to support caregivers in improving the sensitivity, responsiveness and psychosocial stimulation of their children.

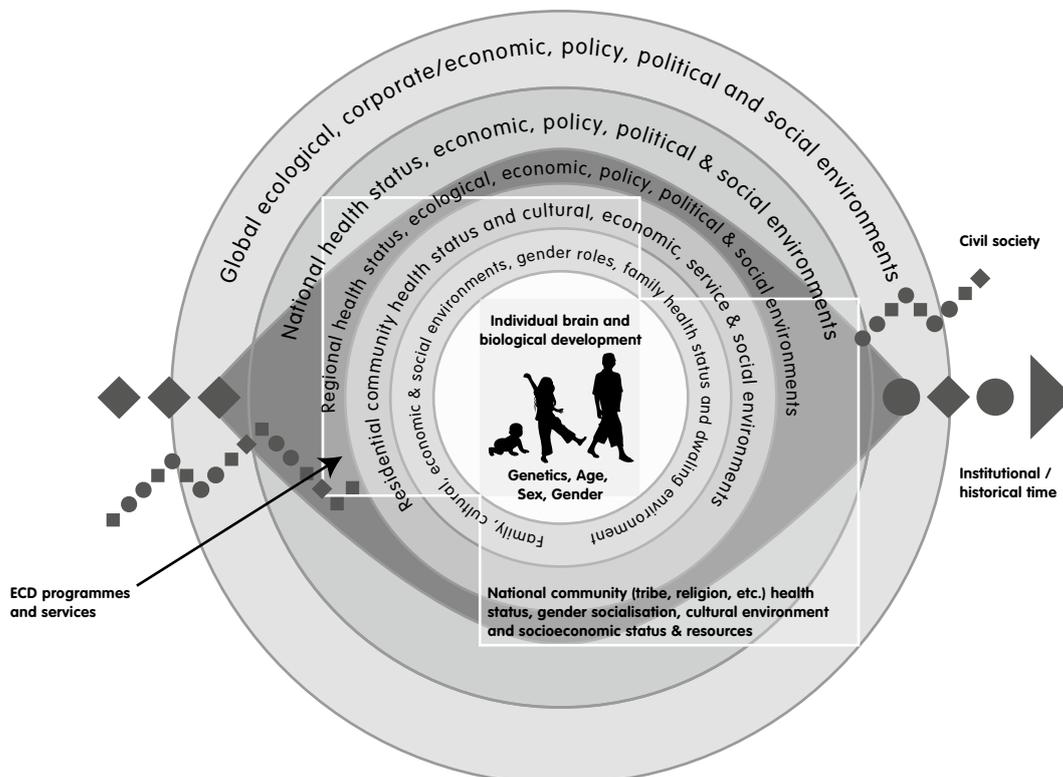
At the beginning of a new millennium, world leaders made commitments to improve the life of poor people around the world in the course of one generation, from 1990 to 2015. The United Nations (UN) Millennium Development Goals include quantitative targets to improve results in poverty reduction, health, education, gender equality and the protection of the environment (WHO, online a). A necessity to achieve these goals is

intersectoral collaboration – the health goals cannot be achieved without inputs from other sectors.

In the past two decades, progress has been made in improving child survival, and child mortality (under 5 years) has gone down from 12 million in 1990 to 6.9 million in 2011 (WHO, online b). However, more than 200 million children under 5 worldwide do not reach their full developmental potential. Most of these children live in sub-Saharan Africa and South Asia (Grantham-McGregor *et al.*, 2007).

Early environments are powerful determinants of how well a child develops, and can influence long-term health, learning and behavioural trajectories. The environmental factors that influence a young child’s development may be proximal (such as families’ economies), or distal (for example, the ecological and political environment). Figure 1 shows a variety of factors influencing development in early childhood.

Figure 1 Interacting and interdependent spheres of influence for development in early childhood



Source: Irwin *et al.*, 2007; WHO, forthcoming a

Programmes for disadvantaged children that are introduced during early childhood are found to have a greater impact than those introduced at a later stage (Engle *et al.*, 2007). Whereas there is a clear recognition that the education sector plays an important role in early child development, it is the health sector that uniquely interacts with children under the age of 3 and their families. In most countries, the healthcare system is the only system that potentially can reach all young children and their families. Families and communities generally have trust in and contact with the healthcare system, especially in early years (WHO, 2012a).

The health sector is well placed to influence a range of both proximal and distal factors that affect child development, such as the quality of interaction between the parent and child; the opportunities for early stimulation; the home and community environment; and the national policy on early childhood care that will impact on the quality of day care exposure a child may receive. The health sector works through several mechanisms, including primary healthcare services, home visiting services, and other community activities and services, all of which are important in improving learning and development in the child.

Interventions influencing child development

A life course approach is essential to give young children the best start in life and unleash their full development potential. At one end of the spectrum, the physiology of foetal growth and factors influencing the embryonic, foetal and postnatal growth trajectory are being uncovered. At the other end, the long-term effects of investing in early childhood development are increasingly becoming clear. Studies have shown that disadvantaged children are likely to do poorly in school and subsequently have low incomes, high fertility, and provide poor care for their children, thus contributing to the intergenerational transmission of poverty (Grantham-McGregor *et al.*, 2007).

Interventions across the life course influence early child development; however, there are two critical windows for intervening: the period of adolescence and

preconception care, and the period from prenatal care to when the child is 3 years of age.

Adolescence is a period in which puberty and brain maturation lead to a new set of behaviours and capacities. These can modify developmental trajectories towards health and well-being. Furthermore, adolescents are potentially powerful agents of personal change and community action (WHO, forthcoming a). Adolescents, women and men should receive preconception care interventions with the aim of improving health and reducing the factors that can contribute to poor maternal and child health outcomes (WHO, 2013).

During early childhood years, a safe and stable environment, good health, adequate nutrition, responsive caregiving, opportunities for emotional connections and attachment, and stimulation (opportunities to learn) are important to ensure healthy development in the child. In these years, it is important also to address maternal mental health, as this influences the quality of caregiver–child interaction. Maternal depression, including in settings where HIV is prevalent, puts children at special risk of deprivation and inadequate stimulation. In return, interventions to support care for child development positively impact on the caregiver’s mental health and well-being (Engle *et al.*, 2007).

The health sector plays an important role in delivering effective interventions across these windows of opportunity and through a continuum of care, as illustrated in Box 1.

Intervention programmes can be delivered vertically, or be integrated into current existing health systems. The interventions can be centre-based, clinic-based, delivered through home visiting or at preschools and schools. Home- or health centre-based intervention programmes providing guidance, education or care with regular frequency have been shown to be effective. The delivery of various interventions together has proved to have greater effect than when they are delivered alone. In relation to the various delivery mechanisms, the

interventions can be delivered by various groups, such as early child development workers, health workers, community health workers, peers and teachers.

The WHO and UNICEF are two UN organisations with a long history of working in the area of early child development. Some of the intervention packages and programmes developed by these organisations are mentioned below.

Box 1 Interventions with an impact on early child development delivered through the health sector

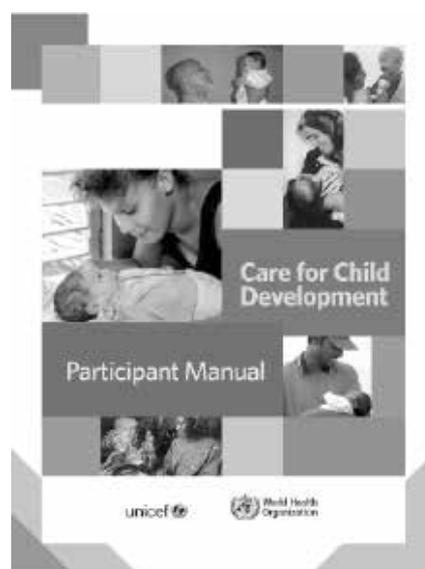
The health sector plays an important role in early child development

- *Adolescence and pre-conception*: interventions to adopt healthy lifestyles and prepare for parenthood in adolescents; interventions to prevent maternal mortality and morbidity (e.g. pre-eclampsia, gestational diabetes) and prevent childhood mortality and morbidity (e.g. birth defects) (WHO, 2013)
- *Prenatal and perinatal*: interventions to prevent poor pregnancy and birth outcomes (e.g. pre-term birth, congenital defects), optimise the course of pregnancy (e.g. management of anaemia, diet, weight gain), and promote maternal well-being and mental health
- *0-3 years*: interventions to promote responsive care and early stimulation; support optimal infant and young child feeding practices (including responsive feeding); prevent and manage childhood illnesses in a timely manner; detect developmental delays and provide remedial support; and support maternal mental health.
- *3+ years*: interventions to support transition to school (e.g. early school readiness programmes), and learning in safe and supportive preschools/primary schools.

Source: WHO, forthcoming a

Care for Child Development

The Care for Child Development package (WHO, 2012b) is an evidence-based set of materials developed by WHO and UNICEF, complementing the traditional package of child survival interventions. The intervention is based on the best available evidence of psychosocial stimulation and caregiver-child interaction. It is meant to guide health workers and other counsellors in supporting families to build stronger relationships with their children. The intervention can be used by health and community workers to provide age-appropriate guidance to caregivers of young children for stimulating cognitive, language and social-emotional development through play and communication. Ultimately, the intervention contributes to psychosocial stimulation in the child, and caregiver sensitivity and responsiveness.



The Care for Child Development package provides guidance to caregivers at various stages in the child's life, from the newborn period up to 3 years. The package includes guidance on stimulation, advice on what to do if the household lacks toys, and guidance on how to deal with cases of maternal stress or where caregivers have little time for interaction with the child. The skills taught affect multiple caregiving practices including infant and young child feeding, protecting a child from imminent harm, and recognising and seeking care when the child is sick.

Recommendations for Care for Child Development

Newborn Birth up to 1 week	1 week up to 6 months	6 months up to 9 months	9 months up to 12 months	12 months up to 2 years	2 years and older
<p>Your baby learns from birth</p>  <p>PLAY Provide ways for your baby to see, hear, move arms and legs freely, and touch you. Gently soothe, stroke and hold your child. Skin to skin is good.</p>  <p>COMMUNICATE Look into baby's eyes and talk to your baby. When you are breastfeeding is a good time. Even a newborn baby sees your face and hears your voice.</p>	 <p>PLAY Provide ways for your child to see, hear, feel, move freely, and touch you. Slowly move colourful things for your child to see and reach for. Sample toys: shaker rattle, big ring on a string.</p>  <p>COMMUNICATE Smile and laugh with your child. Talk to your child. Get a conversation going by copying your child's sounds or gestures.</p>	 <p>PLAY Give your child clean, safe household things to handle, bang, and drop. Sample toys: containers with lids, metal pot and spoon.</p>  <p>COMMUNICATE Respond to your child's sounds and interests. Call the child's name, and see your child respond.</p>	 <p>PLAY Hide a child's favourite toy under a cloth or box. See if the child can find it. Play peek-a-boo.</p>  <p>COMMUNICATE Tell your child the names of things and people. Show your child how to say things with hands, like 'bye bye'. Sample toy: doll with face.</p>	 <p>PLAY Give your child things to stack up, and to put into containers and take out. Sample toys: Nesting and stacking objects, container and clothes clips.</p>  <p>COMMUNICATE Ask your child simple questions. Respond to your child's attempts to talk. Show and talk about nature, pictures and things.</p>	 <p>PLAY Help your child count, name and compare things. Make simple toys for your child. Sample toys: Objects of different colours and shapes to sort, stick or chalk board, puzzle.</p>  <p>COMMUNICATE Encourage your child to talk and answer your child's questions. Teach your child stories, songs and games. Talk about pictures or books. Sample toy: book with pictures.</p>
<p>◆ Give your child affection and show your love ◆ Be aware of your child's interests and respond to them ◆ Praise your child for trying to learn new skills</p>					

The Care for Child Development intervention is particularly effective in combination with counselling on infant and young child feeding (WHO, 1999, 2004) To increase access to essential health services and meet demands of countries for materials to train community health workers, the Care for Child Development materials have been adapted and included in the training course entitled Caring for the Child's Healthy Growth and Development (WHO, forthcoming b). This course is for community health workers and is designed to build their skills to support integrated childcare in the community (WHO, 2012c). The course builds knowledge and skills for counselling on breastfeeding and complementary feeding; play and communication; prevention of childhood illnesses and injury; and recognising the signs of illness and when it is needed to take sick children to a health facility for care. The materials promote regular home visits in the first

year of a child's life, as a continuation of Caring for the Newborn at Home (WHO, 2012d), a training course promoting home visits during pregnancy and after childbirth.

WHO is working to improve early child development

In order to respond to the need for action, WHO is intensifying its work in the area of early child development (Chan, 2013). In January 2013, WHO convened a global consultation bringing together participants from a range of disciplines that are concerned with development across the life course. The key messages from the meeting were:

- Determinants resulting in adversities in early childhood are across multiple areas and sectors – such as inadequate nutrition, frequent illness, lack of care and stimulation, poverty, poor environment, poor parental education, violence and conflict.

- To move towards sustainable development and social equity, the child survival and child development agendas need to be intertwined.
- Optimising child development requires a life-course approach with interventions during adolescence, pregnancy and childbirth, the newborn period and early childhood especially up to 3 years of age. The health sector thus has a vital role to play.
- Intersectoral collaboration, across primary health care, social sectors, nutrition, education and environmental programmes, is crucial.
- Tools are available and experience from large-scale programmes in high-income countries provide important translational lessons for scaling-up similar programmes in low- and middle-income countries.
- Large number of partners and governments are committed to enabling children to thrive.
- It is therefore imperative that all stakeholders work together to advance the early child development agenda and help children get a best start in life and unleash their full development potential. (WHO, forthcoming a)

Conclusion

The healthcare system has a unique role in fostering early child development as it is the system that first establishes contact with families. It is an important complement to the education sector and has a key role in stimulating and developing learning in children. Health services provide a unique platform to provide essential interventions, starting early in the child's life and even before that, in adolescence and the pre-conception period. The health system can also serve as a gateway to other early childhood services. Intersectoral collaboration, across primary health care, social sectors, nutrition, environmental programmes, as well as with the education sector, is crucial in order to address the needs of children and reverse the burden of 200 million children who as yet are unable to reach their full developmental potential each year.

References

- Chan, M. (2013). Linking child survival and child development for health, equity, and sustainable development. *Lancet* 381: 1514–15.
- Engle, P.L., Black, M.M., Behrman, J.R., Cabral de Mello, M., Gertler, P.J., Kapiriri, L. *et al.* (2007). Strategies to avoid the loss of development potential in more than 200 million children in the developing world. *Lancet*, 369: 229–42.
- Grantham-McGregor, S., Cheung, Y.B., Cueto, S., Glewwe, P., Richter, L., Strupp, B. and International Child Development Steering Group. (2007). Developmental potential in the first 5 years for children in developing countries. *Lancet* 369: 60–70.
- Irwin, L.G., Siddiqui, A. and Hertzman, C. (2007). *Early Child Development: A powerful equalizer*. Geneva: WHO.
- World Health Organization. (1999). *A Critical Link: Interventions for physical growth and psychological development. A review*. Geneva: WHO.
- World Health Organization (2004). *The Importance of Caregiver–child Interactions for the Survival and Healthy Development of Young Children. A review*. Geneva: WHO.
- World Health Organization. (2012a). *Developmental Difficulties in Early Childhood – Prevention, early identification, assessment and intervention in low-and middle-income countries. A review*. Geneva: WHO.
- World Health Organization. (2012b). *Care for Child Development: Improving the care for young children*, materials package. Available at: http://www.who.int/maternal_child_adolescent/documents/care_child_development/en/index.html (accessed April 2013).
- World Health Organization. (2012c). *Caring for Newborns and Children in the Community: The three-part training package for community health workers*. Available at: http://www.who.int/maternal_child_adolescent/documents/caring_newborn_child_in_community_flyer.pdf (accessed May 2013)
- World Health Organization (2012d). *Caring for the Newborn at Home*, materials package. Geneva: WHO. Available at: http://www.who.int/maternal_child_adolescent/documents/caring_for_newborn/en/ (accessed April 2013).
- World Health Organization. (2013). *Meeting to Develop Global Consensus on Preconception Care to Reduce Maternal and Childhood Mortality and Morbidity*, report of meeting on 6–7 February 2012. Geneva: WHO.
- World Health Organization. (forthcoming a). *Nurturing Human Capital along the Life Course: Investing in Early Childhood Development*, report of meeting on 10–11 January 2013. Geneva: WHO.
- World Health Organization. (forthcoming b). *Caring for the Healthy Child's Growth and Development*, materials package. Geneva: WHO.
- World Health Organization. (online a). *Health Topics – Millennium Development Goals*. Available at: http://www.who.int/topics/millennium_development_goals/en/ (accessed April 2013).
- World Health Organization. (online b). *Programmes and projects – Global Health Observatory*. Available at: http://www.who.int/gho/child_health/mortality/mortality_under_five_text/en/ (accessed April 2013).

Note

- 1 WHO disclaimer: The authors (Charlotte Sigurdson Christiansen, Chiara Servili, Tarun Dua and Bernadette Daelmans) are staff members of the World Health Organization. The authors alone are responsible for the views expressed in this publication and they do not necessarily represent the decisions, policy, or views of the World Health Organization.

Regional Project on Child Development Indicators (PRIDI): processes, results, and challenges to date

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The Regional Project on Child Development Indicators, or PRIDI (*Programa Regional de Indicadores de Desarrollo Infantil*), is currently collecting data on child development outcomes in Costa Rica, Nicaragua, Paraguay and Peru. It is the first international study of its kind, seeking to generate high-quality and regionally comparable data which currently do not exist. Results are expected to be published in 2014. This article summarises the processes and results to date.¹

PRIDI was launched in 2009 with the aim of generating high-quality data on child development that are comparable across countries. These data will allow countries to identify gaps in child development among populations and areas, and to plan to mitigate them. PRIDI collects data on cognition, language, motor skills, and socio-emotional development, evaluating children between 2 years and 4 years 11 months in their homes. It is not a screening instrument.

A division is made within that age range, with one set of instruments for children aged 2 to 3.5 years and another for children aged 3.5 to 4 years 11 months. Children under 2 are excluded because it would require greater levels of training of enumerators than the budget could accommodate at scale; children aged 5 or older are excluded because the effects of formal schooling would be hard to control for. The final samples will include at least 2000 randomly selected children who are nationally representative including, for example, indigenous children.

The PRIDI Conceptual Framework defines child development as:

An integral process which includes not only verbal skills and knowledge and intellect, but also social skills and motor development, and strategies for learning, such as attention and inhibition of impulsive behaviours, as well as basic notions of health and nutrition. It is the process through which a child is prepared for new levels of responsibility and progressively gains new levels of autonomy.

(Inter-American Development Bank, 2011)

Participating countries were already measuring child development outcomes, using existing scales such as the *Escala Abreviada de Nelson Ortiz* and *Escala de Desarrollo Integral del Niño*. Many of these scales, however, were outdated. The PRIDI team therefore decided to develop a new test, building on existing national measures and international surveys (such as Woodcock-Muñoz, Denver and Multiple Indicator Cluster Surveys (MICS)).

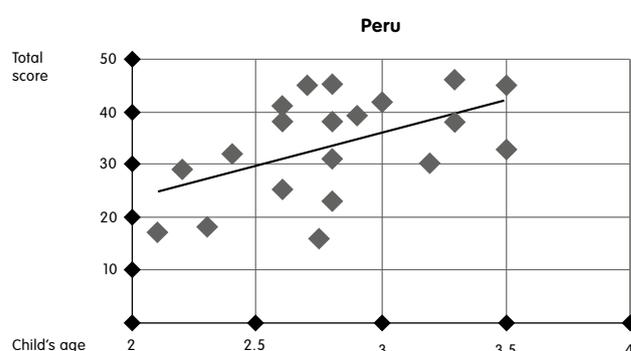
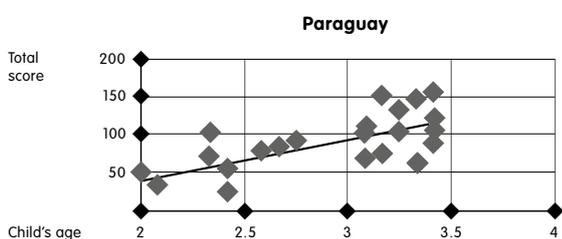
This process requires attention to the smallest details. It took over a year to map the factors PRIDI seeks to measure against possible candidates for measuring them, and then to design and validate an initial set of development scales and surveys of the home environment. The design accounted for the fact that observation may be sufficient to evaluate a given developmental outcome in older children, while in younger children a response from the mother or caregiver may also be needed. In terms of instrument design, the first example (observation of a child) is included in a scale; the second (response from a mother/caregiver) is in a survey.

Two surveys of associated factors were also developed. One captures characteristics of the household that are known to influence child development. The other includes the mother's (or caregiver's) responses for items such as the child's socio-emotional state, attendance in preschool, and disciplinary methods used in the home.

Phase I: Piloting on small groups

A three-phase plan was laid out. The objective of Phase I was to observe the functionality of the PRIDI instrument when administered to a small sample of children in two countries. The PRIDI team asked Peru and Paraguay to create a small, non-randomised sample that over-sampled indigenous children and included children in both age cohorts in urban, rural and indigenous areas. In Paraguay, the sample consisted of 50 children; in Peru, of 41 children. Each country could modify the instruments used to measure each competency, and include additional items (for example, Paraguay added items on musicality), but could not eliminate any activities from the evaluation scales.

Figure 1 Scores for children aged 2 to 3.5 years



Source: authors

The PRIDI team deliberately chose to keep each scale long, to identify the specific questions within the survey and evaluation scale that best captured the desired information. In Paraguay, the scale for children in the younger age group included 105 items, and for children in the older age group it included 99 items. In Peru, those figures were 33 and 36 respectively. PRIDI trained teams of consultants in both countries, including Guaraní speakers in Paraguay and Quechua speakers in Peru.

In general, results were encouraging. Among children in the younger age group, the items were functioning as expected based on the literature. Scores were evenly distributed and strongly correlated with age, thus creating a base and ceiling for the scale.

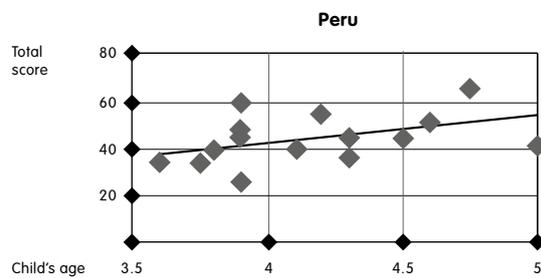
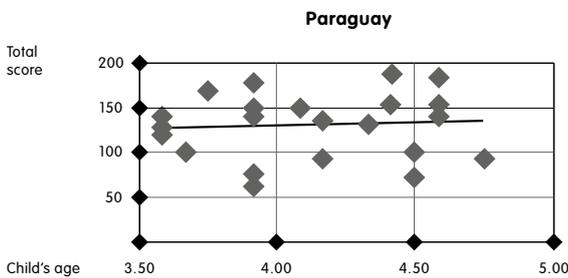
It was expected that a strong correlation would emerge between each child's score and the average level of education of all adults living in the household. This was

the case in Paraguay, but not in Peru – although this is probably explained by the small sample size and the over-sampling in indigenous areas, reducing variation in the levels of education within the sample.

In general, the scores of indigenous children were considerably lower than the scores of urban or rural children. This outcome was also consistent with expectations, but the magnitude of the disparity suggests the need to ensure that the instruments are appropriate to indigenous children and not underestimating their abilities. For example, field reports indicated that, in indigenous populations, some children did not know what 'shoulders' were, but could identify all other body parts.

The results for children in the older age group were different in important ways, primarily in the lack of variation in the distribution of scores. In Paraguay, the correlation between age and scores is essentially flat.

Figure 2 Scores for children aged 3.5 years to 4 years 11 months



Source: authors

That most children completed all tasks successfully suggests that there were too few difficult tasks. These results pointed to the need to revise the scale.

In general, the surveys for the child and household functioned largely as anticipated. In both countries, children in rural areas received higher scores than children in urban areas on a number of items (for example: the child worries if someone is crying; if the child is doing something and makes a mistake, he or she persists and keeps on trying without getting frustrated or angry; the child can play for 15 minutes or more without requiring the attention of an adult).

Feedback from enumerators indicated that too much time was required to complete the surveys. The application of the development scales ran anywhere from 20 to 55 minutes; the surveys required anywhere from 9 to 40 minutes. It often required two or three visits to the same home to apply the complete set of instruments,

which created some logistical difficulties. More importantly, many children seemed to be fatigued by the end of the test or got bored during it, which influenced their performance on later tasks.

The pilot revealed important issues that needed to be dealt with in the training of enumerators. One issue was the difficulty of finding suitable spaces for the evaluation of the children, away from siblings or adults who tried to help them come up with the right response. Another was that the children were interested in the whole kit of materials, and insisted in knowing 'what else' the enumerator had with her, forcing enumerators to reveal objects before using them in the evaluation.

Phase I also served to inform the PRIDI team about the appropriateness of the materials used for applying the development scales. For example, some of the drawings used to describe sequences on both scales appeared to confuse children, and not all children could name

objects that were assumed to be 'daily use' items across the board. In the latter case, it was impossible to know whether the lack of identification stemmed from a lack of vocabulary or from simply not knowing what the object was.

On the basis of results from Phase I, both instruments were shortened and the one for older children almost completely revised, with items modified to increase difficulty. For example, in Phase I, a child was asked to count to five; in the revised version the task is to count as high as 20. In Phase I, a child was asked to differentiate between above and below, and in front of and behind; in the revised version, he or she was also asked to differentiate between right and left.

The revised scales were applied to a further sample of 12 children in Cusco, Peru, and, as expected, displayed much more variation in results, while the average application time for scales and surveys combined was reduced. With these results, the PRIDI team felt confident in moving forward to the second phase: validation on samples of 200 children in each of four countries.

Phase II: Validation

A meeting of national coordinators and the PRIDI team in November 2011 approved the scales and surveys for application in Phase II. The International Association for Educational Achievement, which provided technical assistance to PRIDI, returned to Lima in January 2012 to give a training seminar to country data managers on the use of the software it had developed for the entry and management of data. The PRIDI team provided training on the application of the internationally normed Peabody Picture Vocabulary Test (*Test de Vocabulario en Imágenes Peabody*, TVIP), which would also be applied in Phase II to validate the PRIDI instruments by checking that the results bore an association. The team distributed a training manual and DVD and a detailed curriculum for the training of enumerators.

Each country was asked to adapt the instruments for idiomatic expressions or language (for example, using

media instead of *calcetín* (sock) in the case of Nicaragua) without changing the substance or intent of the item. The cultural adaptation of items is important to ensure that all children have an equal opportunity to show what they know and are capable of doing, as is the consistent application of items. How an item is applied has a direct relationship with what a child does in response to a given prompt.

In Nicaragua, Paraguay and Peru the local team met with representatives of indigenous people to collect qualitative information on the daily routines of children aged 2 to 5 in indigenous areas. Enumerators were trained who spoke Guaraní (Paraguay), Miskito (Nicaragua) and Quechua (Peru), and instruments were translated. Samples of 200 children were chosen, stratified by urban/rural, level of mother's education and – in the cases of Nicaragua and Peru – indigenous and non-indigenous.

'The PRIDI team asked to create a small, non-randomised sample that over-sampled indigenous children and included children in both age cohorts in urban, rural and indigenous areas.'

Results from Phase II were presented in San José, Costa Rica, in January of 2013 to the country coordinators and representatives from each of the national firms responsible for the field work. This included more and more sophisticated analyses of the data than in Phase I. For each item on each scale, Rasch model and item response theory analyses were undertaken by item by country, and by item across countries, to examine variability and validation. Items displaying low variation were dropped, as were those that appeared too hard or easy. From these 'reduced scales' (21 items for the younger group and 22 for the older group), factor analyses were undertaken to ensure that items theoretically mapped onto each domain actually did hang together in an empirical analysis.

Several additional analyses were undertaken to ensure the validity of the instruments, including plotting the distributions of responses for each domain (area), and regressing results of each domain by age, level of education, access to services and other factors that the literature identifies as important correlates of ECD; correlations with the TVIP and height-for-age data were strong. These analyses provided an empirical basis upon which to streamline the instruments and to ensure their validity.

Alpha reliability scores, which measure internal consistency, for each domain were acceptably high, ranging from .55 to .78. For example, reducing the socio-emotional scale from 27 to 16 items increased the reliability coefficient to .74. Cognition among young children is Normally distributed and correlates well with the age of the child and the level of maternal education. The same occurs for motor skills and language. Similar trends emerge in the older group, albeit to a slightly lesser magnitude.

'In general, the surveys for the child and household functioned largely as anticipated. Both in Peru and Paraguay, children in rural areas received higher scores than children in urban areas on a number of items.'

Phase III: Data collection

Results from Phase II again showed that the time needed to administer all components – the scales, surveys, TVIP, and height-for-age – continued to be an issue. Average application time again proved to be too long, ranging from up to 90 minutes for younger children to up to 120 minutes for the older age group. More comprehensive training of enumerators could increase their efficiency, but the main technique to decrease the time needed is to shorten the components of the instrument.

As well as the dropping of items described above, the surveys for the child and family were both considerably shortened and consolidated into a single survey, with changes in formatting introduced to facilitate more efficient scoring of items. This streamlining significantly reduced the time required. Field testing early in 2013 of the reduced and final versions indicates that application time ranges between about 30 and 40 minutes.

Phase III is now underway, with data from 2000 children in each country being collected and analysed over the course of 2013. The scales have been formally named the Engle Scales of Child Development (*las Escalas Engle de Desarrollo Infantil*) in memory and appreciation of Patrice Engle who passed away in September of 2012. Final results will be presented in the first quarter of 2014.

Reference

Equipo Gerencial del PRIDI. (2011). *Programa Regional de Indicadores de Desarrollo Infantil (PRIDI): Marco conceptual*. Washington, DC: Inter-American Development Bank. Available at: <http://iadb.org/es/publicaciones/detalle,7101.html?id=31906&dclanguage=es&dctype=All> (accessed April 2013).

Note

¹ The ministries with lead responsibility for young children in Costa Rica, Nicaragua, Paraguay and Peru are working on PRIDI with the Inter-American Development Bank's education division, a management team of experts led by Patrice Engle (Cal Poly University, USA; UNICEF) and Santiago Cueto (GRADE, Peru), and with technical assistance from the International Association for Educational Achievement on issues such as sampling and data collection.

The need to have a legal framework for the early years: an interview with Osmar Terra

Osmar Terra is a political leader in early childhood in Brazil. A paediatrician, he is now President of the Parliamentary Front for Early Childhood in the National Congress of Brazil. When serving as the Secretary for Health in the state of Rio Grande do Sul, he created and implemented the *Primeira Infância Melhor* (PIM) (Better Early Childhood) programme, which provides home visiting services at scale. Here he talks to *Early Childhood Matters* about promoting support for early learning on a national scale.

You are kindly taking time out from the Seminário Internacional Marco Legal da Primeira Infância (International Seminar on a Legal Framework for Early Childhood) to speak to us. Can you tell us about what you're hoping the seminar will achieve?

Since the early 1990s, Brazil has had a specific law about children and adolescents, the *Estatuto da Criança e do Adolescente*. It was one of the first countries to build a legislative framework on the principles of the United Nations Convention on the Rights of the Child. But in the two decades since then, our scientific understanding of the importance of early childhood has advanced dramatically, and existing laws have not changed to keep pace. So we are seeking to create a new legal framework in Brazil to address young children – a framework that can guide municipalities and states in improving the quality of children's first years.

The Chair of the Parliamentary Congress, Henrique Eduardo Alves, has announced the creation of a special commission to work on this new legal framework. The objective of the seminar is to agree on a proposal for the commission to evaluate, taking into account experiences from different parts of Brazil, across Latin America and around the world.

There seems to be a lot of momentum around the early years in Brazil at present.

There is. The President, Dilma Rousseff, has created a national programme called *Brasil Carinhoso* ('Loving Brazil'), which is already reaching millions of the most disadvantaged families with financial support. In

addition, 8000 new kindergartens are being created across the country, with support for municipalities to build and equip the centres and cover personnel costs.

The President often talks about the importance of early childhood; perhaps she is inspired by having a very young grandson herself. So we have an opportunity to move forward with improving care and early stimulation by establishing home visiting programmes like PIM, which we implemented in Rio Grande do Sul, on a national scale.

Tell us about PIM.

PIM was inspired by a few home visiting programmes in other countries, among them the *Educa a tu Hijo* programme in Cuba. At PIM, each home visitor is in charge of 25 families – including those with pregnant women or children aged 0–6 years – and visits five families per day, so every family is visited once a week until the child is 6 years old. The home visitors must have completed high school, and are specifically trained in the skills and competences they require; most are primary school teachers. Their role is to educate families to care for their children better, and to serve as a link between the families and the social services available to them. It's a decentralised programme: the state coordinates, and the municipality implements.

We created PIM 10 years ago, and it has reached over 60% of the poorest families in the state – that's over 100,000 children. It has also inspired other programmes in other areas of the country, including Rio de Janeiro and some municipalities of São Paulo. The national Ministry of Health considers PIM as a model for activities that it is planning to implement within *Brasil Carinhoso*.

During those 10 years, the programme has survived three changes of government in the state. This is a sign of political sustainability, as is the fact that the programme remains widely popular – although there is always a risk of interruption, which is why I would still prefer a federal law to be created, to guarantee the sustainability of these programmes where they exist,



'We are seeking to create a new legal framework in Brazil to address young children – a framework that can guide municipalities and states in improving the quality of children's first years.' – Osmar Terra. Photo • Courtesy International Seminar on a Legal Framework for Early Childhood

and to expand them into municipalities where they do not yet exist.

What are PIM's main achievements, and its most important success factors?

PIM has undergone a randomised evaluation, and among the findings were that children who participated for more than 2 years started primary school with a broader vocabulary than a control group of non-participants. Even more important, in my view, as it is a basis for all future learning, is how PIM promotes the socio-emotional development of children – when young children interact well with their caregivers, they will be self-confident and ready to explore the world.

As for success factors, any early childhood programme depends on the quality of human resources. We need more specialised early years professionals, properly educated and with formally recognised qualifications. That is one of the aims of the bill we are working on.

What are the most important strategies in moving the early learning agenda forward politically?

It is important to demonstrate the importance of the issue to political leaders. Once they are confronted with the science and the evidence, it is difficult for them to avoid considering it. For example, we organised for the Ministers of Education, Health and Social Development to meet with James Heckman, the Nobel-prizewinning

economist who has done much work on the costs and benefits of early childhood programmes, and other researchers. We can already see that this meeting has had positive effects on the way these ministers talk about early childhood.

At the moment, there are 22 members of the Brazilian parliament who have taken a short course at Harvard on early childhood. They are drawn from a range of political parties. Building the capacity of a critical mass of influential people is critical, in my view, to having the ability to influence policy.

There are other factors. Brazil is a big country, and quick progress depends on collaboration from all sectors. One of the debate sessions during the seminar, for example, featured entrepreneurs discussing what role they can play in the development of policies to support families. It's important to keep a dialogue flowing naturally among the government, the private sector, international organisations and foundations. It's also crucial to know how to handle the media, which play a key role in spreading the message and building public support.

What are the chances of getting the new statute passed?

I am very confident that, by the end of this year, we will have succeeded. Brazil will have a solid body of forward-looking laws on early childhood that can serve as a lead and inspiration for other Latin American countries.

Enriching the home environment of low-income families in Colombia: a strategy to promote child development at scale

Orazio Attanasio, Professor of Economics, and Sally Grantham-McGregor, Emeritus Professor of International Child Health, University College London, UK; Camila Fernández, Survey Researcher, Center for International Policy Research and Evaluation, Mathematica Policy Research, Princeton, USA; Emla Fitzsimons, Co-Director, and Marta Rubio-Codina, Senior Research Economist, Centre for Evaluation of Development Policy, Institute for Fiscal Studies, London, UK; Costas Meghir, Professor of Economics, Yale University, New Haven, USA

This article outlines how a home visiting intervention in Colombia, delivered at scale through partnering with existing social welfare systems, successfully increased the variety of play materials and play activities in poor households with children aged between 1 and 2 years at the start of the intervention. It explains how these factors, among others which are generally associated with household wealth, are correlated with differences in early learning that are likely to persist into adulthood.

Early experiences of socio-economic adversity, poor nutrition and deprived home environments contribute to disparities in children’s development and their potential lifelong achievement. In Colombia, as in many other low- and middle-income countries, children growing up in socio-economically disadvantaged households show lags in development, as compared to children growing up in more advantaged socio-economic conditions.

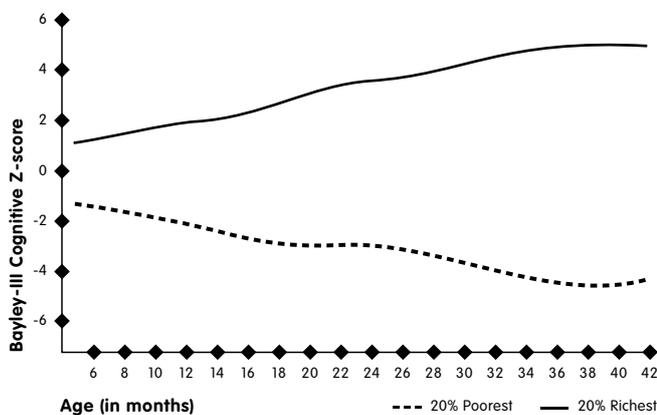
Some aspects of development, like the maturation of the visual system, unfold in predictable patterns regardless of children’s socio-economic or cultural background. On the other hand, experience-dependent skills, such as the ability to read, rest on the availability of key learning experiences and adult support (Shonkoff and Richter, 2013). Diverse opportunities for verbal engagement with a consistent caregiver influence children’s language development and the acquisition of early literacy skills, and these skills predict academic achievement later in life. As new skills build on existing skills, the early foundations for children’s development set the stage for later human capital accumulation (Heckman, 2007). Thus, gaps in early development and learning may arise because children do not have access to fundamental learning experiences during sensitive periods.

Home environment and parental beliefs

The quality of children’s home environment, in terms of quality of stimulation and learning opportunities, is closely associated with their well-being (Bradley and Corwyn, 2005; Evans, 2006). Having access to material learning resources and nurturing learning experiences consistently during the first few years of life affords children with the foundations for healthy development and lifelong learning. Unfortunately, in many developing countries, numerous children grow up in socio-economically disadvantaged households where such inputs are minimal or absent.

The most commonly used and validated instrument to assess these dimensions across countries is the Home Observations for Measurement of the Home Environment (HOME) (Caldwell and Bradley, 2001). Mostly based on observations, the HOME requires time and skilled, well-trained interviewers, as well as substantial cultural adaptation for administration. To facilitate administration at scale and across countries, UNICEF has developed an alternative instrument, the Family Care Indicators (FCI) (Frongillo *et al.*, 2003). The FCI has been adapted from several sources, including the HOME, and collects, among other variables, the number of toys the child usually plays with, classified by their use (for example: toys to play or make music;

Figure 1 SES gap in cognitive development by age



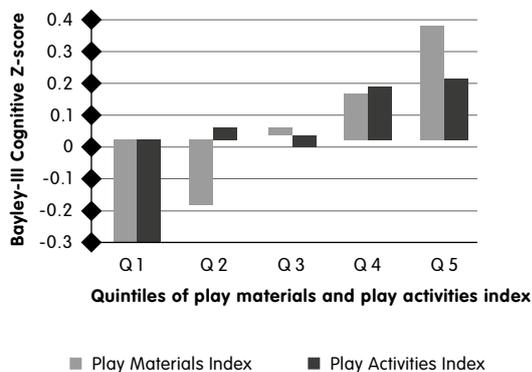
Source: Rubio-Codina *et al.*, 2013

As is evident in Figure 1, gaps in children’s development can be observed at a very early age.¹ These gaps become significant (statistically speaking) shortly after the first year of life and are increasingly wider as children grow older. This cumulative effect of socio-economic adversity on children’s development is related to the sensitive periods – age-related windows of opportunity – for brain development and the acquisition of higher-level cognitive functions (Knudsen *et al.*, 2006).

picture books; things for drawing and scribbling; toys to play pretend games, etc. – often referred to as ‘varieties of play materials’) and their source (such as home-made, bought, and household objects – ‘sources of play materials’), as well as specific types of play activities done in the home with adult guidance during the three days before the interview (for example: tell stories; read books or look at picture books; sing songs with the child; play with the child with his or her toys; spend time with the child scribbling/drawing/colouring; naming things or counting, etc. – ‘varieties of play activities’).²

In Colombia, as in many other contexts, children’s cognitive development is also strongly associated with the availability of learning resources – diverse play materials and play activities shared with caregivers. Figure 2 illustrates such an association³ using data from a study in Bogotá, the nation’s capital city, on a representative sample of low- and middle-income children aged 6–42 months (Rubio-Codina *et al.*, 2013). Stimulation and home environments are in turn significantly associated with access to economic resources and wealth (raw correlation = 0.35 and significant). Indeed, the quality of the home environment and access to stimulation, play activities and play materials seem a plausible mediating factor of the socio-economic gap, or at least contribute to a fraction of it.

Figure 2 Differences in children’s cognitive development by quality of the home environment quintiles



Source: Rubio-Codina *et al.*, 2013

Parental beliefs about child development also influence caregiving practices, and these beliefs are shaped by culture, education level, and socio-economic background. There are, broadly speaking, two ‘types’ of belief among parents (Bornstein and Putnick, 2012). One is that children develop at their own pace through leisure, non-structured activities and little parental involvement. The other is that children’s cognitive and social skills should be actively fostered by the parent. In terms of associated parenting practices, in the first, parents direct their caregiving efforts to keeping the child safe, fed, clothed, sheltered, and to regulating the child’s behaviour when needed (‘accomplishment of natural growth’). In the second, parents provide structured learning activities and learning opportunities, and engage in goal-directed parent–child conversations (‘concerted cultivation’) (Lareau, 2003; Bornstein and Putnick, 2012). Parenting beliefs may fall along a continuum between these two opposites. There is wide variation across and within countries on parental beliefs and parenting practices but, generally, the former child-rearing approach is more frequently observed in relatively poor families, while the latter is more characteristic of middle-class families (Lareau, 2003).

Home visiting programmes

A variety of intervention programmes for disadvantaged children aimed at improving parenting practices, from birth to age 3, have been implemented in developing countries such as Brazil (Wendland-Carro *et al.*, 1999), Jamaica (Powell *et al.*, 2004) and South Africa (Cooper *et al.*, 2002). Home visiting programmes vary in their goals (such as stimulation, prevention of child maltreatment), target population, service providers (professionals, paraprofessionals, volunteers), and type of activities or protocols (curriculum). However, their overall aim is to promote child development by improving parents’ child-rearing beliefs and their ability to provide an enriching environment for their children. By reaching out to socio-economically vulnerable families and caregivers, some home visiting intervention programmes have been successful at changing parental child-rearing beliefs and practices, and have shown positive and long-lasting

impacts on important child outcomes (see Kendrick *et al.*, 2000 for a review).

However, there is still a lot to be learned about how to develop *at-scale* programmes that may offset some of the developmental risks associated with growing up in a low-quality home environment. The issues to be faced are both related to costs and to the availability of the social infrastructure and human capital required for their delivery. One promising avenue for scaling-up interventions that promote early child development is linking them to existing social welfare systems (Engle *et al.*, 2011). To date, however, there is not enough evidence showing that the positive effects of well-designed home visiting programmes can also be achieved when scaled-up services are delivered under very different implementation, and perhaps less controlled conditions than those provided in effectiveness studies.

'The overall aim of home visiting programmes is to promote child development by improving parents' child-rearing beliefs and their ability to provide an enriching environment for their children.'

The home visiting intervention we describe here was designed as a scalable strategy to support the development and well-being of socio-economically vulnerable children in Colombia. The strategy consisted of linking a psychosocial stimulation curriculum – developed for Jamaica and having previously demonstrated positive short- and long-term effects on child development (Grantham-McGregor *et al.*, 1991; Walker *et al.*, 2006, 2011) – with the established administrative capacity and built-in local community networks of *Familias en Acción*, the existing Conditional Cash Transfer (CCT) programme in Colombia.

The goal of the home visiting programme was to promote child development by supporting and strengthening mother-child interactions and by engaging families

in play activities, many centred on children's daily routines. It also aimed to improve the mother's self-esteem and knowledge of child development. The intervention model focused on the mother as the central agent of change and included modelling (demonstrating play activities and interactions with the child to the mother), scaffolding (providing tasks that were at the developmental level of the child and were challenging but not too difficult), practice (encouraging the mother to practise the activities) and contingent positive reinforcement for both mother and child. Home visitors conducted weekly home visits, with approximately five families each, during an 18-month intervention period. During the 1-hour visits, the home visitors demonstrated developmentally appropriate activities to promote cognitive, language and socio-emotional development, making use of low-cost home-made toys and identifying learning opportunities for children during family daily routines.

The intervention tapped into the nationwide network of community leaders from the CCT programme in Colombia to deliver the home visits on a large geographic scale and in a way that could be scaled up. Three core implementation components – programme adaptation, staff selection and staff training – were emphasised.

- Firstly, the programme and associated materials were adapted for cultural appropriateness, and were adjusted to fit the ability level of the community home visitors.
- Secondly, local administrators of the CCT programme collaborated with the recruitment of home visitors. Home visitors were local women, elected representatives of the beneficiaries of the CCT local programme network (known as CCT Mother Leaders), or were recommended by them. We ensured that all home visitors had the required levels of availability, interest and reading comprehension.
- Thirdly, home visitors underwent a 2-week pre-service and a 1-week in-service training. In addition, they were supervised and mentored on a frequent basis by a team of six mentors. Mentors were mostly women with backgrounds in psychology or social work, or

sufficient experience conducting fieldwork with families and children. They received training over 6 weeks, during which time they learned about child development, supervision techniques, toy making, and mastered all of the activities in the curriculum. Following an itinerant supervision model, mentors rotated throughout their designated intervention communities providing technical advice and support to home visitors in person (every 7–10 weeks), discussing progress and problems during fortnightly telephone calls, and sending text messages and one-page bulletins containing reminders of key aspects of the stimulation curriculum.



Involving the primary caregiver and other family members in learning and play activities is at the core of the home visits.
Photo • Courtesy Marta Rubio Codina

Programme findings and lessons learned

The impact of the programme on the quality of the home environment, parental caregiving practices, and children's developmental outcomes was assessed using a randomised controlled trial. The evaluation sample consisted of 1429 children in relatively poor households, beneficiaries of the CCT programme, in 96 towns. Information on children's development and family characteristics, including the quality of the home environment using the FCI, was collected prior to programme roll-out when children were between 12 and 24 months of age, and 18 months later once the intervention was phased out.

Findings showed that the intervention was successful in achieving behavioural changes in the families, leading to enriched home environments for children. Figure 3 shows that the level of the 'variety of play materials' index (the number of different types of toys) increased both in the treatment households (those that received the home visits) and the control households during the 18 months of intervention. This is consistent with older children having more toys and other pedagogical materials than younger children. However, as shown in Figure 3, the increase in the 'varieties of play materials' was larger in the treatment than in the control households. The estimated impact of the programme on play materials index – after controlling for the child's age, sex, the baseline level of the index and interviewer effects – is a significant 13.7% increase (effect size = 0.53, SE 0.14). Figure 4 shows that the 'varieties of play activities' index (the number of types of activities done with an adult) marginally decreased in the control households during the intervention period, but substantially increased in the treatment households, leading to a significant positive programme impact of a 13.6% increase (effect size = 0.54, SE 0.15).⁴

The significant increases in the variety of play materials being used with young children as well as the types of play activities being carried out, show that important behavioural changes in caregiving practices and therefore in an enriched home environment for children resulted from 18 months of weekly one-hour home visits. This is important because it suggests that if improvement in the quality of the home environment and parenting behaviours is sustained it has the potential to improve child development even after the intervention stops.

Overall, this study shows that linking early childhood development interventions to existing social welfare systems is indeed a promising avenue to address in order to reduce socio-economic gaps in child development during the sensitive early years, while taking into account – at least to some extent – the challenges of cost, social infrastructure and human capital required for service delivery.

Figure 3 Programme impacts on varieties of play materials index

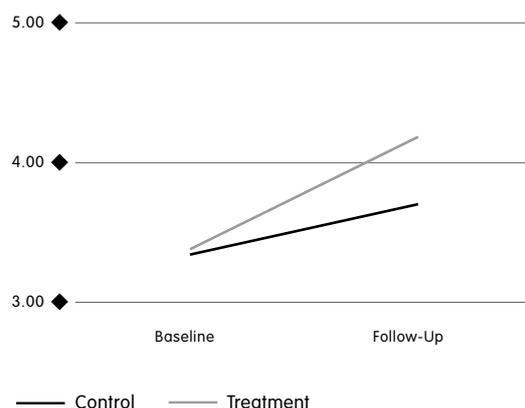
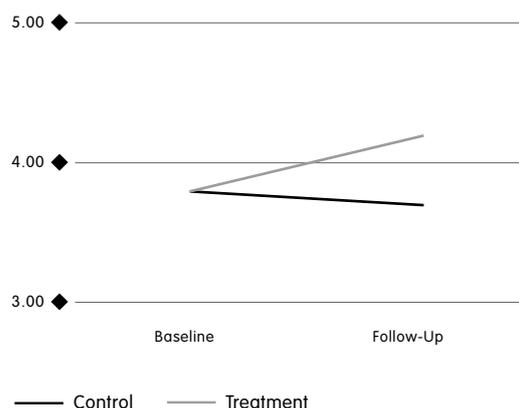


Figure 4 Programme impacts on varieties of play activities index



Source: authors

References

- Bornstein, M.H. and Putnick, D.L. (2012). Cognitive and Socioemotional Caregiving in Developing Countries. *Child Development* 83: 43–61.
- Bradley, R. and Corwyn, R. (2005). Caring for children around the world: a view from HOME. *International Journal of Behavioral Development* 29: 468–78.
- Caldwell, B.M. and Bradley, R.H. (2001). *HOME Inventory and Administration Manual*, 3rd edn. Little Rock: University of Arkansas for Medical Sciences.
- Cooper, P., Landman, M., Tomlinson, M., Molteno, C., Swartz, L. and Murray, L. (2002). Impact of a mother–infant intervention in an indigent peri-urban South African context. *British Journal of Psychiatry* 180: 76–81.
- Engle, P., Fernald, L., Alderman, H., Behrman, J., O’Gara, C., Yousafzai, A. *et al.* (2011). Strategies for reducing inequalities and improving developmental outcomes for young children in low-income and middle-income countries. *Lancet* 378(60889): 1339–59.
- Evans, G.W. (2006). Child development and the physical environment. *Annual Review of Psychology* 57: 423–51.
- Frongillo, E.A., Sywulka, S.M. and Kariger, P. (2003). *UNICEF Psychosocial Care Indicators Project: Final report to UNICEF*. Ithaca: Division of Nutritional Sciences, Cornell University.
- Grantham-McGregor, S., Powell, C., Walker, S. and Himes, J. (1991). Nutritional supplementation, psychosocial stimulation, and mental development of stunted children: the Jamaican Study. *Lancet* 338(8758): 1–5.
- Heckman, J.J. (2007). The economics, technology, and neuroscience of human capability formation. *Proceedings of the National Academy of Sciences* 104(3): 13250–5.
- Kendrick, D., Elkan, R., Hewitt, M., Dewey, M., Blair, M., Robinson, J. *et al.* (2000). Does home visiting improve parenting and the quality of the home environment? A systematic review and meta-analysis. *Archives of Disease in Childhood* 82(6): 443–51.
- Knudsen, E.I., Heckman, J.J., Cameron, J.L. and Shonkoff, J.P. (2006). Economic, neurobiological, and behavioral perspectives on building America’s future workforce. *Proceedings of the National Academy of Sciences* 103: 10155–62.
- Lareau, A. (2003). *Unequal Childhoods: Race, class, and family life*. Berkeley/Los Angeles: University of California Press.
- Powell, C., Baker-Henningham, H., Walker, S., Gernay, J. and Grantham-McGregor, S. (2004). Feasibility of integrating early stimulation into primary care for undernourished Jamaican children: cluster randomised controlled trial. *British Medical Journal* 329: 89.
- Rubio-Codina, M., Attanasio, O., Meghir, C., Varela, N. and Grantham-McGregor, S. (2013). *The Socio-economic Gradient of Child Development: Cross-sectional evidence from children 6–42 months in Bogotá*. London: Mimeo Institute for Fiscal Studies.
- Shonkoff, J.P. and Richter, L. (2013). The powerful reach of reach of child development: a science-based foundation for sound investment. In: Britto, P.R., Engle, P. and Super, C. (eds) *Handbook of Early Childhood Development Research and its Impact on Global Policy*. New York, NY: Oxford University Press.

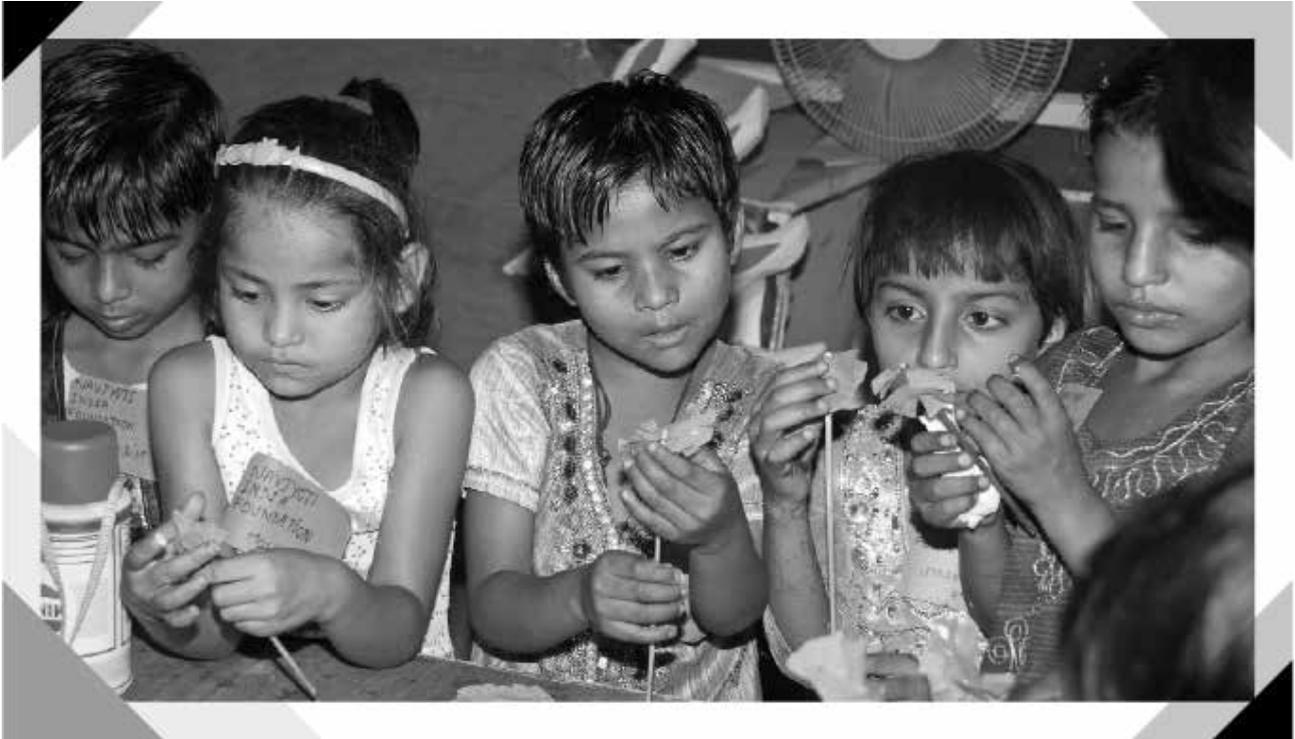
- Walker, S.P., Chang, S.M., Powell, C., Simonoff, E. and Grantham-McGregor, S.M. (2006). Effects of psychosocial stimulation and dietary supplementation in early childhood on psychosocial functioning in late adolescence: follow-up of randomized controlled trial. *British Medical Journal* 333(7566): 472.
- Walker, S.P., Chang, S.M., Vera-Hernandez, C.M. and Grantham-McGregor, S.M. (2011). Early childhood stimulation benefits adult competence and reduces violent behaviour. *Pediatrics* 127(5): 849–57.
- Wendland-Carro, J., Piccinini, C.A. and Millar, W.S. (1999). The role of an early intervention on enhancing the quality of mother–infant interaction. *Child Development* 70(3): 713–21.

Notes

- Sample representative of children 6–42 months living in the lowest 3 (out of 6) socio-economic strata in the city of Bogotá, Colombia, which include 85% of the city’s population. The average difference in cognitive development scores (assessed using the Bayley-III) between children in the lowest and the highest quintile of a household wealth index is close to 0.6 SD across age groups. The household wealth index is the first component of performing principal component analysis on household assets and dwelling characteristics.
- The FCI has been added to the Multiple Indicator Cluster Survey (MICS) that UNICEF conducts in a number of developing countries every 3–5 years. Current information on MICS is available on UNICEF’s childinfo web pages at: http://www.childinfo.org/mics3_surveys.html (accessed May 2013).
- Same sample as in Figure 1, representative of children aged 6–42 months living in the lowest 3 (out of 6) socio-economic strata in Bogotá. Children’s cognitive scores assessed using the Bayley-III. The quality of home environment is assessed with two indices from the FCI: (a) ‘varieties of play materials index’, which includes toys which make/play music, things for drawing/writing/painting, colouring books, picture books for children, toys to play pretend games, toys for moving around, things meant for stacking, constructing or building, and toys for learning shapes and colours; and (b) ‘varieties of play activities’, including reading books or looking at picture books, telling stories to the child, singing songs with the child, taking child outside the home place/going for a walk, playing with the child with toys, spending time with the child scribbling/drawing/colouring, and spending time with the child naming things or counting.
- Figures 3 and 4 represent the authors’ own calculations using data from the evaluation study. Predicted means in ‘varieties of play materials’ and ‘varieties of play activities’ (using the FCI as described in note 3 above (for Figure 2) after adjusting for age (in months) and sex of the child, baseline level of the dependent variables and interviewer dummies.

Defining a right to integrated early childhood development in India

Venita Kaul, Director, Centre for Early Childhood Education and Development (CECED), Ambedkar University, Delhi, India



Effective learning in older children is inextricably linked to good health, nutrition, care and early learning opportunities in the early years.
Photo • Courtesy Centre for Early Childhood Education and Development (CECED), Ambedkar University Delhi

Meeting a child's right to education involves recognising that learning begins early and is inextricably linked to health and nutrition. In this article, Venita Kaul outlines work to define a right to integrated early childhood development in India, identify weak spots in existing provision, and suggest ways to make services more effective by taking a multi-sectoral approach and involving communities.

In 2009, the Government of India passed the Right of Children to Free and Compulsory Education Act. This sets out what India's state governments must offer to children aged 6 to 14. Many in civil society who had pressed for this act were, however, disappointed at the stipulation of 6 as a lower age limit. If the aim is to get children to learn effectively through to the age of 14, investment needs to begin at birth or before, not merely at the point where a child enters primary school. The process of learning and development is not only continuous but also cumulative, making it imperative not only to start early but also to ensure consistent and comprehensive support and scaffolding for the child.

There is now a lively debate in Indian civil society about how this act should be augmented to reflect the rights of under-6s, which is a provision under the Indian constitution. While the Government of India has set up a subcommittee to explore the feasibility of extending the Right to Education Act to include children under 6 years of age, there is a strong civil society movement that advocates making this a right to integrated early childhood development for children from birth onwards. The argument is that we should look also at younger age groups who are under preschool age, and we should think of the interdependence of education with health and nutrition. Effective learning in older children is inextricably linked to good health, nutrition, care and early learning opportunities in the early years.

While in principle this argument is sound, it is important to consider that the right to education is relatively more uni-sectoral or one-dimensional in nature and therefore it was relatively straightforward to identify entitlements. In comparison, it is harder to answer the questions 'What would such a right to ECD

look like in terms of legal entitlements for children, and how close do existing policy and programmatic interventions in India come to meeting it? What residual gaps would there be which the Government may still need to support?’

The current endeavour to answer these questions at the Centre for Early Childhood Education and Development (CECED), with the collaboration of legal expert Dr Archana Mehendale, draws on research I helped to conduct for the World Bank which resulted in the 2004 publication *Reaching Out to the Child: An integrated approach to child development*.

In the research for *Reaching Out to the Child* we took as our starting point the aspiration of ensuring that every child completes primary school successfully around the age of 11 years. We worked backwards from that goal, given the cumulative process of child development and learning, and identified sub-stages in a child’s holistic development. The sub-stages we identified were: prenatal to 1 month; 1 month to 3 years; 3 years to 6 years; 6 years to 8 years; and 8 years to 11 years. This departed in two main ways from the age ranges more often discussed at a global level – our separating out of under 1 month, as this is when many neonatal deaths occur among vulnerable babies in India, and of 6–8 years, as this is the transition stage from preschool to school, when most primary dropouts occur.

We then defined a conceptual framework to identify – for each sub-stage – what outcomes should be expected, what determinants go into achieving those outcomes, and by what indicators they can be measured. These are shown in Figure 1. We used this framework to review all the provisions that were then in place in different states and sectors in India, and we computed a Child Development Index from four important indicators – infant survival rates, immunisation rates (later changed to malnutrition rates), and primary enrolment and primary completion rates – through which we could compare the different Indian states and track their progress over time.

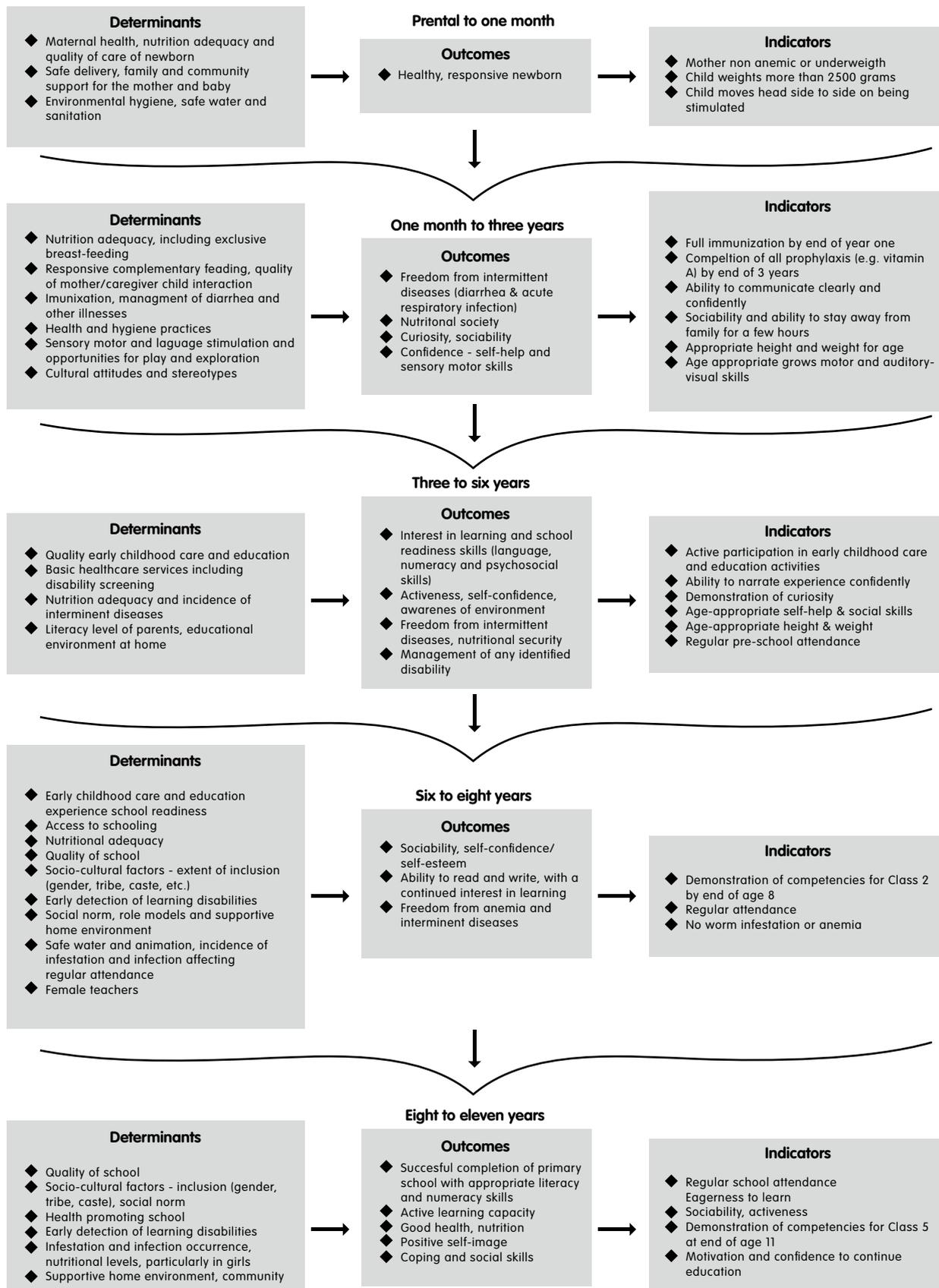
This revealed very large differences across states, Kerala and Himachal Pradesh topping the scale with indices of 92 and 91 respectively, ranging down to Bihar, with a score of 49. Analysis showed that states at the lower end of the scale tended to perform poorly across all indicators rather than being let down by one or two. The poor performance of states such as Bihar, Rajasthan, Uttar Pradesh, West Bengal and Assam suggests that centrally sponsored schemes – such as the Department of Health and Family Welfare’s Reproductive Child Health Scheme; the Department of Women and Child Development’s Integrated Child Development Services; and education initiatives including the District Primary Education Programme and *Sarva Shiksha Abhiyan* (‘Education for All Movement’) – have had only patchy impacts.

Prenatal to birth	maternal health and nutrition parental and family education safe motherhood maternal support services
Birth to 6 months	maternal health – postpartum care exclusive breastfeeding infant health nutritional security responsive care early stimulation/play safety and security support services
6 months to 3 years	infant health nutritional security, responsive care early stimulation/play and learning opportunities safety and security
3 to 6 years	child health and nutrition adequate nutrition day care play-based preschool education responsive care safety and security
6 to 8 years	child health and nutrition family care safety and security primary education

Towards a right to development

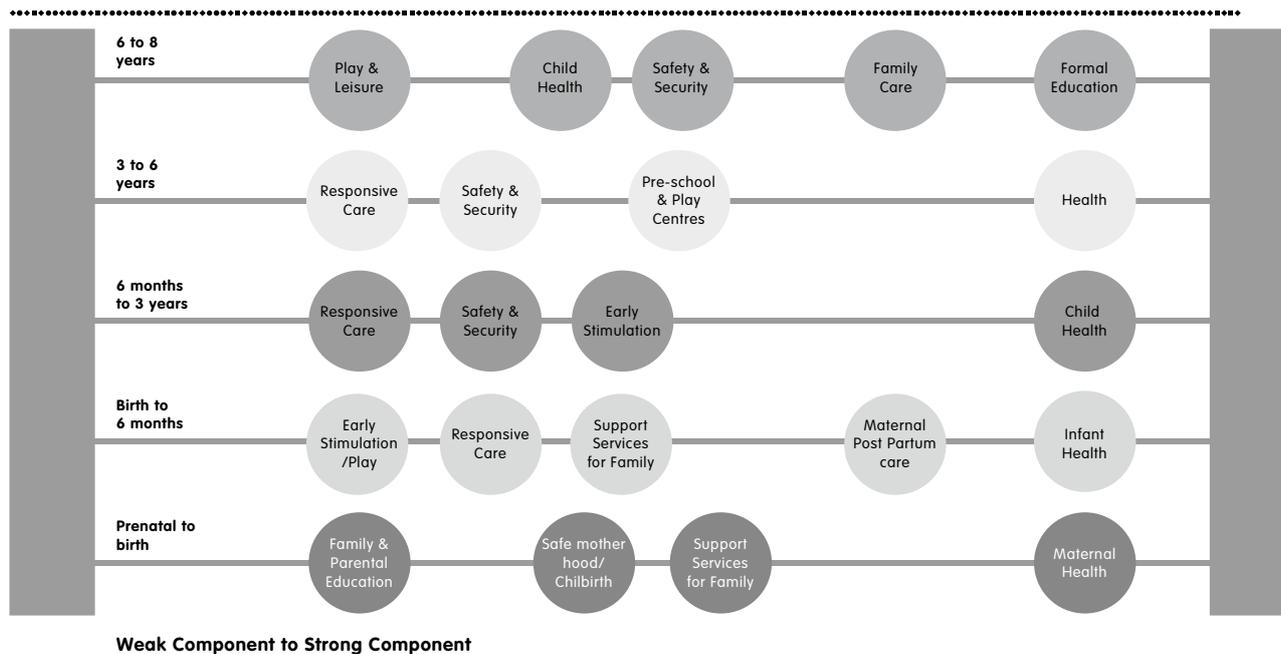
As we at CECED look now at building on that World Bank research and defining a right to early childhood

Figure 1 An Indian conceptual framework for integrated child development



Source: New Concept Systems 2003

Figure 2 Early childhood development provisions in existing laws, policies and programmes



development, we have identified basic determinants of early childhood development for each sub-stage and, based on those determinants, what could be considered as legal entitlements imperative for children’s development and learning.

We then reviewed provisions in existing laws, policies and programmes to assess whether each of these entitlements was already covered to a weak or strong degree, and what gaps needed to be filled. The analysis is summarised in Figure 2.

In filling the gaps, we recommend learning from experience and moving towards a holistic, multi-sectoral approach. Interventions for children have often suffered from a fragmented and siloed sectoral approach that disregards the interdependence of health, nutrition and education and fails to achieve possible synergies.

It should be noted that a multi-sectoral approach does not imply the need for a single, integrated programme – in fact, experience in India shows that this may lead to suboptimal outcomes. For example, it is probably not realistic to expect a single *Anganwadi* worker under the ICDS programme¹ to cover all children’s needs from malnutrition to education across the age range up to 6 years old. Planning and monitoring of services for children should be integrated, but it is not necessarily a good idea also to integrate implementation.

Decentralisation and community participation

We recommend that integrated planning must be done with community participation. Another common problem with interventions for children in India has been excessive centralisation and standardisation, paying too little attention to the contextual diversities of this large and varied country. Even at the level of districts and sub-districts, there can be important differences in priorities which can be overlooked. For example, there is the case of one community where children were well nourished but which lacked clinics and preschools; it was given a government intervention on malnutrition but little help with either health or education.

To avoid such wasteful use of resources, programmes need to be designed through a participatory approach that leads to a sense of community ownership. This requires communities themselves to assess their needs and demands, a process which is easier said than done. As a sequel to *Reaching Out to the Child*, we at the World Bank were invited by the government of Madhya Pradesh to take the report’s recommendations forward by conceptualising and implementing a community-based pilot in integrated child development called Project Bachpan in a tribal block of Ratlam District. This very effective project found that it took fully 3 years for the villages’ resource groups to come up with a plan for children, requiring awareness creation to overcome the apathy of many community members and confidence

building to tackle their sense that they could not make a difference.

The pilot, which underwent a rigorous evaluation, demonstrated the value of decentralised, community-based and convergent ‘Village plans for children’, as opposed to planning for children’s health, nutrition and education in isolation from each other.

Promisingly, the project showed that the experience of making a plan for children led communities to give a much higher priority to the needs of their children. This will, however, inevitably need initial hand-holding by an NGO facilitator. It also requires an effort to educate the community about children’s developmental needs. For example, we need to counter the common misconception that academically focused preschools lead to better school outcomes than preschools with more of an emphasis on play, exploration and development of social skills. Also, parents and even teachers need to be convinced that children should begin their education in their mother tongue or home language, and that their move to the school language should be gradual and scaffolded for a smooth transition.

Community participation in planning promises to shift the emphasis of service delivery from supply to demand – that is, rather than giving all communities the same thing, to give them some choices. Experience shows that this should help to increase the cost-effectiveness of interventions. Community involvement is also observed to be inextricably linked to quality of service delivery. When community members perceive value in a service, they are more willing to engage and feel a sense of ownership over the intervention; there is thus likely to be more effective monitoring and safeguards against the kind of misaligned incentives and corruption which can afflict the delivery of services, creating a vicious cycle – poor-quality services leading to less community involvement leading to poorer-quality services.

Such an approach implies a decentralisation of responsibility for services for children. Ultimately, local communities who make plans for their children could be allocated funds with which to ‘buy’ services from the relevant government bureaucracies, NGOs or the private sector. While the central responsibility of meeting a child’s right to development obviously rests with the government, it would be wrong to ignore the potential for innovative partnerships with the business community and civil society to improve the quality of services delivered.

References

Centre for Early Childhood Education and Development (CECED). (2012, unpublished). *Framework for Right to Early Childhood Development*.
Kaul, V./World Bank. (2004). *Reaching Out to the Child: An integrated approach to child development*. New York: Oxford University Press.

Note

¹ *Anganwadi* literally means ‘courtyard playground’; it is the name given to the ECD centre under the government-sponsored ICDS scheme since it is located in almost every habitation in the country, close to the homes of children, and is expected to provide integrated services for children under 6 through an integrated approach by serving as a single window for service delivery. There is one *Anganwadi* worker, or trained adult woman, who is the main service provider and she has one woman *Anganwadi* helper who assists mainly in collecting children from home and providing the midday meal to them.

Effectiveness of parent support programmes in enhancing learning in the under-3 age group

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While considerable research has been done on the impact of preschool in developing countries, there is less information available to guide policy on effective large-scale programmes for the 0–3 years age group. This article reviews the evidence on the impact of interventions aimed at improving early learning and parent–child interaction for children aged 0–3 through strategies to enrich parenting practices and empower parents to facilitate child learning.

Parent support programmes for children aged 0–3 have employed a variety of approaches aimed at enhancing the capacity of the mother or primary caregiver to provide stimulation and quality interactions. This article looks at home visits, individual counselling sessions at clinics, and group sessions for parents.

Home visits have been evaluated in several countries including Bangladesh, Brazil, Colombia, India, Jamaica and St Lucia, to assess the benefits for child development through improved caregiver–child interaction. The earliest study was conducted in poor neighbourhoods in Bogotá, Colombia and involved home visits to promote activities that encouraged exploration of the environment with children aged 6–36 months and their mothers (Waber *et al.*, 1981).

In Jamaica, studies have involved children with different risks for development – severely malnourished children (Grantham-McGregor *et al.*, 1987), stunted children (Grantham-McGregor *et al.*, 1991), and term low-birthweight infants (Walker *et al.*, 2004) – and have also evaluated the impact of visit frequency (Powell and Grantham-McGregor, 1989) and the feasibility of integrating home visits into nutrition services (Powell *et al.*, 2004). Visits were conducted by community health workers (CHWs) and included demonstration of play activities and involving the mother, or primary caregiver, in a play session with the child. Visits comprised various combinations of language activities, games, songs, simple jigsaw puzzles, and crayon and paper activities. Home-made toys and simple picture books were used and left in the home, to be exchanged at the next visit. Emphasis was placed on enriching verbal

interaction between the mother and child and mothers were also encouraged to use positive feedback and praise and to avoid physical punishment (more details on curriculum, training and supervision of the CHWs can be found in Walker, 2011).

A further Jamaican study was an evaluation of an ongoing programme ('Roving Caregivers', an intervention model first piloted with Bernard van Leer Foundation support) implemented by an NGO (Powell, 2004). In this case, visitors were young women who had just completed secondary school. They were given two weeks' training and fortnightly workshops to discuss and prepare for the visits. Observations and feedback from the mothers suggested that there was less emphasis on including the mother in the play session. However, the programme included monthly meetings for the parents at which child development, parenting, and other topics were discussed. A further evaluation of this programme was conducted in St Lucia (Janssens and Rosemberg, 2011)

The home visit intervention with CHWs used in Jamaica was adapted for Bangladesh, incorporating traditional games and songs. Visits were conducted by literate village women in one study and female health workers in another. In addition to the home visits, in both studies mothers attended centres where individual play sessions (Nahar *et al.*, 2009) or group sessions on topics concerning child development and the importance of play (Hamadani *et al.*, 2006) were conducted. In a third study, instead of home visits individual play sessions with mother and child were conducted at visits to a community clinic (Nahar *et al.*, 2012).

The intervention evaluated in Brazil, (Eickmann *et al.*, 2003) combined group sessions to demonstrate and practise play activities and interaction with home visits to reinforce the workshops through play sessions with the mother and child. In India, home visits were conducted for families with children aged 3–15 months and involved counselling and practice on responsive play with provision of developmentally appropriate toys over five visits (Vazir *et al.*, 2012).



All reviewed evaluations of parent support provided through home visits demonstrated significant benefits for child development.
 Photo • Peter de Ruiter/Bernard van Leer Foundation

All evaluations of parent support provided through home visits demonstrated significant benefits for child development. A few had small effect sizes, but typically effects were medium to large. Home visiting programmes benefited development in children recovering from severe malnutrition (Grantham-McGregor *et al.*, 1987; Nahar *et al.*, 2009; Nahar *et al.*, 2012), undernourished children (Grantham-McGregor *et al.*, 1991; Powell *et al.*, 2004; Hamadani *et al.*, 2006) children with iron deficiency anaemia (Lozoff *et al.*, 2010) low-birthweight infants (Walker *et al.*, 2004) and in generally disadvantaged children in poor communities (Powell and Grantham-McGregor, 1989; Eickmann *et al.*,

2003; Powell, 2004; Vazir *et al.*, 2012). In the evaluation of Roving Caregivers in St Lucia, overall benefits were not found; however, children who were younger when the programme began showed benefits. (Janssens and Rosemberg, 2011)

Important characteristics of home visiting interventions

Home visitors

The evaluations of home visit interventions show that they can be successfully implemented by women who have completed only primary education or partially completed secondary education. In most studies, visitors have been mature women of similar age or older than the mothers being visited. In contrast, the Roving Caregivers programme in Jamaica used young women in a national youth service programme. Although the intervention benefited children's development, some concern was expressed that these young women were less able to engage the mothers and to ensure they participated fully in the visits, and the visitors sometimes conducted the play sessions with the child alone (Powell, Christine, personal communication). This may have implications for the sustainability of benefits.

Supervision

Supervision is essential to maintain quality of the visits and provide ongoing support for the visitors. In most of the evaluations this was conducted by a professional with training in child development, although in one study this role was accomplished by the clinic nurse (Powell and Grantham-McGregor, 1989). Supervision involved observation of home visits and regular meetings with the visitors to discuss the visits and plan for subsequent ones. The supervisors provided guidance on the content of the visits to ensure the activities were at appropriate levels for individual children, and to give feedback on both the content of the visits and the manner in which they were conducted. For example, a focus of the Jamaican interventions has been the empathy of the visitor and her role in supporting the mother in becoming more effective at promoting development. Supervision is an essential component and is an important consideration in planning for scaling-up of interventions.

Visit frequency

The frequency of visits necessary to achieve benefits to child development is also important in determining the feasibility of implementing similar interventions on a larger scale. The study by Powell and Grantham-McGregor (1989) is the only one to formally evaluate the impact of visit frequency on the level of benefit achieved and concluded that a minimum of fortnightly visits was necessary. The frequency of contacts (home visits plus group sessions where used) in most of the interventions was two to four times per month. Thus benefits to child development can be anticipated from programmes where at least two visits are achieved per month. Further work is needed to determine whether benefits can be achieved when there are less frequent sessions with the mother and child.

Individual counselling of mothers at clinics

Despite the consistent evidence that providing parenting education through home visits benefits child development, the model remains a high-intensity one in terms of human resources. Alternative strategies to reach greater numbers of children are needed, but evidence of their impact on child development is limited.

One approach has been to provide parents with counselling and training when they access health services. This model has been developed by the World Health Organization and UNICEF as Care for Child Development, to be part of the Integrated Management of Childhood Illness strategy (WHO/UNICEF, 2012). The package provides guidelines for health professionals to counsel parents on how to promote development and includes counselling cards with age-specific messages and illustrations of activities. Counselling sessions lasting 5–10 minutes are done with individual mothers; they can be done whenever the mother and child attend the health service for well child or sick visits.

There is limited information about the impact of this approach on child development. A study conducted in a rural county in China, based on the Care for Child Development materials, showed significant benefits for child development for children whose mothers received

two 30- to 60-minute counselling sessions, compared with controls (Jin *et al.*, 2007). The findings have to be interpreted with caution as the evaluator was aware of the children's group assignment. Evaluations in three Central Asian countries following training of health staff in Care for Child Development suggest benefits, according to mothers' reports on two or three of the five subscales of the Ages and Stages Questionnaire (Engle, 2011).

Another study using a clinic-based approach involved HIV-infected children whose mothers or caregivers were coached in individualised stimulation plans when they attended the clinic for the child's regular three-month visit (Potterton *et al.*, 2009). Activities centred on developmentally appropriate play that could be part of the family's usual daily routine. After one year, significant benefits to mental and motor development were seen from the intervention, although both intervention and control groups remained severely delayed.

More evidence is needed on the use of individual counselling of parents during health visits to promote child development. In the available studies interventions were conducted by health professionals, which would have implications for scaling up. It is also likely that counselling sessions need to be long enough to allow time for demonstration of activities and for mothers to practise.

Parent training at group sessions

The numbers of parents and children reached by interventions to improve parenting behaviours could also be increased by delivering interventions through group sessions. Again, relatively few evaluations of this approach have been done.

In a parenting programme in Bangladesh, groups of about 20 mothers attended 90-minute educational sessions on health, nutrition, and promotion of child development (Aboud, 2007). Sessions were conducted by women with some secondary education who were given training and supervision. Mothers attended

an average of 16 sessions. No benefits were seen for children's receptive vocabulary, which was the only measure of child development, or for mother-child verbal interaction. Small to moderate effects on mothers' knowledge and stimulation in the home were seen. Within the sessions, positive behaviours were encouraged and attempts were made to engage the mothers in discussion and problem solving. However, use of demonstration was limited, and very few materials were used.

Following this an improved approach to delivery of the parent group sessions was implemented and evaluated (Aboud and Akhter, 2011). In addition to the usual parenting sessions on health, nutrition and child development, parents received six sessions on responsive feeding and play with demonstration, practice and identification of materials in the home that could be used for play. There were benefits to children's language and mothers did more responsive talking and provided more stimulating home environments.

A community-based group parenting programme in Paraguay, using volunteer leaders, had significant benefits for children's mental development (Pearson *et al.*, 2008). Parents attended monthly meetings at which they were encouraged to promote development by playing and chatting with their children. Volunteers also conducted home visits, but little information is available on what these involved or their frequency.

Sustainability of benefits

The studies reviewed provide consistent evidence that interventions to improve parent-child interaction and learning opportunities for children from birth to age 3 through a variety of approaches benefit the development of children from poor families in low- and middle-income countries. Children who receive early interventions are therefore likely to benefit more from preschool and then from formal schooling. Early cognitive ability at school entry predicts school outcomes such as achievement levels and grade level attained (Grantham-McGregor *et al.*, 2007). It is therefore possible that gains in early development will be associated with

long-term gains in education, to the benefit of both the individual and society.

A few follow-up studies suggest benefits may be sustained but more studies like these are needed. In Jamaica, a home visit programme with term low-birthweight infants that ended at age 2 years had benefits at age 6 in terms of performance IQ and memory, and reduced behavioural difficulties (Walker *et al.*, 2010). The reduction in behavioural difficulties may be particularly important for these children at a time when they are making the transition to primary school. In an earlier Colombian study, home visits up to age 3 were associated with better reading readiness at age 7 in boys only (Super and Herrera, 1991).

A small study of severely malnourished children followed up participants in adolescence 11 years after the intervention had ended. The group that received stimulation had higher IQ scores than children who had not received the intervention (Grantham-McGregor *et al.*, 1994) and they also had higher scores in reading and overall school achievement. The most comprehensive evidence of long-term benefits from early intervention comes from the Jamaican study of stunted children. Benefits to cognition, education and mental health and behaviour have been seen up to age 22 years (Walker *et al.*, 2011).

In all the studies with follow-up, home visits were conducted weekly and continued for 18 months to 3 years. In Jamaica the programme focused on working with mothers to enable them to be more effective in promoting their child's development. Mothers were encouraged to chat with and listen to their children, to use everyday activities to teach concepts, and to integrate play activities into their daily routine. It is likely that visit frequency, duration of the programme and the emphasis on reaching the child through the mother contributed to the sustainability of intervention benefits.

Conclusions

Promoting optimal development among children from birth to 3 years of age requires attention to nutrition, health, and ensuring quality caregiver–child interaction and learning experiences. Programmes that work with parents to help them better promote their children’s development lead to gains in child development, with the strongest evidence for strategies that provide parental enrichment through home visits. Sustained benefits for cognitive and psychological functioning and educational achievement have been demonstrated. These are likely to benefit adult earning, functioning in society, and parenting of the next generation. More evidence is urgently needed for other approaches to delivering parent support including individual counselling and parent groups, and other ways to implement parent support at scale.

A set of strategies needs to be developed to provide comprehensive early childhood programmes that include learning opportunities, nutrition, and health. There is a critical need for continued advocacy for expansion of parenting programmes to improve learning for children from birth to age 3. These need to be included as part of the core set of services provided for children under 3 years of age.

References

- Aboud, F.E. (2007). Evaluation of an Early Childhood Parenting Programme in Rural Bangladesh. *Journal of Health Population and Nutrition* 25: 3–13.
- Aboud, F.E. and Akhter, S. (2011). A cluster-randomized evaluation of a responsive stimulation and feeding intervention in Bangladesh. *Pediatrics* 127: e1191–1197.
- Eickmann, S.H., Lima, A.C., Guerra, M.Q., Lima, M. C., Lira, P.I., Huttly, S.R. and Ashworth, A. (2003). Improved cognitive and motor development in a community-based intervention of psychosocial stimulation in Northeast Brazil. *Developmental Medicine and Child Neurology* 45: 536–41.
- Engle, P.L. (2011). Care for Development in three Central Asian countries: report of process evaluation in Tajikistan, Kyrgyzstan, and Kazakhstan. Geneva: UNICEF Regional Office for Central and Eastern Europe, and the Commonwealth of Independent States.
- Grantham-McGregor, S., Cheung, Y.B., Cueto, S., Glewwe, P., Richter, L., Strupp, B. and International Child Development Steering Group. (2007). Child development in developing countries: developmental potential in the first five years for children in developing countries. *Lancet* 369: 60–70.
- Grantham-McGregor, S., Powell, C., Walker, S., Chang, S. and Fletcher, P. (1994). The long-term follow-up of severely malnourished children who participated in an intervention program. *Child Development* 65: 428–39.
- Grantham-McGregor, S.M., Powell, C.A., Walker, S.P. and Himes, J.H. (1991). Nutritional supplementation, psychosocial stimulation, and mental development of stunted children: the Jamaican study. *Lancet* 338: 1–5.
- Grantham-McGregor, S., Schofield, W. and Powell, C. (1987). Development of severely malnourished children who received psychosocial stimulation: six-year follow-up. *Pediatrics* 79: 247–54.
- Hamadani, J.D., Huda, S.N., Khatun, F. and Grantham-McGregor, S.M. (2006). Psychosocial stimulation improves the development of undernourished children in rural Bangladesh. *Journal of Nutrition* 136: 2645–52.
- Janssens, W. and Rosemberg, C. (2011). *The Impact of a Home-visiting Early Childhood Intervention in the Caribbean on Cognitive and Socio-emotional Child Development*. Amsterdam: Amsterdam Institute for International Development.
- Jin, X., Sun, Y., Jiang, F., Ma, J., Morgan, C. and Shen, X. (2007). ‘Care for Development’ intervention in rural China: a prospective follow-up study. *Journal of Developmental and Behavioral Pediatrics* 28: 213–18.
- Lozoff, B., Smith, J.B., Clark, K.M., Perales, C.G., Rivera, F. and Castillo, M. (2010). Home intervention improves cognitive and social-emotional scores in iron-deficient anemic infants. *Pediatrics* 126: e884–894.
- Nahar, B., Hamadani, J.D., Ahmed, T., Tofail, F., Rahman, J.A., Huda, S.N. and Grantham-McGregor, S.M. (2009). Effects of psychosocial stimulation on growth and development of severely malnourished children in a nutrition unit in Bangladesh. *European Journal of Clinical Nutrition* 63: 725–31.
- Nahar, B., Hossain, M.I., Hamadani, J.D., Ahmed, T., Huda, S.N., Grantham-McGregor, S.M. and Persson, L.A. (2012). Effects of a community-based approach of food and psychosocial stimulation on growth and development of severely malnourished children in Bangladesh: a randomised trial. *European Journal of Clinical Nutrition* 66: 701–9.
- Pearlson, S., Berghout Austin, A.M., Nielsen de Aquino, C. and Urbieta de Burro, E. (2008). Cognitive development and home environment of rural Paraguayan infants and toddlers participating in *Pastoral del Niño*, an early child development program. *Journal of Research in Childhood Education* 22: 343–62.
- Potterton, J., Stewart, A., Cooper, P. and Becker, P. 2009. The effect of a basic home stimulation programme on the development of young children infected with HIV. *Developmental Medicine and Child Neurology* 52: 547–51.
- Powell, C. (2004). *An Evaluation of the Roving Caregivers Programme of the Rural Family Support Organization, May Pen, Clarendon, Jamaica*. Kingston: UNICEF
- Powell, C., Baker-Henningham, H., Walker, S., Gernay, J. and Grantham-McGregor, S. (2004). Feasibility of integrating early stimulation into primary care for undernourished Jamaican children: cluster randomised controlled trial. *British Medical Journal* 329: 89–92.
- Powell, C. and Grantham-McGregor, S. (1989). Home visiting of varying frequency and child development. *Pediatrics* 84: 157–64.
- Super, C. and Herrera, M.G. (1991). *Cognitive Outcomes of Early Nutritional Intervention in the Bogota Study* (abstract). Washington, DC: Society for Research in Child Development.
- Vazir, S., Engle, P., Balakrishna, N., Griffiths, P.L., Johnson, S.L., Creed-Kanashiro, H., Fernandez Rao, S., Shroff, M.R. and Bentley, M.E. (2012). Cluster-randomized trial on complementary and responsive feeding education to caregivers found improved dietary intake, growth and development among rural Indian toddlers. *Maternal and Child Nutrition* 9: 99–117.
- Waber, D.P., Christiansen, L., Ortiz, N., Clement, J.R., Christiansen, N.E., Mora, J.O., Reed, R.B. and Herrera, M.G. (1981). Nutritional supplementation, maternal education, and cognitive development of infants at risk of malnutrition. *American Journal of Clinical Nutrition* 34: 807–13.
- Walker, S.P. (2011) Promoting equity through early child development interventions for children from birth through three years of age. In: Alderman, H. (ed.) *No Small Matter. The impact of poverty, shocks and human capital investments in early childhood development*. Washington, DC: World Bank.
- Walker, S.P., Chang, S.M., Powell, C.A. and Grantham-McGregor, S.M. (2004). Psychosocial intervention improves the development of term low-birth-weight infants. *Journal of Nutrition* 134: 1417–23.
- Walker, S.P., Chang, S.M., Vera-Hernández, M. and Grantham-McGregor, S. (2011). Early childhood stimulation benefits adult competence and reduces violent behavior. *Pediatrics* 127: 849–57.
- Walker, S.P., Chang, S.M., Younger, N. and Grantham-McGregor, S.M. (2010). The effect of psychosocial stimulation on cognition and behaviour at 6 years in a cohort of term, low-birthweight Jamaican children. *Developmental Medicine and Child Neurology* 52: E148–54.
- World Health Organization/UNICEF (2012). *Care for Child Development: Improving the care for young children*. Geneva: WHO.

The *Creciendo Juntos* project: improving early childhood quality of life through municipal management

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Home visits covered issues of health, nutrition, stimulation and protection, and aimed to help mothers to develop healthy habits when bringing up their children. Photo • Courtesy Asociación Red Innova

With seed funding and technical support to civil servants, three municipalities in Peru are implementing home visiting programmes for very young children. As this article explains, preliminary evidence suggests there is scope for widespread improvement in activities that promote children's early learning, among other outcomes. The model being refined has the potential to be replicated across other municipalities.

Peru is undergoing a decentralisation process, with local governments supposed to be taking the lead in improving their populations' well-being. However, civil servants at local government level – especially in small municipalities – often lack the technical and managerial skills to be able to implement services for young children, and to secure funding to make them sustainable.

Through the *Creciendo Juntos* (Growing up Together) project, funded by the Bernard van Leer Foundation and implemented by the Red Innova Association¹, members of the Network of Rural Municipalities of Peru (REMURPE) in the regions of Loreto, Huancavelica and Junin were invited in 2011 to apply for support to begin projects for young children. Sixteen proposals were received, of which five were chosen to be presented publicly to a jury made up of representatives of institutions related to the early childhood sector. The municipalities of Belén, Mazán and Río Tambo were chosen to receive seed funding and capacity building for implementing the projects they presented.

With populations of just a few thousand yet often also with complex bureaucratic systems, these municipalities typically do not have civil servants who are highly trained in the skills necessary to deliver quality early

Table 1 Municipalities launch cross-sector activity

100% of municipalities create alliances with other stakeholders and work together with them		
Ministry of Education (MINEDU)	Ministry of Health (MINSA)	Ministry of Housing, Construction and Sanitation
National Registry of Identification and Civil Status (RENIEC)	Ministry for Women and Vulnerable Populations	
100% of municipalities carry out diagnostics on the early childhood sector		
100% of municipalities legitimise Articulation and Coordination Mechanisms (IAC) and a Management Committee for the early childhood sector		
100% of municipalities launch survey actions through a Communal Supervision Centre (CVC) in coordination with the health sector		
100% of municipalities implement home visit strategies to strengthen the role of families		

childhood services at scale. Red Innova worked with civil servants assigned by these municipalities to build their capacity to make work plans with specific targets; integrate them into the local development plan, making clear what resources the municipality itself would need to commit; and implement a monitoring system based on the *Tecnología Decisiones Informadas* (Informed Decisions Technology) methodology created by the national Ministry of Health.²

We also helped the municipalities to address problems as they arose. For example, in Río Tambo, it became clear that bio-gardens introduced with the aim of improving childhood nutrition were not being used, as families did not know how to prepare meals from the produce. Cooking workshops were introduced to tackle this. Meanwhile in Belén, the process for choosing ‘promoters’ – whose role is to visit and engage with families – needed to be rethought, as it seemed that people were being chosen based on their status rather than their enthusiasm and personal skills for the demands of the role.

We informed the civil servants about the various different mechanisms they could use to seek public and private investment for early childhood services. The Ministry of Economy has existing mechanisms, such as the Municipal Incentives/Modernisation Plan, Participative Budget and public investment projects, which however require skills in project proposal writing that not all municipal civil servants possess. We also supported the civil servants in involving the private sector, to generate synergies among public and private institutions.

However, even with financial resources the right structure is necessary to deliver services at scale. We therefore supported the municipalities to create a platform – called the Articulation and Coordination Mechanism (IAC) – to coordinate all the institutions and sectors responsible for children’s well-being and development from before birth. These mechanisms used health centres as a central point for monitoring children’s growth, engaging families and supporting the training of the community agents responsible for home visits.

The home visiting intervention

During 2012, the early childhood services introduced by these three municipalities reached a total of 737 children under the age of 3 years, and 574 families participated in activities such as home visits which covered issues of health, nutrition, stimulation and protection, and aimed to help mothers to develop healthy habits when bringing up their children. In 2013, these numbers are projected to rise to 2276 and 1767 respectively.

The home visitors visit four families per day, and each family is visited twice per month. Preliminary results suggest that some municipalities have seen strong progress in some areas. On the indicator most relevant to early learning, for example – the percentage of families who play and sing with their children – two of the municipalities recorded encouraging gains (from 31% to 44% in Belén and from 59% to 73% in Río Tambo; in Mazán, 98% of families already sang and played with their children).

Table 2 Children protected during the first year

737 children with improved health, nutrition and education

	Municipality of Belén		Municipality of Mazán		Municipality of Río Tambo	
	Baseline (August 2012) %	Situation in December 2012 %	Baseline (August 2012) %	Situation in December 2012 %	Baseline (August 2012) %	Situation in December 2012 %
Chronic malnutrition in children under 3 years	43.00	36.00	38.00	36.00	49.00	47.50
Families washing with soap and water	43.04	45.60	47.19	72.97	73.91	85.77
Children under 6 months exclusively breastfed*	0.00	60.80	14.29	14.29	0.00	7.84
Families playing or singing with their children	31.43	43.80	97.72	99.55	58.70	73.08
Children attending communal supervision centre (CVC)	10.70	41.10	22.50	89.33	15.77	25.00
Children with ID card	71.20	78.60	65.12	90.00	60.23	68.63

* The low percentage of this indicator means that babies under 6 months old are not exclusively breastfed.

Source: District census applied by the district Municipalities of Mazán, Belén in Loreto and Río Tambo in Junín, using Informed Decisions Technology during the periods of 2011 and 2012: database from the Health Centre in Belén, Mazán Health Post and Puerto Ocopa Health Post.

The very different baseline figures for singing and playing reflect the differences in context across the municipalities. While all three are impoverished areas, Mazán – where almost all parents sing and play – has very low rates of crime, and a dense population with areas for games and sports. By contrast, in Belén there is a high crime rate, a lack of safe playing areas and parents typically work as market traders, putting in very long hours. These factors all seem to limit the opportunities for parents in Belén to play and to develop strong bonds of attachment with their children.

This situation also points to the need for understanding that every context has its own challenges rather trying to standardise an approach. Reflecting on the unique challenges of each location leads to ideas that are adapted to the context – for example, we are looking at the possibility of engaging teenagers to play with young children, in an effort to ensure that under-3s get at least an hour of singing and play every day.

Challenges and lessons learned

All three communities that have participated in this project were chosen via competitive tender, meaning their enthusiasm for the endeavour was there from the start. Different challenges will be involved in replicating the model of seed funding and technical capacity building when it is also necessary to persuade municipal leaders to get involved in the first place. From our experience so far, working in additional localities will require attention to five broad challenges:

Challenge 1: Identify the extent of the children’s problem and firmly commit to bringing about change

- How many children under the age of 3 live in the area?
- How can we find out about the existence of children under the age of 3?
- How can we collect information on every child living in the district when we have a limited budget?
- What should we do when the factors affecting children’s healthy development depend on other factors besides the mayor’s decision?
- What should be the first step to bring about change?

Challenge 2: Take the lead and promote cross-cutting action at territorial level

- As the highest local authority, will the mayor see himself as the designated leader to bring about change?
- How can we get the municipal council engaged in supporting decisions in favour of the early childhood sector?
- Can the municipality develop concerted action with other public institutions?
- What institutions or sectors in the area are responsible for the early childhood sector?
- What do we need to put together?
- What norms and mechanisms contribute towards advancing this coordination at territorial level?

Table 3 More investment for more children

100% of municipalities increase their budget for the early childhood sector

Seed fund S/. 100 000	Seed fund S/. 100 000	Seed fund S/. 100 000
Belén	Mazán	Río Tambo
<ul style="list-style-type: none"> • Seed fund • Investment Year 1 • Investment Year 2 	<ul style="list-style-type: none"> • Seed fund • Investment Year 1 • Investment Year 2 	<ul style="list-style-type: none"> • Seed fund • Investment Year 1 • Investment Year 2
Source of finance Belén Year 2: Public investment	Source of finance Mazán Year 2: Perenco (business) + participatory budget	Source of finance Río Tambo Year 2: Municipalities' own resources

Source: First Year Report – Municipalities of Belén, Mazán and Río Tambo

Challenge 3: Prove that children’s quality of life improves

- Is there a reliable feedback system that will allow us to discover how children are progressing in their development?
- Who is responsible for collecting information?
- Who is responsible for supervising children’s adequate growth and development?
- How can information be analysed and transformed into better intervention practices?

Challenge 4: Quality growth

- What conditions should be guaranteed to extend coverage while ensuring quality?
- Is it possible to build a quality ‘idea’ following standards that take into account real possibilities, the population’s expectations and local cultural patterns?
- Are ‘good’ results sufficient in order to state that the quality of the programme is good?
- How can we avoid losing quality when there is progressive growth?

Challenge 5: Guarantee ongoing intervention in the long term

- How can we ensure that the current municipal government’s decision will remain over time?
- What mechanisms must be incorporated to municipal management to ensure long term concern for childhood?
- Does the population have a role to play?

- Which public administration mechanisms help local municipalities to attract investment in the early childhood sector?
- How is private investment attracted to the early childhood sector?
- Is it enough to formulate a long-term local development plan to guarantee that children will enjoy their right to a better life?
- How can staff turnover at a local level be dealt with?
- Whose training should be strengthened to ensure that there are enough trained staff to look after those in early childhood, regardless of their role during the intervention process?

Despite these challenges, experience so far is very positive. All three municipalities have already managed to increase their financial resources to allow them to reach more children over the course of 2013, two of them by very significant amounts from a low base in 2012. We hope that this experience and the resulting observations will be an inspiration for other initiatives that aim to change the life course of many children in the countries where we operate.

Notes

- 1 Created in 2009, the Red Innova Association is a non-profit organisation that manages a non-profit network of organisations and supports human development by improving quality of life conditions, particularly through better health and education. The Association’s work is based on engaging the stakeholders involved, guaranteeing the transfer and sustainability of the projects through works that will have an impact on public policies and on the development of people’s capacities.
- 2 More information about *Tecnología Decisiones Informadas* is available in Spanish on the website of the Peruvian Ministry of Health, at: <http://www.ins.gob.pe/portal/jerarquia/5/315/tecnologia-decisiones-informadas/jer.315> (accessed May 2013)

The *Mãe Coruja Pernambucana* Programme: a comprehensive care network to reduce maternal and infant mortality in Pernambuco state, Brazil

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Since being established in 2007, the *Mãe Coruja* Programme (PMC) has become a model of effective intervention for young children in the Brazilian state of Pernambuco. This article describes how the programme was implemented, how it is managed and the challenges in creating a programme that can serve as a reference point for public policy across the country.

Pernambuco state is located in the north-east of Brazil. It has a population of 8,796,448 and a population density of 89.63 inhabitants/km² (2010). Pernambuco's capital is Recife, and the state is formed by 184 municipalities as well as the Fernando de Noronha Territory.

Although the area is going through an accelerated process of development, leading to an improvement in its social and economic indicators and to a reduction in infant mortality rates, significant social differences between the state's regions still exist. For instance, according to 2011 estimates, in parts of Recife children are twice as likely to survive as those in the backcountry of the Pernambuco region.

The *Mãe Coruja Pernambucana* Programme was established by the state government in October 2007. Its aim was to reduce infant and maternal mortality and provide care for pregnant women and their children up to the age of 5 – ensuring healthy pregnancies and growth, and strengthening emotional bonds. The expression *mãe coruja* (mother owl) is part of popular culture. Drawing on how the owl represents both knowledge and the ability to see 360°, it implies respect for mothers who look after and feel proud of their children.

The *Mãe Coruja* programme was informed by experiences both elsewhere in Brazil – including the PIM programme described on pages 33–34 of this issue of *Early Childhood Matters* – and overseas, such as Cuba's *Educa a tu Hijo* (Educate your Child) programme. Despite these sources of inspiration, the programme design had to be based on Pernambuco's own needs, challenges and realities.

PMC created a care network based on the health, education and social development sectors, formed by nine state departments: Health; Education; Social Development; Human Rights; Labour, Training and Entrepreneurship; Agriculture and Agrarian Reform; Women; Children and Youth; and Planning, Management and Government. PMC coordinates the different parties and acts jointly with the various departments. The programme is jointly managed by the state and the municipalities, as well as by other bodies such as universities, non-governmental organisations and civil society.

The fundamental principles of the programme are: identifying mothers' and children's needs and analysing each municipality's situation; organising assistance networks; integrating the management of social assistance and health services, while respecting the autonomy of the parties involved; and strengthening primary care by establishing a dialogue with other support services.

PMC's organisational structure is formed of a Consultative Council, coordinated by the First Lady of the State and supervised by the Governor; an Executive Committee coordinated by the Department of Health; an Advisory Committee; four state coordinators; 12 regional coordinators; and one *Mãe Coruja* local office in the municipalities in which mortality rates are equal to or above 25/1000 of babies born alive (2006–2009 data). There are *Mãe Coruja* local offices in a total of 103 municipalities, located in the 12 health regions. Between them, there are nearly 95,000 women registered, and 42,000 accompanied children (SIS-*Mãe Coruja* 2013).

Implementation, management and progress

The programme was implemented after identifying the needs and priorities of the most vulnerable sectors of the population. These included strengthening the State Maternal Mortality Research Committee and State Infant Mortality Prevention and Reduction Committee; guaranteeing access to documentation; strengthening family and emotional ties; access to basic social



The *Mãe Coruja Pernambucana* Programme was established in 2007 with the aim, among others, of providing care for pregnant women and their children up to the age of 5. Photo • Courtesy *Mãe Coruja Pernambucana* Programme

protection; improvement of nutrition and food security; social inclusion through empowering and training women; and income generation. Implementation of the programme took place at different times in the different health regions, starting in 2007 and concluding in 2011.

The state adopted a management model based on results. Priority aims and actions were defined and followed up through a strategy map that was supervised by the state Governor, with a web-based information system specially developed as a tool for follow-up, supervision and assessment.

Progress made by the programme includes:

- strengthening of primary care policies through co-financing
- implementation by *Mãe Coruja*'s local offices of a

matrix structure to coordinate the care of pregnant women and children registered in the municipality's programme

- introduction of early childhood care programmes
- implementation of supervision and assessment of the programme's indicators through the *Mãe Coruja* Programme Information System (SIS-*Mãe Coruja*) and an analysis of the situation of each local office
- investment in the reorganisation of the Maternal Infant Network
- partnership as a strategy of the *Rede Cegonha* (Stork Network)
- strengthening of the Maternal and Infant Deaths Research Committees
- strengthening of the Perinatal Network
- increase in the number of obstetric beds and intensive neonatal care

- reduction in infant mortality – in the period 2006–2011, the infant mortality rate in Pernambuco declined from 21.3 to 15.7 for every 1000 babies born alive. The rate of progress has varied across the different health regions, in part reflecting the different times at which the programme was implemented in each region.

Challenges and lessons

Any programme to reduce maternal and infant mortality needs to take into account the different factors that cause mortality, and the different government departments that can influence these factors – health, education, social development, human rights, agriculture, children and youth, women, labour, training and entrepreneurship, planning, management and government, and so on. It is also necessary to seek partnerships with municipalities, non-governmental organisations and civil society.

The task is not an easy one. It requires going beyond institutional paradigms, identifying financial and human resources, planning according to needs and priorities, and developing awareness among managers, technical experts and partners. Inter-sectoral coordination is a continuing challenge, but necessary if each intervention is to be informed by an analysis of the situation in which all parties are aware of their particular responsibilities.

The active participation of everyone from the beginning of the programme was considered a key factor. The aim was for everyone to feel part of it and therefore responsible for it. To this end, *Mãe Coruja* began a large awareness development process across the whole state, which involved managers, technical experts from different fields, non-governmental organisations and civil society. It was a wide process of debate that took place through videos, rounds of conversations and meetings, and often required deconstructing existing ways of working and thinking in order to construct something new.

It was necessary to carry out a comprehensive training programme for all the professionals involved, and to create an information system – SIS *Mãe Coruja* – that could enable real-time monitoring. This meant that all of the programme’s activities could be supervised and action taken swiftly where necessary.

‘Inter-sectoral coordination is a continuing challenge, but necessary if each intervention is to be informed by an analysis of the situation in which all parties are aware of their particular responsibilities.’

It was clear from the beginning that this was not a pilot programme, but a strategy to develop a state policy that could become a model and reference for the whole country – a policy founded on care, emotional bonds, belonging, and valuing the knowledge of individuals. Having a management model based on results means that the *Mãe Coruja* programme has its own financial resources and a clearly defined budget, which in turn gives it the strength and political empowerment to be sustainable.

Reference

Mãe Coruja Pernambucana. (2011). Cuidando das Mulheres e Crianças Pernambucanas, Slide no. 5. Seminário Cidadão do Futuro, 26–27 October, Brasília. Available at: <http://www.slideshare.net/saepr/informao-acolhimento-e-fortalecimento-dos-vnculos-familiares-virgnia-maria-holanda-de-moura> (accessed May 2013).

Fathers and early learning: what we know

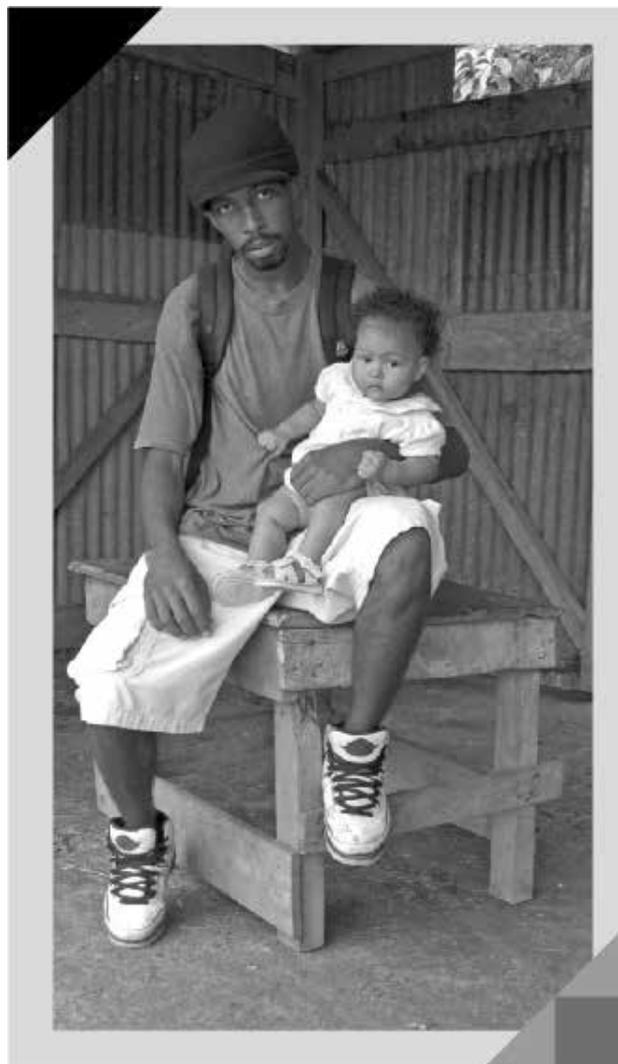
Based on a paper by Fiona McAllister and Adrienne Burgess, Fatherhood Institute, UK; and Jane Kato and Gary Barker, Promundo, Brazil

Given the centrality of parenting to children's learning in the first 3 years of life, it is reasonable to hypothesise that engaging fathers more in parenting will translate into better learning outcomes. This article summarises findings of broader research into engaging fathers, commissioned by the Bernard van Leer Foundation and published in 2012.

The Bernard van Leer Foundation commissioned the UK's Fatherhood Institute, in association with Brazilian NGO Promundo – which runs the *MenCare* campaign¹ – to assess the current state of knowledge about programmes which aim to increase fathers' (and father figures') involvement in young children's lives. The resulting paper, *Fatherhood: Parenting Programmes and Policy – A critical review of best practice*, draws lessons from 20 case studies (McAllister *et al.*, 2012).

It is well established that fathers' involvement is associated with a range of positive outcomes for children. Unfortunately, there is much less evidence about the efficacy of interventions to promote fathers' involvement. Most parenting interventions make no specific effort to target fathers. Most do not even disaggregate data by sex, making it impossible to tell how many fathers participated and whether a programme had different effects on children whose fathers participated. In the few cases where interventions addressing fathers have been robustly evaluated, the follow-up has been only short term, with no evidence about longer-term effects.

Nonetheless, there is some suggestive evidence that efforts to engage fathers in child rearing are worthwhile. For example, a study of 3000 children and parents found that fathers who participated in the Early Head Start programme in the USA were significantly less likely to use harsh discipline than fathers in the control group. Also in the USA, randomised controlled trials of projects carried out by Philip and Carolyn Cowan found that involving both parents was more beneficial than working with just one.



It is well established that fathers' involvement is associated with a range of positive outcomes for children. Photo • Peter de Ruijter/ Bernard van Leer Foundation

In countries where employment law offers paternity leave as well as maternity leave for new parents, there is evidence that in families where fathers make use of their leave allowance, the father is more likely to have greater involvement in childcare, and the mother is more likely to breastfeed and less likely to be depressed. It remains a challenge to encourage more men to make use of the allowances to which they are legally entitled, for example by increasing the flexibility of leave and improving the financial incentives. The Nordic countries have the best-established and most generous provision for fathers; other European countries and Australia have

been moving in this direction recently, but the trend has yet to significantly penetrate East Asia or Africa.

Evidence about promoting fathers' involvement in developing countries is considerably more patchy. One example is the *Écoles des Maris* ('Schools for Husbands') project in Niger, funded by the UNFPA, which aims to train *maris modèles* ('model husbands') to spread the word about the benefits of using local health services. While the project has not been rigorously evaluated, anecdotal evidence from those involved indicates that attitudes have been transformed and maternal and infant health outcomes greatly improved.

'It remains a challenge to encourage more men to make use of the allowances to which they are legally entitled, for example by increasing the flexibility of leave and improving the financial incentives.'

The study recommends that existing programmes that work with parents – starting, importantly, with prenatal services – should make more effort to include and welcome fathers. Micro-credit, conditional cash transfer, and maternal health and child survival programmes are all examples of developing country services that currently tend to target mothers and could reach out more to men. National advocacy campaigns such as MenCare could help to change attitudes as part of a holistic approach. Above all, more rigorous evaluations are needed to assess the effectiveness of all the various possible approaches – including the impacts on children's early learning.

Reference

McAllister, F., Burgess, A., Kato, J. and Barker, G. (2012). *Fatherhood: Parenting Programmes and Policy – A critical review of best practice*. London/Washington, DC: Fatherhood Institute/Promundo/MenCare. Available at: <http://www.comminit.com/early-child/content/fatherhood-parenting-programmes-and-policy-critical-review-best-practice> (accessed April 2013).

Note

¹ Information about the global fatherhood campaign MenCare is available at www.men-care.org (accessed April 2013).

Home visiting programmes: the evolving use of mobile phones

Harouna Ba, Research Scientist, and Loulou Bangura, Research Assistant, Education Development Center (EDC), Center for Children and Technology, New York, USA

What role can mobile technology play in promoting early learning among the 0–3 years age group? Beyond the proliferation of apps aimed at parents, mobile technology is revolutionising the delivery of home visiting services. While interventions are currently focused more on health than on early learning, there is potential to use mobile phones to enhance the effectiveness of home visiting programmes in improving early learning among very young children.

Under a shade tree surrounded by thatched roof huts, a community volunteer follows simple prompts or verbal instructions on her mobile phone to ask a mother about her 1-year-old daughter's health and development. Based on the mother's answers, the volunteer teaches her how to provide good nutrition for her daughter and to engage in activities that help the child's cognitive development. Short videos on the phone help instruct the mother on improved nutrition and activities she can do with her infant to promote good development. Information collected by the worker as she talks with the mother is transmitted to a database ... and can be used to provide feedback and support to the worker that helps her do a better job.

CARE, 2013: 1

There has been an explosion of access to mobile telephones in developing countries in recent years. According to the International Telecommunications Union (2013), there are an estimated 89 mobile subscribers per 100 people in the developing world – up from 49 just 5 years ago. Commissioned by the Bernard van Leer Foundation, we are conducting research into the use of mobile phones in home visiting programmes. This article shares the preliminary findings of an online desk review of published and unpublished articles and reports.

As a UNESCO report puts it:

Mobile phones have the potential to help good-quality early childhood programmes lay strong foundations for learning and development, and improve lifelong opportunities, particularly for vulnerable and disadvantaged children.

UNESCO, 2012: 1



There is potential to use mobile phones to enhance the effectiveness of home visiting programmes. Photo • Peter de Ruiter/Bernard van Leer Foundation

The use of low-cost mobile phones is becoming increasingly common in home visiting programmes, with a growing proportion of programmes employing mobile phones to improve the management and delivery of support and services (Mhila *et al.*, 2009).

Common features of the home visiting programmes we have reviewed in Africa and Asia include mobile phones containing standardised tools for data collection, scheduling and risk assessment; and information being submitted to a central server for analysis, reports and individual follow-ups. Often the software used is open source and supports multiple languages (for example French and Wolof). Home visiting professionals and participating families are trained on how to use the phones to complete specific tasks.

Examples of the reviewed programmes include the following:¹

- ChildCount+, an initiative of the Millennium Villages Project in multiple African countries, uses mobile phones to coordinate the activities of health workers and reduce gaps in treatment (Center for Health Market Innovations, 2013).
- Through the Pesinet project, in Bamako, Mali, agents visit children at home every week to collect health data, which they transmit to doctors, who can identify children at risk and invite them to schedule a visit (Pesinet, 2013).
- HealthPhone in India pre-loads mobile phones with audio-visual information on topics including nutrition, development and early learning. The information can therefore be accessed even without a network signal (HealthPhone, 2013).
- Planned Activities Training (PAT) uses a mobile application to improve parent-child interactions in Kansas, USA, teaching parents to plan daily activities, prepare and engage children and minimise misbehaviour (Bigelow *et al.*, 2008).

There is promising evidence of impact. For example, in the PAT programme, mothers randomly assigned to the intervention involving cell phones were significantly more likely to stay actively engaged during home visits, less likely to drop out, and their children more likely to show better behaviour after six months, compared to the control group (Bigelow *et al.*, 2008).

Despite the rapid spread of mobile technology, challenges remain in reaching especially the most remote and disadvantaged populations. These include limited access to electricity to recharge phone batteries, rates of loss and breakage of phones, unreliable access to the internet, and low literacy levels among parents/guardians.

Nonetheless, the approaches reviewed so far demonstrate promise, and organisations are currently refining their approaches and seeking to replicate effective components of their programmes at scale. The use of mobile technology to improve early learning

through home visiting interventions is therefore likely to evolve rapidly in the coming years.

References

- Bigelow, K.M., Carta, J. and Lefever, J.B. (2008). Using cellular phone technology to enhance a parenting intervention for families at risk for neglect. *Child Maltreatment* 13(4): 362-7, PMID 18794303.
- CARE (2013). *A Concept Note: Using Mobile Health Technology to Improve Nutrition and Early Childhood Development*. Available at: <http://childhealthandnutrition.care2share.wikispaces.net> (accessed May 2013).
- Center for Health Market Innovations (2013, online). 'ChildCount+', Programs. Available at: <http://healthmarketinnovations.org/program/childcount> (accessed May 2013).
- HealthPhone (2013, online). Featured Videos – HealthPhone Essentials. Available at: <http://www.healthphone.org> (accessed 2013).
- International Telecommunications Union (2013). Key ICT Indicators for developed and developing countries and the world (totals and penetration rates). Available at: http://www.itu.int/ITU-D/ict/statistics/at_glance/KeyTelecom.html (accessed May 2013).
- Mhila, G., DeRenzi, B., Mushi, C., Wakabi, T., Steele, M., Dhadialla, P. *et al.* (2009). Using mobile applications for community-based social support for chronic patients. Available at: <http://www.comcarehq.org/pdfs/mhila.pdf> (accessed May 2013).
- Pesinet (2013, online). Program in Bamako, Mali. Available at: <http://www.pesinet.org/wp/2013/03/pilot-project/> (accessed May 2013).
- UNESCO (2012). EFA Crowdsourcing Challenge no 6—Early Childhood Care and Education: How can we use mobile phones to improve early childhood care and education? Available at: http://www.unesco.org/new/en/education/resources/online-materials/singleview/news/efa_crowdsourcing_challenge_n6_early_childhood_care_and_education/ (accessed May 2013).

Note

- ¹ Further information on related programmes and resources is available on the following websites (accessed May 2013):
ChildCount+ Millennium Villages Project <http://healthmarketinnovations.org/program/childcount>
Pesinet in Mali <http://healthmarketinnovations.org/program/pesinet-0>
Formes 123 in Senegal <http://senmobile.com/officialsenmobile/>
HealthPhone <http://www.healthphone.org/>
Health Management and Research Institute <http://www.hmri.in>
mHealth Alliance <http://www.mhealthalliance.org>

Supporting parents from a day-care centre: ÇAÇA's work in Ben-u-Sen

Yiğit Aksakoğlu, Consultant on domestic violence against children for the Bernard van Leer Foundation in Turkey



Activities in the centre are geared towards developing emotional awareness, empathy, skills in self-expression, and creating alternative ways to communicate. Photo • Courtesy ÇAÇA – Ben-u-Sen

As the only civil society institution operating in its neighbourhood, ÇAÇA's day-care centre does much more than look after children. This article explores how the centre is achieving far-reaching effects on family life, including working with parents to help them support the early learning of children who are too young yet to be left at the centre.

The day begins with a ceremony. First Uğur asks, 'How are you?' Some 20 children, aged from 4 to 7 years, shout 'Fiiiine'. Ezgi continues, 'How are your families?' 'Fiiiine.' 'How are your friends?' 'Fiiiine.' Then some of the kids propose other things, ask about our heads, our hair, our trousers ... The answer is always 'fiine'.

Afterwards they decide what to sing. They all know the songs, and are able to sing and dance together.

If this sounds like a very normal introduction activity for a day-care centre, that's because it is. What makes the centre special is how it has succeeded in reaching into the community to shape attitudes to parenting. Staff and volunteers visit mothers at home, and both mothers and children see the centre as a safe haven.

The centre is practically the only service that can be found in the neighbourhood of Ben-u-Sen, besides the school, healthcare centre and municipal laundromat. Ben-u-Sen lies on the edge of the city of Diyarbakır in

Turkey. The outskirts of Diyarbakır are largely populated by Kurds who were displaced from their villages by the war between the armed forces of Turkey and the Kurdistan Workers Party (PKK). Ben-u-Sen (which means 'me and you' in Kurdish) is one of the many districts on the edge of the city where people who have had to leave their houses, land, animals, and whole lives back in their villages are now trying to adapt to city life, with all of its poverty, military bases and police control.

The centre is run by ÇAÇA (the Association of Children Under the Same Roof), which was founded in 2003 by activists with backgrounds in organisations concerned with children and women's rights, psychological counselling, and work with street children. The association now has six full-time employees and 20 volunteers, who are central to the association's ability to work effectively in the community. Most of the volunteers are at university, studying anything from architecture to Korean. Some come from far away, for example Derya, a kindergarten teacher who travels 50 km to work at the centre three days a week. Others, like Mehmet, are graduates of the centre itself: he first came to the centre in second grade, and became a volunteer when he was in the eighth grade. He works with the kids in the art workshop, and mentions that he couldn't paint before coming to the centre but now he is teaching the children how to paint.

The children who regularly come to the centre are between 4 and 15 years old. Their families' average monthly income is around 175 euros. The average family has about five children, all typically sharing a single room. Poor living conditions mean that around 80% of the children have acute health problems such as asthma and bronchitis. The primary school – viewed as one of the most problematic in the city – has 50 to 60 students in each classroom, and has neither a canteen nor a garden. There are high dropout rates among 9 to 12 year olds, as this is when boys begin to work and girls either help their mothers or are forced to get married.

From the centre into the community

Slowly but surely, the centre appears to be changing

local social norms about how to raise children. Mizgin, aged 13, talks about how she wants to keep studying at high school but her father is not keen on it; she says, optimistically, that they will eventually find a middle way. Muhammed, also 13, has attended the centre since the age of 4 and says that whenever he has a problem, he shares it with one of the centre workers, Taşkın.

One of the most visible effects is the changing of traditional attitudes within families towards violence. Boys often exhibit aggression when they first come to the centre, while girls are introverted. There is hitting and pushing. Activities in the centre are geared towards developing emotional awareness, empathy, skills in self-expression, and creating alternative ways to communicate. The children paint stones and sticks, so that they can come to be seen as pieces of art instead of weapons.

'The centre collaborates with other local public institutions and is able to refer mothers to them as needed, and even accompany them on visits.'

Azize, the association's president, says that as the children develop non-violent problem-solving skills, self-control, and the self-confidence to say 'no' coupled with the self-expressiveness to back it up with reasons, they are coming to see themselves as subjects instead of objects – and this attitude brings an expectation of being respected. The boys are adopting a more positive attitude towards girls, while girls are developing a more active role in their social relationships.

Children 4 to 6 years old especially take these new-found habits back home with them. The staff say that kids who initially don't talk much gradually begin to communicate with others at the centre, and then within their families as well. The existence of the centre has influenced the attitudes and behaviours of the families towards their children, as the children can explain what

happens at home and then the staff from the centre visit the families. Azize notes that while domestic violence against women has not disappeared, it has increasingly come to be seen by men as illegitimate.

Home visits are conducted randomly as well as systematically. Azize says:

When volunteers or staff members visit family homes, they ask mothers about their relationships with their children and also the changes they have observed since the children started at the centre. In this way we can observe the change that the mothers as well as the children go through, and the reflection of the change in children to the family.

When we first visit the families, we sometimes find mothers uninterested. They don't know how to solve the problems they face with their children. They know that they have problems with their children, but so do all their neighbours, so they normalise the problems they have. However, in course of time, they become more interested, more able to articulate their problems and active in seeking solutions their problems.

Many of the problems are to do with accessing services and exercising rights. The centre collaborates with other local public institutions and is able to refer mothers to them as needed, and even accompany them on visits. As most of the mothers are native Kurdish speakers and grew up in villages from which they were forced to move, it is not always easy for them to navigate service provision in the context of a Turkish city. By sharing information about children who have problems or exceptional cases of severe violence, the centre and the appropriate social services can also intervene in such emergency situations together.

Effects on younger siblings

ÇAÇA's day-care centre is a new form of service provision, responding to the needs of people at the neighbourhood level, in their native language, with materials that they can access, and collaborating with other institutions. Their approach is geared towards empowering the children, their families, the staff and the volunteers, and not only at affecting their primary target group but also the secondary stakeholders.

Although they are not specifically targeted by the day-care centre, one of the groups most likely to be benefiting are the younger siblings of those who attend – and, in the years to come, the children of the centre's graduates. Semra is typical of the mothers – 23 years old, with a daughter aged 4 who attends the centre regularly and another daughter of 18 months. As awareness about child rearing spreads among mothers like Semra, younger children are increasingly likely to be equipped by their family environments with a more solid foundation for early learning.

Despite the poverty of the neighbourhood, it is easy to observe the hope among everyone at the centre. Parents who themselves never had access to education, health and justice, believe that their children may. There is also a sense of hope that comes from the current peace process that may end the conflict in the region – people are hoping that they may be able to go back to their villages and find the graves of their loved ones. The children at the day-care centre talk about wanting to become doctors, teachers, judges; one says:

I don't want to be a doctor, teacher or a judge. I want to be the prime minister, because prime ministers can do good things for everyone.'

Early Childhood Matters also online!



This edition of *Early Childhood Matters* is also being published online using a blogging platform. The website earlychildhoodmagazine.org has been set up to host individual articles from print editions of *Early Childhood Matters* in a way that makes them easier to share using social media and aggregator websites such as Facebook, Twitter and del.icio.us, and thereby reach new and broader audiences. If you have particularly enjoyed an article in this edition of *Early Childhood Matters*, we invite you to visit earlychildhoodmagazine.org and share it with your online networks.

We also invite you to use the comments facility on earlychildhoodmagazine.org to react to and discuss the issues raised in articles in this edition of *Early Childhood Matters*.

It will, of course, continue to be possible to access *Early Childhood Matters* online in both of the existing ways – as a pdf on bernardvanleer.org, and at the online publishing platform issuu.com.

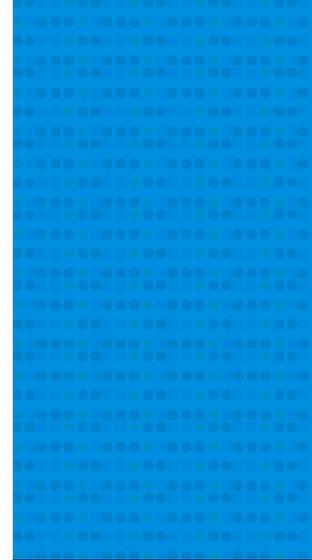
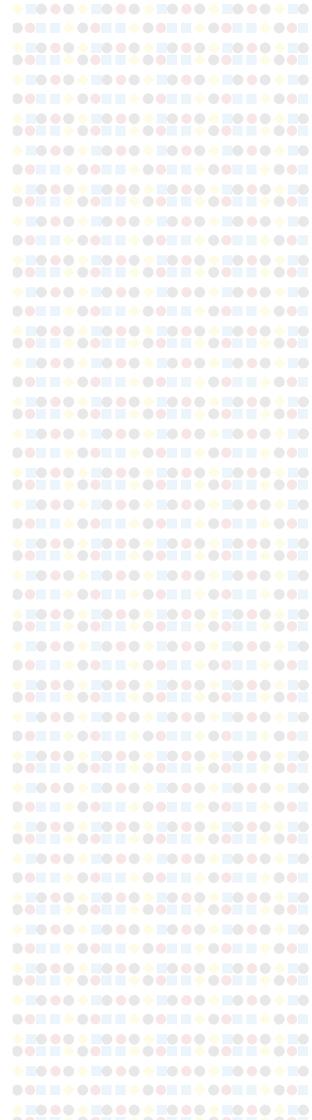
Investing in the development of young children

The Bernard van Leer Foundation funds and shares knowledge about work in early childhood development. The Foundation was established in 1949 and is based in the Netherlands. Our income is derived from the sale of Royal Packaging Industries van Leer N.V., bequeathed to the Foundation by Dutch industrialist and philanthropist Bernard van Leer (1883 to 1958).

Our mission is to improve opportunities for children up to age 8 who are growing up in socially and economically difficult circumstances. We see this both as a valuable end in itself and as a long-term means of promoting more cohesive, considerate and creative societies with equal opportunities and rights for all. We work primarily by supporting programmes implemented by local partners. These include public, private and community-based organisations. Working through partnerships is intended to build local capacity, promote innovation and flexibility, and help to ensure that the work we fund is culturally and contextually appropriate.

We also aim to leverage our impact by working with influential allies to advocate for young children. Our free publications share lessons we have learned from our own grantmaking activities and feature agenda-setting contributions from outside experts. Through our publications and advocacy, we aim to inform and influence policy and practice not only in the countries where we operate but globally.

In our current strategic plan, we are pursuing three programme goals: reducing violence in young children's lives, taking quality early education to scale, and improving young children's physical environments. We are pursuing these goals in eight countries – Peru, India, the Netherlands, Israel, Uganda, Turkey, Brazil and Tanzania – as well as undertaking a regional approach within the European Union.



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