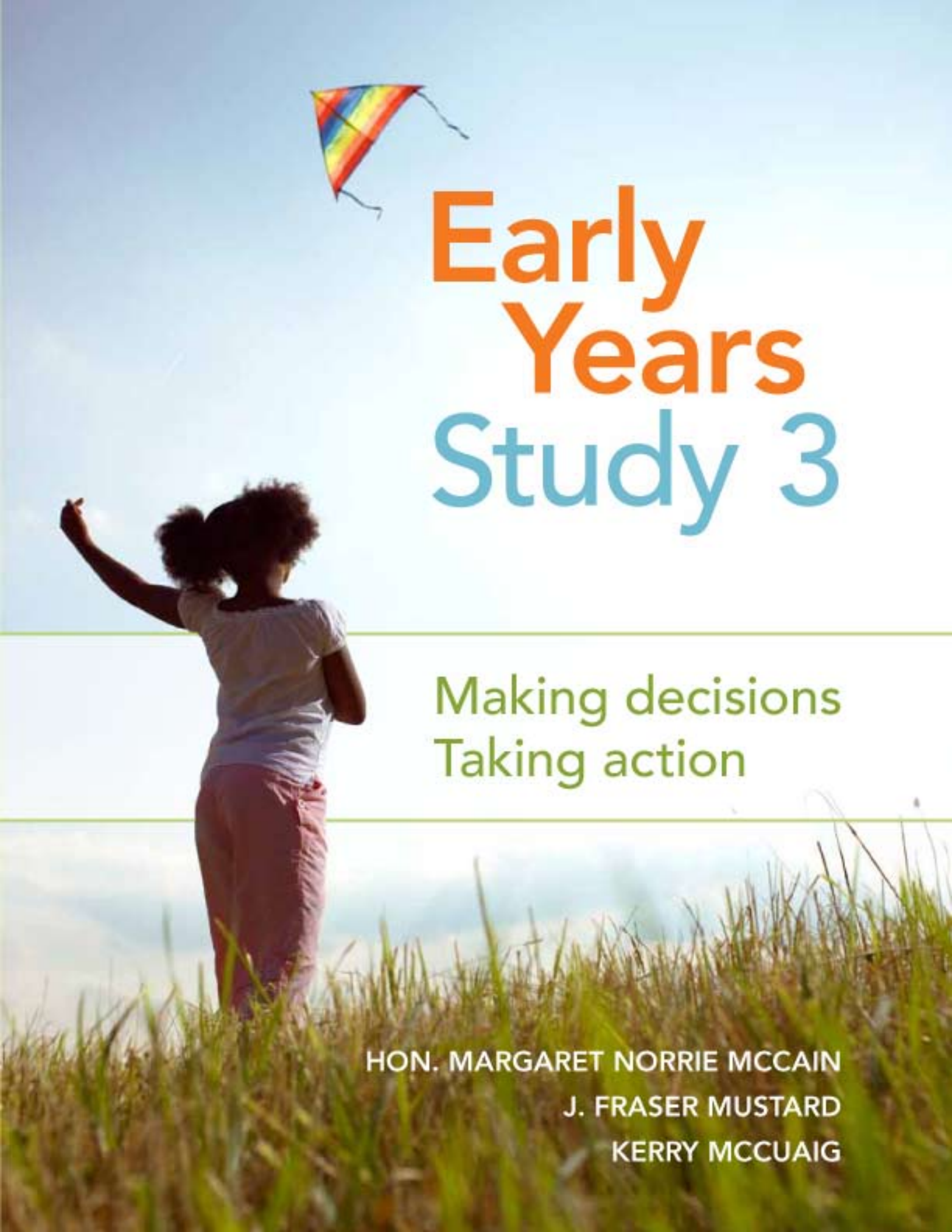

Early Years Study 3

Making decisions Taking action

HON. MARGARET NORRIE MCCAIN
J. FRASER MUSTARD
KERRY MCCUAIG

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Nova Scotia
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- Department of Education
- Department of Health and Wellness

Prince Edward Island
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- Department of Health and Wellness
- Department of Community Services, Seniors and Labour

Quebec
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- Ministry of Health and Long-Term Care

Manitoba
- Healthy Child Manitoba
- Manitoba Department of Education
- Manitoba Department of Family Services and Consumer Affairs
- First Nations & Inuit Health, Manitoba Region, Health Canada

Saskatchewan
- Ministry of Education

Alberta
- Alberta Advanced Education and Technology
- Alberta Children and Youth Services
- Alberta Education
- Alberta Health and Wellness
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Nunavut
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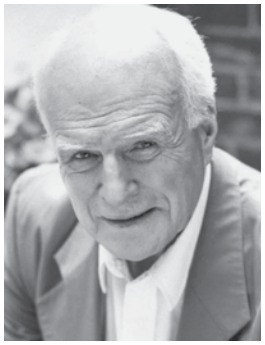
Biographies

The Hon. Margaret Norrie McCain
is the founder and chairperson of the Margaret & Wallace McCain Family Foundation. The former Lieutenant Governor of New Brunswick is a determined champion of young children and their families. She is working closely with communities and governments in Atlantic Canada to establish seamless early childhood programs. Margaret has co-authored *Early Years Study* (1999) with Dr. Fraser Mustard and *Early Years Study 2: Putting Science into Action (2007)* with Dr. Stuart Shanker.



Dr. Fraser Mustard
is a medical scientist who has come to understand the importance of early human development on lifelong learning, behaviour and physical and mental health. He was Dean of Medicine at McMaster University and founded the Canadian Institute for Advanced Research in 1982. Fraser has advised governments about early human development from across Canada and internationally and is a member of the Board of Trustees for the Aga Khan University.

Kerry McCuaig
is a fellow on early childhood policy with the Atkinson Centre for Society and Child Development at the Ontario Institute for Studies in Education/ University of Toronto and is an expert advisor to the early years work of the Atkinson Charitable Foundation, the Margaret & Wallace McCain Family Foundation and the Early Child Development Funders Working Group. This is the second *Early Years Study* Kerry has worked on. She supported the development of *Early Years Study 2: Putting Science into Action (2007).*

Jane Bertrand
is the program director for the Margaret & Wallace McCain Family Foundation. She is an early childhood educator who has worked in programs for young children and families, taken part in various early childhood policy and research initiatives and was a faculty member at the School of Early Childhood at George Brown College. Jane was the research coordinator for *Early Years Study (1999)* and *Early Years Study 2: Putting Science into Action (2007).*

Terms used in this report

Early childhood education (ECE) refers to programs for young children based on an explicit curriculum delivered by qualified staff and designed to support children's development and learning. Settings may include child care centres, nursery schools, preschools, pre- or junior kindergarten and kindergarten. Attendance is regular and children may participate on their own or with a parent or caregiver.

Family daycare and home-visiting in Canada are not included in early childhood education programs. Some may provide intentional curriculum, but early childhood learning is not the primary mandate of these services.

Early childhood educators refers to the adults who work directly with children in early childhood education settings, have ECE post-secondary education credentials and are recognized by provincial/territorial legislation as qualified to teach in licensed child care, nursery schools, preschool or kindergarten programs.

Curriculum is a way of structuring learning experiences as an organized program of activities. In early childhood education, learning experiences include everything that happens to a child from arrival to departure.

The following abbreviations of provincial/territorial names are used in this report:

NL Newfoundland and Labrador
PE Prince Edward Island
NS Nova Scotia
NB New Brunswick
QC Quebec
ON Ontario
MB Manitoba
SK Saskatchewan
AB Alberta
BC British Columbia
YK Yukon
NT Northwest Territories
NU Nunavut

Introduction

Foundations are stepping up for children

Honorable Margaret Norrie McCain

In 1997, Quebec 5-year-olds were enrolled for the first time in full-day kindergarten. For just $5 a day, they could also attend before- and after- school programming. In fact, schools took on extended-day activities for children up to 12 years of age. In 2000, for the same $5, parents could enroll their youngest offspring in "Early Childhood Centres."

Getting crazy for the kids

For Camil Bouchard, it was watching his words come alive. In 1992, the professor from the University of Québec at Montréal had submitted his report to the government: *Un Québec fou de ses enfants* (A Quebec Crazy for its Children). The catchy title was a reminder of just how important it is for every child to have at least one adult who is crazy about her or him. Bouchard asked Quebecers to meet the needs of young children and youth with equity, generosity and compassion. The report's stirring call to action galvanized children's activists, became a blueprint for policy makers and ultimately changed the lives of Quebecers.

82%	Quebec dads who take parental leave
12%	Dads in the rest of Canada who take parental leave
50%	Reduction in child poverty in Quebec since 1998
6%	Canadian GDP to educate children 6–18-years-old[1]
99.2%	Canadian 5-year-olds attending kindergarten[2]

Academics from many fields have tracked the outcomes of Quebec's children's initiatives, and the results have been truly amazing. In just a decade, Quebec has gone from the bottom to the top on many important social indicators. From having Canada's lowest female labour participation, it now has the highest.[3] Where Quebec women were once less likely to attend post-secondary education than their counterparts in the rest of Canada, today they dominate.[4] At the same time, student scores on standardized test have gone from below the Canadian average to above.

Despite working more, Quebec women are also having more babies,[5] and Quebec dads are more involved in child rearing. Eighty-two percent take paid leave after the birth of their infants, compared to just 12 percent of fathers in the rest of the country.[6] In addition, childhood programs that allow mothers to work have slashed Quebec's child poverty rates by 50 percent.[7]

Finally, in an analysis that should catch the attention of policy makers everywhere, Montreal economist Pierre Fortin revealed that the tax revenues from mothers who are able to work because of low cost children's programming pay for the entire cost of Quebec's system.[8]

The Lucie and André Chagnon Foundation marked the anniversary of Professor Bouchard's report this fall. The celebration dovetails naturally with the release of this third edition of the *Early Years Study 3: Making Decisions, Taking Action*. While almost 20 years apart, both documents make a compelling case for why policy makers should focus attention and resources on young children and their families.

Changing the conversation

At the same time as Quebecers were launching their children's revolution, Dr. Fraser Mustard and I released the first *Early Years Study* (1999). It became a conversation-changer for traditional stakeholders and sparked interest among new elements in the scientific, financial and health communities. In it we recommended integrating the existing jumble of children's services into community-based early child development and parenting centres that would be open to every child. The vision led to projects such as *First Duty* in Toronto, *Schools Plus* in Saskatchewan and *Community Schools* in South Australia. These early demonstration sites gave policy makers a place to "touch and feel" the difference between conventional, siloed children's service delivery and a comprehensive format. Parents got to experience an integrated program; politicians, practitioners and experts from far and wide came to see what the future could look like. This helped boost governments' confidence, allowing them to commit to expansion.

These models were highlighted in *Early Years Study 2*, which focused on the policy framework necessary to sustain such initiatives. The report recommended that early childhood programs be grounded in public education. The work of these leaders who showed how to combine the governance, resources, facilities, staffing and pedagogical approaches of early learning, care and family supports continues to inspire innovation elsewhere. Indeed, it is informing demonstration sites supported by the Margaret and Wallace McCain Family Foundation, in partnership with the governments of New Brunswick, Prince Edward Island, Nova Scotia and a First Nations community in Ontario.

Alongside the development of these early learning laboratories, ground-breaking research revealed how the interplay between nurture and nature in earliest childhood sets a course for future learning, health and behaviour. New economic studies analyzed how preschool impacts on children, translating into increased economic growth and a significant return on public investment. The findings were

disseminated through reports, conferences, journal articles and public information campaigns, many of them supported by a group of foundations[a] that have come together to make awareness of early human development a focus of their work.

Together we have a goal that is ambitious, promising and fundamentally progressive: to expand publicly funded preschool education for all 2- to 5-year-olds. It would be available, affordable, top-quality and voluntary. Parents would decide if and how often their children attend. We are building on recent success; the majority of 5-year-olds in Canada now attend full-day kindergarten, and some jurisdictions are expanding access for 4-year-olds. The cross-country analysis in chapter 5 shows that even 2- and 3-year-olds are more likely than before to attend some type of group programming.

Our proposal is also realistic. By broadening education's mandate to include younger children, we can bridge the gap between parental leave and formal schooling. By including the option of extended-day activities for families who request it, Canada can have its long-demanded early learning and care program. We make publicly funded education the starting point of our initiative because it enjoys the confidence of Canadians and already reaches out to all school-aged children. With less effort than starting a whole new social program from scratch, education can meet the needs of preschoolers as well. At the same time schools can become the centre of the community for families with supports and programs from pregnancy on.

The fight for high-quality, universal early education is part of a larger battle to broaden the scope of government responsibility to ensure the success of young children and their families. This includes better parental leave, income support and family-friendly work environments. Quality is the key word. The benefits from high-quality early education and care have been firmly established, but poor-quality programs can be worse than nothing, retarding children's development, wasting taxpayers' money and inflicting long-term harm on efforts to expand preschool when they fail to deliver promised results.

The results promised are justified by an avalanche of evidence showing how a public commitment to improving children's development can have transformative effects. The corollary of failing to act is deleterious for the individual and for society. The developmental gap that emerges so soon after birth for so many children not only robs individual potential, it also creates an unsustainable burden for our education, health and mental health systems. It deprives the economy of productive capacity and society of engaged, contributing participants. Reversing this trend requires smart decisions about program and system design. It requires public investment in a system for early childhood, comparable to the public investment made for the education of children 6 to 18 years.

The resources can be found

The resources can be found. Although we are still cleaning up from the collapse of the world's financial markets, economists tell us that public spending is the best antidote. This science of early development provides a framework to look beyond public works and incentives for the Big Three auto companies, to another important trio—preparing our future workforce, supporting parents to work or upgrade their skills and strengthening democratic communities.

Our goal in producing this third edition of the *Early Years Study* is to bolster the network of scientists, educators and parents, and of policy makers, administrators and community activists, providing them with a heightened capacity to make decisions and take action. We hope to spark the best thinking on public policy innovation, service delivery design, family and community engagement and public accountability. We need the best messaging and the most effective means of delivering it. And we must identify and reach those who do not know about the science of early human development and need to.

In this area, foundations are making a contribution. Like Professor Bouchard's report, *With Our*

[a] Atkinson Charitable Foundation; Fondation Lucie and André Chagnon; Lyle S. Hallman Foundation; Lawson Foundation; Margaret and Wallace McCain Family Foundation; J.W. McConnell Family Foundation; Muttart Foundation and Jimmy Pratt Foundation.

Best Future in Mind: Implementing Early Learning in Ontario was commissioned by a provincial government.[9] Released in 2009, it was unique in focusing not on *why* early childhood development should be an economic and social priority, but rather on *how* to effectively couple new public investments with existing resources to maximize results for children, families and communities. It is the basis for the Ontario government's initiative to expand early education to a full day for all 4- and 5-year-olds.

The back story to the report and the Ontario government's culminating commitment is the decade-long journey of the Atkinson Charitable Foundation to turn scientific evidence into community action and ultimately public policy. It began with a simple but compelling assumption: it is only through public policy that permanent and sustainable changes for a better future can take place.

Turning science into action

Atkinson used the common funder's tool of grant making to support good ideas and efforts—but it went further. It helped found and nurture Toronto First Duty to document and champion good practice as a means to inform public policy. It invested in building solid research and policy responses as part of the effort to realize change. It convened neutral space for stakeholders to organize their thinking and to strategize. An Early Years Fund was established to ensure its partners could always count on the resources needed to stay ahead of the curve, such as newswire posts, meeting supports, polling and quick research pieces. These are all good examples of a funder rolling up its sleeves and getting involved to support its mission.

The Chagnon Foundation used similar tactics to help establish Avenir d'enfants, a joint initiative of the Foundation with the Quebec government. Avenir d'enfants is the next step in Quebec's family policy. It supports local networks throughout the province to consolidate resources to better provide early childhood activities and initiatives.

Knowing you can't manage for improvement if you don't measure to see what is getting better and what isn't, the Lawson Foundation committed to multi-year research and the development of monitoring and assessment tools now used by researchers and practitioners to reveal the effectiveness of programs and policies on a number of scales.

The work of these foundations has fostered a remarkable convergence of stakeholder and public opinion in their respective jurisdictions in support of new approaches to early childhood and family service delivery.

Funders help in other ways. We have ideas, resources, connections, leadership and pretty good inroads with decision makers. We also have the distinct ability to play bridge-builder between the community and policy makers.

Just as good investors know the value of a diversified portfolio, foundations have done well by investing in a range of approaches to address access to preschool. These approaches are demonstrated by the Muttart Foundation's ongoing commitment to child care access and quality, the voice and space for social innovation in First Nations' communities supported by the J. W. McConnell Foundation, and expanding early leaders in child development taken up by the newly formed Pratt Foundation. In addition, regional foundations such as the Lyle S. Hallman Foundation are facilitating new studies, identifying and promoting new voices for early childhood and sponsoring symposiums and other information-sharing platforms.

Recent examples are the "Brainstorm" and "Saving Education" series that appeared in the *Toronto Star*. These innovative works by Atkinson-sponsored journalists call on policy makers and educators to adapt education practices to modern communities and the new knowledge about early brain development.

Foundations are not designed to replace what governments should be doing, nor are we about usurping the public dialogue. Rather, by adopting focused and supportive funding partnerships, we can work with stakeholders to inform democratic discourse, reminding policy makers of their time-sensitive task to help prepare our youngest citizens today for the Canada of tomorrow.

Mothers and others needed for healthy human development

J. Fraser Mustard

My professional life has not always been focused on early human development. After receiving my MD from the University of Toronto, I began a research career at the University of Cambridge, focusing on the role of blood platelets in atherosclerosis and cardiovascular disease. I pursued this work when I returned to the University of Toronto and continued at McMaster University, where I recruited many international scientists who helped to develop the university's problem-based program of medical education. It has since been adopted as a model around the world.[a]

[a] For more about Dr. Mustard's life, see *J. Fraser Mustard: Connections & Careers* (2010), by University of Toronto Professor Emerita Marian A. Packham, a long-time friend, research collaborator and colleague of Dr. Mustard.

Childhood makes us human

In 1982, my career path changed when I took on the challenge of establishing the Canadian Institute for Advanced Research (CIFAR), an "institute without walls" that brought together distinguished investigators from across Canada and around the world to work in interdisciplinary teams exploring significant scientific and social challenges. At CIFAR I began to focus on the relationships between early human development and the future health, learning and behaviour of populations. I have been fortunate to work with some of the best and brightest minds, and they have certainly shaped the course of my work.

Among my latest influencers is Sarah Blaffer Hrdy, a Professor Emerita of Anthropology at University of California–Davis. Her study of humanity brings together economics, history, cultural and linguistic investigations and human evolution. It is a perspective that tells us much about the dynamic dance of people and place that shapes the human experience.

Hrdy finds the key to our evolution in the unique length of human childhood. If the young were to survive in a world of scarce food, they needed to be cared for, not only by their mothers, but also by grandmothers, siblings, aunts and friends. Out of this complicated form of childrearing came the human capacity for engaging with and understanding one another.

Mothers and Others[10] knits a compelling argument that ever since the Pleistocene, it has taken a village to raise children—and how that gave our ancient ancestors the first push on the path toward

10 million	Children who die worldwide before their fifth birthday
750 million	World population in 1750
6.9 billion	World population in 2011[11]
3 million	Illiterate adults in Canada
68	Life expectancy in Canada in 1950[12]
80.4	Life expectancy in Canada in 2005[13]

becoming emotionally modern human beings. These early hunter–gatherer groups were in a general sense an early child development and parenting initiative, dominated by the female members of the society. As the population grew, these small social arrangements changed and the human species evolved different forms of social organization as it developed more complex societies.

With the introduction of agriculture 10,000 years ago, land ownership became very important for societies that coalesced around food production, resulting in the development of towns and cities. Children were a very important part of the manpower necessary to produce food. During this period, societies developed new tools, language and embryonic communication strategies.

Increased food production led to larger communities governed by an elite of wealthy individuals, priests and rulers. These pyramidal societies frequently grew to a size that could no longer be sustained by their existing socioeconomic structures and food supplies. Empire building to acquire food and goods was offset by the cost of maintaining standing armies to subjugate conquered peoples. The Sumer, Grecian and Roman states, and the civilizations of Latin America, all fell prey to this contradiction, as would the European colonists millennia later. This same paradox mires imperialist states in conflicts today.

A qualitative leap in human development occurred 700 years ago. The invention of the printing press made possible the communication of ideas among large numbers of people. With books came the need for education and an expansion of literacy. In Western countries, the Industrial Revolution led to improvements over time in transportation, energy systems, potable water, housing and the social environments in which people lived.

During the 1970s, physician and demographic historian Thomas McKeown argued that the growth in population in the industrialized world from the late 1700s to the present was not due to life-saving advancements in medicine or public health, but instead to improvements in overall standards of living, especially diet, resulting from better economic conditions.[14] His work resonates today due to the importance of the question that underlies it: Are public health ends better served by targeted interventions or by broad-based efforts to redistribute the social, political and economic resources that determine the health of populations?

Robert Fogel, a Nobel Laureate in Economics, University of Chicago, has attempted to get economists to better understand how the relationship between new knowledge, technologies and economic prosperity affects people. In his 1999 presidential address to the American Economic Association, he stated: "I begin with the inadequate attention to the accelerating rate of technological change, the implications of the accelerating change for the restructuring of the economy and its transforming effect on human beings."

In his book, *The Fourth Great Awakening and the Future of Egalitarianism* (2002), Fogel described the changes from 1730 to today in relation to the socioeconomic characteristics of society.[15] He described four periods of what he calls "awakening" from an American perspective. The first awakening, 1730 to 1800, showed marked attacks on British morality and political corruption, and a decline in the power of religion. These concepts fuelled the American Revolution with a strong belief in equality of opportunity that accepted the principle of inequality of income as natural.

The second awakening, 1800 to 1900, resulted in substantial economic growth driven by fossil fuels as an energy source, along with new technologies,

growth in manufacturing and increased urbanization. Although this revolution led to inequalities in the distribution of wealth, there was still a strong belief in equality of opportunity.

The third awakening, 1900 to 1960, was strongly influenced by electricity and cars changing the nature of work and spurring urbanization. Income inequality was still accepted, but the markedly increased gap between rich and poor gave rise to anti-capitalist ideologies, social unrest and the concept of welfare.

The fourth awakening, 1960 to today, has resulted in exponential growth in new technologies and knowledge, along with increased urbanization and population growth. The fourth period is also associated with two seemingly contradictory trends: an upsurge in religious fundamentalism and significant changes in the role and rights of women. The latter is an evolutionary output of the fourth awakening; the former, a reaction to it.

The number of women employed in the market economy has increased dramatically. Social changes, however, have trailed economic realities. The University of Cambridge in England and Harvard University in the U.S. allowed women to attend but did not grant them degrees until after the Second World War. The Cambridge University reports for 1948 and 1949 reveal that the male-dominated Senate wondered if women were really worthy of a degree! Now women have careers in previously male-dominated fields and outnumber men in most post-secondary disciplines, including medicine, law and sometimes engineering. The education of women is strongly linked to lower fertility rates and to the survival, health and educational attainment of their children.

For societies, women's changing role has significantly affected social structures, how families function and how children are raised. It challenges our concepts of a gender division of domestic and productive labour and appropriate roles for the state in supporting families with young children.

Hrdy, in reviewing the changes taking place in Western societies and the effects on mothers and children, was troubled by the percentage of children showing poor development and disorganized attachment. Until recently, in historic terms, children without committed nurturing rarely lived to adulthood. Today, 10 million children still die each year before their fifth birthday, the majority of deaths occurring in low-income countries. In rich nations, children can survive poor nutrition, neglect and even abuse, leading to a proportion[b] of the adult population with learning, behaviour and health difficulties.

Humans are a very recent species in the history of the planet. Following the last Ice Age, the population was probably fewer than 50,000. The Agricultural Revolution supported a population boost, so that by 250 years ago we reached 750 million. In the 20th century, human density increased from 2 billion to 6 billion. In this century, there will be 9 billion human beings on the planet. These numbers will change how we live and organize ourselves; influence socioeconomic initiatives and infrastructures; and test the limits of the environment and resource supplies. Western countries will not be immune to clashes over access to fresh water and food supplies.

Closing the gap between rich and poor

Yet humans have a distinct capability to innovate, create technologies and find solutions to complex problems. Our task today, indeed even our very survival as a species, is to close the gap between rich nations and poor and ensure that future generations have the capacity to create democratic, pluralistic and prosperous societies.

Science has gone a long way in explaining how experience-based brain development in the early years of life (conception to age 6) affects neurobiological pathways that influence the life's course. Hrdy's story makes it clear that equity in early human development requires others to support the mother and her children during early development.

Investing in expectant mothers and their young children is a powerful equalizer and a key tool for economic and social stability. States that invest in women as active members of the labour force show

[b] 25–30% of the adult population in Anglo-American countries.

much better population performance in education, behaviour and health than countries that do not invest. The Scandinavian countries and Cuba invest in pregnant women and young children. They have put in place high-quality centre-based programs involving parents, that are accessible and affordable. For example, the high rate of adult literacy in Norway indicates the benefits of its widespread early childhood programming. By comparison, Canada, with its spotty family policies, has 3 million illiterate adults.

Brain plasticity allows us to consider later interventions to improve outcomes for children who have had a poor start. However, it is better for the child, and less costly for society, to provide a positive beginning, rather than having to resort to remedial action later on.

Findings from early intervention and population studies are compatible with what we know about developmental neurobiology and the importance of early experiences on reading and literacy later in life. Countries with developed preschool systems link their programs to education. Since early human development directly affects performance in the school system, this is a very sensible policy. Pregnancy and the first two to three years of life are critical periods in early human development. Parental leave policies that recognize the benefits of breastfeeding and parental attachment, and that allow new parents to ease back into the workplace, are also essential.

With socioeconomic changes, have modern societies lost the art of nurture to ensure equitable development for all young children? Our understanding of developmental neurobiology in the early years shows us how the development of the architecture and function of the brain in early life affects health, learning and behaviour until we die. Canada's tomorrow depends on our ability to leverage what we know into policies and practices that support families and benefit children today. Now, as never before, the knowledge needs to be harnessed to serve not just every individual in our society, but every society around the globe.

ENDNOTES

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1

A Smart Start for School and for Life

Families raising young children need all the support they can get. In Canada we are making progress. Mothers are supported with universal pre- and postnatal care. All babies are screened at birth. Newborn home visiting is widespread and family centres are found in most neighbourhoods. It is between the end of parental leave and the beginning of schooling that supports break down and public policy is confused about what to do. Ensuring that all young children enjoy the best preschool that we can devise is Canada's unfinished business. This report is intended to show where we are, what we know and what we can do to finish the job.

Good education cares

Ask Jacob[a] what he likes best, and the answer is "school." Indeed, Jacob looks like any other 5-year-old going off to kindergarten—but his school is a little different. The Bruce/WoodGreen Early Learning Centre at Bruce Jr. Public School in east Toronto is designed to show how good public policy can affect good on-the-ground practice. Unlike his counterparts attending kindergarten in nearby schools, Jacob attends a program that combines kindergarten and child care. His is a seamless day packed with music, stories, reading and math games, crafts and outdoor play, all fuelled by a hot lunch and tasty snacks. Meanwhile, his mother, Magela, is down the hall in a colourful room filled with adult-sized easy chairs and children's play centres.

Magela, new to Canada and the mother of four boys ranging in age from 3 months to 7 years, credits the centre with her "sanity." "At home all day with the children I was stressed and depressed. Here the children spend time doing

[a] Actual interview. Names changed for privacy.

45%	of all couples are childless
1 in 2	Quebec children < age 4 in preschool
1 in 5	Children < age 4 living in Prairie provinces attending preschool
One	Age when children in Sweden and Demark are entitled to preschool
66%	Mothers with preschool aged children who are employed
1 in 4	Children with vulnerabilities at school entry
1 in 2	Adults under 45 who don't vote
$2.62 billion	Annual public costs for each cohort of school dropouts

things they love, and I have the support of other parents and the advice of the staff."

Jacob's classroom doesn't look much different from a traditional kindergarten or child care setting, but behind the scenes a great deal more is happening. Teachers, early childhood educators, educational assistants and parenting staff work as a team to create a learning environment incorporating the best traditions of kindergarten, early childhood education and family supports. Children do not bounce from child care to kindergarten and back again; instead, they spend their day in a consistent environment, with the same adults, all with the same expectations. Parents leave for work feeling secure about their child's well-being, spend time in their child's class or drop into the family centre to spend time with their baby and to catch up with other parents and caregivers.

It's a place where everyone in the family learns. Toddler Jonah became jealous of the attention his mother had to give baby Lucas. "Here I can relax and breastfeed the baby," says Magela. "Jonah is too busy with his friends and toys to mind. Marie [the family centre's seasoned early childhood educator] advised me how to deal with his anger and I can see how much his self-esteem has improved."

Magela's children are among several thousand who have taken part in Toronto First Duty, a project designed to combine the three service silos—regulated child care, kindergarten and parenting supports—into a single, accessible early childhood program. The goal is to respond simultaneously to two pressing social needs: giving children the smart start they need for school and for life, while at the same time supporting parents while they work, pursue their own education or take care of other family members. The project's initial focus was on children attending junior and senior kindergarten. In response to family needs, it now includes younger children and provides full-day, year-round programming for school-age children as well.

Since its inception in 2000, Toronto First Duty has inspired similar experiments in communities from Atlantic Canada to British Columbia, and in places as far away as Australia. Visitors to the school often remark, "I wish we could afford this." They are told: "You can. We receive no more resources than any other school in the community. We just use them differently." From a financial viewpoint, this is the beauty of the integrated early childhood program; instead of fragmented administrative and funding structures vying, and often paying twice, for the same children and families, the program combines staff, facilities, equipment, supplies and administration to create a financially-efficient program where parents want to send their children.

The child care dilemma

How do we know what parents want? This is a legitimate question. A cross-country series of focus groups indicated that when it comes to child care, parents get what they can, rather than what they want. "Parents engage in a social and financial calculus to determine whether one of them stays home instead of working 'to pay for daycare,' whether they avoid daycare costs by working opposite shifts so that one parent is always home or whether they wade through the range of possibilities—from

having grandma look after the children to placing the child on a child care waiting list immediately upon conception."[1]

However they agonize, most parents opt for child care. A 2008 survey by the Canadian Council of Learning found two-thirds of parents of young children use some form of child care on a regular basis.[2] The growth in the use of child care is not just an urban phenomenon; it is even more pronounced in rural areas. Information from Statistics Canada from 1994–95 found that child care was used by 36.3 percent of rural children. By 2002–2003, that rate had grown to 52.4 percent.[3] While child care usage increased, so did the number of spaces, doubling across Canada to almost one million in 2011, with Quebec accounting for almost half the total.

But child care programs are also expensive. Except in Quebec, with its vaunted $7-a-day cost to parents, child care elsewhere keeps getting pricier. By July 2011, the Consumer Price Index rose by 3.1 percent over 2010. The average cost of child care across the country went up by 4.3 percent, while other consumer services fell by 0.4 percent.[4] Use of child care centres is dependent on availability and costs. Parents in Quebec are more likely than parents elsewhere to use child care centres for their children. Canadian parents with higher income are also most likely to enrol their children in centres.[5]

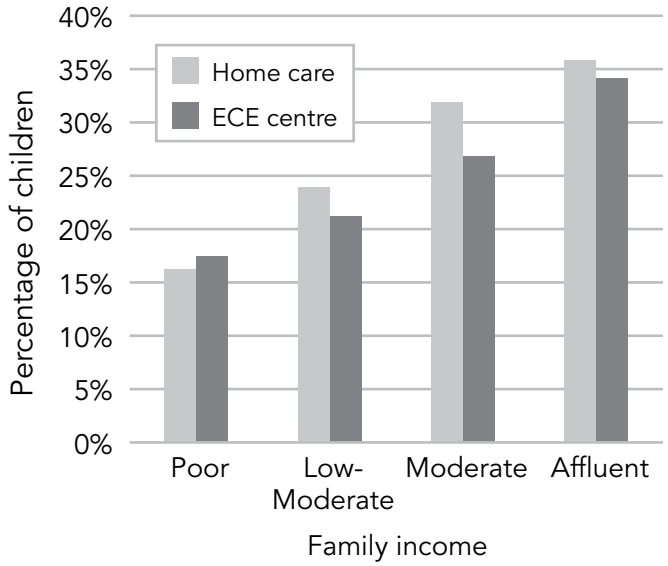
Child care numbers do not factor in the majority of 5-year-olds (99.2%) and the many 4-year-olds (48%)[6] who regularly attend kindergarten, or their younger siblings in preschool programs. Also not counted are children whose parents can afford to supplement their development with sports camps and music, dance and art instruction. The rest make do, observes the report from the focus groups, "displaying a tenacious resourcefulness, often patching together services and supports with limited means to pay for them. It's like they perform quiet acts of heroism, day in and day out."[7]

The loop in the public debate

Parents use a number of different programs to cover their work hours and provide their children with opportunities to learn and socialize with others, but it is child care that gets the attention. Controversy surrounds child care. Is it good or bad for its young

FIGURE 1.1

Percentage of children ages 0–5 years in non-parental care by family income and child care type

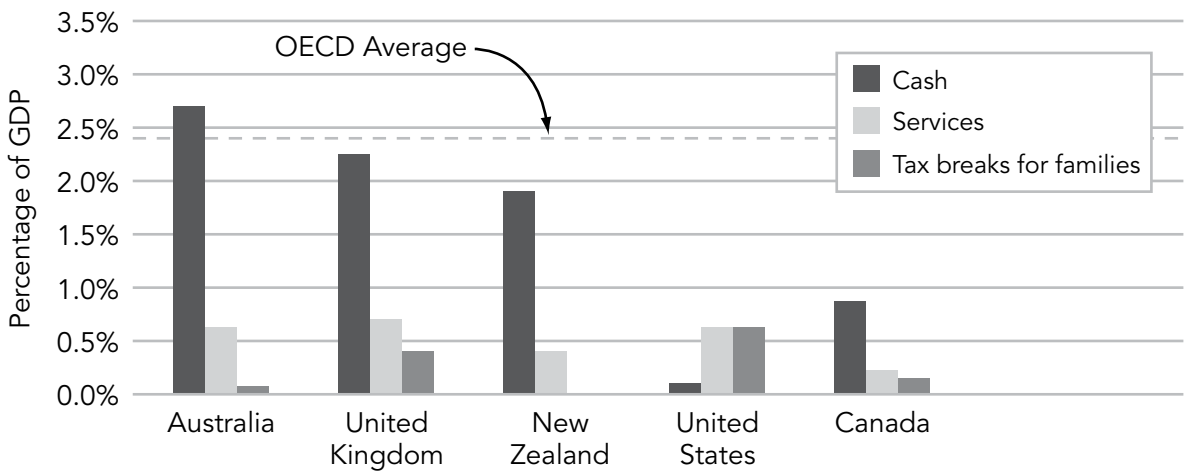


Access to, and affordability of, child-care services influence parents' child care decisions. The availability of government-regulated child care varies across Canada, from almost one space for every two children in Quebec, to one space for every five children in the Prairie provinces.[8] Family income also directs parents' child care options. The less affluent the family, the less likely their children are to attend an ECE centre.[9]

Source: Adapted from Statistics Canada. National Longitudinal Survey of Children and Youth. Cycle 8, 2008–2009. Special tabulation.

FIGURE 1.2

Comparison of public spending on families in five Anglo-American countries as a percentage of GDP



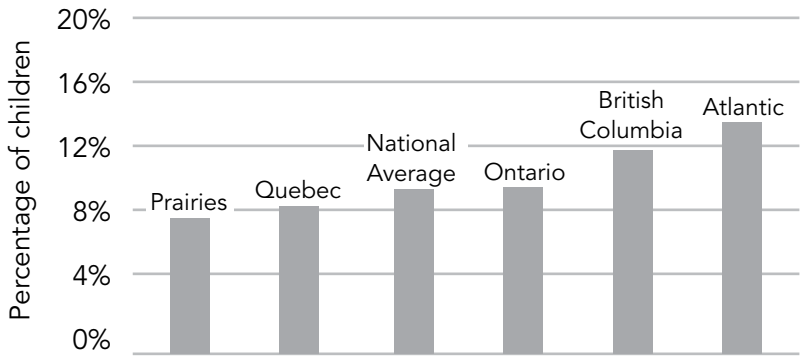
Note: Public spending shown only includes supports that are exclusively for families (e.g., child payments and allowances, parental leave benefits and child care support).

Source: OECD. (2007).

FIGURE 1.3

Incidence of absolute poverty among children

% of children ages 0–17 who live in households that cannot buy a subsistence-level basket of goods and services in five Canadian regions, 2008



Canada spends one-quarter less on cash and family benefits than the OECD average. Payments have not kept pace with living costs, exacerbating inequality and poverty rates over the past 10 years. Canada now ranks 16th out of 22 OECD countries in terms of poverty. The poverty rate for children has remained stagnant the last two decades.[10] The exception is Quebec. Provincial legislation, adopted in 2004, sets a schedule for poverty reduction, backed by supplementary child health benefits and a holistic family policy, which combines parental leaves with family allowances and child care for children up to 12 years of age. High job availability from the natural resource economy accounts in part for the lower child poverty rate in the Prairie provinces.

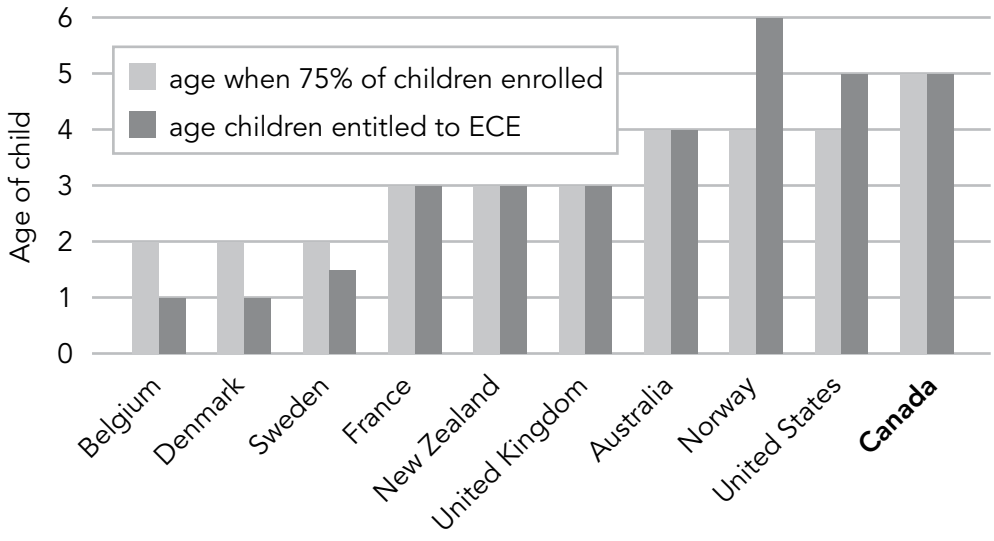
Source: Statistics Canada in Fortin, P. (2010, September 23).

attendees? Some ask if we, as a country, can afford it, while others claim we cannot afford to be without it. But for over a million families, the quest to find and keep child care determines their socioeconomic well-being.

Aside from Quebec, which adopted a multi-pronged family strategy in 1998, Canadians have avoided attempts to fill out their family support policies with programs for young children. At the federal level, successive governments have been more comfortable transferring cash payments, rather than directly investing in services. The Employment Insurance fund compensates new parents at 55 percent of their salary for up to a year, while Quebec has its own more generous parental leave program.[11] The Canada Child Tax Benefit[b, 12] delivers a base $112/month to children up to 18-years-old. A $1,200 taxable annual payment goes to all children to age 6,[c, 13] and parents with valid receipts may claim up to $7,000 in child care expenses. After several aborted attempts to establish a national child care strategy, the Canada Social Transfer sends residual funds to the provinces and territories, for programming for young children. However, provinces are under no obligation to create or sustain services with the money. The clutter of programs obviously isn't sufficient when one in ten children live in poverty.[14]

Few issues trigger more emotion than how governments support parents to raise their preschool-aged children. Much is wrapped up in perceptions about appropriate roles for women with young children. Mothers report feeling stretched between work and home, and guilty about leaving their young children in the care of others. For those who don't feel guilty about working outside the home, the pulpit, the family values lobbyists and the parenting advice gurus can cause them to reconsider.

FIGURE 1.4 **Countries with children enrolled in ECE by age (in years)**



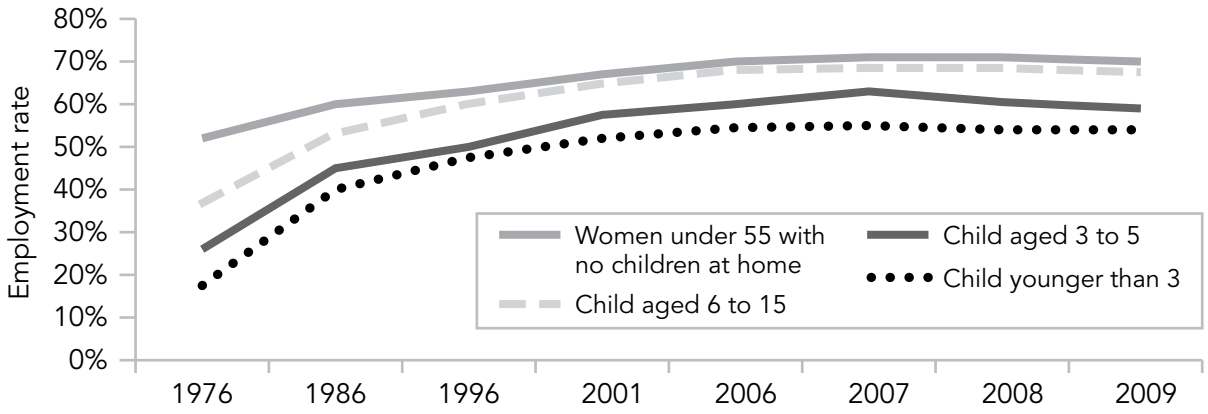
Source: Bennett, J. (2008a).

[b] As of 2010, the Canada Child Tax Benefit pays $112.33 per month for each child, with a supplement of $7.83 per month for third and subsequent children. The benefit amount is reduced when family net income is over $40,970. Families with net incomes less than $23,855 may also be eligible for the National Child Benefit Supplement (NCB) and the Child Disability Benefit. For a family with one child, the NCB pays $2,088 a year ($174.00 a month).

[c] The Universal Child Care Benefit delivers between $680–$950, after taxes, depending on family income and composition (dual earner, single earner, no earner, single parent).

FIGURE 1.5

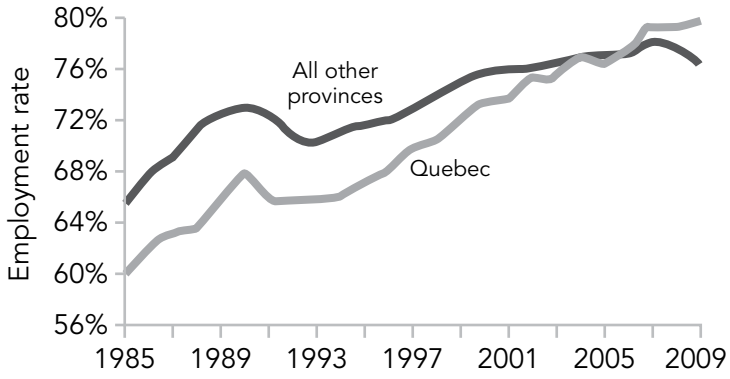
Employment rate of women with children by age of youngest child, 1976–2009



Source: Ferrao, V. (2010).

FIGURE 1.6

Employment rate of women aged 25–44 in Quebec and in all other provinces from 1985–2009



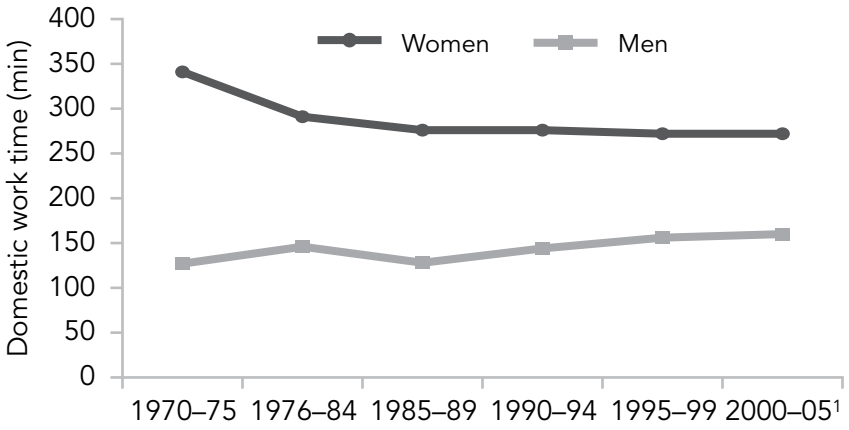
The number of women employed in the market economy has increased dramatically since the 1970s, particularly in Canada, rising from 54 percent in 1975 to 82 percent in 2009 for women in their prime working years (ages 25–44). Motherhood is also much less likely to alter women's labour force participation; 73 percent of women with children younger than 16 years of age are employed, up from 39 percent in 1976. Even women with very young children (< 3 years old) work, up from 28 percent in 1976 to 64 percent by 2009. Overall, in 2009, 66 percent of mothers with preschool children were employed, as were 78 percent of those whose youngest child was aged 6 to 15 years.[15]

Educational levels, labour market conditions and cultural attitudes largely determine the employment rate of women. Family supports including child care, child benefits and paid parental leaves are also influential.[16] Until the mid-2000s, Quebec women, particularly those with children younger than 6-years-old, were least likely to work outside the home.[17] That trend has been reversed; Quebec women now enjoy the highest employment rate in the country and outnumber men in higher education, including medicine and law. More mothers in the labour force also helps to explain Quebec's declining child poverty rate—the best poverty prevention is a job. Across Canada, the poverty rate is 21 percent in one-income households, but only 4 percent if two or more people are working.[18]

Source: Statistics Canada in Fortin, P. (2010, September 23).

FIGURE 1.7

Total domestic work time (minutes per day) for Canadian men and women, aged 20–59 years



Mothers do more domestic work, but both parents prioritize time with children. A 2011 study of domestic work in 16 developed countries found a slow but steady transformation in the sharing of domestic work in male/female households.[19] Women are still responsible for the daily tasks of cleaning, laundry and food preparation, while men focus on yard work and home repairs. The care of children is an interesting contrast to routine housework, says the study's co-author Oriel Sullivan. "[F]or both men and women, the time that's spent in child care has been increasing quite dramatically, contrary to many media panics about the effect that women moving into employment in large numbers would have on child development and the time children get to spend with their parents."[20] Progressive public employment policies, including parental leave and public child care, are associated with greater equity in the sharing of domestic tasks, the study found. In economies more governed by market forces, such as those in the U.S., the U.K., Australia and Canada, women did not enjoy the same level of equality in the workplace or at home.

(1) 2000–2005 results. Facts on Canada. Women in Canada. www.infocan.gc.ca.
Source: Kan, M.Y., Sullivan, O., & Gershuny, J. (2011).

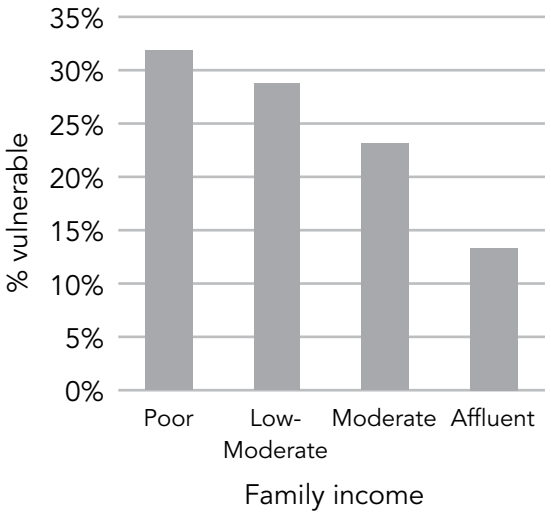
Most women want to work, while many have to; if they did not work, the economy wouldn't function. A study reported in the *Ottawa Citizen* calculates that if one parent from every two-parent working family stayed home, tax revenues would drop by $35 billion annually.[21] While Canadians remain ambivalent about the appropriate types and the amount of public support for families with young children, our contemporaries in the Organisation for Economic Co-operation and Development (OECD)—the world's richest countries—have changed the discussion from the need to mind the children of working parents, to stimulating *all* children. Driven by the massive body of research that points to the importance of the early years for future health, behaviour and learning, they have invested heavily in early childhood programs, largely by including younger children in public education. At age 1, children in Sweden, Denmark and Finland are entitled to a preschool program, while at age 2, children in France and Belgium regularly attend preschool. Most countries in the European Union have set a target to provide at least two years of preschool for all children.

Starting from education's base

As Parliament debates whether child care means forcing parents "to have other people raise their children,"[22] the provinces have been experimenting with public education to expand early learning opportunities. Education enjoys widespread public confidence,[23] and using our largely underutilized schools is smarter and less costly than creating an entirely new program from the ground up. Full-day kindergarten, which is either in place or starting up in a

FIGURE 1.8

% Vulnerable on Early Development Instrument



Source: Janus, M. (2010).

number of provinces, makes a natural link to child care. If parental leave is extended from the current one year to 18 months, it would be relatively easy to bridge the gap between parental leave and school. Quebec has grasped this concept by enriching its parental leave and expanding educational child care for preschoolers. Full-day kindergarten begins at age 5, and school boards are required to provide out-of-school care for children up to age 12.

Creating an early childhood system linked to public education was introduced in *Early Years Study 2* (2007) and elaborated on in a 2009 Ontario report. *With Our Best Future in Mind*[24] envisions the transformation of elementary schools into child and family centres, welcoming infants to adolescents and operating year-round. It pleads with all concerned to break down their legislative, administrative and funding silos, and leave territorial and professional jealousies behind. The report argues that all the elements exist in the hodgepodge of child care, public health, education and family support services to create a consolidated program that can actually work for families.

One-in-four start out disadvantaged

Yet many believe that families are managing fine without this type of program, and are concerned about who will pay for it. Not all children are managing. Most provinces determine children's readiness for school learning during kindergarten using the Early Development Instrument (EDI). Kindergarten teachers use the EDI to assess children on scales related to their social, emotional, cognitive and physical development. Country-wide data shows that more than one in four children arrive at kindergarten with vulnerabilities that make them more likely to fail in school.[25] Children who have trouble coping in kindergarten are less likely to graduate from high school or go on to post-secondary education. As adults they are more likely to fail in their personal relationships and have difficulties finding steady work. They are also more likely to become sick, addicted or depressed. Poverty increases children's chances of delayed development, but it is not the only factor. Most vulnerable kids do not dwell in poverty; they live in middle-and upper-income households and neighbourhoods.[26]

Researchers and policy makers often argue that public investment in early childhood education should be reserved for children from disadvantaged homes. The problem is that programs for poor people become poor programs. A recent study found that early learning classrooms comprised of about 60 percent of children from low-income homes were rated significantly lower in quality indicators of teaching, teacher–child interaction and provisions for learning than classrooms with fewer low-income children.[27]

Conversely, a British study found that children from poor families who went to preschool with middle class children did better than those who were educated in social and economic isolation.[28] The same result was found in a study of Georgia's universal preschool program. On reading and math tests, poor children did best in socially mixed classes.[29]

Poor children face a string of disadvantages that middle class children may not confront, but there is still room for concern. The learning gap between middle income children and those born to the wealthy is just as big as the gap that separates

low-income children from the middle class. Middle class children, particularly boys,[30] drop out of school at alarming rates and with lifelong consequences.[31] In addition, income does not inoculate children against learning disabilities or less than ideal home lives.

Why are so many children, even those in well-off families, facing such limited opportunities? Because, for the first time in modern history, the old are taking wealth and opportunity away from the young. "Canadians sit idly, ignoring that young families have household incomes that are little better than four decades ago; all the while housing, the primary source of wealth for Boomers today, is the primary source of debt for the Squeeze Generation," writes Paul Kershaw of the University of British Columbia in the *Vancouver Sun*. He coined the moniker to describe this generation of families with children who are working more, caring more and getting less.[32] Just having children puts couples at a 40 percent risk of poverty. Lone-parents have a one in two chance of being poor.

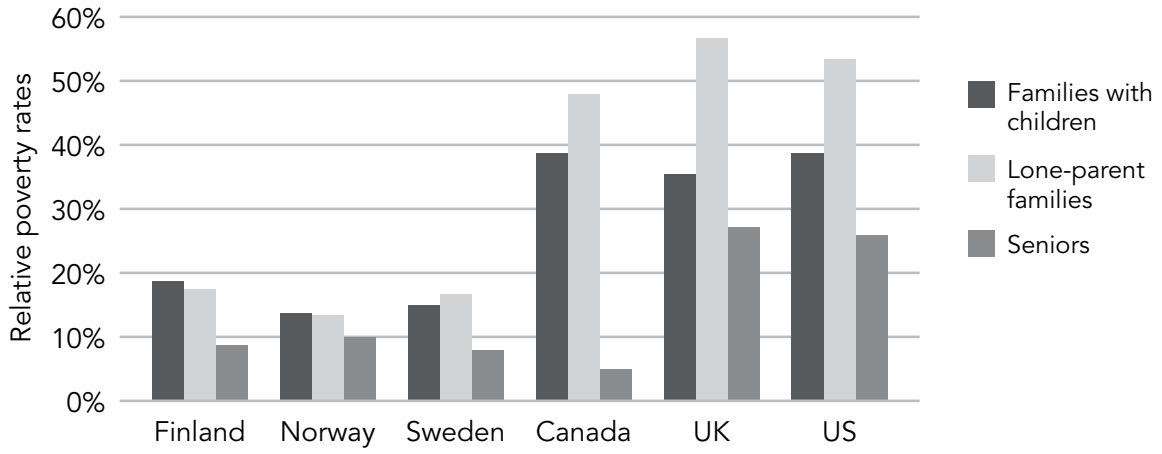
Children make good political props; no campaign exists without a handful of healthy and diverse child models gracing its platform. Yet children are absent from public priorities. Health care, which overwhelmingly benefits seniors, sucks up an increasing portion of social spending. Meanwhile the Boomers—the wealthiest cohort of all—clamour for tax cuts, giving away governments' capacity to help their children and grandchildren. Social transfers traditionally used to curb the excesses of the market now exacerbate the problem. Health care pays out five times more to a senior than to a child.[33] Over the past three decades, the share of overall social spending on children has declined, while seniors have enjoyed continuous increases for their programs.[34]

Democracy in trouble

The night of the 2011 federal election revealed how this generational schism had spread into our democratic system. Pollster forecasts were so off the mark on the election results that they had to go back to find out why. Their analyses revealed a voting fault line: boomers voted; their adult children did not.[35] The older the voter, the more likely they were to turn up at the polls (60–80%) and vote Conservative. Younger voters told pollsters they liked the Liberals and NDP, but stayed home on Election Day.

When more than 50 percent of the electorate younger than 45-years-old do not vote, and only

FIGURE 1.9 **Relative poverty rates for three social risk categories**



Poverty threshold = 60% of median equivalent disposable income.
Source: Commission on Social Determinants of Health. (2008). p. 85.

30 percent of those ages 18 to 25 years turn out, politicians pitch their message to and govern on behalf of older Canadians. The more absent the concerns of the young are from public discourse, the more alienated they become.

Canada's median age is 42 years and rising. The young are aging and bringing with them an apolitical culture. The Boomers are also getting older and bringing with them a huge retirement bill. The tensions between young and old can only intensify, and there will be fewer democratic outlets to address them.

If younger Canadians are to connect with the political process, it needs to address their concerns. For the cohort of people raising young children, a legislature that relieved one of their major stressors by providing affordable, educational care for their children might be worth paying attention to. The alternative is a democracy where one person in two does not see a role for themselves, which is a tenuous base for democratic survival.

Making a difference

What difference could it make to families with young children—indeed to all of us—if every child enjoyed a program like the one that exists at Bruce School or in many other exemplary communities?

Let us revisit the family profiled at the beginning of this chapter. In her short interview, the mother identifies the myriad of daily challenges that if not addressed could—not necessarily will—become long-term problems. Instead of being "stressed and depressed" at home with a new baby and a cantankerous toddler, the centre allows her to kick the isolation that mothers of new infants often experience. As a new Canadian, she found a social network at the school. Moreover, she credits the program with allowing her to relax, to breastfeed her baby and to help her toddler regulate his behaviour. Meanwhile, her older sons transitioned easily into school from kindergarten and the family centre and are doing well. Magela has daily communication with their teachers and the family often gets together over lunch or for after-school events.

This is not simply a warm-hearted story of a stay-at-home, immigrant mother. Traditionally, the integration of new Canadians has been viewed strictly through a social justice lens. Yet fostering social equity has a very real impact on economic sustainability and growth. Canada has not been doing as well integrating new arrivals. Studies have examined the hard costs of isolation and the resulting development of immigrant enclaves.[36] They also explore the economic advantages of creating strong neighbourhood networks and leveraging the talents of new Canadians. For a country like Canada whose very existence depends on immigration, having the school take double-billing as a welcome wagon for new arrivals is effective programming that makes financial sense.

If the centre reduced but one incident of maternal depression, it would more than pay for itself. Depression disrupts the mother–infant relationship and increases the risk for learning, emotional and behavioural disorders in children.[37] Most new mothers, and up to 25 percent of new fathers, experience depressive symptoms that range from very mild to quite severe.[38] When detected early, studies have found positive results from expanding the mother's support network, group counselling and even classes in baby massage.[39] Early childhood programs provide a non-judgmental, nurturing environment for early childhood and health professionals to meet regularly with new parents and their babies and respond as needed.

Support for breastfeeding is another of the many ways that early childhood programs aid in the healthy development of young children by helping their parents. Breastfeeding not only provides optimal nutritional, immunological and emotional benefits for the growth and development of infants, but also has a protective effect on maternal mental health. Among the resources the family centre offers new parents are public health nurses trained in nursing support.

Being stressed and depressed is not restricted to new mothers, nor to financially struggling, new immigrant or lone-parents. The Squeeze Generation is looking after both young children and aging parents. They are working longer and harder, and job security is not an option.[40] A survey by the

Conference Board of Canada found that the most frazzled employee is the professional mother.[41]

Stressed-out parents are not great for their children. Stress disrupts parents' ability to manage their own conduct, leaving them with fewer resources to regulate their children's behaviour. The more harried parents are, the less likely they are able to engage positively with their children. Chronic parental stress 'drips down' on children; researchers have connected chronic parent stress to the poor academic record of their children.[42]

Toronto Star columnist Catherine Porter described her mounting tension as she waits on the subway platform at the end of each work day, willing the train to come: "[W]hile the neighbourhood school might take [daughter] Lyla for a full day, it won't take my son Noah. He's too young. He'll have to go to Lyla's old daycare, a subway stop away. Two drop-offs. Two pickups. Double stress on the subway platform. Daycare breakdance."[43]

Researchers have found that parents whose children attend programs that are integrated into their school are much less anxious than their neighbours whose kids are in the regular jumbled system.[44] Direct gains have also been documented for children. Evaluations of Sure Start in the UK,[45] Communities for Children in Australia[46] and Toronto First Duty[47] found children in neighbourhoods with integrated children's services showed better social development,[48] more positive social behaviour and greater independence/self-regulation compared with children living in similar areas without an integrated program.

Canadians must make the hard and important job of raising children a little easier. As a society, we cannot have it all. We rely on women's labour and expect families to shoulder the social and financial load for rearing the next generation. But we pay a big price when families flounder and their children get left behind. Just as health care costs are unmanageable without health promotion, cleaning up *after* children that have fallen through the cracks is equally unsustainable.

Paying for inaction

School budgets for children with special needs are increasing across Canada, yet experts and educators still paint a bleak picture of special education.[49, 50] An Ontario survey shows almost 17 percent of elementary students and 19 percent of secondary students received some form of special education support in 2010—up from 11 percent and 14 percent respectively in 2001—yet many more go without help. Twenty-three percent of elementary schools and 21 percent of secondary schools identify students who are not receiving support.[51] The largest increase is in the number of children suffering from behavioural challenges including aggression, Attention Deficit Disorder or Attention Deficit Hyperactivity Disorder.[52]

Even with expensive interventions by schools, it is often too late to change the trajectory for the numbers of 5-year-olds who are ill-prepared for kindergarten. Many will not graduate high school; one in five Canadians do not. An analysis by the Canadian Council on Learning pegs the annual public cost of one early school leaver at $7,515 annually, a figure derived from a combination of lost tax revenue and increased spending on unemployment insurance and social assistance, and increased costs to the criminal justice system. The cost to the individual is even higher, at $11,589 in diminished health and income. Annually, the public costs for a cohort of early school leavers total $2.62 billion. Costs are estimated in the hundreds of billions of dollars when aggregated over the expected lifetimes of each cohort of dropouts across Canada.[53]

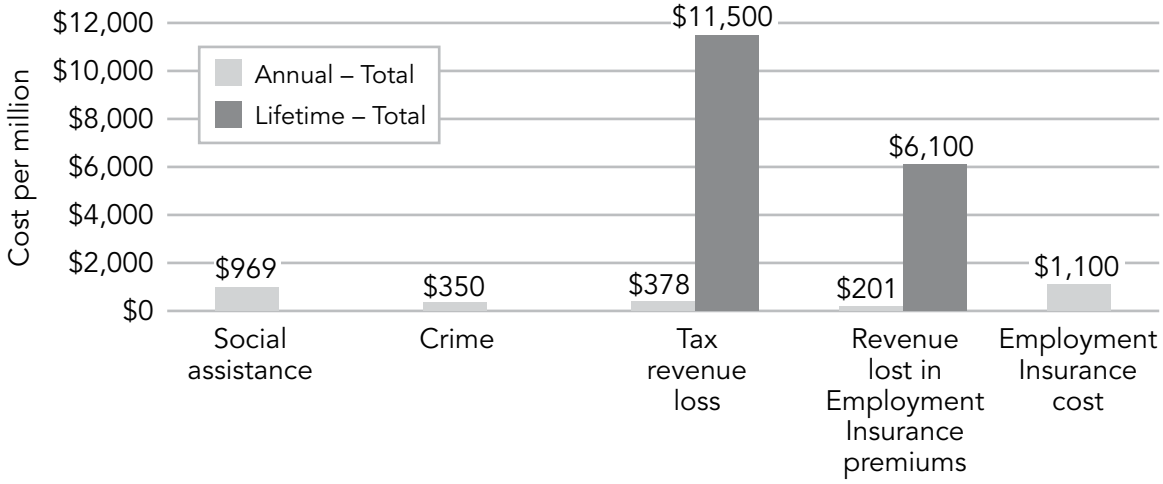
Turning chaos into systems

We need to turn our family policy junkyard into a human development system. By viewing the school as a family centre not only for students during the school day, but also for families during non-school hours, we can have an early childhood system that responds to the new Canadian mother and her children, as well as the expectant mother, the at-home father and dual-income professionals and their children.

What are the features of family-centred schools that welcome babies to adolescents?

- **Rooted in its community:** It is not the wealth of a neighbourhood, but its sense of neighbourliness, that makes it a good place to raise children.

FIGURE 1.10 **Public costs of high school non-completion in Canada by cohort (2008 dollars)**



Source: Hankivsky, O. (2008).

Social cohesion brings a sense of individual security and belonging that trumps socioeconomic status when it comes to positive outcomes for children. Schools that are at the centre of their neighbourhood nurture social networks that extend inside and beyond the school walls. They introduce children and families to community resources, such as parks, libraries, recreation, commercial and cultural centres. They enrich the learning environment by bringing the neighbourhood into the school, whether it is the optometrist, dentist, coach, local historian or visual artist. In one school, the interest of the kindergarten class in nutrition was expanded by planting an herb garden. A keen gardener who lived across the street from the school volunteered her expertise. 'Her' 4-year-olds are now in grade 4 and often return the favour: "There's no shortage of volunteers to help me rake or weed." Children who learn the joys of volunteerism are more likely to become adults who contribute.[54] U.S. research indicates that schools where students feel respected, that are intensively used, and that have good community connections experience less vandalism, regardless of neighbourhood income.[55] In an era of declining student enrolment, locating early childhood programs in schools helps maintain the viability of the school and, especially in small rural areas, the school can preserve the community.

- **Open to all:** Public funding means everyone gets to participate. Canada scores rather well on quality of living indexes, in part because it is a model for pluralism.[56] We have so far been spared the ideological fundamentalism that has brought violence and insecurity to much of the world. On a planet that is stretched between growing populations and shrinking water and food sources, our very survival as a species depends on our ability to develop and share solutions. Neighbourhood schools not only teach kids about their world, they showcase it. "Our family doesn't hold religious observance," one mother relates. "But I love that my 5-year-old sings 'Dreidle, Dreidle' and gets wide eyed over the ancient story of Hanukkah, that 'Miriam's mommy told us.'" In another example, a class of 4- and 5-year-olds as ethnically representative as a UN delegation makes its way down the Rideau Canal strapped into their first pair of ice skates, getting a lesson in what it means

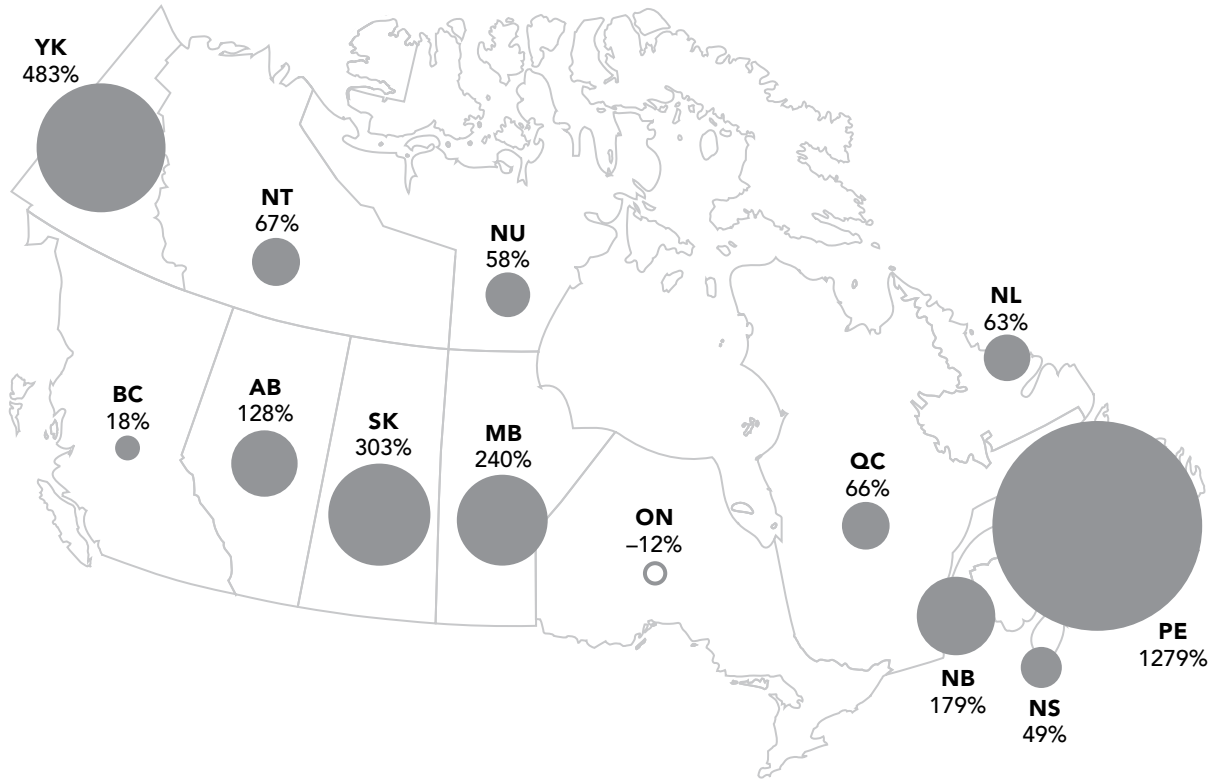
to be Canadian. Dr. Fraser Mustard relates that puppies and kittens raised together grow up to be cats and dogs that get along; the same can be said of people. In a world undergoing a social and environmental revolution, getting along is crucial.

- **Champions a whole child approach to learning:** Early childhood education is rooted in the evidence that learning takes place best in meaningful, playful environments rich with opportunities for exploration. It recognizes that children who are ill-nurtured, rarely encouraged or unable to communicate with their peers and teachers will find it difficult to develop numeracy and literacy skills. Introducing this perspective into schools has been found to lessen the restrictive focus on cognitive skills and to smooth transitions for children from preschool to kindergarten and into the elementary grades.[57] Family-centred schools recognize that children do not exist apart from their families. Parents are respected for the primary role they play in their child's development and are welcomed as essential partners of the teaching team.[58]
- **Democratic:** Democracy demands day-to-day involvement that goes beyond electing school trustees and the parent council. When early childhood programs are integrated with schools, parents are more likely to view the school's staff as part of their social networks. Research shows parents feel more connected to the school. They take responsibility for talking to their child's educators and believe that administrators listen to and respect their viewpoints and act on their suggestions.[59] Parents who become active when their children are in preschool are more likely to remain active when their children reach elementary school. Parent advocates are key to family-centred schools and to their own children's success in school.
- **A strong policy and administrative framework:** Without a plan to address the fragmentation that plagues early childhood programming, public policy will continue to flounder. Only senior levels of government have the authority to merge public and private services with multiple and overlapping purposes, regulatory requirements and funding. Politicians take one look at this file and run. If anything, they create yet another program that they can brand as their own, wasting resources with misdirected or duplicated services—hence the alphabet soup of services parents must navigate. More recently, jurisdictions have responded by moving responsibility for child care to their education departments. Often this is as far as it goes, while on-the-ground providers are each left in their own service ghettos. Integration is tough work, but it creates a foundation for growth. Rather than playing child care against kindergarten or parenting programs, an early childhood system does not differentiate between *education* and *care*. New investments expand and improve *the system* and the life chances of children.

Our proposals for family-centred schools may be misinterpreted as denigrating the contributions of the health and child care sectors to children and families. Rather, we start from the considerable international evidence in choosing education as the base upon which to grow an early childhood system. Education is unambiguous. It is about children—all children. From this universal and well-established platform, a modern understanding that learning begins at birth and continues throughout life can be grown. There is no need to reinvent the wheel—education already comes with a strong infrastructure (financing, training, curriculum, data collection, evaluation and research).[60]

Parents demonstrate their trust in education by sending their children to school. Among our Anglo-American counterparts, Canada has the highest enrolment in publicly funded education.[61] Parent confidence is well-founded. Our public schools have produced political leaders, Supreme Court judges, recipients of the Order of Canada and cultural and scientific icons. Schools have helped to prepare children born here and abroad to participate in shaping a democracy that is pluralistic and respectful. Early childhood programming provides an opportunity to transform schools into vibrant family centres that welcome children and families before, during and after the school bell rings.

FIGURE 1.11 **Change in international immigration by provinces/territories,** 2000–2010



	NL	PE	NS	NB	QC	ON	MB	SK	AB	BC	YK	NT	NU	CAN
2000	417	188	1,605	761	32,502	133,502	4,647	1,891	14,349	37,413	60	82	12	227,429
2010	681	2,593	2,396	2,125	53,985	118,137	15,805	7,617	32,647	44,179	350	137	19	280,671

Source: Adapted from Statistics Canada. International migration components, Canada, provinces and territories, 2000 and 2010 CANSIM Table 051-0037.

Changing populations

Canada is home to 2,238,485 children age 5 years and younger.[62] They live in a country whose population is growing, aging and becoming more diverse and more urbanized.

Canada's population maintained a steady .02 percent growth into 2011, reaching 34,349,200 people.[63] Alberta registered the fastest increase (+0.4%), while Newfoundland, Nova Scotia and the Northwest Territories experienced slight population declines.[64] Children are growing up in cities. More than 80 percent of Canadians live in towns and cities but urbanization varies by region. The populations of Ontario and British Columbia are 85 percent urban compared to 50 percent in New Brunswick or 45 percent in Prince Edward Island. The majority of urban dwellers, 65 percent, are attracted to the big five metropolitan areas: Vancouver, Edmonton, Calgary, Toronto and Montreal. This trend is likely to continue as young adults from rural areas continue to migrate to urban centres. However, the biggest contributor to population growth is international immigration.[65]

FIGURE 1.12 **Canada: Urban and rural populations**

Year	Total Population	Urban Population	Rural Population	Percentage Urban	Percentage Rural
1996	28,846,758	22,461,207	6,385,551	78	22
2001	30,007,094	23,908,211	6,098,883	80	20
2006	31,612,897	25,350,743	6,262,154	80	20
2011	34,005,708	27,479,360	6,526,348	81	19

Note: The rural population for 1981 to 2006 refers to persons living outside centres with a population of 1,000 AND outside areas with 400 persons per square kilometre.

Source: Statistics Canada, Census of Population, 1851 to 2006. 2011 figures are estimated.

Immigration is important to all parts of Canada. Newcomers who were once drawn to Ontario are increasingly looking for opportunities in other parts of the country. Between 2000 and 2010, almost 15,000 fewer immigrants went to Ontario, while Quebec gained an additional 18,000 newcomers. The Prairies and Maritimes noted remarkable changes. Manitoba more than doubled its immgrant population, while during this time period PEI's immigrant population increased by over 1,000 percent! Sustained immigration, along with the diversification of the origins of immigrants, contributes to our

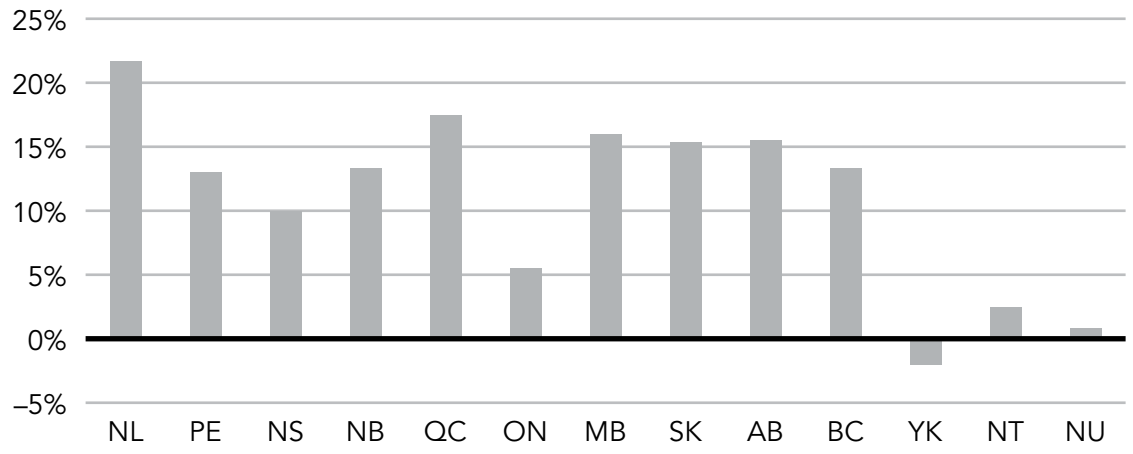
FIGURE 1.13 **Canada: Family structure** (Census 2006, updated 2009)

	All families (2009)	Couple families (2009)	Married couples (2006)	Common-law couples (2006)	Female lone-parent (2006/9)	Male lone-parent (2006/9)
All families	9,315,790	7,926,210	6,105,910	1,376,870	1,146,310	243,270
Families without children	3,762,060	3,762,060	2,662,135	758,715	0	0
Families with children	5,553,720	4,164,150	3,443,775	618,150	1,146,310	243,270
1 child	2,561,790	1,710,740	1,267,625	291,255	682,025	188,790
2 children	2,098,216	1,708,306	1,497,755	234,755	327,660	72,665
3 or more children	899,650	745,040	678,405	92,140	122,605	20,320
Total children	**9,733,770**	**7,586,250**	**6,517,600**	**1,068,650**	**1,746,475**	**401,045**
Avg number of children at home per family	**1.1**	**1.0**	**1.1**	**0.8**	**1.5**	**1.4**

Source: Adapted from Statistics Canada 2006 Census of Population; Statistics Canada, Income Statistics Division. (2009). *Annual Estimates for Census Families and Individuals, 13C0016, Family Tables 3A, 3B and 3C.*

FIGURE 1.14

Percentage increases in birth and total fertility rate, 2004–2008, by province and territory



Note: Total fertility rate is the average number of children per woman.

Source: Adapted from Statistics Canada. Crude birth rate, age-specific and total fertility rates (live births), Canada, provinces and territories, Annual rate 2004 and 2008. CANSIM Table 102-4505.

ethnocultural and religious diversity. By the time Canada celebrates its 150th anniversary in 2017, roughly one in every five people could be a member of a visible minority.[66]

Newcomers are important to population stability. They tend to be younger than the Canadian-born population, balancing the impact of the rapidly aging baby boom generation who will turn 65 years of age over the next two decades. But even with immigration, the number of senior citizens could more than double, outnumbering children for the first time by 2032.[67]

Changing families

Children today are being born into families that are smaller and more varied, and their parents tend to be older. Most children live in families where the adults are married, but a growing number (one-third) have parents who are single or live in common-law unions. Women are waiting longer to have children. Over the last 20 years, the average age of women giving birth rose from 27 years to 29.3. In Nova Scotia, Ontario, British Columbia and Yukon, the fertility rate of women aged 30 to 34 has surpassed that of women aged 25 to 29.[68] While the total fertility rate has edged up to 1.68 children per woman on average from its lowest of 1.5 in early 2000, it is far below the 1971 rate, when every woman averaged slightly over 2.1 children—the fertility rate that must be maintained to replace the population in the absence of immigration.[69] Only Nunavut (2.98 children per woman), the Northwest Territories (2.08) and Saskatchewan (2.05) had almost as many births as deaths in 2008. In contrast, British Columbia has the lowest fertility rate, at 1.51 children per woman.[70] Declining fertility is giving rise to smaller families. In families with two adults, the average number of children at home is one. The urban–rural gap is also reflected in family size. Fertility is lowest in the largest metropolitan areas and rises steadily as areas become more rural.[71]

Another trend is toward childless couples. More than 40 percent of married couples, and half of common-law couples, do not have any children. Perhaps the most significant change in family life arises from the marked increase in working mothers.

Canada has one of the highest rates of mothers working outside the home among OECD countries. Over 70 percent of mothers with children younger than 6 years are in the labour force, compared to 61 percent for the OECD and the European Union.[72] This phenomenon is changing gender and family dynamics, and has given rise to a new generation of children who are spending a large part of their early childhood in care outside the home.

Bucking many of the family trends is the Aboriginal population. In the 2006 Census, 1.17 million people identified themselves as Aboriginal, a 45 percent jump over 1996. Statistics Canada attributes the population growth to higher fertility rates and a growing number of people identifying themselves as Aboriginal. The fertility rate of Aboriginal women was 2.6 children in 2006, compared to 1.68 (2008) children among all women in Canada. The Aboriginal population is also younger: half are 24-years-old or younger, with a median age of 27, compared with 42 among non-Aboriginals. Aboriginal children also live in different family groupings, but are twice as likely to live with a lone parent or other relative as non-Aboriginal children and are more likely to be born to a teenage mother.[73] The Aboriginal population is also becoming urbanized. Across Canada, 54 percent of Aboriginals live in urban areas, up from 50 percent in 1996. The majority of Aboriginal people live in the territories and Prairie provinces. Winnipeg has the greatest concentration of Aboriginal people of any Canadian city. Its population is 10 percent Aboriginal, compared to Toronto or Montreal with 0.5 per cent.[74]

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2

Early Life and Learning, Behaviour and Health

Biological and social scientists have made significant advances in understanding how experience-based brain development in the early years affects learning, behaviour and mental and physical health. Our earliest experiences, beginning at conception, shape our brain and biological systems for life. Integrating knowledge from many disciplinary approaches is difficult. The application of this knowledge towards societal improvements to enhance human development is more difficult. But the synthesis of findings from animal and human studies, birth cohort data, population data, observational studies and clinical trials establishes a compelling transdisciplinary approach to understanding human development.

Genes and environments

Who our parents are, our health at birth and how we live, eat and play as young children all have an impact on our adult life. As the first *Early Years Study* proposed, the outside world gets under the skin.[1] Even during gestation, the environment of the fetus—nutrition, pollutants, drugs, infections and the mother's health, well-being and stress level—influences how genes are expressed and the architecture and function of our brains.

Rovers and sitters

Much of what we know is only possible because scientists have studied how the genes of plants and animals interact with their environments. Animal and plant studies offer scientists opportunities to examine the interplay between molecules, cells and DNA, revealing basic biological processes and their potential applications. Such research was the genesis for vaccines, antibiotics and birth control pills.[2]

Neuroscientist Marla Sokolowski investigates the genetic, molecular, neurobiological and environmental underpinnings of behavioural variation in the fruit fly *Drosophila melanogaster*.[3] In particular, Sokolowski and her colleagues

100 billion	Neurons in utero that form the brain's basic structure
One	Zygote—the fertilized egg that contains the genetic instructions to make a human being
3 billion	DNA base pairs that carry out the genetic instructions that make a human being
30 million	More words heard by a child in an affluent home, compared to a disadvantaged home, by age 4
Early 20s	Age when the prefrontal cortex neural circuits of the human brain are fully formed
One	The age when babies stop producing sounds they are not hearing
4.9	Infant mortality rate Cuba[4]
4.92	Infant mortality rate Canada[5]

have investigated the foraging gene that affects how these insects search for food. All animals have this gene, which influences energy balance, food intake, food-related movement, how much fat an animal has, learning and memory. In the 1980s, Sokolowski classified two variations of the gene: rover and sitter. The foraging gene makes a brain protein enzyme called PKG. Rovers have more PKG in their nervous systems. How much PKG is produced depends on the fruit fly's early environment.

"We study the mechanistic and evolutionary significance of genes that affect larval behaviour by isolating, identifying, cloning, and sequencing these genes and also by understanding how variation in gene expression can affect the fitness of the organism. Gene discovery in Drosophila has proven useful for understanding how homologous genes function in mammals," Sokolowski explains. The rover and sitter characteristics describe how fruit flies behave when food is plentiful. But when food is scarce, rovers turn into sitters and they conserve energy by moving less. They produce less of the foraging enzyme. The environment and genetics have interacted to affect the biology and behaviour of the organism.

Based on her research with rover and sitter fruit flies, Sokolowski has gone on to identify the foraging gene in humans. She is using it to screen samples of DNA from people with eating disorders to find how genes influence food intake and energy output. Her work holds promise for understanding and treating obesity and other food-related disorders.

For much of the twentieth century, the debate has raged between nature and nurture: do genetics or the environment influence differences between individuals? The link between the two has been a staple in most introductory psychology textbooks, but scientists did not understand the mechanisms. Genes and the environment were thought to act somewhat independently of one another.[6]

Ideas about how genes influence behaviour, learning and health must incorporate the nature of individual differences in the interplay of genes and environment. Scientists now suggest that different alleles (that is, forms of the same gene) confer different sensitivities to a given environment.

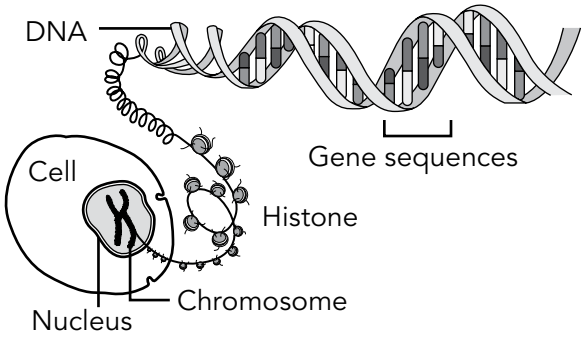
Genes listen to the environment

All cells growing from a fertilized egg contain the same DNA. A single cell, or zygote—the product of an egg cell from the mother and a sperm cell from the father—contain the genetic instructions to differentiate the billions of different forms and functions that make a human being. Three billion pairs of nucleotides, called DNA base pairs, carry out these instructions.

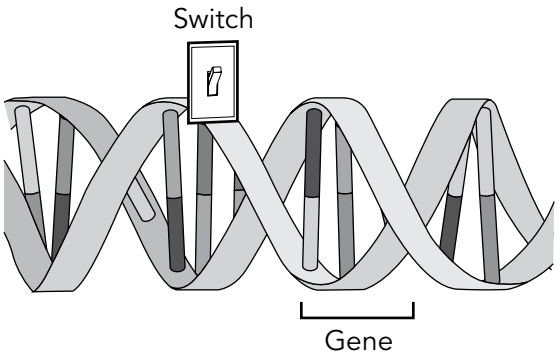
In 1957, following the discovery of DNA, developmental biologist and geneticist Conrad Waddington argued there had to be some process in the body that regulates gene function to produce the diversity necessary for development. He determined that specific sequences of DNA and controlling proteins in each cell determine which parts of the genes should function and which should not.[7] He believed that environmental factors and experiences determine how gene regulation works.

FIGURE 2.1 **Cells and genes**

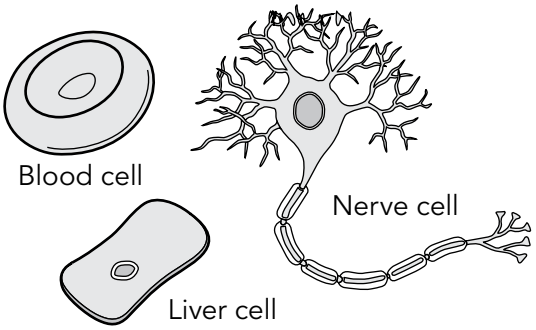
1. The human body has trillions of cells, each one with a nucleus, its command centre. The nucleus of each cell contains chromosomes. Within the chromosomes, long, double-helix strands of DNA are made up of specific segments of genetic code, known as genes. DNA is tightly coiled around histones that work as support structures for genes. Genes contain the codes for cells to produce the various proteins that organisms need to function.



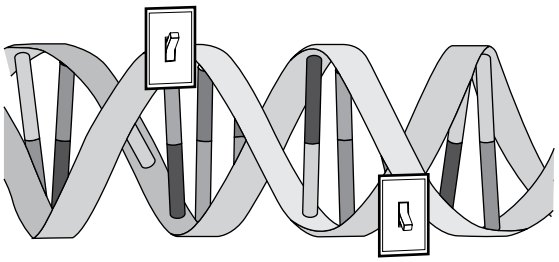
2. Experiences leave a chemical "signature," or epigenetic mark, that sits atop the genes, which determines whether and how the genes are expressed—or switched on or off. Collectively, those signatures are called epigenome.



3. All cell types—muscle cells, nerve cells, liver cells, etc.—contain the exact same DNA. Epigenetic marks silence certain gene sequences and activate others so that nascent cells can differentiate.



4. Stressors like abuse or poor nutrition can activate epigenetic marks, modifying histones or adding methyl groups to DNA strands. These changes can turn genes on or off and may affect what gets passed down to the next generation.



Adapted from: Gluckman, P., Beedle, A. & Hanson, M. (2009); National Scientific Council on the Developing Child. (2010); Sokolowski, M. (2011).

During the first trimester of pregnancy, as the neural tube is formed, cells migrate to create the basic structures of the brain and neurons become differentiated—for vision, for language and so on. Each cell has the same DNA, but the cells in different parts of the body have different functions because the in utero environment causes various parts of the DNA to turn "on" or "off."

Nurture is one of the powerful stimulations in early life that affects the pathways that enable cells with the same DNA to function differently.[8] Genes listen and respond to the body's internal and external environment, and the cells differentiate for their diverse functions.

A story of mice and methylation of DNA

Our understanding of epigentics took a qualitative leap forward in 2003 with a litter of brown mice born in a laboratory at Duke University. The babies were brown and skinny; their parents were fat and yellow, from a long line of mice specifically bred to carry a gene called *agouti*, which gave them their distinctive colour and a propensity to obesity. The only change in treatment of the mice mothers were vitamins added to their diets during pregnancy-—very similar to those given to human mothers—vitamin B12, betaine, choline and folic acid.

A genetic examination of the brown babies found the *agouti* gene still present, but it was not expressed. Something in the supplements given the mothers had suppressed the gene. This process is known as DNA methylation. Svelte figures and a new coat were not the only advantages of improved nutrition in utero. As adults, the brown mice were much less likely than their parents to develop diabetes or cancer.

This study erased the premise that genes contain blueprints that cannot be changed. Rather, the exact same set of genes can produce different outcomes depending on which genes have been stimulated to undergo methylation and which have not.

Differences between individuals

Epigenetics is any process that can alter gene expression without changing the DNA sequence. Many of these changes are temporary, but others seem to be enduring.

Identical twins have the same DNA (genotype) in their cells, yet show different gene expression (phenotype). Since each identical twin has the same genes, one could expect the same phenotype. However, because each twin will not have exactly the same experiences in early life, there will be different effects on gene expression. Non-identical twins have different gene sequences, so that two people who are exposed to the same environment will have different reactions—the "gene-by-environment" interaction.

During the prenatal and early childhood periods, a child's genetic make-up is programmed to adapt to different experiences. The process involves subtle changes in brain chemistry. What happens in the infant's world—for example, a caring caress versus a harsh voice, what she is fed or the smoke from a parent's cigarette—is stimulation that is carried into the brain as an electrical signal. The signals create a biochemical cascade that can trigger structural and chemical changes to the building block components of DNA. When the signals are sustained or frequent in the child's daily life, the chemical cascade leaves behind distinctive patterns of a methyl compound that in turn affects how genes express themselves. The DNA blueprint now carries a personalized signature.

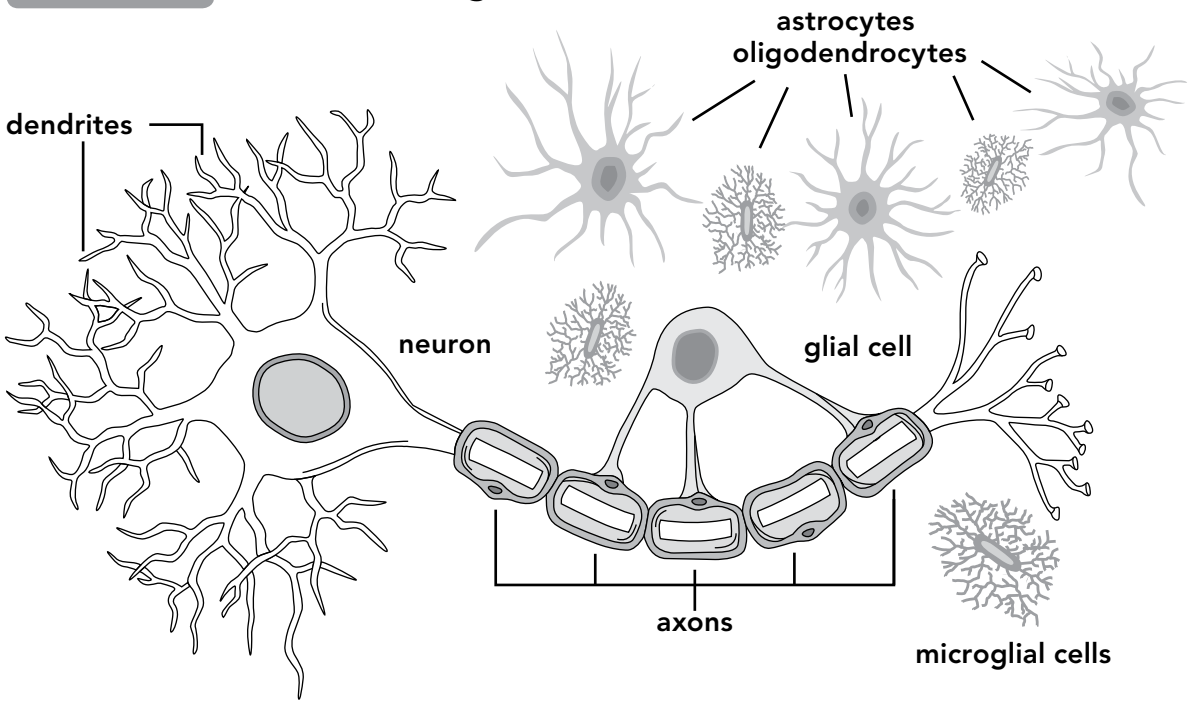
Scientific studies of the blood and saliva cells of animals and children suggest that methylation patterns differ noticeably with exposure to positive and negative stimuli.[9] Evidence to date suggests that early experiences—particularly experiences related to early nurture and nutrition—have the capacity to leave epigenetic marks that are greater than those associated with later experiences. It seems that changes related to the effects of trauma or the effects of exceptional nurturance can be passed along from one generation to the next.

Genetic expression involved in the differentiation of cells in early gestation is probably very difficult to reverse. Gene function varies with the tissue and the stage of development; one gene has many functions. Pharmaceutical options loom on the horizon but changing the biological pathways that control gene expression could mean unintended changes in various tissues in the body. In correcting for protruding ears you don't want to alter the structure for the heart.[10]

Building the brain's architecture

The brain's basic structure is formed early in prenatal development as 100 billion neurons begin to join up to form neural pathways and networks. Neurons

FIGURE 2.2 **Neurons and glial cells**



The glial cell types in the central nervous system include astrocytes, oligodendrocytes and microglia.[11]

- *Astrocytes* are intimately associated with synapses and govern key steps in synapse formation and plasticity. Astrocytes secrete a chemical called thrombospondin that encourages synapse formation in neurons. Synapses between neurons form rapidly after astrocytes appear in the brain. This process is very active in postnatal life.
- *Oligodendrocytes* determine the formation of myelin, a substance that speeds up transmission of neuron signals. Myelination can be influenced by stress in early and later life. Neurons can also be demyelinated, which is a key process in causing multiple sclerosis.
- *Microglia* can sense tissue injury and perform major functions. They play a key role in maintaining synaptic integrity. In the sculpting of the brain, they can facilitate the removal of axons that are not active. These cells are clearly important in the architecture and function of the brain, and are probably involved in neurodegenerative diseases such as Alzheimer's disease.

Adapted from: Fields, D. (2011); Kandel, E. (2006).

communicate with each other to form circuits and share information using both electrical and chemical signals to carry information across the brain and body's nervous systems. Electrical impulses are transmitted along the neuron's axon and chemicals carry the electrical signals across the synapse to the dendrites of another neuron. The receiving neuron then fires another electrical signal, and the signal is relayed to the next neuron in the neural chain.

In 1949, Canadian psychologist Donald Hebb postulated that when one cell excites another repeatedly, a change occurs in one or both cells that contributes to a stable link between them.[12] In other words, "neurons that fire together, wire together." Hebb's work pushed the frontier of scientists' reluctant recognition of the inextricable role of our biology in how we think, learn, socialize and behave.[13] Hebb and the next generation of scientists emphasized the importance of networks of neural circuits.

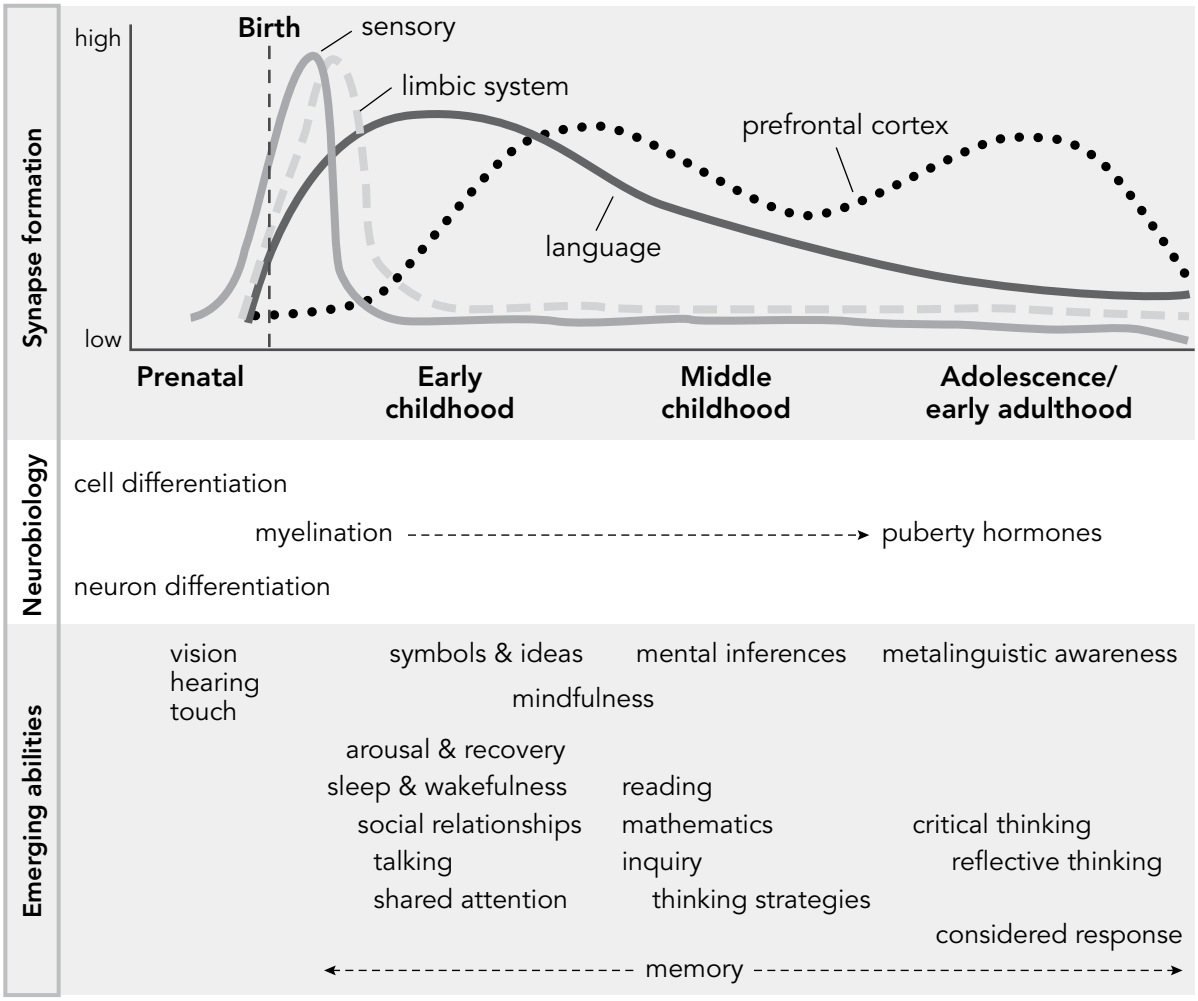
Experiences carried to the brain influence how the neurons join up with each other to construct neural networks that make up the brain's architecture.

All perceptions, thoughts and behaviours result from combinations of signals among neurons. Proper nervous system function involves coordinated action of neurons in many brain regions. The nervous system influences and is influenced by all other body systems (e.g., cardiovascular, endocrine, gastrointestinal and immune systems).

However, this is not the whole story. The basic building blocks of neural pathways are brain cells: neurons and glial cells. Neurons make up about 15 percent of our brain cells and glial cells make up the rest. Neuron and glial cells are intimately connected with each other. "Neurons are elegant cells, the brain's information specialists. But the workhorses? Those are the glia,"[14] says Douglas Fields of the U.S. National Institute of Child Health and Human Development. Scientists now report that glial cells are significant players in how the brain and the body's nervous system function.

Glial cells can control communication across the synapses and are therefore implicated in our learning, behaviour and health.[15] Neurons "speak" across synapses by generating electrical impulses that

FIGURE 2.3 **Neural pathways under construction**



Adpated from: McCain, M., Mustard, J.F. & Shanker, S. (2007); Nelson, C. (2011); Mustard, F. & Kolb, B. (2011). ©EYS3

trigger chemical communication between neurons and prompt more impulses in other neurons. Glia have receptors (receiving docks) for many of the same chemical messages used by neurons. They are able then to eavesdrop on the neurons and respond in ways that help strengthen the messages. Without glial cells, neurons and their synapses fail to function properly. Some varieties of glia wrap around axons, the "wires" that connect neurons, forming insulation called myelin and contribute to more efficient learning. Others work in concert with the immune system to prune out inefficient neural connections.

Gene–environment interactions shape the quality of the architecture of the brain. As we come to better understand the processes that regulate gene function, we are gaining a better understanding of how experiences at different stages of life affect gene functions in neurons and glia cells.

The plasticity of the brain refers to its ability to learn, remember, forget, reorganize and recover from injury. The brain is more receptive to stimuli during earlier stages of development. For example, children who are dyslexic have difficulty with language and expression that handicaps their learning and work. They tend to have sound sensing and speech functioning distributed more on the right side of the brain instead of on the left. Intensive stimulation with phonemes by 6 years of age can lead to reformation of the neural pathways to left side of the brain, indicating that neural plasticity, including neurons and neural pathways, is sufficiently malleable at this age that normal function can be restored.[16]

Sensory pathways

Sensory circuits (sight, touch, hearing, smell, taste) bring information to the nervous system from the outside world. Sensory organs—eyes, ears, skin, nose, tongue and proprioceptors (sensors in limbs)—and the associated brain pathways are set up during early development. Molecular cues are essential in establishing many basic cellular characteristics and the connections between all elements of a sensory pathway.[17] The formation of sensory pathways begins in utero and continues in the early months after birth.

Cats that are congenitally deaf do not form the normal neural architecture associated with hearing. In deaf cats the brain's hearing site is largely taken over by neurons and neural pathways involved in vision. Stephen Lomber, of the University of Western Ontario, found that if these cats are given hearing aids early in life, they are able to form a normal hearing section of the brain.[18] The stimulation provided by the hearing aid at a critical stage of development maintained the normal architecture and function of the cats' brains.

The limbic system pathways

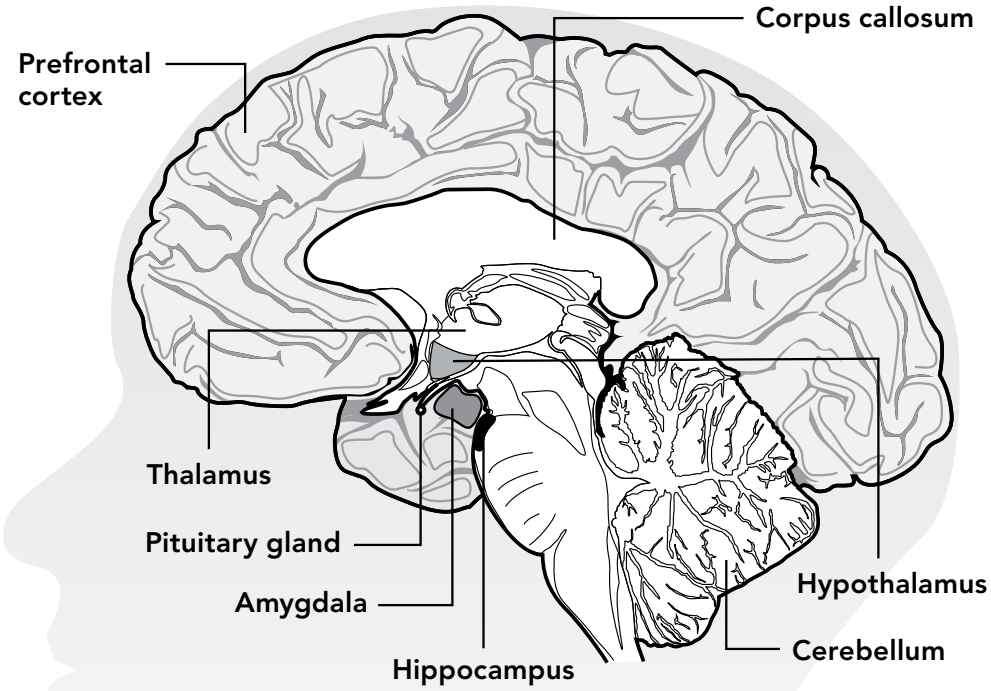
While the sensory systems bring in the information children need for development, the limbic system supplies the motivation for acting on the information. The limbic system is a complex set of structures that lies in the middle of the brain. It includes the hypothalamus, the amygdala and several nearby brain regions. The hypothalamus is one of the busiest parts of the brain and works like a thermostat.

Allostatic load

Bruce McEwen at the Laboratory of Neuroendocrinology at Rockefeller University uses the terms allostasis and allostatic load to describe the effects of stress stimuli on the HPA axis and other neurobiological pathways. Allostasis is the physiological process by which bodily functions change to adapt to meet demands and challenges. It is a dynamic regulatory process to maintain balance or homeostatic control and cope during exposure to demands and changes (i.e. physical and behavioural stressors) when the allostatic load is moderate and short term. When the allostatic load is excessive or prolonged, it leads to wear and tear on biological systems, tissues and organs, resulting in chronic mental and physical disease.

Source: McEwen, B.S. (2008); McEwen,B.S. & Gianaros, P. (2010).

FIGURE 2.4 **The brain**



Source: Adapted from Berk, L. (2011); Boyd, D. & Bee, H. (2010); McEwen, B.S. (1998).

It is concerned with homeostasis, which is a process of returning body functions to some "set point." The hypothalamus regulates hunger, thirst, response to pain, levels of pleasure, sexual satisfaction, anger and aggressive behaviour, and more. It also regulates the functioning of the autonomic nervous or arousal system and the hypothalamus-pituitary-adrenal (HPA) axis.

Two-year-old Avery is at the library with her grandfather. They are watching a puppet show together with a dozen other children. Avery is fascinated by the rabbit puppet that has just come onto the puppet stage and is asking all of the children to sing along. Avery joins in enthusiastically. From the left side of the puppet stage a growling sound is followed by a furry monster puppet who faces the audience and says in a menacing voice, "Yummy, yummy in my tummy. A tender rabbit for lunch." Avery sees that the rabbit is in danger and her face changes from enthusiasm to fear. She grasps her grandfather's leg and climbs into his lap; her body has become tense. The rabbit turns to the furry monster and says, "Please come play with me. I have many friends today and we can all sing together." Avery watches tentatively as the furry monster puppet slides over to the rabbit. As the rabbit holds out his paw in a welcoming gesture, the furry monster's angry growls change to something closer to a cat's purr. Now the rabbit is stroking the furry monster. Avery's body relaxes and she looks up at grandpa, who is smiling. Avery's smile returns, her body relaxes and she turns back to the stage and joins with others to sing the next song.

Two other children, the same age as Avery, have very different reactions as they watch the puppet show. Ashraf clutches his mother's skirt as soon as the rabbit comes on stage. He watches intently but is not smiling and does not join the sing-along. When the furry monster appears on the stage,

Ashraf's face crumbles and he begins to sob. His mother tries to comfort him, but he only sobs louder. She carries him out of the library and he is now thrashing about in the stroller as she walks toward home. Ashraf continues to sob uncontrollably until he falls asleep.

Jamel is also watching the puppet show. He sits quietly beside his older brother and does not join into the song. He gazes away from the puppets and stares out the window. He hears the furry monster puppet's angry growl and glances back to the stage, but does not react. Instead, Jamel sits passively until the puppet show is over and his brother tells him it is time to go home.

Three children, the same age, living in the same neighbourhood, having the same experience—yet they respond quite differently. This process of arousal and recovery is drawing the keen attention of both scientists and educators. It is often termed self-regulation, which is perhaps a bad term because it is easily misused to mean behaviour management. Ashraf needs experiences that down-regulate his arousal state to be alert but calm. Jamel needs adults who are animated and engage his attention to up-regulate his arousal state.

How we become engaged and excited and how we respond to new ideas, challenges, opportunities and frustrations is grounded in our biology. Often dubbed the "stress pathway," this intricate neural network operates between the limbic system, adrenal glands, nervous system and prefrontal cortex parts of the brain to determine how we respond to stimuli. When we are aroused, our bodies release hormones that prime our readiness for action. We need to be aroused enough to become alert and engaged—an essential state for learning. If we sense a threat, our system is triggered to be on higher alert and our physiology responds—the classic fight or flight response introduced by Hans Seyle in the 1950s.[19] Once the threat has passed or the challenge met, how and if we recover to a steady state—calmly focused and alert—depends on the flexibility of our limbic system.

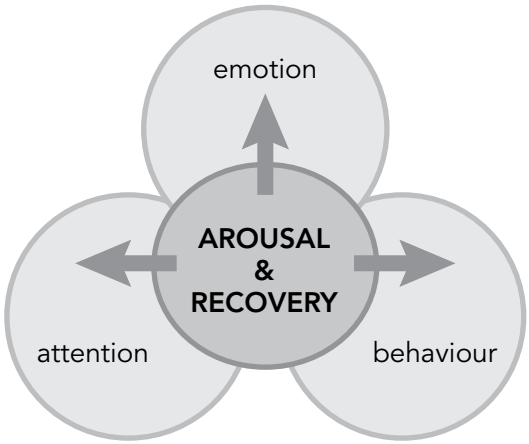
Children begin life ready for relationships that drive early brain development.[20, 21] An infant is primed to be interested in faces and initiate non-verbal communication with others. When we respond to an infant's intense gaze, smiles or babbling we set up a chain of back and forth exchanges that are central to the wiring and sculpting of the limbic pathways. Primary caregivers mediate experiences that encourage the baby's brain to become highly attuned to the quality of those early experiences. The ability of children to regulate their own emotions, behaviours and attention increases over time with maturation, experience and responsive relationships. The brain's capacity for higher-level human functions, such as the ability to attend, interact with others, signal emotions and use symbols to think, build on the limbic system platform.

Studies in rats have been important in explaining how mammals respond to environmental stimuli. Rat pups that are poorly nurtured (a lack of licking and grooming) by their mothers at birth show an abnormal response to stress into adulthood. Michael Meaney, a psychobiologist at McGill University, showed that rat pups that are neglected in the first six days after birth have excessive methylation of

FIGURE 2.5

The limbic system

The brain's limbic system manages how we respond to challenges.



Sources: Center on the Developing Child. (2010); McEwen, B.S. (2008); McEwen, B.S. & Gianaros, P. (2010); Shanker, S. & Bertrand, J. (2011).

the promoter region for the glucocorticoid receptor gene.[22] Ordinarily, when the cortisol level is too high, this receptor can diminish cortisol production. The increased methylation changes the gene expression and the number of receptors expressed. Thus, stress produces high levels of cortisol in the blood, which can affect the brain and other organs in the body. The glucocorticoid receptors expressed in the hippocampus are sensitive to the glucocorticoid levels in the blood. If the receptor in the hippocampus is active, it will sense the increased cortisol levels in the blood and inhibit its production. If the receptor is not adequately functioning, the increased cortisol levels will persist.

Elevated levels of cortisol affect all tissues in the body and are a risk factor for disease. There is intense interest in how the HPA axis pathways and the prefrontal cortex can influence biological processes that contribute to the risk of mental and physical health problems in adult life. Cortisol stimulates the amygdala, which in turn activates the hypothalamus and shuts down the hippocampus. Stimuli to these pathways in the limbic system appear to affect brain development in the early years

Prenatal stress

"The history of man for the nine months preceding his birth would, probably, be far more interesting and contain events of greater moment than all the three score and ten years that follow it."—Samuel Taylor Coleridge[23]

The study of fetal origins points to the nine months of gestation as a critical period for early human brain development and functioning of other major organs. The fetus grows in an environment heavily influenced by the surrounding air quality, chemicals and noise levels, as well as the mother's health, nutrition, stimulation and even what languages it hears.[24] For example, considerable evidence links maternal overeating during pregnancy to diabetes and other hormonal disorders in her offspring.[25]

In the United Kingdom, David Barker studied the physical health records of adults and correlated these data with early childhood records.[26] His findings revealed that adversity, such as food scarcity during specific periods of fetal development, is related to a greater chance of coronary heart disease, stroke, type 2 diabetes and hypertension in later adult life. In one study, Barker showed that if the fetus showed abnormal growth, the risk of developing coronary heart disease as an adult increased.

The fetal origins of disease in later life seem to work through the impact of the in utero environment on the developing brain, particularly the early pathways related to the limbic system.

Researchers now believe that the pregnant mother's stress level and emotional well-being are potent influences on how genes are expressed and on brain and biological development at birth and beyond. It appears that cortisol released by the mother's HPA pathway crosses the placenta and transfers into the blood system of the fetus. When cortisol levels are consistently high, the developing neural circuitries that make up the limbic system are affected.[27] The fetus responds to the cues it receives and builds its emerging limbic system pathways for a high stress environment with an easily aroused and slow to recover HPA pathway.[28]

Recent studies suggest that infants whose mothers experienced high levels of stress while pregnant, particularly in the first trimester, show signs of more irritability than other infants. Fetuses experiencing higher levels of stress also are slower to "habituate" as children. They find it difficult to tune out repeated stimuli—a skill that is linked to learning capacities.[29]

One study found that elevated cortisol during the early prenatal period was linked to lower cognitive abilities at age 1 year.[30] But increased cognitive abilities were found among infants whose mothers had higher cortisol levels late in gestation, suggesting that timing matters.

and is associated with depression in adulthood. They also appear to affect the biological pathways that affect arterial disease (atherosclerosis) and contribute to coronary artery thrombosis, heart attacks, carotid artery disease and strokes. These pathways, which are referred to as the limbic system, interact with the prefrontal cortex.[31]

Prefrontal cortex pathways

The region of the brain called the prefrontal cortex is located behind the eyes. The construction of neural connections in the prefrontal cortex depends on childhood learning and is not complete until into our 20s. It governs adult capacities for focus, planning, inhibition (giving a considered rather than impulsive response), mental flexibility, self-awareness and working memory.[32]

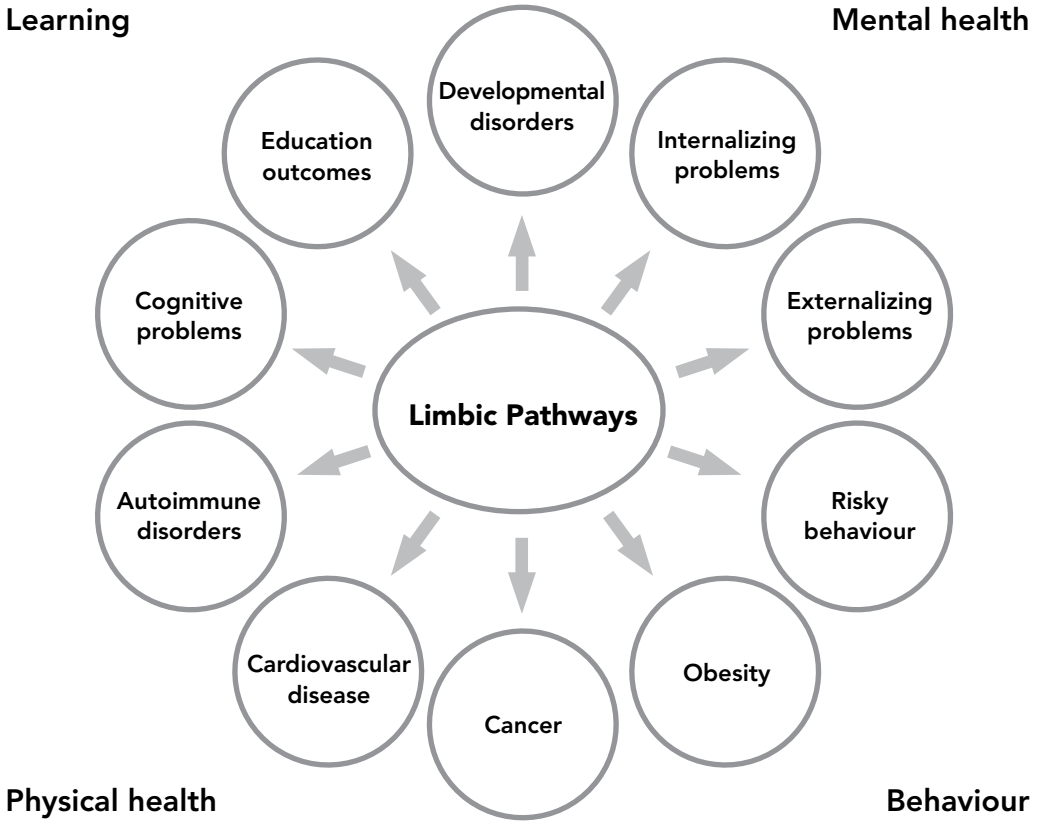
The prefrontal cortex pathways that underlie these capacities are unique to human brains and take a long time to mature. Early connections begin in infancy. Between age 3 and 5 years, the prefrontal cortex circuits enter a rapid period of development and make critical interconnections with the limbic system.[33] During adolescence and early adulthood, the neural pathways are refined and become more efficient.

The prefrontal cortex pathways are intricately linked with the limbic system pathways that are related to stress responses. These pathways work together to enable children to be engaged, thoughtful and intentional.[34]

FIGURE 2.6

The limbic system and learning, behaviour and health

The limbic pathways, established early in life, influence the incidence of mental and physical health, learning and behaviour outcomes in adult life.



Source: McCain, M., Mustard, J.F., & Shanker, S. (2007); Shanker, S. (2010).

The limbic and prefrontal cortex pathways interpret stimuli on the basis of current and past experience about whether an event is threatening or otherwise stressful. In adults and children, acute stress can lead to less-efficient prefrontal cortex activity. Gene–environment interactions in early life affect the development of the limbic system and prefrontal cortex neural circuits that regulate stress hormones and the organ systems that manufacture these hormones. Stress responses by the HPA pathways and the rest of the limbic system and prefrontal cortex mediate the effect of socioeconomic factors on mental and physical health.[35]

The brain is the foundation of the mind and the prefrontal cortex is an essential contributor. Intelligence arises as the brain reasons, plans and solves problems. The brain makes sense of the world by using all available information, including senses, emotions, instincts and remembered experiences. Emotions are based on interpretations made by our brains and are manifested by feelings as basic as love and anger, and as complex as empathy and hate. The brain learns from experiences and makes predictions about best actions in response to present and future challenges. Consciousness depends on the activity of the brain, particularly the prefrontal cortex.

Language pathways

At around seven month's gestation, the brain's sensory pathways for hearing are activated and start to become sensitive to the rhythmic qualities of the particular language spoken at home. During the first six or seven months after birth, babies gurgle and babble, making the same babbling sounds regardless if their families speak French, Urdu or Japanese. By the end of the first year, babies have tuned into the language they hear and adapt their babbling sounds—they actually stop producing sounds they are not hearing.

Janet Werker and a team of scientists at University of British Columbia found that language acquisitions begin even before birth, with babies picking up on languages heard in the womb.[36] They found a correlation between a "sucking reflex," which apparently shows interest, and being spoken to in different languages.

FIGURE 2.7

The brain is the foundation of the human mind

On average, babies who heard mostly English before birth gave more strong sucks per minute when hearing English than when they heard another language. Babies who were regularly exposed to at least two languages before birth gave the same number of sucks upon hearing both languages.

Realizing the "bilingual" babies could have shown equal interest in both languages simply because they did not know the difference, the researchers devised a second experiment to determine if the babies were able to tell the languages apart. The infants heard sentences being spoken in one language until they habituated. Then they either heard sentences spoken in the other language by the same person, or they heard sentences spoken in the same language, but by a different person. Babies sucked more when they heard the language change, but not with a different person speaking the same language, suggesting they are able to tell the difference between two languages.

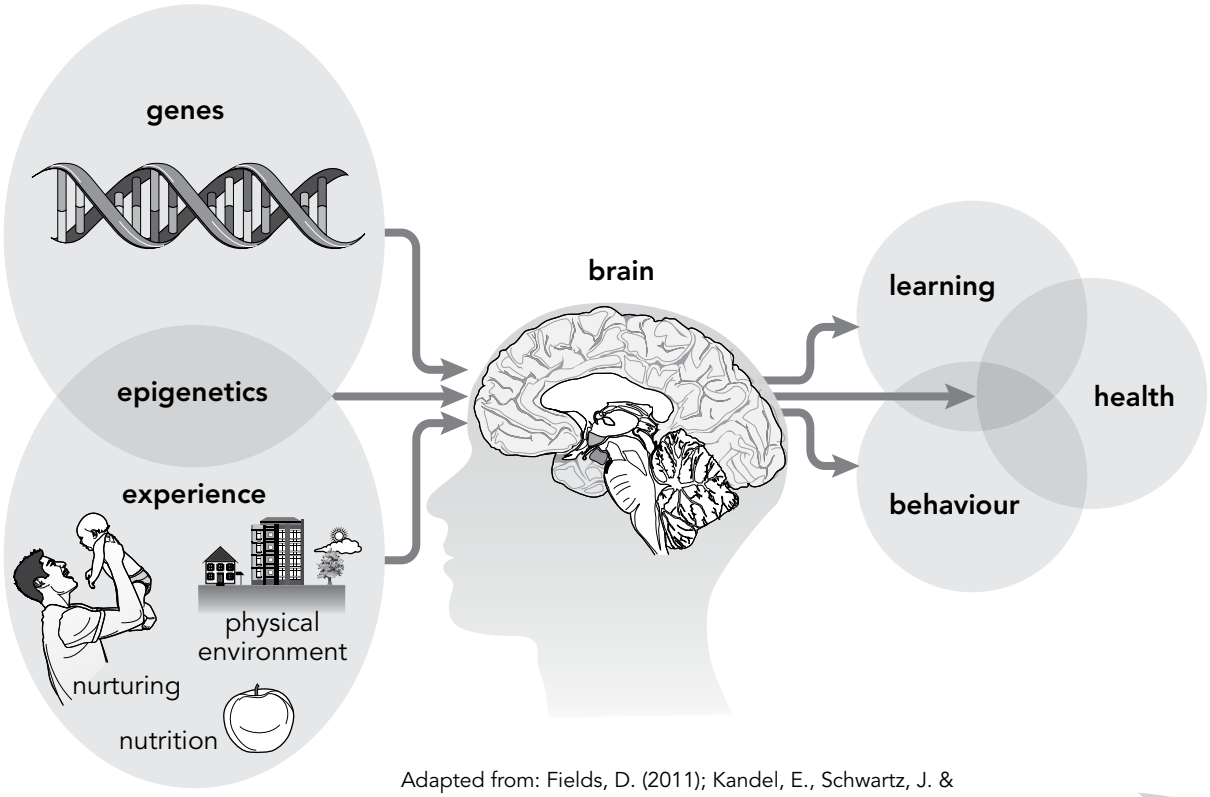
After birth early language exposure at home predicts the size of children's growing vocabulary and later verbal skills[37] and literacy skills.[38] One

U.S. study stated that by age 4, children in affluent families have heard 30 million more words and have vocabularies that are three times larger than children in low-income families.[39] Children with poor verbal skills at age 3 are likely to do poorly in language and literacy when they enter school, and many go on to have poor academic careers.

A Quebec longitudinal study (Étude longitudinale du développement des enfants du Québec) reported that children's (expressive) language prior to school entry is the best determinant of reading performance at the start of primary school.[40] Joint reading activities from 18 months contribute to the child's reading performance, regardless of the family's socioeconomic level. Family practices surrounding literacy—more conversation, more books and reading and less television and computer games—also help to maximize the child's vocabulary.

Similar findings are reported from a New Zealand longitudinal study, Competent Children, Competent Learners.[41] Children who were low achievers (at age 5 years) were likely to remain well below the median for all reading and mathematics tests at age 14 and 16, regardless of family socioeconomic status. The study began in 1993 with 500 children who were almost 5-years-old and in early childhood education programs to investigate if and how early childhood education helps children become lifelong learners. Researchers collected data about cognitive competencies, social and communication skills and home and education experiences. The findings reveal the difficulty of raising low levels of performance, particularly after age 8. The study points to the value of early childhood education programs that include high-quality staff:child interactions, staff who join in the children's play and a 'print-saturated'

FIGURE 2.8 **Experienced-based brain development**



Adapted from: Fields, D. (2011); Kandel, E., Schwartz, J. & Jessell, T. (2000); McCain, M., Mustard, J.F. & Shanker, S. (2007).

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environment. Assessing children and what they need on the basis of actual performance, is more accurate than making decisions based on social risk indicators.

Learning, behaviour and health

Early human development is an intricate dance between nature and nurture, genes and environment. Nurturing, stimulation and nutrition interact with genetic predispositions and "get under the skin." Developing brains and biological systems adapt and influence learning, behaviour and physical and mental health for life.

All societies have better-off and less well-off citizens. As we look across large groups of individuals, socioeconomic status is a combination of material wealth and non-economic characteristics, such as social standing and education. Socioeconomic status is predictably associated with a gradient pattern. As socioeconomic circumstances improve on average, so do measures of better learning, behaviour and health. Conversely, as socioeconomic circumstances diminish, so do these same outcomes. When gradients are steeper, there is a larger gap between more and less affluent members of a society.

Gradients in how children are doing on average, start early and carry forward. Early childhood socioeconomic status is linked to learning, behaviour and health in early life and beyond.[42] The gene–environment interactions and early brain and biological development set up lifelong trajectories. Later circumstances have an influence on how things turn out, but the trajectories launched in early childhood become part of our biology and carry forward. Socioeconomic gradient patterns in children's early development are linked to several aspects of brain development, particularly within those areas of the brain that are tied most closely to the limbic and prefrontal cortex pathways.[43]

Socioeconomic status gradients are evident in language pathways. Canada's National Longitudinal Survey for Children and Youth includes a measure of 4- and 5-year-old children's vocabulary skills that are one aspect of language. Figures 2.9 and 2.10 shows the spread of children's vocabulary skills by family income, which is organized by relationship to LICO (low income cut-off). The results are a gradient: children who are poor (that is below Canada's LICO as determined by Statistics Canada) are more likely to have difficulties and less likely to be advanced than children in higher family income groups. Overall, children in the middle income groups do better than those in the lowest income group, but not as well as children in the most affluent group.

Learning, behaviour and health outcomes are associated with each other. Low literacy rates are associated with more health problems. Better outcomes at birth and in early childhood are related to better academic outcomes in school. Studies of populations reveal that a more equitable distribution of resources and improvements to the quality of the social environment improve the overall health and well-being of the population.[44] Reducing inequality also reduces the learning, behaviour and health gap between the most and least affluent. Greater equality improves the well-being of the whole population and is key to national standards of achievement. If, for instance, a country wants higher average levels of educational achievement among its school children, it must address the underlying inequality that creates a steeper social gradient in educational achievement.

Gradient patterns are trends across the population. A minority of individuals at all points along the socioeconomic spectrum deviate. Affluent individuals, regions or countries may not do as well as expected, and those living in disadvantaged circumstances may do much better than expected. Socioeconomic status influences, but does not determine outcomes. Sometimes researchers can learn much by studying the outliers.

Cuba is one example. Cubans consistently do much better than other South American countries, even though Cuba is a poorer country. International assessments reveal Cuba has the lowest under age 1 mortality rate and under age 5 mortality rate, and the highest life expectancy of all South American countries.[45] Cuban rates for under age 1 mortality are actually better than the United States and Canada. The language scores of Cuban students in grade 3 in 1998 and 2005 were higher than other

FIGURE 2.9

Vocabulary skills in children ages 4 and 5 years by family income

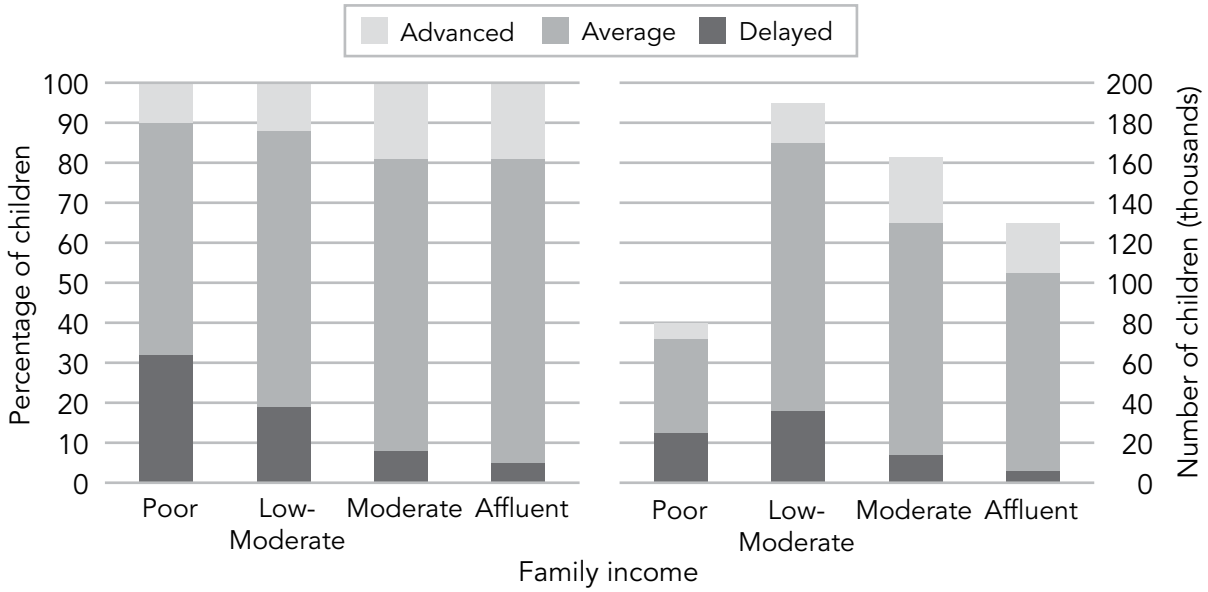


FIGURE 2.10

Children ages 4 and 5 years with delayed vocabulary skills by family income

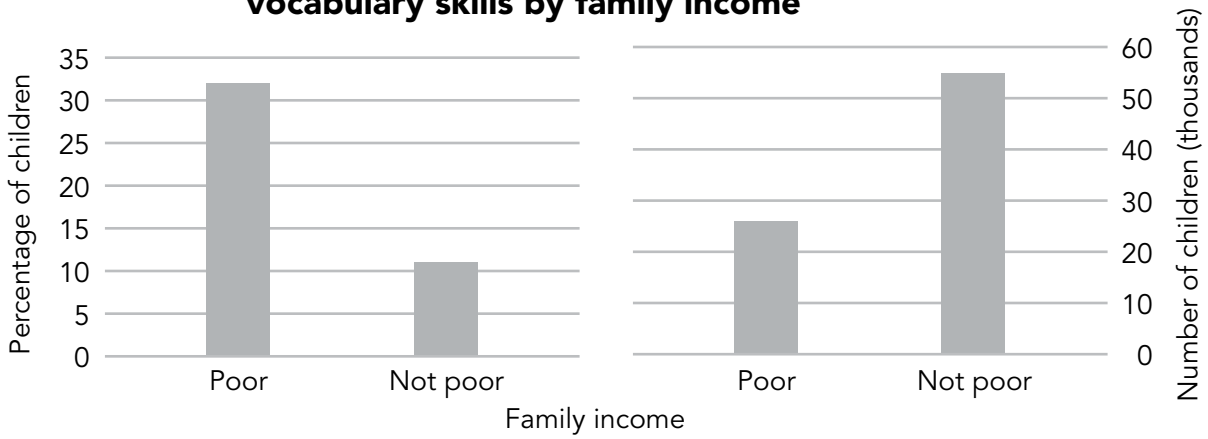


Figure 2.9 shows the percentage of children in each SES category compared to the actual number of children estimated to be in each group, based on the NLSCY findings. Approximately 48,000 children who are not poor are having difficulty compared to 22,000 children from poor families. Clearly the majority of children with delayed vocabulary are not poor and the majority of poor children do not have difficulties.

Figure 2.10 compares the percentages and numbers of children with low vocabulary scores. Children in low-income families may be more likely to have difficulties, and children who have low vocabulary scores are spread more thinly across the other income groups. However, the majority of vulnerable children as measured by low vocabulary scores are living in non-poor families. As reported in the first *Early Years Study* in 1999, the early childhood socioeconomic gradients reveal that targeting resources only to disadvantaged young children and families is not effective public policy because it misses the majority of children having difficulties.

Source: Adapted from Statistics Canada. National Longitudinal Survey of Children and Youth. Cycle 8, 2008–2009. Special tabulation.

FIGURE 2.11 **Under age 5 mortality rate and grade 3 language scores by country**

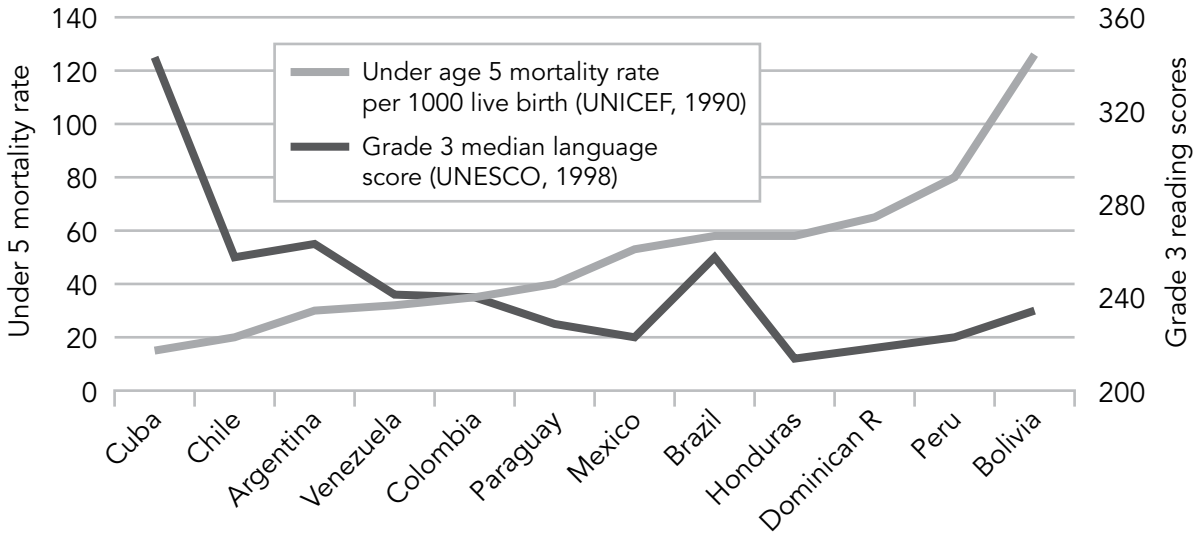


FIGURE 2.12 **Low birth weight and grade 6 reading scores by country**

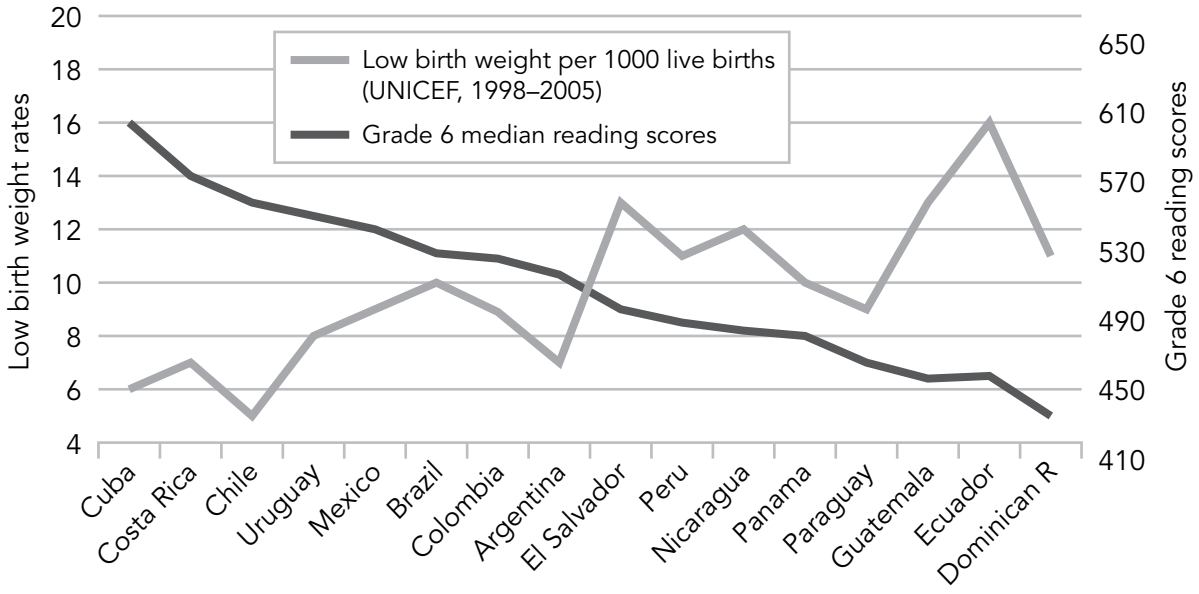


Figure 2.11: Mortality rates for children under age 5 years are measures of child health and well-being.[46] Language scores in primary schools assess academic achievement. Both sets of measures are indicators of support for early brain development.

Figure 2.12: In 1990, Cuba had the lowest under age 5 mortality rate, and children's language scores in 1998 were the highest among other Latin American countries. A similar relationship was found between 1998–2005 birth weight and 2008 reading scores in grade 6. UNESCO conducted the language and reading assessments.[47]

Source: Tinajero, A., & Mustard, J.F. (in press).

Latin American countries participating in the UNESCO study.[48]

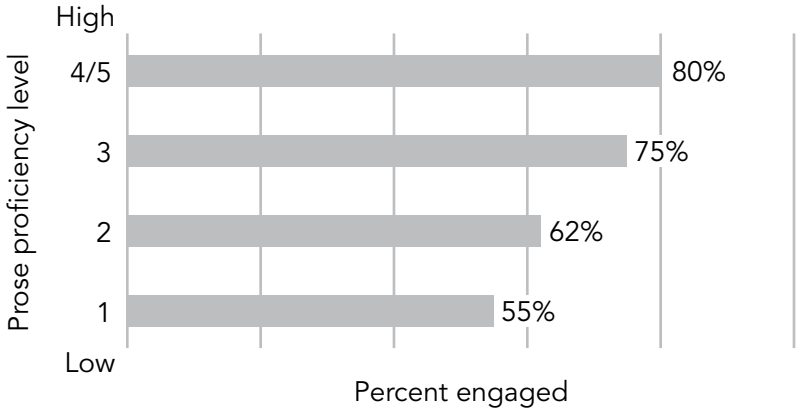
While Cubans may have low individual incomes, they have high levels of education and their government allocates significant resources to ensuring health, well-being and developmental opportunities across the population. The polyclinic program for pregnant mothers and mothers with young children is universally available in every neighbourhood, providing strong support for good early development in utero and in infancy.[49] Children's early development is also influenced by their parents' level of education.[50]

In Canada, analyses of the international Adult Literacy and Life Skills Survey (ALLS), conducted by Statistics Canada in partnership with the OECD in 2003, confirms conclusions about socioeconomic gradients and learning and health reported in both earlier Early Years Studies.[51] Overall, there was little change in literacy performance between 1994 and 2003. Forty-two percent of Canadian adults are estimated to have low literacy abilities. The established patterns of literacy proficiency continue to prevail, with higher performance among the young and the educated. Higher parental education levels as a marker of socioeconomic status were also associated with higher scores.

The ALLS establishes the link between health and literacy that is explained by early brain and biological development.[52] In most jurisdictions, 16- to 65-year-olds in poor health have lower average literacy scores than those reporting better health. The gradients are strongest in Canada and the United States, where about 9 and 19 percent, respectively, of the gap between the lowest and highest group in literacy can be attributed to differences in parental education.

Literacy and numeracy skills are essential to full participation in a democratic, pluralistic society in the twenty-first century. How can citizens participate in decision-making about climate change and the future of the human species without the skills necessary to understand the complexity of the issue? Dismally low voter turnout in elections, a fundamental right and responsibility in a democratic society, is another outcome of low literacy. Figure 2.13 shows literacy levels on the civic engagement index reported in the ALLS study. The patterns suggest that the higher the literacy levels, the more likely it is that a respondent engages in various forms of civic activities.

FIGURE 2.13 **Civic engagement by literacy levels, Canada, population aged 16 and over, 2003**



Higher literacy levels are associated with increased civic engagement.

Source: Barr-Telfard, L., Nault, F., & Pignal, J. (2005).

Early adversity and later life

Retrospective studies show that compromised human development during the in utero period and infancy can increase risks for adult diseases and behaviour problems.

The Adverse Childhood Experiences Study examined biological and psychosocial survey data from over 17,000 adults in San Diego, California who were part of a private insurer called Kaiser Permanente.[53] It is one of the largest studies ever conducted on the links between childhood maltreatment and health in later life. The study revealed that negative early childhood experiences, including child abuse and household dysfunction, are statistically associated with higher incidence of mental health problems, addiction, obesity, type 2 diabetes, high blood pressure and coronary heart disease in adolescence and adulthood.

Under Nicolai Ceausescu, both abortion and contraception were forbidden in Romania. Many children were abandoned to institutions where they were subjected to neglect and abuse. After the fall of the regime, middle class North American and European families adopted some of the abandoned children. Follow-up studies show that children left in orphanages for less than six months fared better at age 11 than those who were adopted later.[54] Children who were in the orphanages for more than six months were likely to have abnormal brain development (small brain), abnormal EEGs and low metabolic activity. They were also more likely to display autistic behaviours, ADHD, aggression, antisocial behaviour and poor cognitive development at age 11.

The Bucharest Early Intervention Project is tracking two groups of institutionalized children—those who remained in the orphanages and those who were placed in high-quality foster care at varying ages. In addition to findings that the length of time spent in the orphanages is associated with lower IQ and behaviour problems, researchers report that the early adversity affected children's chromosomes and hastened how quickly their cells age and potentially increased their risk for cancer and heart disease as adults.[55]

Other studies corroborate the findings from Romanian orphanage studies. Early interventions can ameliorate the impact of adverse experiences. Between 1987 and 1989, a landmark study of growth-retarded 9- to 24-month-old Jamaican children found that two years of nutritional supplements and/or cognitive stimulation improved children's development[56] and continued to show benefits to cognition at age 7.[57] The group who received stimulation continued to sustain cognitive benefits at ages 11, 17 and 22 years, while those who received nutrition supplements only did not.[58] Also at age 22, the stimulated group was less likely to be involved in serious violence.[59]

The Dunedin Longitudinal Study is following 1,000 people born in 1972 in Dunedin, New Zealand. The study highlights the interaction of adverse experiences and gene regulation.[60] Combining detailed histories and psychological testing with genetic analysis, scientists Moffitt and Caspi have followed the cohort every two years up to age 15, then at ages 18, 21, 26, 32 and 38. The longitudinal data create a scientific tool with genetic and environmental markers that predict long-term mood disorders, antisocial and criminal behaviour, psychosis and addiction.

Moffitt, Caspi and their colleagues studied the interaction of environments and the MAOA gene to explain why some children who are abused develop antisocial behaviour and others do not. MAOA is an enzyme that acts to maintain the healthy balance of several different neurotransmitters, including serotonin and dopamine. MAOA also breaks down and recycles excess neurotransmitters. Findings show that how the gene encoding MAOA is expressed affects the levels of the enzyme in the brain and has an impact on its biological processes. Males who were maltreated as children are more likely to engage in antisocial behaviour if the MAOA activity is low. However, males with low MAOA activity who were not maltreated and those with high MAOA activity who were maltreated did not develop higher levels of antisocial behaviour.

The Dunedin study also revealed that individuals with a short form or allele for a gene involved in the production of seratonin were more likely to develop

depression and suicidal tendencies if they were exposed to adversity early in life. Others exposed to the same types of adversity but who had two long alleles or forms of the gene were resilient and less prone to depression.

Consilience: A new framework of understanding

When scientists are able to work across disciplinary boundaries, they often find multiple lines of evidence pointing in the same direction. What we know about developmental neurobiology in early childhood and its effects on health, learning and behaviour throughout the life course makes a strong case for organizing our society to better support young children and families.

Future work in the promising area of early human development will require transdisciplinary collaborations among neuroscientists, geneticists, social and biological psychologists, educators, epidemiologists, and policy and intervention experts. These experts will need to focus on stressful stimuli to the brain and the effects on health (physical and mental), behaviour and learning throughout the life course.

E.O. Wilson proposed the idea of consilience of knowledge.[61] Understanding human society means joining up knowledge from biological and social sciences and from the humanities, not discounting one perspective in favour of another. Different disciplines, theoretical perspectives and evidence bases add new layers of meaning to what we know about human development. Biological perspectives and recognition of the central role of the human brain provide insight into conversations about human societies that are relevant to all.

Post-secondary education ideally should ensure a core understanding of early human development is offered across all disciplines. While academic silos can present barriers, the common knowledge base is applicable across traditionally separate disciplines in colleges and undergraduate university studies. At a more advanced level, transdisciplinary graduate programs can link new discoveries in science across disciplines and mobilize knowledge for societal improvement through innovative programs and practices.

What universities can do

In Canada, the University of Lethbridge has two programs for undergraduates: a general experience-based brain development program and a more detailed neurobiological development program dealing with the impact of experience, genetics and epigenetics on neurobiological pathways. About 80 percent of all undergraduates take a human development course, and the university recruits graduates from different academic programs into a post-doctoral program in human development. The intention is to develop faculty with a general understanding of human development and how it relates to their disciplines.

The University of Toronto is creating an Institute of Human Development to bring together research scientists with clinicians, social workers and educators.[62] Its scope will reach from basic scientific research into health and microbiology to applied research in education. Cross-disciplinary collaborations are already underway to develop undergraduate courses in early human development for all students.

The Aga Khan University (with campuses in Pakistan and East Africa) is working in close collaboration with the Aga Khan Development Network to set up an Institute for Human Development. Its stated mission is "to build capacity and drive innovation in research and higher education to advance our understanding of human development and the application of this knowledge to practice and policy that benefits individuals and serves to strengthen pluralistic societies."[63]

Confronted with accelerated technical and social changes, Canada must successfully meet the challenges of nurturing, socializing and educating the next generation of citizens. Our efforts rely on a keen understanding of the nature and processes of early development, and a clear appreciation of

the powerful impact that social environments have early in life. Early human development, population well-being and societal adaptation are indeed closely linked: knowledge about early human development is crucial to understanding and promoting healthy human and social capital outcomes.

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3

Creating Spaces and Places for Young Children and Families

A new picture of childhood and human nature emerges from the research of the past decade. Far from being mere unfinished adults, babies and young children are exquisitely designed by evolution to change and create, to learn and explore. Those capacities, so intrinsic to what it means to be human, appear in their purest forms in the earliest years of our lives. Our most valuable human accomplishments are possible because we were once helpless dependent children, not in spite of it. Childhood, and caregiving, is fundamental to our humanity.[1]

Alison Gopnik,
The Philosophical Baby

Celebrating childhood

Newborns know far more than scientists previously imagined. They arrive learning and exploring,[2] are effective communicators and even understand that people are special and imitate their facial expressions.[3] Babies soon develop their own identity, autonomy and social abilities, and follow their own curiosities and learning interests. They look longer at novel or unexpected events than at more predictable ones. They examine and discover their environment and make connections between their experiences. They master physical skills, connect with others and contribute to their world.

Children live in the present and have a wide range of capacities and abilities that adapt to the culture and context of their daily lives. The circumstance under which they learn and grow makes a big difference. Early experiences carry forward into adult life. But as British researcher Helen Penn notes, "Children's daily experiences are vivid and deeply felt and bad or mediocre experiences, while possibly not harmful in the long run, may lead to considerable unhappiness."[4]

1060	Number of babies born each day in Canada[5]
13.8%	Babies who are exclusively breast-fed for six months[6]
201	Minutes preschoolers in low-income families watch TV each day[7]
183	Minutes preschoolers in high-income families watch TV each day[8]
20	Number of minutes experts recommend preschoolers be read to[9]
860	New words children acquire each year between the ages of 1 and 7 years[10]
9%	Boys who meet Canadian Physical Activity Guidelines[11]
4%	Girls who meet Canadian Physical Activity Guidelines[12]

Young children live in families that are more diverse than ever before, and under circumstances that are significantly more complex, and for many, more stressful. Supporting families to cope with these transitions makes sense from a human capital argument. Healthy, competent children require less expensive interventions today, and become adults who are able to contribute not only to their own families, but to the social and economic well-being of society.

Investing in children begins with the here and now of childhood. The UNICEF (2003) report, *The State of the World's Children*, stresses that children need to be seen and heard in their communities around a wide range of social and environmental issues of concern to them. Responsible citizenship is not something conferred at age 18. Even very young children have the capacity for active participation and the acquisition of civic literacy skills. Children should be recognized as young citizens who are celebrated, and as active, competent people who have a stake in Canadian society and in whom Canadian society has a stake.[13] Countries that support early human development recognize the unique contribution that families make. Consequently, they support parents to balance work and child raising. They share the cost of raising children and recognize that children need spaces and places to be, to do, to learn and to interact with others.

What early childhood education offers children and families

When discussing the benefits of early childhood education, policy makers and researchers often focus on its proven role in reducing the number of children who have behaviour, learning or health problems. Those without a defined challenge are assumed "good enough" and somehow not deserving of support.[14] But parents want more than good enough; they want their children to be the best they can be.

Children who have intimate relationships at home, whose physical and emotional needs are met and who have friendships with other children are primed to learn from the world around them. New experiences and challenges provide them with the learning they need for later competencies. Educators trained in early childhood development help parents to stimulate their children's learning by responding to their cues and initiating interactions. This "doing together" is the foundation of the confident learner. Even the youngest infant learns from these interactions.

Early childood educator Petra is joined by parents and their young infants who range in age from 2 to 6 months. Many in the group participated in a prenatal group offered by public health and continue to meet each week. Petra greets each new arrival, listening to accounts of first smiles, sleepless nights and the introduction of solid foods. Petra finds ways to boost parent confidence by noting their babies' communication cues. She remarks to Dria how baby Quinn squirms pleasurably and coos when Dria puts her face close and talks to him.

Children's physical needs for safety, nutrition, health care and hygiene are basic for ensuring their

security and survival. Healthy children eat healthy foods, get enough rest and play in safe, secure environments. Parents and other caregivers spend a great deal of time changing diapers and cleansing, feeding children or helping them learn to feed themselves, serving food and cleaning up afterward, helping with hand-washing and face-wiping and changing clothes after spills or accidents. Physical care is a core part of development. Through these repeated routines of daily life, children experience gentleness and adults demonstrate skills that children eventually acquire themselves.

Eighteen-month-old Zehra climbs the stairs to the diaper change table assisted by Darlene, an early childhood educator. Darlene and Zehra sing their special song as Zehra mounts the stairs; the same song they have used at each diaper change. Now Zehra gets a clean diaper and initiates the song to let Darlene know she wants to be changed. Her physical competency and sense of self are encouraged as she mounts the table on her own and lies down, rather than being lifted and put in place. The song calms Zehra as she transitions from playing to being cleaned. As part of the routine, Zehra hands the diaper to Darlene; in exchange, Darlene gives Zehra a cloth to wipe her hands. Darlene explains each step and Zehra now delights in indicating to Darlene what comes next.

Babies use sounds and then gestures to communicate. Oral language expands their repertoire for communication as they acquire the abilities to make their needs known, exchange ideas, convey feelings and connect with others. The capacity to express themselves with language offers expanded capabilities to regulate their behaviour and get along with others. When children are deeply involved in pretend play with each other, they determine goals and carry out tasks, provide opportunities to recall a storyline and use increasingly complex language. They become storytellers creating new versions of familiar narratives and composing new ones. Preschoolers' abilities to use complex narratives and more advanced oral language are linked to improved reading comprehension and fluency[15] as they transition in the primary grades from learning to read, to reading to learn.

Breastfeeding and early brain development

Health and well-being at every stage of the life course is influenced by nutrition, beginning with the mother's pre-conception nutritional status, continuing through pregnancy to early infancy and beyond. Research shows that a child's tastes and eating habits are formed early in life with consequences for later obesity and also academic achievement.[16]

The macronutrients (proteins, carbohydrates and fats) and micronutrients (vitamins and minerals) are particularly important during prenatal and early development, when brain development and body growth is rapid.

The World Health Organization and others emphasizes the importance of breastfeeding in the first six months for lifelong health.[17] A recent study indicates a strong relationship between breastfeeding and cognitive outcomes.[18] Breastfeeding for as little as four weeks showed a positive and significant effect on academic test scores.

A group of preschool children are following the construction of a condominium next door. Children stand at the fence and watch the parade of cement mixers, diggers, front-end loaders and cranes. Three-year-old Pedro sits down on a tricycle and moves back and forth, making a rumbling sound. Other children ride over on tricycles and wagons and join Pedro. Aisha, an early childhood educator, brings out large building blocks, cardboard tubes, large empty boxes and hard hats. The children eagerly begin to construct a building they call "the big condo". Aisha decides to extend the outside play time. Several days later, the area includes structures made out of blocks, tubes and boxes; picture and word signs giving directions for construction vehicles and warnings of danger;

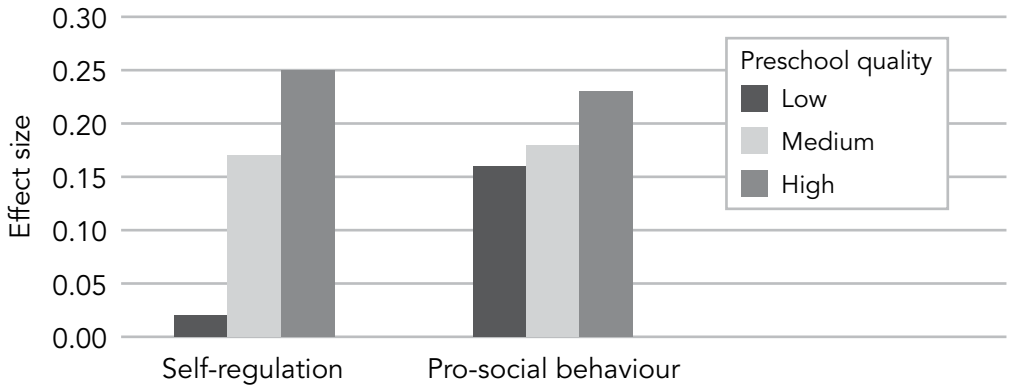
and pails and shovels for hauling sand around in the sand box. The children are asking more and more questions about the construction vehicles and about the many tools the workers are using. Four-year-old Emily wants to know how the water and electricity will be part of the building. Aisha brings in several picture books about construction from the local library. She tells the children that she does not know the answers but she can help them find answers in the book. Hassan suggests they use the internet in the library to look up more information. Several children are drawing pictures about building construction and asking how to spell words like "condominium" and "front-end loader". Aisha and the children now take pictures every morning and document what progress they observe in a book they are making called "The Big Condo".

Early childhood education is not solely concerned with academic goals. A child's world is often too big for them to control. Fearfulness and anxiety are expected and appropriate responses. Children need supportive caring adults to help them discover their surroundings from a safe place. Brain research shows that emotional and cognitive self-regulation have the same neural roots. Warm physical contact with adults helps build the neural pathways in children that manage emotional responses. When adults are responsive to children's feelings, children are better able to organize both their thinking and their behaviour as they grow and their brains develop.

Michael arrives at the centre with 2-year-old Cleo. As they enter the playroom Cleo turns to her father, clings to his leg and begins to cry. Michael picks her up, strokes her back and talks softly to soothe her. As Cleo's crying slows down, Janette, the early childhood educator, approaches and talks quietly to Michael. Their conversation begins to interest Cleo as Janette tells Michael how much Cleo enjoys the playhouse. When Cleo stops crying, Janette suggests she show her dad how she makes cookies in the play oven. After a short demonstration Cleo is ready for her day and kisses Michael goodbye.

The feeling of being included is a prerequisite for early learning. Children and their families are part of broader communities: neighbourhood, faith, ethnocultural, school, professional and workplace. Children bring traditional practices, values, beliefs

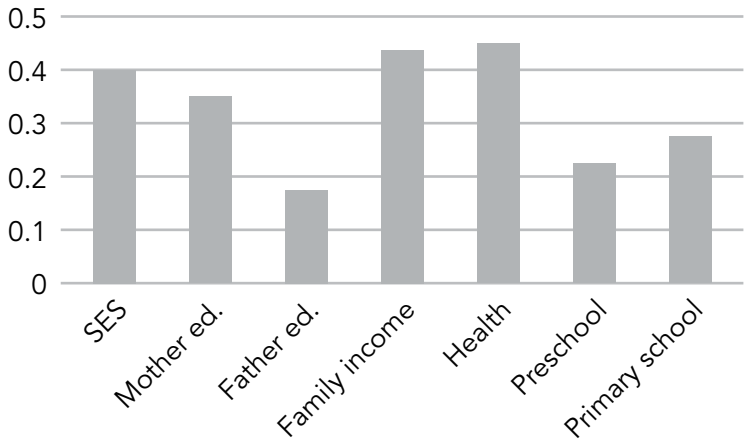
FIGURE 3.1 **Preschool quality and self-regulation and pro-social behaviour (age 11)**



Quality preschool promotes self-regulation in young children with enduring effects into elementary school.

Source: Melhuish, E. in Roseveare, D. (2011).

FIGURE 3.2 **Factors affecting academic achievement – age 11**



Many factors influence outcomes for children. The health and abilities a child is born with are primary, followed by the home environment including the socioeconomic status of the family, the education attainment of the parents and family income. The quality of preschool and primary school are important outside influencers.

Source: Melhuish, E. in Roseveare, D. (2011).

and the experiences of family and community to early childhood programs. Their sense of inclusion increases in environments that allow their full participation and promotes attitudes, beliefs and values of equity and democracy.[19]

Four-year-old Juan speaks Spanish and his mother wants him to learn English. He follows the daily routines at the centre and seems to understand what is being said, but he speaks very little. Juan's mother wants to take home picture books with simple text to read to him at home. Her own English is limited, but she thinks she should only use English at home. Juan's early childhood educator, Nathan, suggests: "Let's try some storybooks without text. You and Juan can tell the story together in Spanish. We use the same books here and tell the story in English. Juan will make the connections. And he is learning—he already understands a lot of English. It is Juan's birthday next week. Can you join us in the morning or at the end of the day to celebrate his birthday and to introduce myself and the other children to a few Spanish words?"

Many children negotiate a second language. They benefit when early childhood educators show they value other languages. Children need opportunities to learn in the language they understand at the same time as they acquire a new language. As they continue to learn vocabulary and conceptual skills in their home language they are better equipped to acquire skills in a second language.[20]

Early childhood programs live alongside other institutions, including public media and political dialogue. Racial, religious and ethnic tensions and incidents are often part of the context. Confronting prejudices and taking action to avoid discrimination and biases increase a sense of belonging of children and families.[21]

Families attending the centre include professional, two-income earning parents working in nearby offices and parents who are employed in the garment industry. Many of the families are newcomers to Canada and live on low incomes. Elisa works with the preschool children and wants to create a learning environment that respects diversity and identity. She takes pictures of the children and their families to paste in their cubbies.

Children need regular opportunities for vigorous and sustained play. Rough-and-tumble activities,

crawling through tubes, ball throwing, jumping over sticks or riding a tricycle are vigorous play. Beyond the obvious health benefits that come with physical activity, preschool children experience other well-documented benefits, including improved sensory-motor coordination, social negotiation skills and vocabulary, and increased sentence complexity and sensory integration.[22] Active Healthy Kids Canada recommends that early childhood programs offer a minimum of 90 minutes of daily active play.[23]

Back outside, Sam and Micaela are chasing each other across the playground. Amid squeals of delight, they race each other up a small hill and roll down to the bottom over and over again.

Components of quality early childhood education

As documented throughout this report, early childhood programs offer multiple social and economic benefits. For children and families, they are very personal places. Parents long for environments where their children are nurtured with real affection, receive individualized attention and are appreciated for their uniqueness. They want their children to make friends, to have new experiences and to learn new skills. They want a relationship with their children's educators that is welcoming, respectful and reciprocal.

When you walk inside a high-quality early childhood centre, it looks and smells good. It is bright, airy, organized and clean. Knowing that it is never too early to make children aware of their relationship to the world, centres are environmentally responsible models of reduce, reuse and recycle. Flora and fauna are major players. There is a variety of play materials for children to put together and take apart. There are quiet corners with storybooks and soft seating to cuddle up on. Knowledgeable and responsive educators encourage language use, both spoken and visual, to show literacy in daily living and to enrich exploration and expand problem solving. Immersion in these environments boosts early learning.[24]

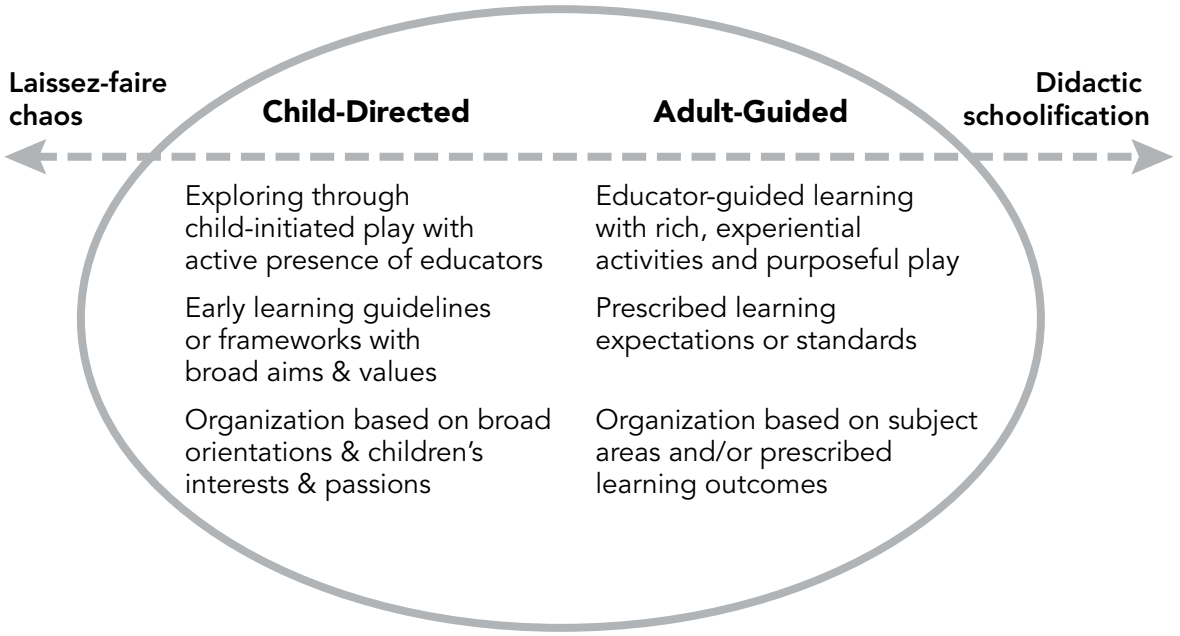
Quality early childhood programs have common principles, approaches and tools that guide practice. There is recognition that children's earliest experiences matter deeply, laying the foundation for lifelong learning, behaviour and health. Families and communities are viewed as partners who strengthen the program's ability to meet the needs of young children. Respect for diversity, equity and inclusion are acknowledged as essential for optimal development. Research also shows that a planned curriculum, anchored by play, best capitalizes on children's natural curiosity and exuberance to learn.

A sound curriculum guides early learning environments for children from infancy through to the early primary grades, when children transition to more analytical thinking. It influences not only the content but the design of the early learning environment, including appropriate lighting, furniture, equipment, materials, storage, food preparation and hygiene facilities, ensuring the space is inviting to children, families and staff. It directs educators in the scheduling of routines and activities, the organization of indoor and outdoor space and the adaption of space and activities to include children with special needs. Early childhood educators (ECEs) use the curriculum to guide their expectations of the children and to help document their own and the children's progress. The curriculum is not only for front-line ECEs; it also informs directors, school principals, senior administrators and other decision makers how to allocate resources and set policies in tune with the developmental needs of young children.

Curricula is not static. It is intended to respond to new knowledge and the changing circumstances of children, their families and communities. Good curricula address the whole child and is often organized into broad categories with learning expectations for each: physical, social, emotional, communication/language and cognitive. This supports educators in observing the children and adapting activities accordingly. The curricula serve additional purposes, including promoting an even level of quality across programs and facilitating communication between parents and staff.

Researchers have found that the quality of the curriculum and pedagogy offered to children is more important than a specific curriculum and

FIGURE 3.3 **Curriculum continuum**



Both child-directed and adult-guided curricula can be effective if done well. Practitioners and researchers agree, laissez-faire and didactic approaches are not effective. Most important is having a curriculum that is coherent with a vision and goals and with a consistent quality of pedagogy to carry it out. In practice, effective early childhood programs operate along a continuum that recognize some learning is best supported by explicit instruction, while other is best achieved by facilitation and modeling.

Adapted from: Bertrand, J. (2010); Miller, E. & Almon, J. (2009); OECD. (2006).

pedagogical approach, with two general exceptions. Young children do not show long-term gains from a scripted curriculum dominated by direct instruction and a focus on specific academic achievements related to literacy and numeracy.[25] This approach is sometimes referred to as the "schoolification" of early childhood education.[26] On the other hand, loosely-structured programs that promote child-directed play without the involvement or active support of educators typically result in chaos.[27]

Early learning frameworks in place in several provinces tend towards a child-directed approach, while curricula for school kindergarten programs tend towards adult-guided approaches.

In one study of curriculum approaches used in the Chicago Child-Parent Centers, a teacher-directed approach to acquiring basic skills did promote early literacy skills and made the transition to kindergarten easier.[28] However, longer-term child outcomes, especially high school completion, were attributed to environments with child-initiated activity—engagement based on social learning and learning how to learn.

The Effective Provision of Pre-School Education (EPPE) project in England and Wales offers strong evidence that a well-planned curriculum and pedagogy with specific learning goals, delivered by responsive educators, improves children's intellectual and social/behavioural development. Children made more progress in centres where cognitive and social goals were complementary and viewed as equally important. In centres rated as excellent, educators and children engaged in more sustained shared thinking. Educators intentionally extended

children's thinking by working together to solve a problem, clarify a concept, expand a narrative or explore a question. The beneficial effects of preschool remained evident through the initial years of primary school.[29]

Educators matter

Encounters between people are fluid and never the same twice. For this reason, it is important for all educators to be reflective practitioners, sensitive to children and knowledgeable about how they develop. Skilled ECEs match their interactions and responses to what is required to best assist a child's learning. They provide children with scaffolding, the kind of assistance that helps children to reach further than would be possible unassisted.[30]

A typical exchange between children and ECE might look like this:

Five-year-old Anita and 4-year-old Sam are using small blocks to make roads for their miniature cars. Amanda, an early childhood educator, brings out several empty boxes. Nearby are markers, tape, scissors, string, small slips of paper. She asks the children, "Could you use these boxes on your roads?"

ECEs ask questions to promote problem solving and challenge children's thinking and reasoning. Children acquire numeracy skills from birth, first recognizing the patterns in people faces, then in repetitive games like 'patty-cake' and 'peek-a-boo.' Even very small children know two cookies are better than one. Young children acquire the language of numbers when they understand how to put things in order and the relationships between big and little, more and less, tall and short. With experience, their understanding of qualitative and quantitative relationships deepens and children develop abilities to measure time, temperature, length and mass.

The children have noticed that although they are the same age, they are different heights. Their ECE, Stella, asks if they would like to know how big they are. She rolls out a long roll of paper and invites them to form pairs. As one child lies down on the paper, the other traces the outline of their body. Stella provides pens and tape measures and asks if hands are longer than feet. The children then ask if arms are longer than legs. Is fingertip to fingertip as long as head to toe? The tape measures come off the paper to calculate the circumference of heads, arms and legs. The children record their measurements.

Bringing children to learning opportunities is part of the supportive relationship between educators and parents and between educators, parents and children; the child learns through active involvement, not through passively receiving information. Adults open up learning opportunities for young children when they respect children as confident and competent learners. These expectations encourage young children's hopefulness in their own capabilities.

Curricula reflect social values and goals

The curricula developed for preschool children reflect and promote society's values and morals.[31] Swedish preschool curricula aim to help children to understand and participate in democratic government. Early years education includes support for social cohesion and national cultural identity, respect for diversity or the promotion of bi- or multi-culturalism. In New Zealand *Te Whariki* is the national early childhood curriculum. It adopts a specific sociocultural perspective on learning that recognizes the different social contexts in which children live and seeks to promote bi-culturalism between Maori and European cultures.

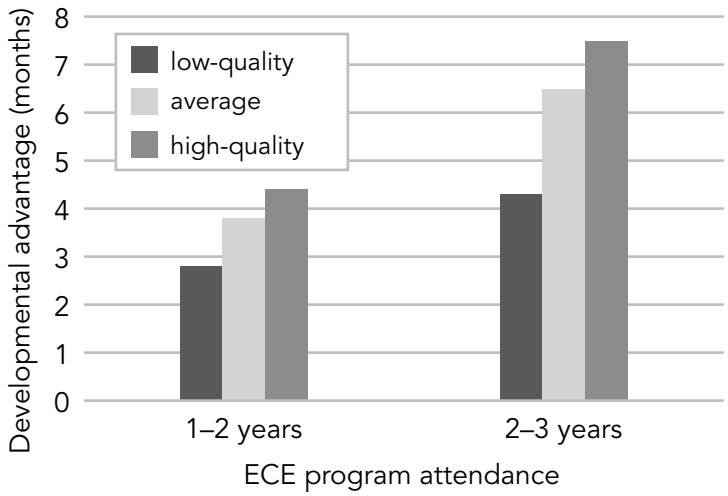
Early childhood options for all

All children should have the opportunity to attend places like the ones described in this chapter, staffed by sensitive, qualified ECEs like Darlene, Aisha, Nathan and the others. Few do. Most children must settle for mediocrity and live with the consequences. Experience tells us it is not enough to merely add

FIGURE 3.4

Quality and duration matter

(months of developmental advantage on literacy)



Both the quality of preschool programs and the amount of time children attend preschool influence later educational achievement. Melhuish found literacy benefits even for children attending lower quality (not abusive or neglectful) programs, but the children who profited most attended good programs for two or more years.

Source: Melhuish, E. in Roseveare, D. (2011).

preschool spaces; we need to be concerned with how good they are. Enrolling children in overcrowded classrooms with inept educators can make their lives worse. But quantity often wins out over quality for policy makers because it is easier to boast about increasing spaces than improving classroom quality.

Researcher Carl Corter notes: "In Canada, the story of government roles in early childhood programs has been told mainly in words like "fragmented" and "underfunded", certainly not "foundational" for providing coherent supports to children's development and to their families."[32]

In the absence of public action to support children's early learning, community innovators, often responding to the call of the Early Years studies, mobilize grassroots activities designed to meet the needs of young children and their families. Charismatic leaders bring stakeholders together to forge a common vision. Networks are established to collaborate around joint objectives and activities. Playgrounds, after-school clubs, morning playgroups, take-home book bags and Saturday gym programs emerge and are welcomed by families.

But community-driven initiatives operate on the margins of mainstream programs. They rarely challenge service mandates, funding or organization and most fail when the leadership changes. Occasionally large organizations or governments pick up innovations and morph them into yet another stand-alone program on the ever-changing list of activities available in communities. Seldom are they integrated into schools or health services to become part of the core services delivered to families.

Governments also initiate their own collaborative efforts, bringing service providers and stakeholders together to make services work better for people. These rarely have the authority to command the participation of key players or to direct the reorganization of mandates or funding. They usually last as long as there is money to allocate.

Evaluations of integration efforts agree—the goodwill of community advocates and committed stakeholders alone does not sustain institutional change.[33] The personal experience of community leaders concurs: "Twenty years ago I thought I could work together with a school board leader and we could sprinkle the magic dust of collaboration around and all good things for kids and families would follow," observes Graham Clyne, a community activist.

Community-level coordination efforts can inform new policy frameworks, but successful transformations require high-level political will and direction

that goes beyond single ministries to embrace the whole government. Without top-level direction, departments remain accountable to their governance structures. As a result, most aim to improve coordination while retaining their respective funding and legislative mandates.

Challenges to early childhood service integration

When everyone agrees that integrating services is positive for children and families and more efficient for taxpayers, why is it so difficult to accomplish? A number of barriers make system transformation difficult:

- **Structure:** An absence of high-level, consistent direction damages most initiatives. Education is a critical department with the infrastructure to provide stability for service integration, but it is also a big boat to turn. Children's and social service ministries are the outliers in most governments and feel compelled to defend their departmental integrities and cultures. Regional infrastructure of education and social services often have different geographical boundaries and organizational structures that are hard to join up. Too many initiatives started and abandoned leave bureaucrats feeling cynical. Opponents drag their feet, banking on policy makers getting distracted with other tasks.
- **Turf:** From the classroom floor to ministry offices, deeply ingrained professional and agency ideologies clash over who will lead and who will adapt. Commercial and community agencies claim loss of clients and funding; unions fight job redundancies; professional organizations worry about retaining status and members; and school officials balk at taking on tasks that are outside a narrowly defined educational scope.
- **Combining universal and targeted programs:** Kindergarten is provided at no direct cost to parents. Where available, parent and family support programs have no or modest fees. Few families can find or pay for regulated child care. This fractured funding structure locks participants into their silos.
- **Communication and resources:** Poor communication with parents, the public and stakeholders leads to a lack of clarity about goals, timelines, roles and responsibilities. Inadequate transition planning for agencies affected by systems change disrupts related services and creates opposition, while inadequate resources undermines quality.
- **Staffing:** Insufficient supports frustrate educators and administrators who must meet new demands. Disparity in remuneration and working conditions among professionals with similar skills and responsibilities, labour contracts and professional regulation all limit the flexibility needed for systems change.
- **Balancing the books:** The recent global recession and slow recovery have pressured governments to deliver programs for significantly lower costs, rolling back integration efforts as each department and agency seeks to protect its own budget and employees.

Benefits of early childhood program integration

While research into integrating children's programming has focused largely on the process, positive gains have also been documented for children, families and staff. Evaluations of Sure Start in the UK, Communities for Children in Australia and Toronto First Duty report that children in neighbourhoods with integrated children's services are more socially competent compared with children living in similar areas without integrated services. More families were informed about services and found them more accessible.[34] They attended programs more often and participated in a broader range of activities. There was a reduction in the number of agencies families had to approach and fewer families fell through the cracks. In addition, parents reported greater satisfaction with services, less family stress, reduced social isolation, more confidence in their parenting and improved communication with staff.

Integrated models challenge staff to abandon professional rigidity and develop a shared understanding and language with respect to early childhood practice. When supported by effective leadership,

there is more collaboration and staff members enjoy expanded professional development and more opportunities for peer learning.

Program quality is another benefit of integration. Integrated models seem to push back against developmentally inappropriate curriculum and approaches, and promote a more progressive vision of what early childhood programming should be: building engaged, active learning; less modularization; whole child development, including supports to build self-regulation; enhanced parent capacity to partner with educators to support their children's development; and expanded community and school links. The Toronto First Duty initiative found that quality ratings reflected the degree of integration, with programs receiving a higher quality rating when integration ratings were also high.

For schools and community service providers, integration can be difficult, involving real change to culture and methodologies and requiring new skills and ways of working. Change requires leadership at all levels. Provincial and local administrators must ensure that the time and needed resources are made available to develop local expertise.

New thinking for new challenges

Canadians agree that we need a new discourse about the role of government in helping families address the highly complex challenges they face in providing their children with opportunity and security. Yet efforts on behalf of children are taking place against a backdrop of intensifying demand, increasing complexity and taxpayer fatigue. Doing more of the same will not deliver the scale and nature of the changes needed. Moreover, attempts at reform along single departmental or professional lines often give rise to unintended consequences. Narrow thinking about policy solutions can alleviate one need, while exacerbating others.

Real integration demands new ways of thinking—a system-wide approach with new measures of success and new resources that include the energy and ideas of citizens, communities and experts. Early childhood program integration needs to move beyond pilot projects and be brought to centre stage.

Influencing policy change

It is only through public policy that permanent and sustainable change for a better future can take place. *Good* policy requires 'political space', a convergence of the right leaders, at the right time, doing the right thing. *Smart* policy making requires the ability to identify what is not working and foster a consensus around what can work. Many inputs go into creating the dynamics that turn scientific evidence into community action, and ultimately policy change. Here are two examples of foundations partnering with communities to cultivate a convergence of stakeholder and public opinion in support of new approaches to early childhood and family service delivery.

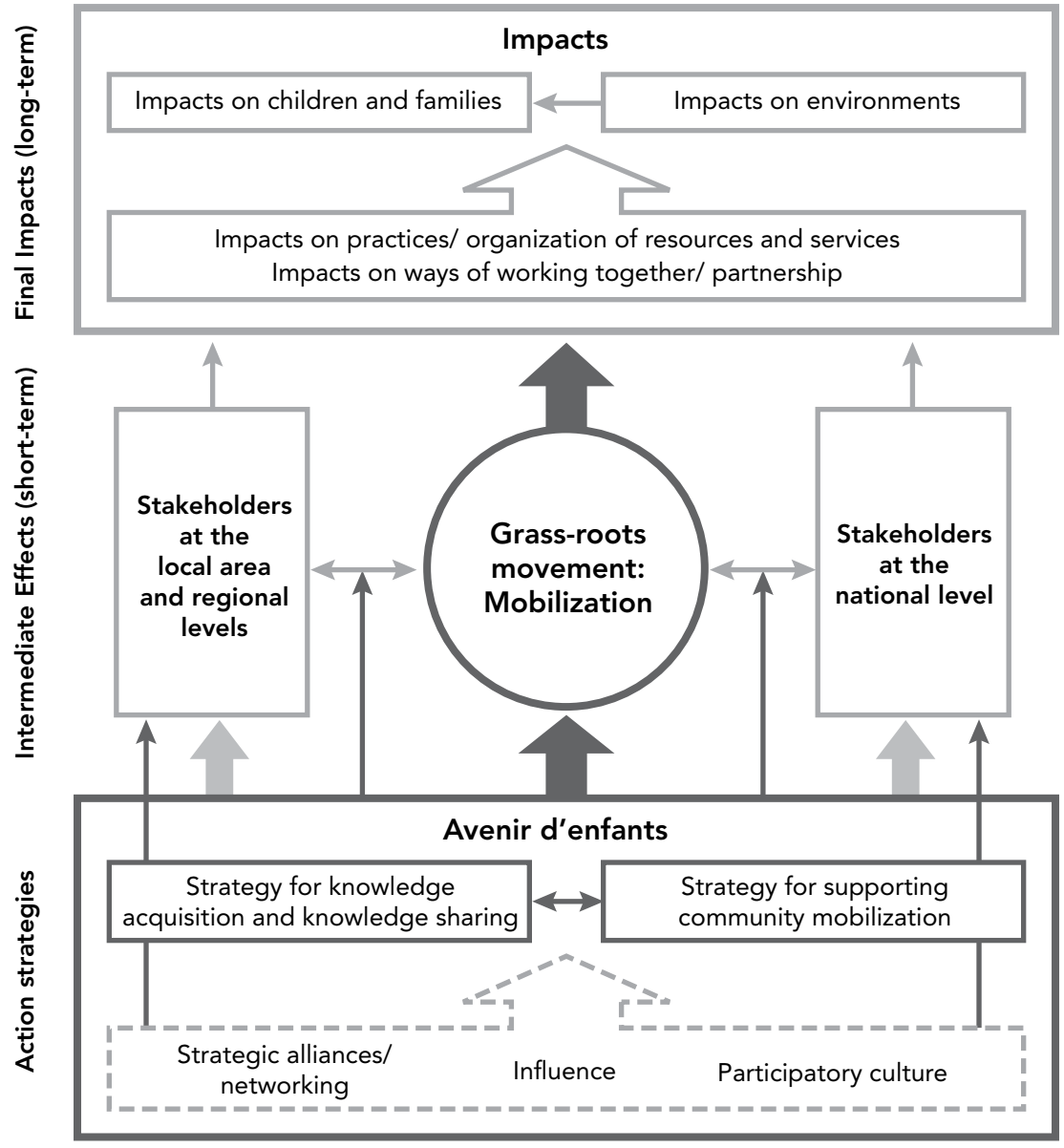
Avenir d'enfants, mobilizing to improve outcomes for young children in Quebec

Avenir d'enfants is an ambitious civic/government partnership that guides and financially supports Quebec communities to promote the development and well-being of children from the prenatal period to age 5. Public health, early childhood programs, schools, municipalities, community agencies and parent representatives come together to harmonize strategies, align services and mandates, explore and experiment with the integration of funding and human resources and ensure continuity of services for young children and families.

Avenir d'enfants distinguishes itself from other community-mobilizing initiatives in a singular manner. The Quebec legislature created a 10-year fund for community projects designed to create equitable opportunities for children. The Lucie and André Chagnon Foundation added $250 million to the province's $150 million commitment. Avenir d'enfants manages the fund under the direction of a 10-member board composed of equal numbers of women and men. The funding partners appoint four members each, while an additional two are jointly determined.

Avenir d'enfants shares the perspective of many community collaborations. The goal is to mobilize stakeholders and residents to leverage assets and build social capital for early childhood at the local

FIGURE 3.5 **Avenir d'enfants' comprehensive model of change**



level. But Avenir d'enfants operates in a jurisdiction with well-defined service systems in place:

- Education provides learning and care for children aged 5 to 12 years.
- Public health and social services operate through community clinics to promote healthy pre- and postnatal care.
- A network of early childhood providers (Centres de la petite enfance – CPE) serves 60 percent of young children.

Avenir d'enfants is not a substitute for system infrastructure and public investment. While recognizing there is a need for more CPE spaces or other programming, it does not fund direct services.

Rather, it wants service providers to better know the families in their community and how they are being served, and to find out how they could be better served.

"The first step for everyone was to look beyond the boundaries of their own roles and responsibilities and see what else was happening in their communities," says Lyse Brunet, the CEO of Avenir d'enfants. "We act as a network weaver, connecting people who work with children, including school board directors, CPE supervisors, municipal staff and public health professionals so they can develop a shared understanding of how children live."

Avenir d'enfants does not have the authority to redirect the human or financial resources of agencies. "What we can do is support a process where service providers can create a strategy. Everyone has some room at the margins to do something differently and they can identify what additional resources are needed to collaborate for improved outcomes for children and families," explains Brunet.

The challenge for Avenir d'enfants is to facilitate community-based remedies to service challenges that deny a strong start to all of Quebec's children. In year one (2010–11), 66 communities developed action plans identifying and addressing service challenges. Avenir d'enfants documented the actions, identified and produced support tools and shared the most effective approaches between participants. The experience promotes better practices at the local level and positions communities to formulate recommendations for policy change at the provincial level.

By 2012, Avenir d'enfants will be working with 125 communities. Inspired by the results from local projects using the Early Development Instrument (EDI) to inform their plans, Avenir d'enfants is joining with the Ministère de la santé et des services sociaux (MSSS) to use the EDI in all Quebec kindergarten classes. The EDI assesses the readiness of kindergarten-aged children for school.

Avenir d'enfants also undertakes projects with a province-wide reach. Thirteen projects with post-secondary and training institutions are designed to increase capacity in the sector. For example, St. Jerome CEGEP is adapting the provincial curriculum for family homecare providers. This initiative has the potential to reach 11,000 family caregivers who are part of the provincial child care system, improving quality in family care homes and outcomes for children.

One of the big questions Avenir d'enfants hopes to answer is how education, health and community agencies can better intervene on behalf of children from disadvantaged homes. Communities are encouraged to identify and overcome barriers to the participation of families who have been traditionally underserved by publicly funded programs.

Behind Avenir d'enfants is a vision and long-standing community action. *A Quebec Crazy for its Children*, released in 1992 by the government's Working Group on Youth, galvanized a consensus behind prioritizing public resources for children. The report is credited with creating the political space for Quebec's successful anti-poverty and family support policies. It inspired 1, 2, 3 GO!, community-based projects supported by the Centraide of Greater Montreal[a] to improve outcomes for children. In 2002, 1, 2, 3 GO! expanded its scope to become a resource and support agency devoted entirely to early childhood work throughout Quebec.

In 2000, the Lucie and André Chagnon Foundation was established, mandated to address the underlying causes of poverty. It developed Quebec enfants, a division within the foundation designed to promote school-readiness. In early 2009, following several months of discussions, and with support from their respective funders, 1, 2, 3 GO! and Quebec enfants merged. Their networks and complementary know-how formed the basis for Avenir d'enfants.

The Chagnon Foundation sees its partnership with government as a tool to implement solutions identified by those who make a daily contribution to the lives of children. The partnership encourages government to become more porous: promoting innovation by allowing new voices to enter the policy making system. Often the people with the most insight are the families who use the services themselves. Those least likely to be asked, but often

[a] Quebec's equivalent to the United Way.

with the most to offer, are those families who do not use them. Avenir d'enfants offers them all a voice.

Building early learning opportunities in Atlantic Canada

Another initiative that partners with governments to maximize leverage is the Early Childhood Development Centres project in Atlantic Canada. The Margaret and Wallace McCain Family Foundation (MWMFF) has agreements with the Governments of New Brunswick, Nova Scotia and Prince Edward Island to create demonstration sites that combine the existing resources of child care, kindergarten, special needs and family supports into early childhood centres aligned with schools. In Newfoundland and Labrador, MWMFF is partnering with the Jimmy Pratt Foundation and the Faculty of Education at Memorial University of Newfoundland to support early childhood research and evaluation in collaboration with governments and communities.

These full service centres showcase best practices in early childhood programming and identify the policy changes needed to remove impediments to access and quality. By demonstrating to policy makers and the public the value of comprehensive service delivery, the projects can help inform the development of effective early childhood systems.

Each of the 14 centres MWMFF supports is unique because each community is different. Families are actively involved in shaping the programming their children receive, but across the region they agree on the same thing: the need for an accessible location that provides educational care for their children that facilitates their work and family life and that provides supports if their child has special needs.

The Health and Education Research Group (HERG), at the University of New Brunswick, and researchers from l'Université de Moncton are evaluating the experiences at the New Brunswick and Prince Edward Island sites for children, families, staff, program managers and service administrators. The findings will inform recommendations for policy action.

Regional differences are considered in site selection. La Boussole, Centre de la petite enfance et de la famille de Richibucto Inc. opened in Soleil Levant School in the fall of 2010. La Boussole (The Compass) is one of nine early childhood demonstration sites in New Brunswick. Its team of staff delivers programming to parents and children including full- and part-time educational child care, parent and child playgroups, immunization clinics and healthy lifestyle programs, integrated with school-based services.

La Boussole serves Acadian and Francophone families in Kent County, as well as English-speaking families who want their children to attend a French school. Michèle Doiron Campbell, Vice-President of La Boussole and the mother of two preschoolers, welcomes the strong linguistic and cultural identity the program offers. "Minority Francophone children often do not have the opportunity to acquire pre-literacy skills in French before they start school. This centre will help children build a strong linguistic foundation for their ongoing learning and development."

In New Brunswick's Saint John River valley, MWMFF is supporting the Carleton York Victoria network of demonstration sites in small rural communities. Anchored by Step Ahead in Bath, also a government-supported site, lessons learned are quickly transferred to new communities. The school district, Valley Family Resource Program and public health are active partners.

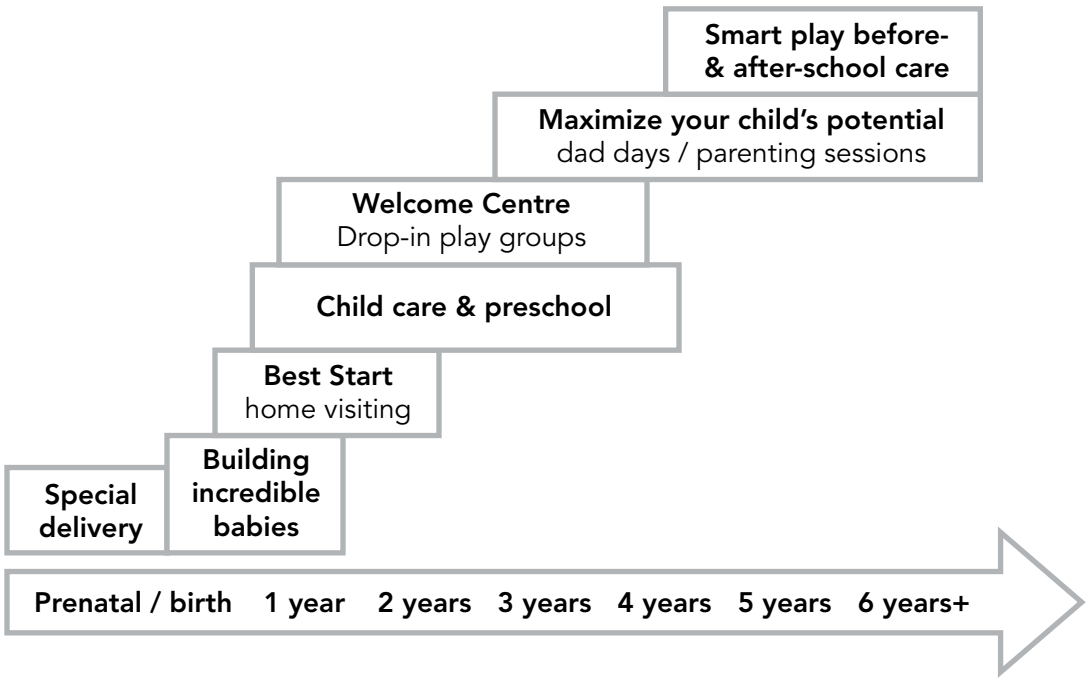
The demonstration sites have continued through a change of government in New Brunswick. One of the first actions of the new government was to consolidate all early childhood programming under a new Ministry of Education and Early Childhood Development. The education ministry continues to confer with stakeholders on the best ways to meet the government's election commitment for 10,000 new early learning and care spaces.

Smart Start Prince Edward Island

"The Preschool Excellence Initiative is based on the belief that our youngest Islanders deserve the strongest start possible and that government has a societal responsibility to provide for all Island children."[35]

Smart Start in Prince Edward Island is another MWMFF-supported project; it is a partnership

FIGURE 3.6 **Smart Start, Charlottetown, Prince Edward Island**



between the Eastern School District, Public Health Nursing, Holland College, the University of PEI and CHANCES, a non-profit community agency. Operating out of four locations, the program reaches out to local families, offering a full-day/full-year child and family program that includes pre- and postnatal resources, nutrition counselling, an early development program for infants and toddlers, school-based preschool for 2- to 4-year-olds and child/parent activities, resources and information.

"This is a tremendous opportunity to model best practice in Prince Edward Island that meets the needs of young children and their families and is solidly based in the most current research," says Ann Robertson, Executive Director of the CHANCES Family Centre, and manager of the Smart Start centres.

In September 2011, the Smart Start sites joined the Prince Edward Island government's new Preschool Excellence Initiative as Early Years Centres. Early Years Centres are the core of the new initiative. They follow a common curriculum, have mandated parent committees and employ a province-wide salary and fee scale.

The MWMFF and the provincial government are working with researchers at Holland College and the University of PEI to monitor the first year transition to Early Years Centres. The evaluation will establish baseline data for the province and inform further development. The next phase of the evaluation will assess the impact of the Preschool Initiative on children, families, early childhood educators, communities and the province.

MWMFF is expanding support for Smart Start to reach families who traditionally do not use early childhood services. Its experiences will inform future policy discussions.

Evaluations from Smart Start already show positive results.[36] The site reconfirms the important role of the principal in an integrated setting. This position leads in creating a professional learning community of teachers, early childhood educators and parents. Utilization data indicates more families are being served in ways that they want to be, with a broader range of more flexible and affordable services. Parent satisfaction has also improved. Staff members are more responsive to parent concerns,

listen and act on their suggestions and involve them in programming. Preliminary results show improvements in school readiness for children who regularly participate in Smart Start programming.

In addition to the funding and guidance provided to demonstration sites during start up and operations, the MWMFF uses a combination of methods to support progress on early childhood policy. Joint protocols and agreements clarify roles, responsibilities and expected outcomes between levels of government, the foundation and community partners. Staff and outside expertise are made available to inform policy, programming and research. Joint professional development opportunities are provided for educators and administrators from education, health and the community. Foundation staff members maintain regular contact with community and government officials, and they employ a communications strategy that combines praise and nudge to move the agenda forward.

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4

Early Childhood Education as Economic Development

Early childhood education is economic development, and the research shows it is economic development with a very high public return. Just a decade ago, this statement would have been dismissed. Spending on programs for young children was viewed as consumption—an immediate cost to the economy. The first *Early Years Study* (1999) furthered thinking by linking participation in quality early childhood programs to economic outcomes. Almost immediately the audience for early childhood concerns swelled, engaging economists, scientists, health providers and even financiers.

Decades of research reveal benefits

The economic rationale for investing in early childhood programming is gathered from three types of analyses: longitudinal data quantifying the human capital benefits and reduced health and social costs for children who attend preschool; economic modelling forecasting the payback from the enhanced labour productivity of working mothers; and studies examining the early childhood sector itself and its multiplier effects on economies.

Validation of the human capital approach is heavily influenced by U.S. longitudinal studies showing sustained benefits from early interventions for children from disadvantaged homes. Based on these findings, respected economists, such as Nobel Prize winner James Heckman, concluded that scarce public resources would best be used for at-risk communities. Population health promoters countered with data showing that developmental vulnerabilities are not exclusive to children from low-income homes—children with these vulnerabilities exist across the economic spectrum. Targeting resources, they demonstrate,

+ 10%	The increased graduation rate for those who attended preschool
$717 million	Ottawa's annual tax benefit from Quebec's low cost child care
$101 million	Gross annual revenue from Winnipeg's child care sector
70,000	More Quebec mothers working because of low cost child care
50,000	The annual shortage of early childhood educators
$5,000	Per child saving in special education costs from after-school programs

would exclude the majority of children with vulnerabilities, including those residing in middle class and affluent families.

Most recently, economists are questioning whether "scarce resources" are even a consideration. Quebec's early childhood program has been criticized for its costs. However, recent analyses found the province recoups its entire outlay from the additional tax revenue generated by working mothers, while the federal government—that contributes little to the program—enjoys a $717 million annual windfall. The research shows the "just can't afford to" excuse for denying young children their fair share of society's resources has no substance.

Researchers have followed three U.S. gold medal longitudinal studies on the impact of preschool education on children from disadvantaged backgrounds. The participants were largely African-American children deemed to be at-risk because of low family income, mothers' age, educational attainment and lone-parent status. The families typically lived in neighbourhoods with persistent poverty and high rates of crime. Children changed schools and housing frequently.

Ypsilanti's Perry Preschool (initiated in 1962), the Abecedarian study in North Carolina (1972) and the Chicago Child-Parent Centers (1967) have tracked their original cohorts for up to four decades. Each study was unique, but all provided a group program emphasizing parent involvement and the development of literacy skills. Child-to-staff ratios were low and educators had university level training in early childhood education.

Assessed over time, the preschool groups showed greater on-time secondary school graduation, higher college attendance, increased earnings and more prosocial conduct as adults compared to the control groups. For children born to mothers who never finished high school, high school completion rates were roughly 10 percent higher and rates of substance abuse and felony charges were roughly 10 percent lower than for children in the studies who did not attend preschool. The outcomes were particularly pronounced for male participants.[1]

No long-term effect was found on the IQ of the participants, but preschool did help children develop better cognitive habits and improved impulse control.

The Chicago and Abecedarian studies included samples of children who attended both preschool and enriched school programming. Others participated only in preschool, or only in enriched schooling. The most consistent and enduring outcomes were from preschool participation. School-aged programming provided added academic and earning advantages, but social behaviours were not appreciably different from the preschool-only groups.

The benefits of preschool were quantified by comparing the original costs of the program per child to their adult behaviour, including employment earnings, taxes paid, social welfare used and criminal justice costs incurred. Preschool's influence on health costs was not considered in the overall tally, but positive results were found in a separate study of Perry Preschool participants at 40 years of age.[2]

Only the financial returns for participants as they entered youth and adulthood were considered by the studies, not modifications in their parents' behaviour. In the Abecedarian study, for example, all-day preschool made it possible for parents to work or upgrade their skills. Parental benefits from lowered

FIGURE 4.1

Cost-benefit findings from three major longitudinal studies involving disadvantaged children attending preschool in U.S. urban areas

	Abecedarian	Chicago Child-Parent Centers	Perry Preschool
Year began	1972	1967	1962
Location	Chapel Hill, NC	Chicago, IL	Ypsilanti, MI
Sample size	104	1,539	123
Intervention group	50	1,286	58
Design	Random control	Children who only attended full-day kindergarten	Random control
Participants' ages	6 weeks–5 years and 6–8 years	Ages 3–9 years	Ages 3–4 years
Program schedule	Full-day/year-round	Half-day/school year	Half-day/school year
Average time in program per child	5 years	18 months	2 years
Additional interventions to preschool	• Enriched programming in elementary grades • Health and family supports	• Full-day kindergarten • Health and family supports • Enriched programming in early elementary grades	• Health supports • 1.5 hour home visit once a week
Age last assessed	21 years	28 years	40 years
Costs per child	$13,900/yr	$7,428/child	$15,166/yr
Benefits calculated	$143,674	$83,511	$258,888
Return on each $1 spent	$4:$1	$10:$1	$17:$1

Sources: Barnett, W. S., & Masse, L. N. (2007); Schweinhart, L. J., et al. (2005); Temple, J. A. & Reynolds, A. J. (2007); Reynolds, A. J., Temple, J. A., Ou, S., et al. (2011).

welfare use and increased tax revenues paid were not factored into the results, nor were more immediate benefits accruing to the child, such as reduced demand for health care or special education.

How replicable these studies are to a Canadian context is questionable. Canada does not have the same incarceration rates as the U.S., nor the same depth of racialized poverty—excluding Aboriginal populations—and it has the advantage of public health care, which plays a role in employability. As dramatic as the findings from these studies are, the initial outlay would be substantial and public investments that take a generation to realize provide little incentive for policy makers who often think in election cycles.

Canadian cost-benefit analyses

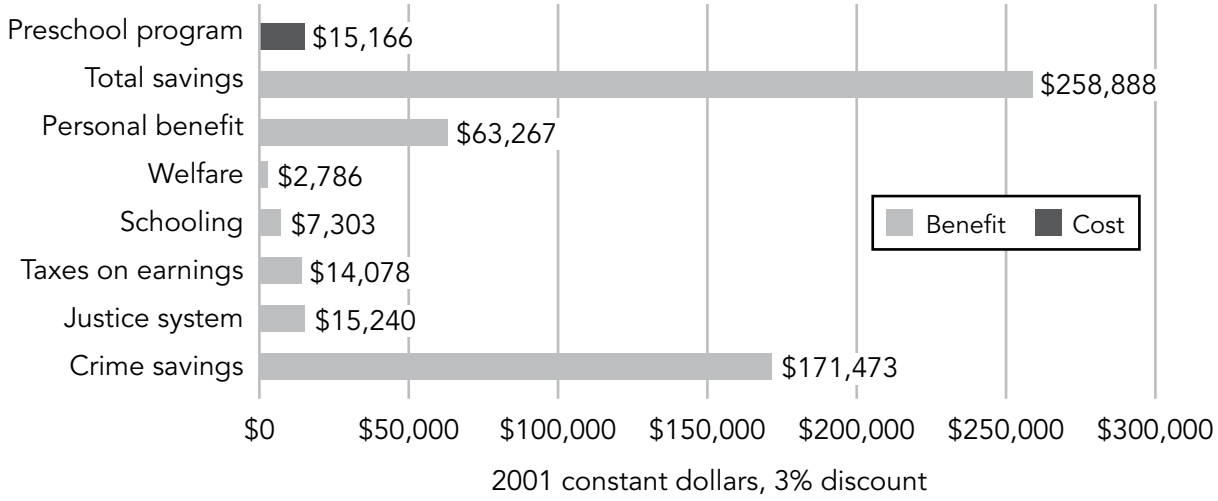
Canadian economists have had to be content with simulating the benefits of spending on early childhood programming.[a] Canadian studies have also differed from the American "Big Three" by including the immediate reimbursements produced from the increased workforce participation of mothers.

[a] Researchers rely heavily on data from the National Longitudinal Survey of Children and Youth, and the Quebec Longitudinal Study of Child Development. These tools track the development of a cohort of children from birth to identify different factors that influence each child's development. Data is gathered at regular intervals, using voluntary surveys of parents and youth, as well as selective numeracy, literacy and problem solving assessments at different ages.

FIGURE 4.2

Cost-benefit by category from Perry Preschool Study per participant at 40 years of age

($17.07 return per dollar invested)



The commonly-heard value placed on early intervention programs is that every dollar spent yields $7 in cost savings. This figure was obtained from the Perry Preschool study from an assessment made several years ago. As time passes, and the original cohort earns more and draws less on social programs, the value of the initial investment consequently increases. The surviving participants in the study were last assessed in 2005 at age 40. The return on the original preschool investments now stands at $17:$1.[3]

Sources: Schweinhart, L. J., et al. (2005); Belfield, C., et al. (2006).

In addition, Canadian studies include the mid- and longer-term repayments from early childhood programs that can be predicted for children.

The first landmark analysis of the economic payoffs of preschool came in 1998, when two University of Toronto professors calculated the impact of providing publicly funded educational child care for all children aged 2–5 years.[4] The net cost of $5.2 billion annually (1998 CDN dollars) was premised on an overall parental contribution of 20 percent, with individual fees scaled to income. The new system would create 170,000 new jobs, but these would replace 250,000 unregulated child minders, for a net employment loss. New educator jobs were assessed at an average wage and benefit level of $36,000 annually, a significant improvement on remuneration levels at that time.

The authors determined the benefits at $10.6 billion. About $4.3 billion was foreseen for children in improved school readiness, graduation levels and future earnings. The majority, and the most immediate, dividends ($6.24 billion) went to mothers. Affordable, available child care would allow women to work, to shorten their stay out of the labour market following the birth of their children and would permit them to move from part-time to full-time work. This would afford women more financial independence, increasing their lifetime earnings and decreasing their chances of poverty at the time of divorce or widowhood.

Developing community capacity to support children

Canada's largest study on the influence of programs on children is Better Beginnings, Better Futures (BBBF), led by Ray Peters at Queen's University. BBBF is a bit of an outlier in terms of studies looking

FIGURE 4.3

Five Canadian cost-benefit analyses of early childhood programming

Study	Year	Description	Benefits	Ratio
Economic Consequences of Quebec's Educational Child Care Policy Pierre Fortin, Luc Godbout, Suzie St-Cerny	2011	• Examined benefits of enhanced maternal employment due to low cost child care	• Quebec gains $1.5B in increased tax revenue • Pays $340M less in tax and social benefits to families • Increased provincial GDP by $5.2B (+1.7%)	• For every $1 spent on ECEC, Quebec receives $1.05 • Federal government receives $0.44
Better Beginnings, Better Futures Ray D. Peters, et al.	2010	• $580,000 per site for 5 years to enrich child, parent and neighbourhood programming • 3 sites involving children 4-8 yrs • 5 sites involving children 0-4 yrs • Matched similar neighbourhoods • Children followed to grade 12	• No difference for BBBF sites focused on 0-4 yrs • Reduced use of health, social benefits, special education, child welfare and criminal justice in sites focused on 4-8 yrs cohorts compared to control neighbourhoods	• For every $1 spent, $2 in reduced costs to public and community agencies
Workforce Shortages Socio-Economic Effects Robert Fairholm	2009	• Analysis of potential benefits for every $1M spent on child care • Child care an effective job creator and economic stimulant	• $2.02 / $1 spent on operations • $1M = 40 jobs • $1.47 / $1 spent on capital • $1M = 29 jobs	• For every $1 invested $2.42 in increased earnings, improved health, reduced social costs
Child Care as Economic and Social Development Susan Prentice	2007	• Examined economic multipliers from existing child care services in 4 Manitoba communities: Winnipeg, Thompson, Parkland and St.-Pierre-Jolys	• Winnipeg child care sector has gross revenues of over $101M/year • Employs 3,200 with annual earnings of $80M	• Every $1 creates $1.38 in the local economy and $1.40 in the Canadian economy • Every 1 child care job creates 2.1 spinoff jobs
The Benefits and Costs of Good Child Care Gordon Cleveland & Michael Krashinksy	1998	• Estimated costs of a universal child care program for every child 2–5 yrs • Assumed educators earn $36K and parents pay 20% of overall costs	• 170,000 jobs created • Increased maternal labour force participation • Lower welfare & related costs	Every $1 spent creates $2 including: • $0.75 in social savings • $1.25 increased tax revenue from job creation/working mothers

Sources: Cleveland, G., & Krashinsky, M. (1998); Fairholm, R. (2009); Fortin, P., Godbout. L., & St-Cerny, S. (2011); Peters, R.D., Nelson, G., et al. (2010); Prentice, S., & McCracken, M. (2004).

at outcomes for children that can be attributed to preschool attendance, and perhaps should not be included in this list. Instead, it is more of a study of community social cohesion, an examination of what happens when local service providers come together with families in the interest of children. It also reveals something about the "dose effect"—how much is enough to change developmental trajectories for children.

BBBF looked at eight communities, five focused on children from birth to 4 years of age (the younger child sites), and the other three on kindergarten-aged children to 8 years of age (the older child sites). Sites received a grant averaging $580,000 each year over five years (1993–97) to enrich programming for children, parents and/or neighbourhoods. Each site selected its own interventions, which varied over the course of the study. Program examples included: enriched in-school activities, homework support, after-school recreation, parenting classes, home visits, field trips, toy libraries, family vacation camps, child care referral and/or community kitchens and gardens.

A sample of children from each site was selected to study the impact of the interventions at a community level. Therefore, the sample group may or may not have taken part in all of the intervention programming. However, many of the older children did attend the before, after- and in-school programs.

Long-term positive effects were found for the children who lived in communities with enriched programming for 4- to 8-year-olds, but not for those in the younger child site communities. The positive outcomes actually strengthened over time in the older child sites, as seen in measures collected when children were in grades 3, 6, 9 and 12. Children in the BBBF communities used health, special education, social services, child welfare and criminal justice services less than those in the control neighbourhoods. The reduction in the use of special education services alone saved more than $5,000 per child by grade 12. Overall, government funders realized a cost-benefit of more than $2 for each $1 invested in the project.[5] The benefits are dramatic because they are recouped during childhood and represent benefits that accrue at a community level, and therefore have direct application for policies that are scaled up.

Why did younger children receive no lasting benefits from the interventions, while older children did? One explanation is that the modest project investment per child did not provide enough intensity for younger children.[6] Program spending in the older children's sites was on top of investments already made in every child via the school system. Schools offered a universal platform so that enriched supports reached all children, while no equivalent service is available for children during their preschool years.

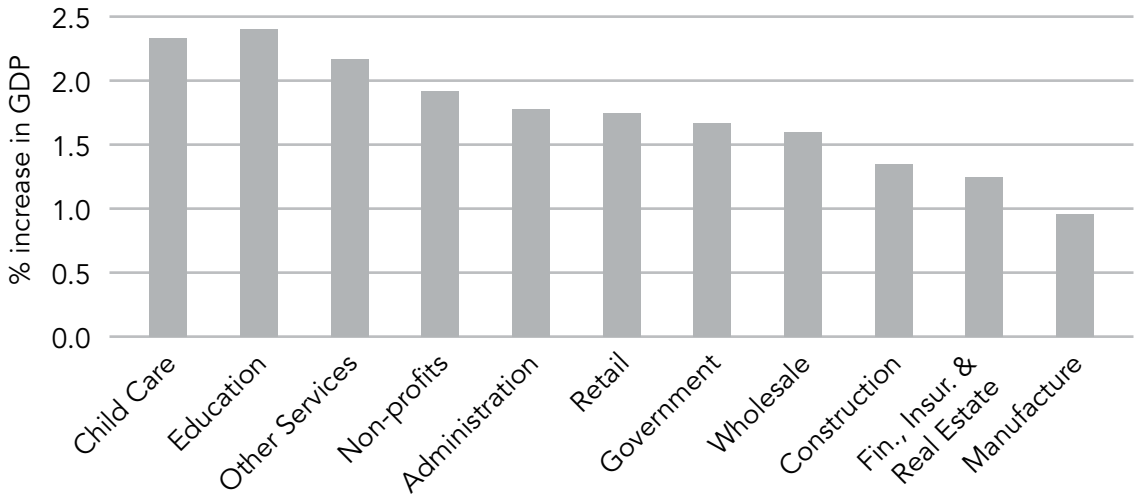
Child care as regional economic development

Every Canadian region has an economic development department whose main purpose is to attract business, sports teams or cultural landmarks to spur economic activity and create jobs. Child care, if it appears at all, is at the bottom of economic development lists. Sociologist Susan Prentice of the University of Manitoba thinks it should be at the top. Her 2004 study of Winnipeg's child care sector demonstrated its multifaceted role in a regional economy: as an economic sector in its own right with facilities, employees and consumption from other sectors; as labour force support to working parents; and for the long-term economic impact it has on the next generation of workers.[7]

Winnipeg's 620 child care facilities provide care to about 17 percent of the city's children. Gross revenues are over $101 million a year; 3,200 people are employed with total earnings of $80 million annually. Prentice found more jobs in child care than in the entire Manitoba film industry, and about as many as in the better-known bio-tech and health research or the energy and environment sectors, which are priority areas for development in the city.

Child care is also a job creator. Working with the same analytical tools used by the finance department, Prentice found that for every child care job, 2.15 others were created or sustained. Child care also allows mothers and fathers to work. Parents with children in child care earn an estimated $715 million per year.[8] Overall, every $1 invested in child

FIGURE 4.4 **Effect on GDP of public investment by sector**



Source: Fairholm, R. & Davis, J. (2010).

care provides an immediate return of $1.38 to the Winnipeg economy, and $1.45 to Canada's economy.

In 2007, Prentice also analyzed the child care sector in a rural, northern and Francophone region of Manitoba. Those studies identified higher returns, with every $1 of spending producing $1.58 of economic effects. In contrast to the Winnipeg report, Prentice found a lower employment multiplier: every two child care positions created 0.49 other jobs.[9]

Preschool as economic stimulus

Previous studies did not focus on the state as a beneficiary of child care investment. That would wait until 2009 and an analysis by economist Robert Fairholm.[b] Released on the heels of the 2008 collapse of the financial markets when governments were looking for stimulus projects, Fairholm showed how investing in educational child care was a hands-down winner:

- **Biggest job creator:** Investing $1 million in child care would create at least 40 jobs, 43 percent more jobs than the next highest industry and four times the number of jobs generated by $1 million in construction spending.
- **Strong economic stimulus:** Every dollar invested in child care increases the economy's output (GDP) by $2.30. This is one of the highest GDP multipliers of all major sectors.
- **Tax generator:** Earnings from increased employment would send back 90 cents in tax revenues to federal and provincial governments for every dollar invested, meaning investment in child care virtually pays for itself.

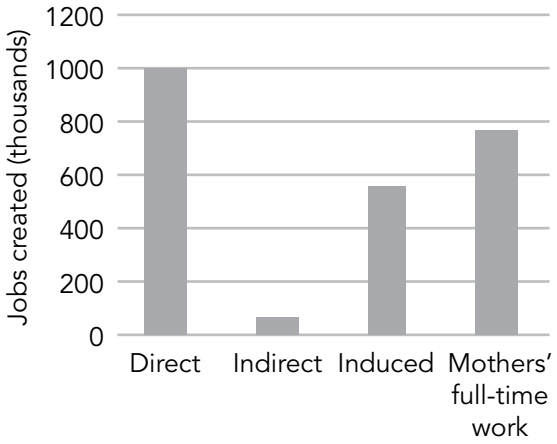
Fairholm's work also quantified the immediate costs of the sector's poor employment environment, which results in annual shortages of about 50,000 educators. The net cost to the Canadian economy was estimated at over $140 million for the period 2001 to 2007. The shortage of educators also held parents back from entering the workforce. In total, it meant a loss of almost 50,000 person years of employment.

In addition, Fairholm translated the benefits from preschool for disadvantaged children in the Abecedarian study to middle class Canadian children. Although less dramatic than for disadvantaged

[b] Fairholm and Davis (2010) also analyzed the cost benefits of the recommendations in *With Our Best Future in Mind: Report to the Premier on Early Learning in Ontario.* It revealed similar results on a child and family system for infants to 12-year-olds delivered by municipal governments and schools.

FIGURE 4.5

Jobs created per thousand increase in early childhood workforce



Source: Fairholm, R. & Davis, J. (2010).

children, attendance at preschool would still result in reduced grade failures, less reliance on special education and lower rates of smoking and early high school leaving among children from middle class homes. The study concludes that investments in early childhood programming pay for themselves, in both the immediate and longer-term, with a $2.54 payback for every dollar spent after accounting for all benefits and costs over the immediate to longer-term.

Early childhood programming: A no cost solution

Initiated in 1997, Quebec's early childhood services are politically popular. They reimburse both users and the larger society, not only in expected improvement in school readiness, but also with unpredicted bonuses such as higher birth rates and reduced poverty levels.

Economist Pierre Fortin's[10] analysis of Quebec's children's system does not deal with these extras, or with the personal medium- or long-term benefits to the child attendees of children's centres. Rather, he focuses on changes in the mothers' labour force behaviour, setting out to answer three questions:

1. Who is working because low cost child care is available?
2. How much tax revenue are they bringing in?
3. How much less are they drawing on income-tested family benefits?

Publicly funded child care is not a requirement for women to work; most make do without it. Women's tenacity in piecing together underground arrangements takes the pressure off the state to find formal solutions. For some mothers, however, the absence of reliable, affordable child care is an impenetrable barrier. They stay out of the labour force altogether, delay returning to work until their children start school or they work part-time. In 1997, Quebec women were less likely than other Canadian women to work outside the home; today, they are the most likely. Fortin and his colleagues wanted to identify the gap between those women who would work anyway and those whose presence in the workforce could be attributed to available, affordable child care.

As of 2008, more than 60 percent of Quebec children ages 1–4 years had access to $7-a-day, state-subsidized child care. By comparison, in other provinces in 2006, only 18 percent of children in this age group were in a licensed program.[11] Quebec's program expansion has been rapid since its inception, reaching 220,000 spaces. Demand still outstrips supply, with an estimated 22,000 spaces still required.

Quebec parents like their options. A 2009 survey found that 92 percent of children's centre users said the centre was their first preference for child care.[12] In addition, 66 percent of parents with other child care arrangements said they would prefer using a children's centre.[13]

A number of studies using data from the National Longitudinal Study of Children and Youth reveal the influence of Quebec's early childhood services on mothers' labour force activity. A 2008 analysis showed an 8 percent increase since 2000 in the employment rate for mothers with children ages 1-to-4 years.[14] Meanwhile, there was a 7 percent increase in the rate for mothers of 6-to-11-year-olds. By 2010, the employment rate of mothers with preschoolers increased by 12 percent.[15] The majority

of new labour entrants did not have post-secondary credentials therefore their earnings would be modest. The availability and the low cost of care removed a prime barrier to their working.[16]

Fortin's own analysis found that in 2008, 70,000 more Quebec women were at work and their presence could be attributed to low cost preschool. This meant a 3.8 percent boost in women's employment, and a 1.8 percent increase in total provincial employment. Adjusting for hours of work and the productivity of the new entrants, he calculated their labour added 1.7 percent to Quebec's GDP.

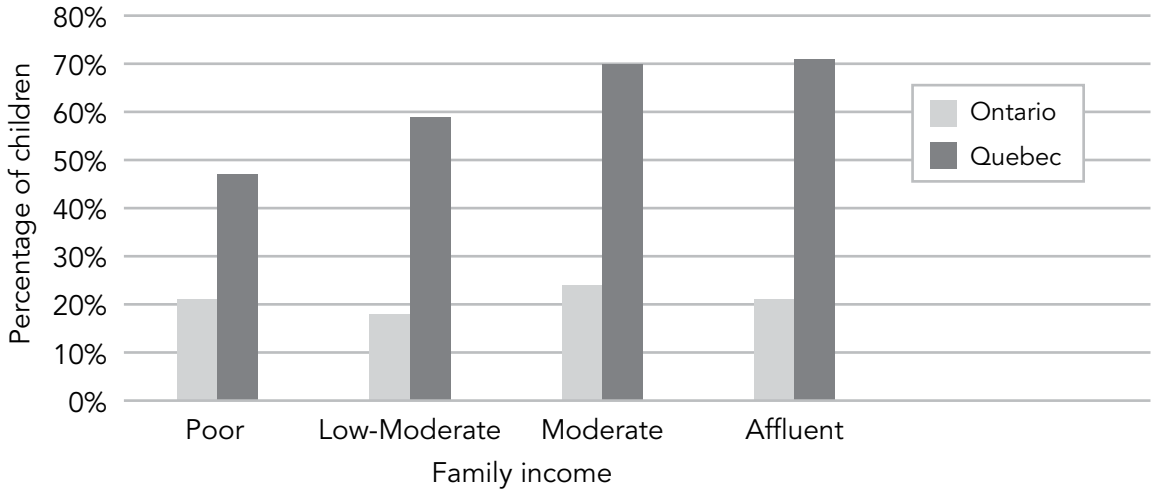
Increased family incomes generate more tax revenues and lower demand for government transfers and credits, with both the federal and Quebec governments benefitting. Parents with children in a $7-a-day children's centre or after-school program do not qualify for Quebec's refundable tax credit, reducing the net cost of the credit to the province. The federal government takes its share of tax paid by working mothers, while its outlay for the National Child Benefit, the Child Tax Credit and Universal Child Care Benefit[c] is reduced. A further savings for the federal government is found in the Child Care Expense Deduction. Quebec parents enjoying reduced fee child care do not pay enough to claim the full CCED deduction.

Fortin used the University of Sherbrooke's tax-transfer simulator and Statistics Canada's Survey of Labour and Income Dynamics (SLID) to estimate the tax and transfer feedback from the new labour entrants. For every public dollar spent on the early childhood program, the Quebec government collects $1.05 in increased taxes and reduced family payments, while the federal government gets 44 cents for, in Fortin's words, "doing nothing." Fortin expects government revenues will increase over time as mothers in the 50-plus age group (those now least likely to work) are replaced by women with a stronger work history.

Fortin's analysis also challenges claims that Quebec's early years investments would be better targeted to low-income families. While not discounting that better efforts could be made to facilitate the inclusion of children from disadvantaged circumstances, Quebec has a greater percentage of children from low-income homes attending preschool than

[c] The NCB and CTC are income sensitive. The UCCB is a taxable benefit that pays more to two-parent, one earner families, than to single parent or two-earner families.

FIGURE 4.6 **Children 2 to 4 years attending ECE centre by income, Ontario and Quebec, 2008–2009**



Source: Adapted from Statistics Canada. National Longitudinal Survey of Children and Youth. Cycle 8, 2008–2009. Special tabulation.

FIGURE 4.7

Comparative increase in women's LFP in Quebec and Ontario since 1996

	1996 %	2008 %	Increase %
Children 0–5, Ontario	67	71	+4
Children 6–16, Ontario	79	84	+5
Children 0–5, Quebec	63	74	+11
Children 6–16, Quebec	73	87	+14

Source: Statistics Canada. (2010) in Fortin, P., Godbout, L., & St-Cerny, S. (2011).

any other province, including provinces where public funding is solely targeted to the poor. Moreover, he shows that restricting the access of moderate- and middle-income families to affordable care would limit their abilities to earn income, reduce their tax contributions and add to their benefit claims, removing an important source of government income for social spending.

Wisely investing in early childhood

These studies demonstrate the cost effectiveness of organizing early childhood programs so they stimulate children's early development as they allow parents to work. When expanding access to early childhood programming, most provinces persist in maintaining the historic legislative and funding schism between educational programs such as kindergarten and child care, the latter which operates under social welfare. Leaving families to bridge the divide is not only frustrating for parents and children, but as the above studies quantify, it also denies taxpayers the full benefit of their investment.

Following the money confirms that effective early childhood programs are:

- **Universal:** Reaching out to offer early childhood education to all children catches the substantial numbers of children across the socioeconomic spectrum displaying behavioural and learning vulnerabilities at school entry. Research shows difficulties become biologically embedded if supports are not timely and consistent. As escalating special education costs attest, later interventions are costly to both the child and the taxpayer.
- **Available and affordable:** When spaces for children in preschool are available and parent fees do not create a barrier to participation, public program costs are recouped through the enhanced labour force participation of modest- and middle-income parents.
- **High-quality:** Quality in early childhood programming is non-negotiable if the mid- and long-term benefits to children and society are to be realized. Educators well trained in early childhood development and adequately resourced to respond to the individual needs of the children are the prime determinants of quality. Such educators are able to work with families to change developmental trajectories for

FIGURE 4.8

Tax and transfer feedback from increased LFP of mothers
(Quebec, 2008)

	Federal $millions	Provincial $millions	Total $millions
More tax revenues	617	1,538	2,155
+ Lower transfers	100	180	280
= Total feedback	717	1,718	2,435
Gross cost	0	1,796	1,796
– Lower refundable tax credit	0	160	160
= Net cost of ECE	0	1,636	1,636
Net gain for government	717	82	799

Source: Fortin, P., Godbout, L., & St-Cerny, S. (2011).

children. Adequately resourced means decent remuneration and working conditions, including low teacher-to-child ratios, facilities, equipment and supplies to organize effective programming, as well as ongoing professional development to incorporate the ever-evolving childhood development findings into the curriculum.

- **Systems funding and management:** Integrating early education and care, both on-the-ground and at the systems level, avoids the added and wasteful expense of service duplications and gaps. Stable funding allows the planning for and building in of quality assurances. Effective management ensures equity of access by locating programs in low-income neighbourhoods, facilitating flexible enrollment and instituting fee schedules that acknowledge the financial constraints of some families. These measures help to remove work barriers for the most vulnerable families, and help ensure all children reach their full potential.

To receive maximum financial efficiencies and social benefits, provinces and territories are advised to organize and fund programs to meet these goals. The federal government also holds responsibility; it currently makes a very modest contribution to early childhood programming. Ongoing funds from residual federal programs now rolled into the Canada Social Transfer total $1.1 billion annually, compared to over $7.5 billion invested by the provinces and territories.

The economic analyses confirm the windfall the federal government derives from the investments provinces, territories and regional governments make in child care. Ottawa does "nothing," to quote Fortin, but takes in a substantial portion of the increased tax revenue from working parents and benefits from the lower social payments it makes to families. The figures provide a sound rationale for increased federal investments in early childhood, or at the very least, form a strong case for provinces to demand reimbursement for a share of their early childhood investments that benefit federal coffers.

ENDNOTES

1 Reynolds, A. J., Temple, J. A., Ou, S., et al. (2011).
2 Muennig, P., et al. (2009).
3 Wickelgren, I. (1999); Campbell, F. A., et al. (2001); Belfield, C., et al. (2006).
4 Cleveland, G., & Krashinsky, M. (1998).
5 Peters, R. D., Nelson, G., et al. (2010).
6 Corter, C., & Peters, R.D. (2011).
7 Prentice, S., & McCracken, M. (2004).
8 Ibid. p. 12–13.
9 Prentice, S. (2007a); Prentice, S. (2007b); Prentice, S. (2007c).
10 Fortin, P, Godbout, L., & St-Cerny, S. (2011).
11 Ibid.
12 Institut de la Statistique du Québec. (2011).
13 Ibid.
14 Baker, M., Gruber, J., & Milligan, K. (2008).
15 Lefebvre, P., Merrigan, P., & Roy-Desrosiers, F. (2011).
16 Lefebvre, P., Merrigan, P., & Verstraete, M. (2009).

5

Public Policy Shapes Early Childhood Programs

In Canada, education and child care fall primarily within the jurisdiction of provinces and territories, although federal involvement has a long history, both through transfers to individuals and to provincial and territorial governments. While the federal government can be accused of being an inconsistent player in early childhood policy, it has been influential in helping to shape provincial and territorial programs and priorities.

Federal involvement in ECE policy and programs

Two decades after the demise of the Dominion-Provincial Wartime Agreement, designed to encourage the provinces to provide care for the children of women working in essential industries during World War II, Ottawa addressed child care again through the Canada Assistance Plan (CAP). Established in 1966, CAP allowed the federal government to match provincial and territorial funding for poverty prevention and alleviation programs. As such, federal funding could be used to develop and fund child care for low-income families. CAP shaped provincial child care policy in ways both negative and positive. By including child care with other social services, it became entrenched as a 'welfare' program, an association it fights to this day. But CAP also discouraged the development of commercial child care due to its proviso for non-profit administration. Because it had an accountability component, provinces were obliged to develop standards for child care services as a condition of federal funding. In 1996, the federal matching of CAP funds ended

6	Provinces offer full-day kindergarten
6	Jurisdictions have combined their education and child care departments
$1.1 billion	Amount Ottawa transfers to provinces and territories for early childhood programming
24%	First Nations children living off – reserve receiving child care promoting traditional cultural values and customs
1:12	Ratio of early childhood educators to 3-year-olds in Quebec
1:32	Ratio of early childhood educators to 3-year-olds in Alberta
135%	Increase in regulated child care spaces 1998-2010 in New Brunswick
15%	Increase in regulated child care spaces 1998-2010 in the Yukon
69%	2-4 year-olds who attend an ECE program in Quebec
38.6%	2-4 year-olds who attend an ECE program in the rest of Canada
66%	Federally sentenced women with dependent children
28%	Low-income children in Toronto attending licensed child care[1]
66%	Low-income children in Quebec attending licensed child care

and the conditions attached to it were eliminated, replaced with a block grant to each province. The only obligation that still remains is the prohibition against requiring a period of provincial residency for program eligibility.

Early Childhood Development Initiative – ECDI (2000)

With the demise of CAP, the federal government would not have a role in early childhood programming for the mainstream population until 2000, and the Early Childhood Development Initiative (ECDI). This agreement provided $500 million annually for programs to promote infant and maternal health, improve parenting and community supports and strengthen early learning and child care. The agreement oriented programs to the preschool years and took a holistic view of early childhood as a process that begins in utero and continues to formal schooling. Most provinces focused their efforts on information and parenting resources; scant amounts were targeted to early education programs.

Multilateral Framework Agreement on Early Learning and Child Care – MFA (2003)

To address the deficiency in the ECDI, the 2003 Multilateral Framework Agreement on Early Learning and Child Care (MFA) focused exclusively on programs for preschool aged children. Provinces and territories were to meet broad principles in their spending and agreed to enhance accessibility, quality, inclusion and parental choice. Funding was not targeted to low-income families and the concept of accountability was introduced. Both the ECDI and MFA had specific requirements for each jurisdiction to issue annual reports on their progress in providing and improving early learning and child care services.

Foundations – QUAD (2004)

In October 2004, the federal government announced Foundations, a program to build a Canada-wide system of early learning and child care. The program was popularly called QUAD, denoting the principles upon which the system was to be built: quality, universally inclusive, accessible and developmental. The 2005 federal budget earmarked $5 billion over five years to Foundations. Bilateral agreements were developed with nine provinces outlining plans to meet the QUAD goals. Quebec's protocol acknowledged it was being compensated for programs already in place and did not include any additional commitments. The agreements included a provision allowing either party to withdraw upon giving a year's notice. In 2006, the newly-elected Conservative government announced it would end funding in 2007.

The MFA and QUAD coincided with the OECD's release of its assessment of Canada's early education and care services. Together, they opened a public discussion that helped change policy makers' perceptions about child care. No longer was it primarily viewed as a labour market support for low-income parents. The inclusion of early learning into the agreements' names reflected an understanding of the need for environments that support children's earliest development. The requirement that provinces and territories develop plans promoting access and quality as a condition of funding was also a departure. Until then, most provinces had limited their involvement to program licensing and assessing eligibility for parent subsidies. An opening was created for the state in community planning, to support educator training and to establish curriculum and accountability frameworks.

Child Care Spaces Initiative – CCSI (2007)

As a replacement to QUAD, the new government introduced the Universal Child Care Benefit (UCCB) and also committed $250 million annually to fund child care spaces. The Child Care Spaces Initiative (CCSI) was to provide an incentive to employers to create workplace child care. The spaces initiative again defined child care as a program primarily for working parents. By bypassing provincial/territorial governments, it undermined their newly found role in early childhood service development. However, following a report by a government-appointed committee[2] pointing out flaws in the plan, the funds were transferred to provincial and territorial governments.

Funding from all the above initiatives has since been rolled into the Canada Social Transfer, a block transfer to provinces/territories.[a, 3] As a portion of all early education and care spending, it is a resource available to provincial and territorial governments for early childhood services.

Direct federal funding to ECE programs

The federal government has a direct role in funding early childhood programs on First Nations reserves, for military personnel, federal prisoners and refugees and immigrants to Canada.

First Nations and Aboriginal peoples

Four federal departments are responsible for early learning programs to Aboriginal people: Health Canada, Human Resources and Skills Development Canada, Aboriginal Affairs and Northern Development Canada and the Public Health Agency of Canada. These departments transfer funds to First Nations communities for on-reserve schools and off-reserve school tuitions, Aboriginal Head Start on- and off-reserve, family support and maternal and child health programs on- and off-reserve and for the First Nations and Inuit Child Care Initiative. In addition, through intergovernmental agreements with Alberta and Ontario Aboriginal Affairs, the federal government reimburses a portion of the costs for on-reserve early childhood programming.[4]

Funding formulas and agreements between First Nation communities and four federal government departments and their provincial counterparts have created a jurisdictional quagmire that impedes service development and provision. Efforts to integrate child care programs and services were piloted in selected First Nations communities in 2008 to test the impact of streamlined funding, program reporting and community development. Researchers had difficulty assessing progress in the absence of baseline information, and the evaluations were discontinued due to costs.[5]

Program development in First Nations communities faces additional social and structural barriers. The pain of residential schools has left a legacy of suspicion of group programs for children, particularly those influenced by non-Aboriginals.[6] Mechanisms to accommodate the education of Aboriginal children who often move on- and off-reserve are woefully inadequate. School boards invoice Band Councils for the education costs of First Nations students attending provincial schools, but federal funding does not keep pace with rising provincial education costs. Bands find themselves in tuition arrears with local school boards, creating interracial tensions and a negative learning environment for First Nations students.

[a] The Canada Social Transfer was worth about $9.59 billion in 2011.

FIGURE 5.1

Federal transfers to provinces and territories for early childhood education and development programs

(millions, rounded)

Early Childhood Development Agreement (ECDA), Multilateral Framework Agreement (MFA), Bilateral Agreements (QUAD) and Child Care Spaces Initiative (CCS)

	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07*	2008–
	ECDA	ECDA	ECDA	ECDA + MFA	ECDA + MFA + QUAD	ECDA + MFA + QUAD	ECDA + MFA + CCS
NL	5.1	6.6	8.6	10.5	22.9	22.9	17.1
PE	1.3	1.7	2.3	2.8	3.4	6.2	4.7
NS	9.0	11.9	15.5	19.1	41.5	41.8	31.3
NB	7.3	9.6	12.5	15.3	33.3	33.4	25.1
QC	71.6	95.0	124.2	153.4	170.7	340.6	257.6
ON	115.0	154.2	203.2	252.2	553.7	564.4	429.0
MB	11.1	14.7	19.2	23.8	52.4	53.1	39.8
SK	9.7	12.7	16.5	20.3	44.4	44.3	33.1
AB	29.6	39.7	52.4	65.1	143.7	147.6	113.3
BC	39.4	52.6	68.9	85.4	187.5	191.2	145.5
YK	0.3	0.4	0.52	0.6	0.7	0.8	0.9
NT	0.4	0.5	0.73	0.9	1.0	1.0	1.1
NU	0.3	0.4	0.52	0.6	0.7	0.8	0.8
Total (rounded)	**300**	**400**	**525**	**650**	**1250**	**1450**	**1100**

Notes:

- 2003 was the first year the federal government transferred funds to provinces and territories that were specifically earmarked for child care through the Multilateral Framework Agreement (MFA). The 2007 federal budget extended MFA funding through 2013/2014.
- 2007 begins $250-million from the Child Care Spaces Program (CCS).
- The territories did not receive QUAD funding.
- Payments provided under the Canada Health and Social Transfer (CHST) until 2003–04 and under the Canada Social Transfer (CST) for 2004–05 and beyond.
- 2006–07 last year of QUAD funding.
- Breakdowns of CCS funding by provinces are by author.

Sources: Human Resources and Skills Development Canada. (2011); Social Union. (n.d.)

Antiquated funding systems challenge First Nations communities to provide equitable programming in their schools. For example, the development of full-day kindergarten in some provinces has not rolled out at the same rate in First Nations communities. Obstacles to the recruitment and retention of qualified educators for young children are magnified in Aboriginal communities. Administrators and educators are not required to have the same qualifications as educators working in provincial schools and programs. They do not have access to the same professional development opportunities, nor do they enjoy the same remuneration or job security

available to the largely unionized education sectors in the provinces.

According to the 2006 Census, there were approximately 7,000 Inuit, 35,000 Métis, 40,000 on-reserve and 47,000 off-reserve First Nations children under the age of six across Canada.[7] They are served by a number of federal programs.

Aboriginal Head Start is a school readiness program targeted to preschoolers. Health Canada delivers Aboriginal Head Start On Reserve (AHSOR) in more than 300 sites at a cost of $59 million. Approximately 9,000 children participate.[8] The Public Health Agency of Canada oversees Aboriginal Head Start for Urban and Northern Communities operating at 140 sites, involving almost 4,500 children.[9] AANDC also funds an additional 15 First Nation Child and Family Services Head Start programs in New Brunswick.[10]

Across Canada, of those children in non-parental care, about 42 percent of First Nations children living off-reserve, 52 percent of Métis children and 54 percent of Inuit children were in licensed child care programs, including child care centres, nursery schools, preschools or Aboriginal Head Start programs.[11] In 2006, 24 percent of First Nations children living off-reserve and 14 percent of Métis children receiving child care were in an arrangement that promoted traditional cultural values and customs. Inuit children fared better with 56 percent in programs promoting their culture.[12]

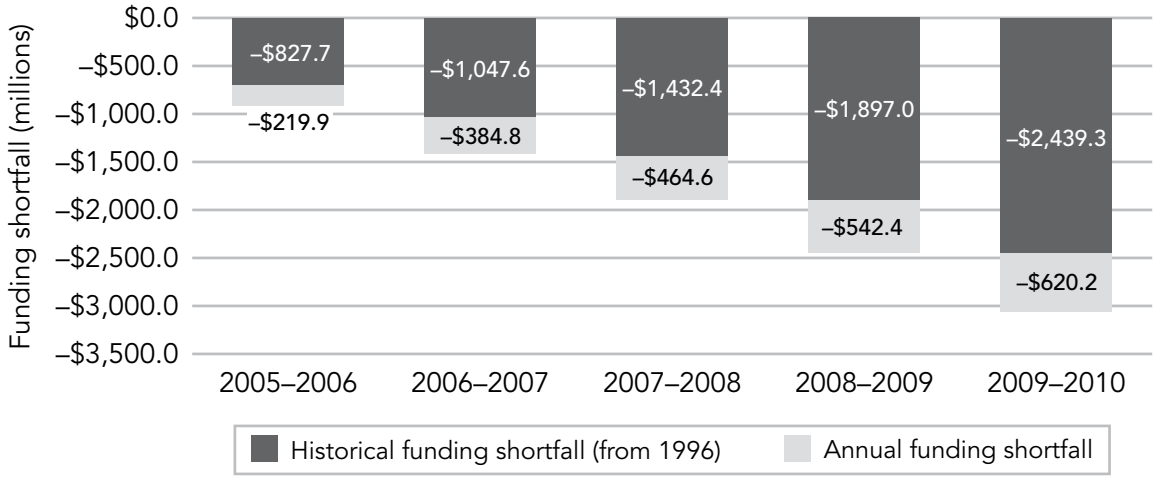
Human Resources and Skills Development Canada provides $50 million for the First Nations and Inuit Child Care Initiative, which supports the labour market participation of parents through the provision of child care for their children. About 8,500 spaces have been created in 486 First Nations and Inuit communities.[13] First Nations children living on-reserve are the most likely to be cared for in a home setting (65 percent).[14]

Aboriginal Affairs and Northern Development Canada has intergovernmental agreements that support about 800 on-reserve spaces in Alberta[15] and another 3,000 spaces in First Nations communities in Ontario.[16]

Military families

The Department of National Defence/Canadian Forces supports 43 Military Family Resource Centres in Canada and abroad.[17] Their mandate covers child

FIGURE 5.2 **First Nations education funding shortfall, annual and historical, 2005–2010**



Source: Government of Canada, Public Account (1996-2010), Statistics Canada, Consumer Price Index (1996–2010) and Indian and Northern Affairs Canada, Nominal roll statistics (1996-2010) in Assembly of First Nations. (n.d.).

and youth development, parenting and family supports. Some provide child care on-site, while others act as a referral service. A 2009 report identified a significant gap between the need for and the availability of child care services for Canadian Forces families. In particular, there was a lack of emergency care to deal with deployment, evening and weekend work, respite care and casualty support. Despite the shortage of ECEs for Canadian Forces programs, there is no strategy for training or recruitment.[18]

Community Action Program for Children – CAPC / Canada Prenatal Nutrition Program – CPNP (1993)

These programs are funded through ministerial agreements between the Public Health Agency of Canada and provinces/territories, and are managed through joint management committees in each province. The Community Action Program for Children (CAPC) is for activities targeted to children between the ages of birth and 6 years living in challenging circumstances. Funding of $48,630,134 (2006) is allocated based upon the proportion of children in this age range in each province or territory.[19] The program is undergoing review.

The Canada Prenatal Nutrition Program (CPNP) is for pregnant women facing difficult life circumstances, with a focus on immigrant women and Aboriginal women living outside of their communities. An annual budget of approximately $30 million supports 330 projects, involving approximately 50,000 women across the country.[20]

Other programs

Approximately two-thirds of federally sentenced women have dependent children. Correctional Service Canada provides mother–child programs that allow preschool age children to reside with their mother with the option of attending preschool programs in the community or in the prison facility.[21]

The Ministry of Citizenship and Immigration offers funding for Language Instruction for Newcomers to Canada (LINC). A child care component, available for children ages 6 months to 6 years, helps parents attend LINC classes by covering the costs of informal care on-site or in local licensed child care centres.[22]

The Child Care Human Resources Sector Council is one of the industry councils funded by Human Resources and Skills Development Canada. Through research and networking, it develops and disseminates information and tools for early childhood staff and operators. In 2010, the council received $580,000 in funding. The program is under review.

The National Longitudinal Survey of Children and Youth (NLSCY) developed jointly by Human Resources and Skills Development Canada and Statistics Canada, follows the development of children in Canada through regular monitoring of factors that influence their well-being. It has a budget of approximately $2 million annually.[23] Its final report is scheduled for 2012.

The Québec Longitudinal Study of Child Development funded by the Quebec ministère de la Santé et des Services Sociaux, the Lucie and André Chagnon Foundation, the ministère de la Famille et des ainés and the Institut de la statistique du Québec is focused on understanding the factors that contribute to academic success in primary school, while taking into account children's life experiences.

Policy developments: The provinces and territories

The early childhood programs the federal government directly oversees are often mired in legislative duplication, over-regulation and blurred responsibility for delivery. Governance ambiguity spills over to complicate funding effectiveness and to compromise program access, quality and accountability. These same challenges are found at the provincial level.

Governance

Early childhood services are split between education, parenting and care programs. Kindergarten is delivered as an extension of public education, an entitlement for all and with no fees charged. Parenting programs have a mix of public and community sponsors. Where available, they are generally offered at no or minimal cost to parents. Neither kindergarten nor parenting programs address the need for non-parental care—that falls to child care. But with little public support, child care services

FIGURE 5.3

Governance for early childhood education (ECE) by province/territory

	Single ECE department	Common ECE supervisory unit	Integrated ECE framework	Local authority	Public oversight/advisory
NL			Under discussion: *Developing a Provincial Early Learning Strategy: What We Heard* (September 2011)	Kindergarten: 5 school districts Child care fee subsides: 4 regional health authorities Child care licensing: Department of Child, Youth and Family Services	
PE	Department of Education and Early Childhood Development	Early Childhood Development Section except kindergarten	*Securing The Future For Our Children: Preschool Excellence Initiative* (May 2010)	Kindergarten: English and French Program Divisions Child care: Child Care Facilities Board Child care fee subsides: Department of Community Services, Seniors and Labour	Children's Secretariat, Early Years Steering Committee, Child Care Facilities Board
NS				Pre-primary: 8 regional school boards Child care: 4 regional social service sectors	Child and Youth Strategy
NB	Department of Education and Early Childhood Development	Early Childhood Development Division responsible for all ECE and related programs except kindergarten	Under discussion: *Government Renewal: Discussion Paper* (September, 2011)	Kindergarten: 18 school districts Child care: Regional Early Childhood Service Coordinators responsible for child care licensing Child care fee subsidies. 8 Social Development regional offices	Ministerial Advisory Committee on Early Learning and Child Care
QC			*Québec Family Policy*	Kindergarten: 17 school districts Child care: 165 regional coordinating offices of the Ministère de la Famille et des Aînés	Conseil de la famille et de l'enfance, replaced in 2011 with regional advisory committees
ON	Ministry of Education	Early Learning Division		Kindergarten: 72 school boards Child care: 47 Consolidated Municipal Service Managers and District Social Services Administration Boards Education to take over child care licensing in Jan. 2012.	
MB			*Family Choices: Manitoba's Five-Year Agenda for Early Learning and Child Care* (2008)	Kindergarten: 37 school districts Child care: regional offices	Child Care Regulatory Review Committee and Provincial Healthy Child Advisory Committee
SK	Department of Education	Early Years Branch includes all ECE and related programs except kindergarten		Kindergarten: 28 school divisions Child care: 3 regional offices	
AB				Kindergarten: Over 300 school authorities offer Early Childhood Services (kindergarten, pre-kindergarten and early intervention programs) Child care:10 regional Child and Family Services Authorities	Alberta Association for the Accreditation of Early Learning and Care Services
BC				Kindergarten and StrongStart: 57 school districts Child care fee subsidies: Ministry of Children and Family Development Child care licensing: 5 regional health authorities	
YK				Kindergarten: 1 French school board and the Assistant Deputy Minister of Public Schools Child care: Child Care Services Unit in the Department of Health and Social Services	
NT	Department of Education, Culture and Employment	Division of Early Childhood and School Services	*Building on our Success: Strategic Plan 2005–2015*	Kindergarten: Early Childhood and Schools Services Child care: Early Childhood Program	
NU	Department of Education	Early Childhood Division/School Services Division	In development	Kindergarten: 3 regional School Operations Child care: 3 regional education officers oversee child care licensing and subsidies	

Source: Provincial/territorial profiles www.earlyyearsstudy.ca.

are unresponsive,[24] fragmented, unaccountable and vulnerable.[25]

In 2006, the Organization for Economic and Co-operative Development (OECD) released *Starting Strong*, the most comprehensive examination of early childhood education and care ever undertaken. Its investigation of services in 15 countries over eight years found that in jurisdictions where the policy and delivery of education and child care are divided, similar challenges prevail:

- Coverage is sparse.
- Not all families receive the services they are eligible for.
- Service location and affordability are barriers.
- Services' hours and parents' work schedules often conflict.
- Families with multiple needs have difficulty fitting services together.
- Families lose needed services as children age or their circumstances change.

Service providers are also challenged:

- There is no ongoing contact with families during their children's early years.
- Inflexible mandates and funding criteria prevent the delivery of cohesive support.
- Funding is based on outputs rather than outcomes, making it difficult to tailor services to families' diverse needs and circumstances.
- Mandates are focused on the treatment of deficiencies rather than their prevention or the promotion of healthy development.

The OECD's profile of Canada embarrassingly fits the profile.[26] Funding and access challenges were highlighted, but the absence of coherent legislative and policy frameworks was also identified. There is a need for more public investment, the OECD suggested, but how it is spent requires equal consideration. The *Early Years Study 2* built on the OECD's observations and advocated integrating early childhood service silos into a single, comprehensive system, aligned with public education at the program, policy and management levels. The education of young children would be the system's central purpose, but programs should also champion the role of parents and be organized to facilitate work and family schedules. The report encouraged governments to consult with stakeholders to develop strategies with priority targets, benchmarks and timelines, and with guaranteed budgets to fund appropriate governance and expansion.

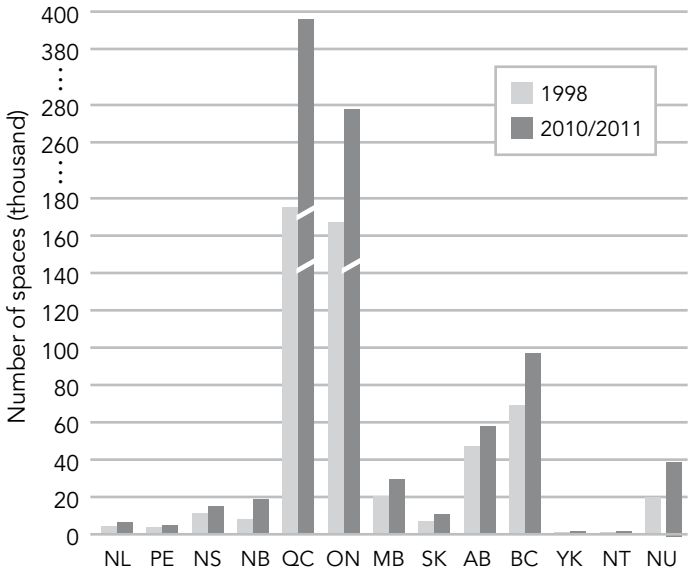
Since then a convergence of opinion among policy makers, academics, parents and educators agrees that early childhood programs should be structured to ensure all children start school ready to succeed. In *Learn Canada 2020: Joint Declaration Provincial and Territorial Ministers of Education*,[27] the pre-kindergarten years were named as the first of the four pillars of lifelong learning. High-quality early education should be available to all children, the declaration said. Its sentiments are echoed in other public policy and research documents identifying early childhood programming as a prime lever to school success.[28]

Spurred on by the requirements of the federal/provincial/territorial early learning and child care agreements and a more mature understanding of the role of public policy in supporting early childhood education, jurisdictions are adopting a more comprehensive view of the early years. Many have produced policy frameworks with visions and goals. Education departments have become more activist in the promotion of learning for young children. More attention is being paid to curriculum approaches in early childhood settings, and efforts have been made to enhance educators' training. In Alberta, one of the minister of education's three priorities is to explore options to provide children with access to early learning opportunities. In British Columbia, early learning is part of the directives for schools and has resulted in a curriculum framework for all early childhood programs. Manitoba's five year plan aims to strengthen partnerships between schools and child care.[29]

One trend is to appoint a lead department responsible for early childhood services. Prince Edward Island, New Brunswick, Ontario, Saskatchewan, the Northwest Territories and Nunavut have taken steps to combine their education and child care departments. In Quebec, schools have been

FIGURE 5.4

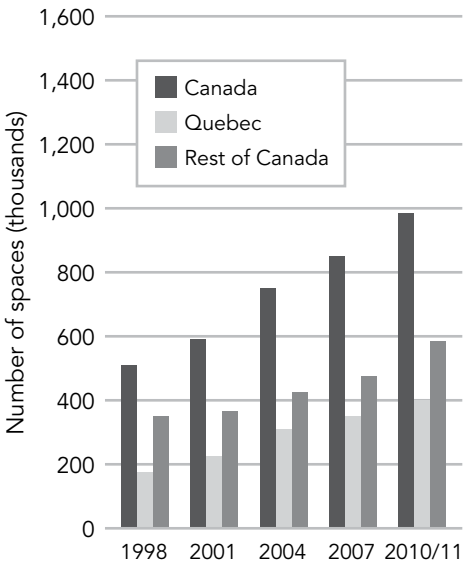
Increase in regulated child care spaces for 0–12-year-olds, 1998–2010 by province, territory and Canada



Source: 1998 data from Beach, J., et al. (2009); Provincial/territorial profiles www.earlyyearsstudy.ca.

FIGURE 5.5

Increase in regulated child care spaces, Quebec and Canada



Source: Beach, J., et al. (2009); Provincial/territorial profiles www.earlyyearsstudy.ca.

Growth in regulated child care in the early 2000s was fueled by federal spending under successive early childhood agreements and by Quebec's ambitious initiative. It continued across Canada even after the federal government ended its bilateral agreements with the provinces in 2007. Figures include regulated family child care and school age spaces.

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responsible for after-school programs for children ages 5 to 12 years since 1998.

Reasonable concerns that schools are not sufficiently cognizant about how young children learn have been addressed by organizing stakeholder input to build on the grassroots work of communities. Some jurisdictions have developed special divisions within their education ministries to address the unique needs of young learners.

But moving child care under the wing of education departments is sometimes as far as it goes. On the ground service delivery remains split between child care and education. Parents still struggle to find affordable, reliable services, and service providers continue to answer to multiple funding and regulatory masters.

Creating an early childhood education system out of a service patchwork is tough work. It takes new legislative and regulatory oversight, the amalgamation of agencies and changes to funding arrangements, position descriptions and recruitment and training practices. Integrating education and care is not an incremental process. On their own, partnership protocols and stakeholders tables intended to better coordinate services often entrench the status quo. System-making requires a paradigm shift in our

understanding of the real circumstances in which young children live and actions to match. There is room for improvement in every jurisdiction.

Funding

Federal transfers to provincial and territorial governments for early childhood programs have been uneven; still, virtually every jurisdiction has increased spending.

Quebec's 2007 plan to increase state-subsidized child care spaces by 20,000 over four years was completed in two[30] and it committed to funding another 15,000 spaces in 2011. Alberta also added 20,000 additional spaces, surpassing its goal of 14,000,[31] and British Columbia's child care spots jumped by 10,000 with plans to add an additional 1,000 spaces each year for five years.[32] Manitoba's spaces will grow by 6,500, Saskatchewan's by 3,500 and New Brunswick is developing its strategy for an additional 10,000 spaces, while Prince Edward Island moved to the front of the line with a newly designed early years system supported by a one-third increase in its early childhood budget.[33]

Efforts have also been made to include children with special needs in mainstream services. Newfoundland and Labrador, Nova Scotia, New Brunswick, Manitoba and the Yukon have devoted new resources and staff to support the integration of children with special needs. Newfoundland and Labrador, Nova Scotia, New Brunswick, Alberta and the Yukon have also targeted underserved groups, including infants and families requiring non-traditional and seasonal care. Manitoba has increased the supply of part-day nursery school to provide more early learning options for families, and Nova Scotia has extended its operating grants to part-day and school-age programs.

A number of jurisdictions have taken steps to address child care affordability for parents by increasing their child care subsidy ceilings (Saskatchewan, Nova Scotia, Yukon, Newfoundland and Labrador, Alberta) and/or by changing the eligibility criteria to allow access for more parents (Ontario, Quebec, Nova Scotia, Newfoundland and Labrador and the Yukon).

Education systems have also augmented their investments in early childhood. British Columbia expanded Strong Start, a school board operated kindergarten readiness program now operating in over 300 schools. Ontario's Parenting and Family Literacy programs have expanded from 80 to 145. Nova Scotia continues to support a few early learning programs for 4-year-olds, and British Columbia, Ontario and Prince Edward Island have added full-day kindergarten to their schools, while Newfoundland, Manitoba and Saskatchewan have it under consideration.

But public funding for early childhood services still remains low and, on the child care side, is primarily directed to priming the market, encouraging operators to establish or expand services.

Public funding for regulated child care takes two approaches:

- Funding families – through fee subsidies for low-income parents, or through tax deductions or credits.
- Funding programs – usually through operating grants to offset wage costs or to support the participation of children with special needs, and one-time grants for capital, equipment and start-up.

All provinces and territories provide some form of direct operating funding to child care programs. Direct funding takes the pressure off parent fees and provides a level of stability to programs that parent fees alone cannot provide. Quebec, Manitoba and Prince Edward Island are the jurisdictions with more publicly managed services, including assured operating funds, along with provincially established wage rates and parent fees.

How much governments allocate to child care makes a difference, but how the funding is directed is also a factor. Funding into operating grants appears to have a positive impact on wages and program stability, whereas funding through fee subsides or tax transfers has little or no effect.

Quebec, with the highest operating grant and a low, government-established fee, has the highest average wage rate for ECEs working in child care centres in the country. Interestingly, in Quebec, when parent fees rose from $5 to $7 daily and

FIGURE 5.6

ECE budget as a percentage of provincial/territorial budgets 2011–12

	Licensed child care	Other ECE[1]	Public kindergarten	Total ECE budget	P/T budget (billions)	ECE budget as % of P/T budget
NL	22,300,000		45,000,000	67,300,000	7,838	0.86
PE	15,200,000		11,000,000	26,200,000	1,531	1.71
NS	53,500,000	1,350,000	74,700,000	129,550,000	9,337	1.39
NB	37,200,000		66,155,000	103,355,000	8,091	1.28
QC	2,600,000,000	28,111,000	721,320,000	3,349,431,000	71,748	4.67
ON	1,042,000,000	8,700,000	1,440,000,000[2]	2,490,700,000	124,100	2.01
MB	135,100,000	15,200,000	72,000,000	222,300,000	13,974	1.59
SK	72,500,000	17,600,000	55,000,000	145,100,000	10,679	1.36
AB	229,000,000	29,739,000	180,737,000	439,476,000	38,994	1.13
BC	230,600,000	10,400,000	327,320,000	568,320,000	41,912	1.36
NT	3,100,000		8,738,000	11,838,000	1,339	0.88
YK	8,250,000		4,300,000	12,550,000	1,090	1.15
NU	2,800,000		5,040,000	7,840,000	1,320	0.59
	4,451,550,000	111,100,000	3,011,310,000	7,573,960,000		

Notes:

[1] Includes, pre-kindergarten program (SK, AB, QC, NS, MB), StrongStart (BC), Parent and Family Literacy Centres (ON).

[2] Includes universal 4-year-old kindergarten.

Source: Provincial/territorial profiles www.earlyyearsstudy.ca.

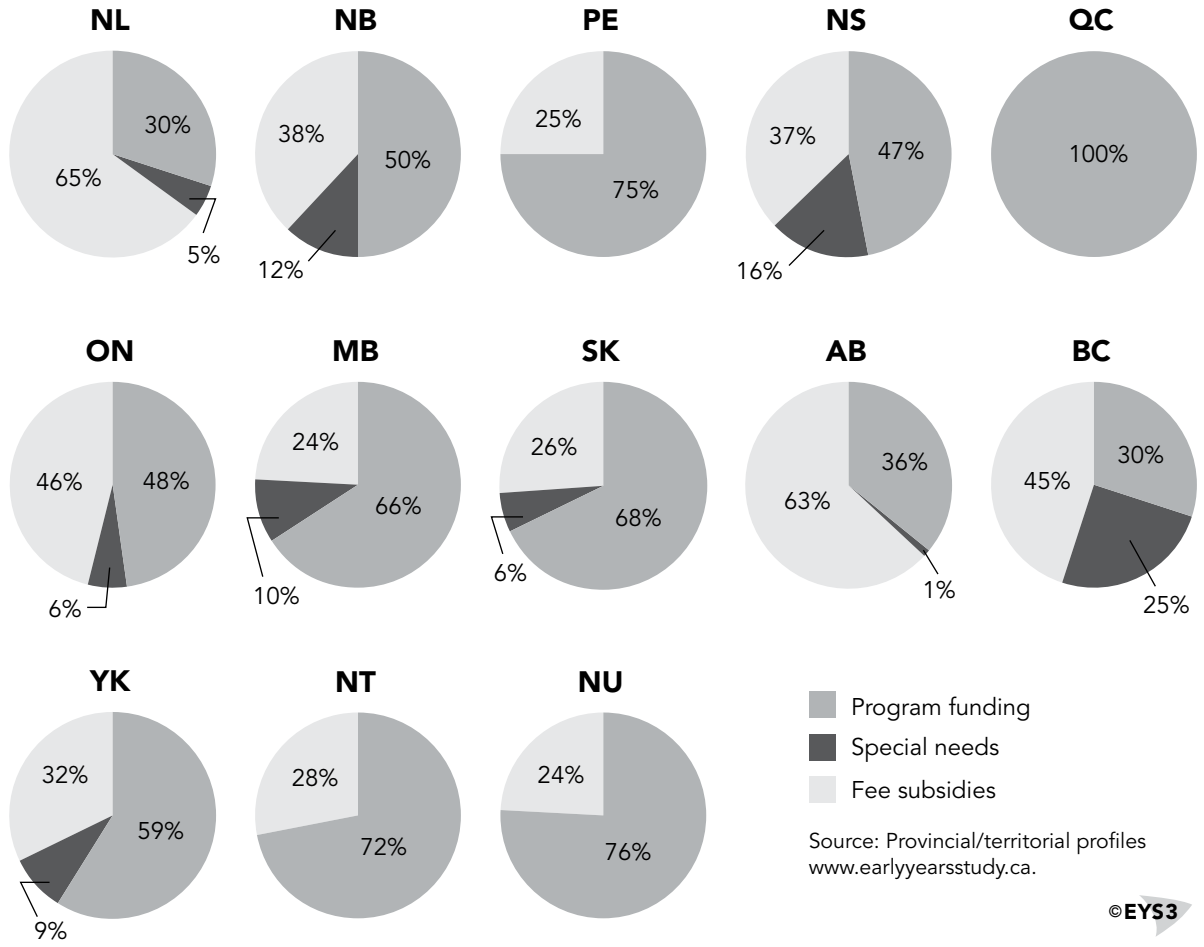
operating grants were correspondingly reduced, many programs went into deficit. Observers speculate that even at low levels, parent fees are not a reliable source of funding for child care.[34]

With a market driven service, other influences also come into play. British Columbia, Alberta and Ontario have a higher percentage of families with incomes that permit them to pay the full fees. But even high incomes cannot compensate for the low level of operating funding for child care services.[35]

The funding methodology also determines who participates in programs. Government subsidy levels often do not match the fees licensed centres must charge to attract and keep qualified staff. Low-income families are unable to pay the gap between the fees charged and the subsidies governments provide, forcing them to settle for less regulated options.

Saskatchewan and Manitoba flow fee subsidies only to non-profit providers. Continued funding to programs outside the Early Years Centre network is under review in Prince Edward Island. Until recently, no jurisdiction made capital funding available to commercial operators, leaving it to owners to finance their own property. The decision by Alberta, British Columbia, Nova Scotia and New Brunswick to extend capital funds to commercial interests has been accompanied by the expansion of commercial child care chains. For the first time, a publicly traded corporation, the Edleun Group, with ties to the now defunct Australian giant ABC child care,[36] boasts it will become the largest child care chain in Canada.[37]

FIGURE 5.7 **Licensed child care funding by province/territory**



International research indicates commercial child care chains drag down program quality and undermine public accountability.[38] A commercial presence does not increase the number of child care spaces since chains are more likely to buy out independent operators than establish new programs.[39, 40]

Canada has other big commercial operators, including Kids and Company that specializes in workplace child care. However, foreign chains present a new twist. With an established presence in Canada, corporations are entitled to equal treatment under World Trade Organization and NAFTA regulations. Government policy will not be able to differentiate between foreign and domestic operators or, potentially, between corporations and public operators such as school boards.[41] The increasing presence of big child care chains is likely to exacerbate existing concerns with service access, affordability and quality by impeding the integration of child care with education.

Alberta has taken other steps to clear the way for corporate child care. It has backed off from mandatory accreditation of child care programs, and in 2007 it removed regulations on the size of child care centres. The maximum number of children permitted in a centre was previously 80, but with size deregulation, corporate centres that look after 200 or more children are possible. "At this size,

corporate day cares will be larger than some of our local elementary schools," says University of Calgary sociologist Dr. Tom Langford, author of *Alberta's Day Care Controversy*.[42]

Access

Public debates concerning the validity of early childhood programming often revolve around the rubric of "parental choice." Opponents point to the large numbers of young children who do not regularly attend programming as an indication that parents either do not want or do not need organized programs for their young children.

But family preferences may be disguised by a number of barriers. Are programs available in accessible locations? Do they operate during hours that meet work and family schedules? Are they affordable? Are they responsive to the language, culture and routines of the community?

Whether or not children attend programming can also be influenced by the family's knowledge of what early education is and the benefits it offers their children. Poor health and poverty, with their related economic and social demands, may also limit parents' views of their options.

There are other ways of gauging demand. Where early years programs are present, affordable and of reasonable quality, they are well-used. Kindergarten is available for 5-year-olds across the country. Even where attendance is non-compulsory, over 99 per cent of children attend.[43] Four-year-old kindergarten has been available across Ontario for two decades, and over 80 percent of children participate. In Quebec, where 60 percent of children age 1 to 4 years have a place in a state subsidized children's centre, 40 percent of families without a place want one.[44]

Early childhood programs often come with hefty fees attached, yet demand still outstrips supply. More provinces and local regions are making online

FIGURE 5.8

Percentage of 2–4-year-olds regularly attending an ECE centre by provinces and Canada

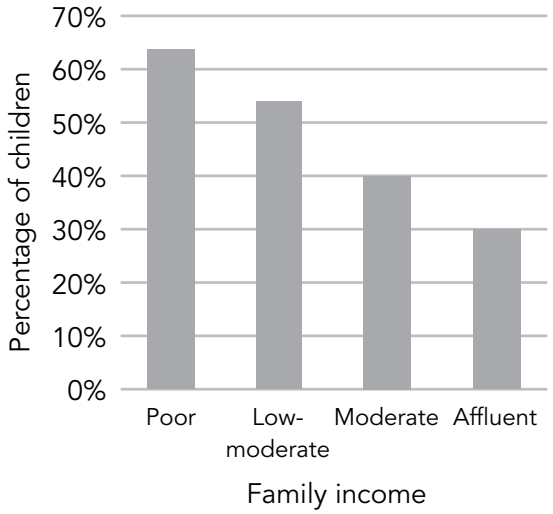
	Child care/ preschool[1]	Public school programs[2]	Total attending	Child population 2–4 years	% attending ECE program
NL	4,800		4,800	15,700	31
PE	1,750		1,750	4,300	41
NS	9,900	400	10,300	27,100	38
NB	7,900		7,900	21,900	36
QC	162,400	5,800	168,200	242,700	69
ON	140,900	100,000	240,900	430,000	56
MB	14,900	3,000	17,900	41,200	43
SK	8,600	3,600	12,200	35,500	34
AB	34,700	10,000	44,700	142,000	31
BC	42,500	11,500	54,000	131,800	41
CAN	428,350	134,300	562,650	1,092,200	52

[1] Child care/preschool attendance as reported by parent, assuming that 20% of children whose parents are not working or studying do attend child care or preschool.
[2] Provincial/territorial profiles www.earlyyearsstudy.ca.

Source: Adapted from Statistics Canada. National Longitudinal Survey of Children and Youth. Cycle 8, 2008–2009. Special tabulation. (Unless otherwise noted.)

FIGURE 5.9

Percentage of children age 0–5 with no out-of-home care by family income



Source: Adapted from Statistics Canada. National Longitudinal Survey of Children and Youth. Cycle 8, 2008–2009. Special tabulation.

registries available to help parents find scarce child care placements. Scarcities run high particularly in the Prairie provinces. There is less than one child care space for every six children in Manitoba. For infants and school-aged children and for children from rural and northern communities, the gap is even wider.[45] Wait times for coveted infant spaces routinely top two years. Toronto's child care registry is restricted to those who have been pre-approved for fee subsidies. It regularly exceeds 20,000 children or 10 percent of the city's preschool population.

Family income is a major influence on whether or not children participate in out-of-home activities with other children. Over 65 percent of children under 5 years of age represented in the poorest quartile have no involvement, compared to only 30 percent of children in the most affluent families. In Prince Edward Island, where a recent overhaul of early childhood programming has bumped participation, 50 percent of families exiting Best Start, the province-wide home visiting program for vulnerable families, do not have access to an Early Years Centre. Even in Quebec, which comes the closest to meeting parent demand, one-third of children from low-income working families do not attend children's centres, compared to one-quarter of children from the most affluent families.

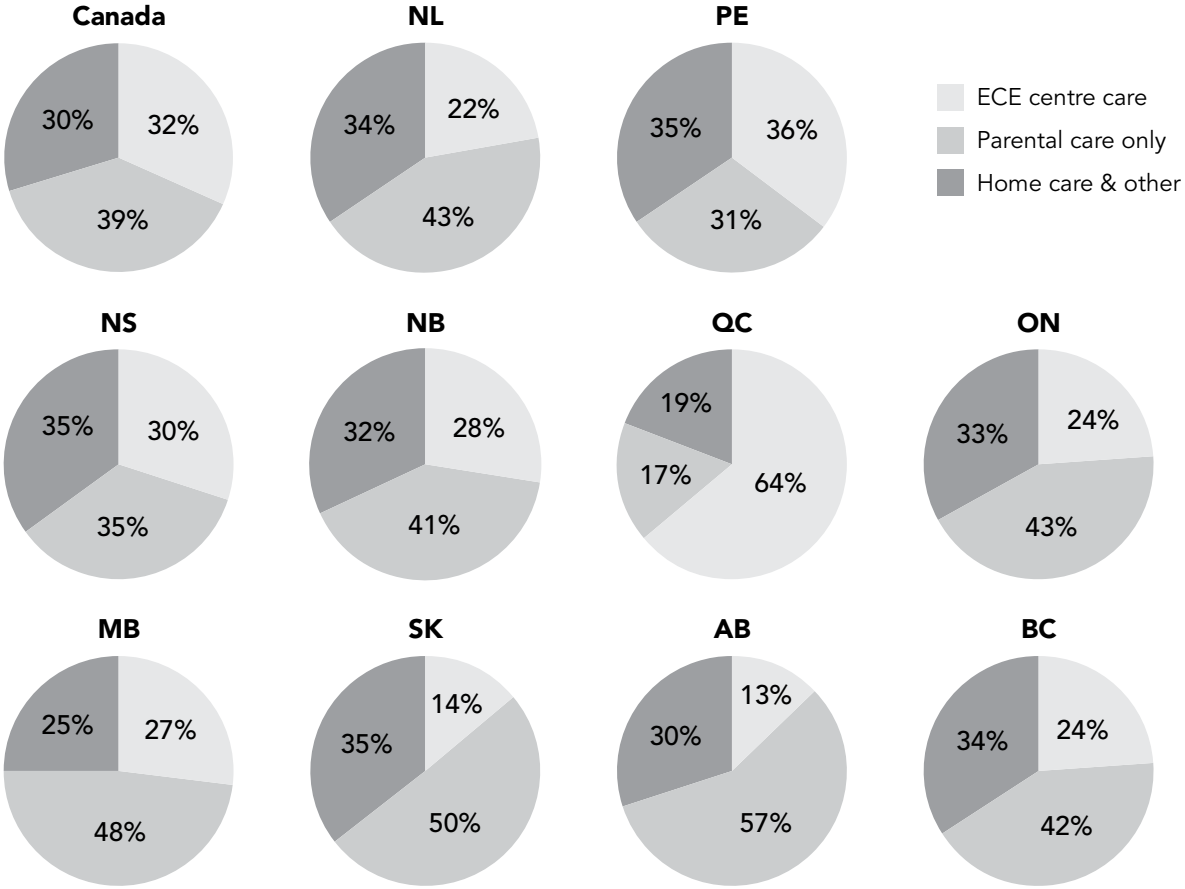
As part of their early years plans, provinces have responded with funding to increase the number of regulated spaces, and have adapted subsidy requirements to better reflect the actual costs of child care. But child care remains within the private sphere. Whether operated by non-profit organizations or private owners, it is a market service. With the exception of Quebec, Manitoba and Prince Edward Island, jurisdictions that play an activist role in managing children's services, most governments limit their involvement to regulating health and safety standards and using funding to encourage service expansion. Authorities may assist with planning or other infrastructure supports, but decisions about location, cost, content and clientele are the operators' domain.

Some jurisdictions have opted to expand access to early childhood programs through their publicly delivered education systems. The number of children participating in school board operated early years programs has increased by 25 percent over the past decade.[46] Six out of the 13 provinces and territories now offer full-day kindergarten for 5-year-olds. Ontario is extending full-day programming for 4-year-olds, and several jurisdictions have expanded access to 3- and 4-years-olds in at-risk circumstances. Education departments have also become more proactive in preparing preschoolers for kindergarten. School boards in Ontario and British Columbia directly operate drop-in centres that provide a consistent program during the school year, staffed by early childhood educators. Other provinces schedule sessions to orient children and parents to kindergarten. Some, such as Newfoundland's Kinderstart, are quite intensive. New Brunswick has a transition to school coordinator in each school district.

While education departments have increased their comfort level with young children, other than Quebec, they are averse to operating programs

FIGURE 5.10

Primary type of child care: Children 2- to 4-years-old by provinces and Canada



Note: Child care arrangements as reported by families. ECE centre includes licensed child care centre, preschool and nursery school, but does not include school operated programs. Home care includes licensed family daycare, relative care, unlicensed home care and in home caregivers. Parent care only—children may be attending a school or community program but are not included if a parent is not working or studying.

Source: Adapted from Statistics Canada. National Longitudinal Survey of Children and Youth. Cycle 8, 2008–2009. Special tabulation.

beyond regularly scheduled school hours. When considered, the needs of modern families are addressed by locating child care programs in schools. Provinces may establish guidelines to avoid conflicts, but the status of school-based child care centres rarely extends beyond that of a tenant on a short-term lease, and children's learning is still disrupted by the back and forth between daycare and kindergarten.

For the child care sector, schools directly operating early childhood programming can be destabilizing. Schools typically take on programming for 4- and 5-year-olds, the age group that is the economic mainstay of child care. Quebec and Prince Edward Island managed the introduction of full-time kindergarten with a comprehensive transition plan that refocused child care operators to care for younger aged children. Child care programs in these

provinces now enjoy greater stability and families have more options.

In contrast, a short-lived trial in Ontario requiring school boards to offer extended hours as part of a seamless day was abandoned under pressure from child care operators. The operators were concerned for their continued viability in the absence of any transitional leadership to deal with the exodus of 4- and 5-year-olds into full-day kindergarten. But providing after-hours activities for children in full-day schooling is no economic lifeline for child care. Ontario child care centres are losing qualified ECEs, who prefer to work in the school system rather than the split shifts of daycare. Centre closures are up 5 percent over 2009, and operators predict a marked decrease in services as they close or downsize to deal with the loss of enrollment.[47]

While there are more educational opportunities for young children than ever before, the schism between publicly delivered early education and child care continues requiring parents to piece together programs to meet their work and family demands.

FIGURE 5.11

Teacher-ECE remuneration by provinces

	Teacher salaries $ 2008/09	ECE FTE salaries $ 2009/10	ECE salaries as % of teachers'
NL	67,720	25,500	38
PE	67,950	31,200	46
NS	66,540	30,180	45
NB	63,440	34,715	55
QC	60,180	38,790	65
ON	75,295	36,179	48
MB	73,035	34,403	47
SK	59,070	33,945	58
AB	80,375	38,355	48
BC	76,315	34,590	45

Source: Brockington, R. (2010); Provincial/territorial profiles www.earlyyearsstudy.ca.

Learning environments

Educators and what they do in early childhood education programs are the essential ingredients that determine how effective the program is and how much children and their families benefit. Educators who have early childhood education credentials or who have acquired a knowledge base about early child development and pedagogy in addition to primary teaching qualifications use curriculum to design effective learning environments.

The *You Bet I Care!* study of Canadian child care programs[48] concluded that "while safe environments with supportive adults are the norm for child care in Canada, fewer than 1 in 3 preschoolers and 1 in 4 infants are in programs that stimulate the child's social, language and thinking skills."[49] Stimulating environments were more likely when staff compensation and educational levels were higher, the study found. Reasonable salary and benefits, clear job responsibilities and obligations, and health and safety protections created a positive working climate for educators, which in turn created a quality setting for young children and their families.

The early childhood workforce is divided along the same policy lines that influence access and funding, with the same uneven results. Educators have a range of employers, including non-profit organizations and businesses and public agencies, the latter including local or provincial governments, post-secondary institutions and school boards. About 75 percent of early childhood educators and assistants have a post-secondary certificate, diploma or degree, in contrast to 57 percent of the workers in all occupations.[50] Despite their level of formal education, child care staff, particularly those employed by community or commercial child care programs, often earn less than the average provincial wage.

Full-time positions requiring post-secondary qualifications offer $35,000 per year, often without benefits, but there is considerable variation.[51] In contrast, teachers in kindergarten programs are public sector employees with working environments established by collective bargaining, and annual salaries around $70,000 plus benefits. The large wage gap among educators is emerging as a major issue as early childhood positions become integrated into

FIGURE 5.12

Early childhood educators required per group of 3-year-olds in licensed ECE centres by province/territory

	ECEs per group	Children in each group	Additional (non ECE) staff required	Ratio ECE/ 3-year-olds
NL	1	16	1	1/16
PE	1	20	1	1/20
NS	2	25	1	1/12.5
NB	.5	14	1.5	1/28
QC	2	24	1	1/12
ON	2	24	1	1/12
MB	1.6	16	1	1/12
SK	1	20	1	1/20
AB	1	32	3	1/32
BC	1	24	2	1/24
YK	1	16	1	1/16
NT	1	16	1	1/16
NU	none			

Source: Provincial/territorial profiles www.earlyyearsstudy.ca

schools.[52] Privately operated child care programs cannot compete with the wages and working conditions offered by school boards and are finding it increasingly difficult to recruit and retain qualified educators.

Other factors related to compensation affect the workforce. The poor infrastructure surrounding child care provides few resources for educators to support the increasingly complex needs of children and families. The lack of professional development opportunities and potential for advancement, the poor leadership in the sector and the overall lack of societal respect for the importance of what early childhood educators do eats away at the sense of professional worth. Qualified educators leave child care, to be replaced with less-qualified staff, creating a downward spiral of reduced quality and less favourable environments to attract and keep professional educators.

Provincial policies have focused on encouraging graduates to enter and remain in the field. Newfoundland and British Columbia, for example, both provide bursaries if graduates remain in the sector for at least two years. Wage grants are aimed at stabilizing the workforce. Prince Edward Island expects ECEs working in kindergarten programs to upgrade to a teaching degree with an ECE specialty by 2016. It is the only jurisdiction to require enhanced qualifications since Quebec overhauled its educational expectations for the sector in 1999.

Each province and territory has legislation, regulations and standards that govern the operation of regulated child care programs. They identify requirements for staff, which may include:

- post-secondary level training in early childhood development;

College of Early Childhood Educators, Ontario

The College of Early Childhood Educators, established by the Ontario Legislature in 2007, is a professional self-regulatory organization for early childhood educators. The college regulates the practice of early childhood education, establishes and maintains qualifications for membership and issues certificates of registration. It is also responsible for enforcing professional and ethical standards, investigating complaints against members, and dealing with issues of discipline. Membership in the college is required for everyone wishing to use the title of early childhood educator and practice early childhood education in the province. An ECE diploma is required for certification.

In March 2011, the College of Early Childhood Educators released a code of ethics and standards of practice for Registered Early Childhood Educators.

Source: College of ECEs. (2011).

- ongoing professional development;
- certification or registration with a government or designated body;
- background checks and
- processes to recognize qualifications acquired in a different jurisdiction.

No jurisdiction requires all staff in licensed child care or preschool centres to have a post-secondary credential in ECE, but all require some qualified staff. Several provinces and territories have minimum "entry level" training requirements for all staff, which vary from 40 to 120 hours of ECE course work. Where child/staff ratios are consistent across the country, the number of ECEs required varies widely. Working in a field dominated by untrained staff becomes another burden for an already over burdened profession.

In addition to the educational requirements, eight provinces and territories require all or some staff to be certified or registered. Registration (in Ontario), certification (Alberta, Saskatchewan, Prince Edward Island, Newfoundland and Labrador and Yukon) and classification (Manitoba and Nova Scotia) are all processes that provide official recognition as an Early Childhood Educator and enable the registrant to work in an early childhood program.

The regulatory body has the authority to set entry requirements and standards of practice; to assess applicants' qualifications and academic credentials; to certify, register or license qualified applicants and to discipline members of the profession. For example, in British Columbia, an early childhood

FIGURE 5.13 **Required professional standards for early childhood educators by province/territory**

	ECE professional requirement	Professional development required
NL	Certification: Association of Early Childhood Educators NL	Minimum 30 hours over 3 years for certification renewal
PE	Certification: Child Care Facilities Board, Department of Education and Early Childhood Development	ECE working in kindergarten programs must have a degree by 2016; Minimum 30 hours every 3 years
NS	Classification: Department of Community Services	Minimum 30 hours every 3 years
NB		
QC		
ON	Registration: College of Early Childhood Educators	
MB	Classification: Qualification Services, Manitoba Child Care Program, Manitoba Family Services and Housing	
SK	Certification: Early Learning and Child Care Branch, Saskatchewan Education	
AB	Certification: Child Care Staff Certification, Alberta Children and Youth Services	
BC	License to Practice: ECE Registry in the Ministry of Children and Family Development	Minimum 40 hours every 5 years
YT	Certification: Child Care Services Unit, Family and Child Services Branch, Department of Health and Social Services	
NU		
NT		

Source: Provincial/territorial profiles www.earlyyearsstudy.ca.

FIGURE 5.14 **ECE curriculum frameworks by province/territory**

	Early childhood curriculum	Linking kindergarten and ECE
NL	Under discussion	
PE	Early learning curriculum in development – launch Fall 2011	Curriculum from early years centres and child care to carry into the kindergarten curriculum.
NS	No	
NB	*Early Learning and Child Care: English Curriculum Framework for New Brunswick* (2008) (Anglophone) *Curriculum éducatif* (2008) (Francophone)	Kindergarten curriculum in Francophone programs rewritten in 2011 to align with *Curriculum éducatif*. Kindergarten curriculum in Anglophone programs under discussion.
QC	*Educational Program for Childhood Services: An Update* (2007)	*Resource Guide for Successful Transition to School (2010)*
ON	*Early Learning for Every Child Today*: *A Framework for Ontario's Early Childhood Settings* (2007)	FDELK program incorporates ELECT, *Every Child Every Opportunity* and the previous *Kindergarten Program*.
MB	*Early Returns: Manitoba's Early Learning and Child Care Curriculum Framework for Preschool Centres and Nursery Schools* (2010)	Under discussion – Early Childhood Education Unit within Manitoba Education will increase the connection between ECE and kindergarten to grade 12.
SK	*Play and Exploration: Early Learning Program Guide* (2008)	
AB	*Alberta Accreditation Child Care Quality Standards Day Care Centres* (n.d.)	
BC	*Early Learning Framework* (2008)	*Making Linkages: How the British Columbia Early Learning Framework Links to the Primary Programs: A Framework for Teaching* (2009) Ministry of Education.
YT	No	
NU	No	
NT	No	

Source: Provincial/territorial profiles www.earlyyearsstudy.ca.

educator is required to have a government license to be recognized as a qualified staff member in a regulated child care centre or preschool.

Curriculum

Most Canadian jurisdictions have developed curriculum frameworks to support early childhood education.[53] They tend to be holistic and child-centred in their approach and constructed around learning and developmental goals. Where available, curriculum use is mandatory in school-operated settings, but it is not always a requirement in licensed child care, as is the case in British Columbia, Saskatchewan, Ontario and New Brunswick.

In contrast to the early education frameworks, school-operated kindergarten and pre-kindergarten programs follow a more defined, educator-guided curriculum that is organized by broad subject areas, or they may extend the provincial elementary curriculum down into the kindergarten years. They contain specific learning standards or expectations and are divided into subject areas. The learning standards or expectations have a propensity to drive

planning, along with the assessment and evaluation of children's learning experiences.

Transition between any two phases of education poses challenges. Yet the emerging curriculum frameworks designed for programs before children enter the public education system are seldom aligned to kindergarten or primary school curriculum. One exception is Ontario's *Early Learning for Every Child Today* (ELECT). It took the kindergarten and grades 1, 2 and 3 learning expectations into account in designing its developmental continuum. The Ontario *Full-Day Early Learning Kindergarten Program* (FDELK) consolidates elements from ELECT and from the *Kindergarten Program* (2006). Quebec and British Columbia have prepared documents that link the goals of their early learning frameworks with kindergarten learning outcomes.

Continuing the early childhood educational pedagogical approaches into primary school allows new curriculum content to be introduced in ways that are both familiar and responsive to what children know and can do. Children enter kindergarten with considerable individual differences in cognitive and social development. Because schools operate on an annual basis eligibility spans a full year in most jurisdictions, children enter kindergarten if they are 5-years-old sometime during the calendar year. Some children are 4.8-years-old (4.6 in Alberta) when school starts in September, while others are 5.8-years-old (5.6 years in Alberta)—a full year's difference in age.

FIGURE 5.15 **Early learning and child care progress reports by province/territory**

		Year
NL	*Stepping Into the Future: Early Child Development and Early Learning and Child Care Progress Report*	2005 and 2006
PE	*Department of Education and Early Child Development Annual Report*	2009–2010
NS	*Nova Scotia Early Child Development Progress Report*	2008–2010
NB	*Child Day Care Services Annual Statistical Report*	2010–2011
QC[1]	*Portrait des services de garde*	2011
ON	*Ontario's Early Child Development and Early Learning & Child Care: Investments & Outcomes*	2006–2007
MB	*An Eye on Early Learning and Child Care in Manitoba; Healthy Child Manitoba 2010-2011 Annual Report*	2011
SK	*Securing Our Future: Early Child Development Progress Report*	2007–2008
AB	*Alberta Education and Alberta Child and Youth Services Annual Reports*	2011
BC	*Activities and Expenditures on Early Childhood Development and Early Learning and Child Care*	2009–2010
YT	*Yukon Government Report on Early Childhood Development Activities & Expenditures*	2004–2007
NU	*Early Child Development and Early Learning & Child Care Update Report*	2007
NT	*Early Child Development Report*	2006–2007

[1] While the Government of Quebec supports the general principles of the federal/provincial/territorial early childhood agreements it did not participate in developing these initiatives and has not agreed to follow the reporting mechanisms. Quebec has developed its own mechanisms for public reporting.

Source: Provincial/territorial profiles www.earlyyearsstudy.ca.

Accountability

Canada is signatory to a number of international agreements committing it to provide reasonable access to early education and care programs. The UN Convention to Eliminate all forms of Discrimination against Women obliges governments to provide sufficient, affordable child care as a women's human rights issue. The Convention on the Rights of the Child is the first legally binding international instrument to incorporate the full range of human rights to children, including the provision of programs promoting the young child's development, nutrition and health.

These processes play important roles in monitoring and reporting on governments' progress in improving access to early childhood services in their countries. Outside of Quebec, Canada does not score well on compliance with UN documents. According to UNICEF, Canada achieved only one out of ten targets on the Convention on the Rights of the Child.[54]

The lack of transparent reporting to the Canadian public for early childhood investments and results has also been noted. Advocates have promoted an accountability framework that includes legislated standards, audited information and reporting to parliaments and legislatures. Federal/provincial/territorial agreements propose that progress be monitored by jurisdictions providing annual reports to their respective publics. A 2007 investigation into reporting compliance found few governments used methodologies that allowed the public to easily track progress, and none met all of the performance and reporting requirements outlined in the FPT agreements.[55]

Yet monitoring is an integral part of democratic accountability to children, families and the public. It is essential for informed decision-making, ensuring that societal resources are deployed productively, scarce resources distributed equitably and social goals reached. The challenge is to develop monitoring systems that capture how programs are operating, what children are learning and if system goals are being met. Monitoring on its own does not deliver results, although it is a crucial part of a larger system designed to achieve them.

Accountability in Toronto's child care system

The City of Toronto plans, manages and supports child care and other children's programs with a database that tracks information about program quality, child care spaces, child enrollment and use and demand for fee subsidies. The database supports a coherent, transparent planning process and informs the city's Child Care Service Plan. The information allows the city to closely monitor use and to match allocation of subsidies and resources according to the service plan.

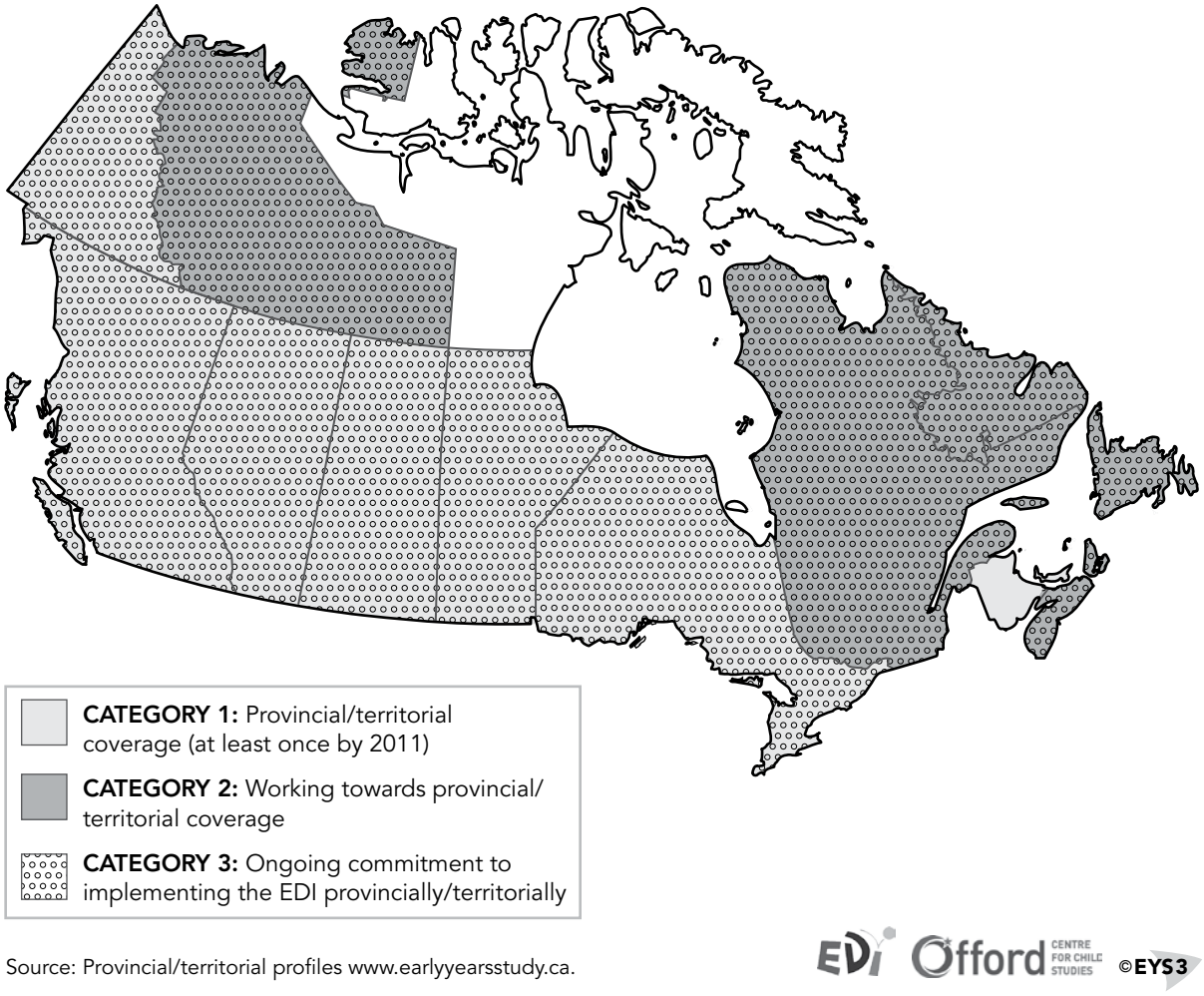
The City of Toronto Operating Criteria have evolved into a validated assessment of preschool child care programs. (Validation of operating criteria for the infant programs will proceed in the near future.) The annual program assessment results are used by programs for quality improvements and are made available on the city's website, providing accountability to the public and allowing parents to make informed decisions about their child care options.

A variety of social indicators, including child care data and EDI results, are compiled in the annual *Toronto Report Card on Children* that monitors the health and well-being of the city's children. The report is a collaborative effort between city staff from Children's Services, Public Health, Parks and Recreation, Social Services, Social Development, Shelter Housing and Support and Toronto Public Library, as well as the school boards and child welfare agencies.

Monitoring early childhood education programs

Learning outcomes for children cannot be considered apart from the inputs they experience in terms of program quality, and the health and well-being of their families and neighbourhoods. Each jurisdiction has established health and safety regulations that operators must meet as a condition of licensing. But like public health inspections of restaurants,

FIGURE 5.16 **EDI use across Canada**



Source: Provincial/territorial profiles www.earlyyearsstudy.ca.

child care regulations are intended to protect children's well-being but tell us little about the quality of the experience.

Some jurisdictions apply additional criteria beyond basic licensing. The Toronto Operating Criteria is one example of an assessment tool that reflects the quality of the entire learning environment; Alberta has a voluntary accreditation system for child care programs that ties the maintenance of quality benchmarks to funding. Several jurisdictions use the Early Childhood Environment Rating Scale to monitor quality. It looks at both the physical space children occupy and the quality of the interactions between adults and children. When results are fed back to educators, it allows them to reflect on their own practice. Parents seeking programs for their children can use quality ratings as information in making their program choices.

In 1999, the *Early Years Study* recommended the development of a population measure of early child development before entry to grade 1. The Offord Centre for Child Studies in Hamilton, Ontario introduced the Early Development Instrument (EDI) that collects kindergarten teacher reports of individual children's development in five key domains:

physical, social, emotional, language/cognitive and communication skills.

When EDI data are collected on all kindergarten children across a jurisdiction, they provide detailed information about how children are doing at the neighbourhood, community and provincial levels. Together with data about access to programs, neighbourhood status and family characteristics, researchers can describe children's well-being as they enter formal schooling.

The EDI is now used in most regions across Canada.

Reporting formats of EDI results vary. In Alberta, the Early Child Development Mapping Initiative is a five-year research project of the education department that intends to give Alberta school authorities, communities and parents a comprehensive range of information on children's development prior to kindergarten. In British Columbia, the Human Early Learning Partnership works in collaboration with the provincial government and local communities to map EDI results, socioeconomic data and demographic characteristics for local regions across the province. EDI data are used extensively to inform communities about how their children are doing and what can be done to improve children's early learning environments. A Pan-Canadian initiative using the EDI is tracking results across the country.[56]

The longitudinal survey approach of the National Survey of Children and Youth and the Québec Longitudinal Study of Child Development collects information about child development at regular intervals from a birth cohort that is representative of the childhood population. Researchers and policy makers use longitudinal data to study developmental trajectories and assess how children's environments influence their development.

The Manitoba Centre for Health Policy and the Human Early Learning Partnership in British Columbia link administrative records from health care, education and other records to create population-based, longitudinal data. To date, reports from British Columbia that link EDI and grade 4 and 6 data show a strong link between EDI findings and later results on province-wide school testing.[57]

Next steps

In 2011, 12 years after the first *Early Years Study* brought the science of early human development to the attention of policy makers and the public, and called on governments to invest in the early years at the same rate as for older children, much has changed in early childhood policy. Expanded parental leave and family benefits, universal newborn screening, family support programs and the widespread use of the Early Development Instrument prior to grade 1 have made their way into Canadian family policies and programs. The number of child care spaces has increased, education departments are taking an interest in children's early learning and efforts are being made to align early childhood policies across departments. The following chapter introduces the Early Childhood Education Index 2011, a summary of the progress made by each jurisdiction and the continuing gaps.

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6

Where Are We? How Far Do We Have To Go?

The Early Childhood Education Index 2011

Good early childhood education will improve every child's chance of success. It is fair. It works. It is affordable. It enjoys widespread popularity, and we are already well on our way to making it happen. To help chart our progress, *Early Years Study 3* introduces the Early Childhood Education Index 2011.

Improving outcomes for children

The index draws on what is known about how public policy supports quality early childhood programming. A strong and coherent public policy framework produces the best results for children, uses public investments efficiently and effectively and accounts to Canadians for the well-being of our children.

The Early Childhood Education Index 2011 (ECEI 2011) provides a snapshot of provincial early childhood education services. Fifteen benchmarks reflect a common set of core standards essential for the delivery of quality programming. Backed by good data, the index:

- points to the strengths and weaknesses in individual jurisdictions;

- highlights what leading jurisdictions have been able to achieve in practice and
- directs attention toward creating comprehensive early childhood education systems rather than allowing developments to be determined by short-term pressures.

The index is organized into five categories.

- **Governance:** Is the oversight of early education split between multiple departments, or does it have coherent direction backed by policies with goals, timelines and sound service delivery?
- **Funding:** Is it adequate to support program quality and provide reasonable access?
- **Access:** Are there enough programs to meet demand? Are barriers to participation addressed?
- **Learning environment:** Is quality supported by curricula, program standards and trained and adequate staffing?
- **Accountability:** Is there constant quality improvement supported by data collection and the monitoring and reporting of child outcomes? Is research supported and the findings incorporated into practice?

Each category includes benchmarks with assigned values. Each category is rated out of three points, for a total of 15 points. The benchmarks reflect well-established elements of the essentials behind effective early childhood education. Each benchmark is based on one or more of the following three criteria:

- **Proxy power:** Does the benchmark reflect a key component of a quality system of early childhood education that is associated with better outcomes for children?
- **Data power:** Are data available on a timely basis? Are they reliable and standardized?
- **Communication power:** Does the benchmark communicate to a broad range of audiences? Is it understood by the public, policy makers and media?

The data and rationale for the benchmarks are summarized in chapter 5. They are gathered from provincial and territorial government officials, and publicly available research studies and reports. The most recent available data are used and estimates are explained. The information is supplemented by detailed profiles of each province and territory that are posted at http://www.earlyyearsstudy.ca. Because there is insufficient data to populate all the benchmarks, the three territories are not included in this round of the index. We hope to address this in subsequent iterations.

Despite the acknowledged importance of early education, there are no common pan-Canadian indicators of progress. As the most recent report of the Canadian Council on Learning notes: "We lack appropriate national measures to provide better understanding of quality, access, financing and policy of [early childhood education] programs … In addition, the several monitoring regimes that provinces have put in place are not comparable with each other."[1]

ECEI 2011 fills this void. It can be incorporated into other monitoring efforts, including the Early Development Instrument (EDI),[2] the Forum on Early Child Development Monitoring,[3] the Canadian Index of Well-being[4] and the newly released *New Deal for Families*.[5] ECEI 2011 provides a baseline; benchmarks may be modified through ongoing dialogue with stakeholders and officials. The intention is to reissue the index every two years.

Three make passing grade

In the first year of the ECEI 2011, only three jurisdictions received a passing grade. Yet there are reasons for optimism. Three years ago, Prince Edward Island would not have been among the top scorers. Only three provinces offered full-day kindergarten; today it's six. Province-wide curriculum anchored in learning through play was the exception instead of the norm. No province had merged oversight for kindergarten and child care.

In contrast, today four provinces have combined their departments, and the monitoring and reporting of vulnerability in preschool-aged children is no longer a rarity. Despite the cancellation of the federal/provincial/territorial child care agreements, the number of child care spaces across Canada has grown by over 20 percent. Half of all children regularly attend preschool, and most provinces could

FIGURE 6.1

Early Childhood Education Index 2011

BENCHMARKS	Value	NL	PE	NS	NB	QC	ON	MB	SK	AB	BC
Integrated Governance											
ECE under common department/ ministry	0.5		0.5		0.5		0.5		0.5		
Common ECE supervisory unit	0.5						0.5				
Common ECE policy framework	1		1			1		1			
Common local authority for ECE management and administration	1										
Funding											
At least two-thirds of child care funding goes to program operations[1]	1		1	1		1		1	1		
Mandated salary and fee scale	1		1			1		1			
At least 3% of budget devoted to early childhood education	1					1					
Access											
Full-day kindergarten offered	1		1	1	1	1	1				1
50% of 2–4-year-olds regularly attend an ECE program	1					1	1				
Funding is conditional on including children with special needs	1		1[2]					1			
Learning Environment											
Early childhood curriculum/framework	0.5		0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5
Alignment of early childhood framework with kindergarten	0.5		0.5		0.5	0.5	0.5				0.5
Programs for 2–4-year-olds require at least two-thirds of staff to have ECE qualifications	0.5			0.5		0.5	0.5	0.5			
Kindergarten educators require ECE qualification	0.5		0.5				0.5				
Salaries of early childhood educators are at least two-thirds of teacher salaries	0.5					0.5					
ECE professional certification and/or professional development required	0.5	0.5	0.5	0.5			0.5	0.5	0.5	0.5	0.5
Accountability											
Annual progress reports are current and posted (2008 or later)	1		1	1	1	1[3]		1	1	1	1
Program standards for ECE programs (including kindergarten)	1										
EDI or population measure for preschool learning collected and reported	1	1	1	1	1	1	1	1	1	1	1
	15	**1.5**	**9.5**	**5**	**4.5**	**10**	**6.5**	**7.5**	**4.5**	**3**	**4.5**

Notes:

1 Includes special needs funding

2 In Early Years Centres only

3 Quebec was not a signatory to the federal/provincial/territorial early childhood development agreements where the parties agreed to regular standardized reporting. Quebec has its own mechanisms for public reporting.

provide universal access with staged prudent investments. You could say, we are already halfway there!

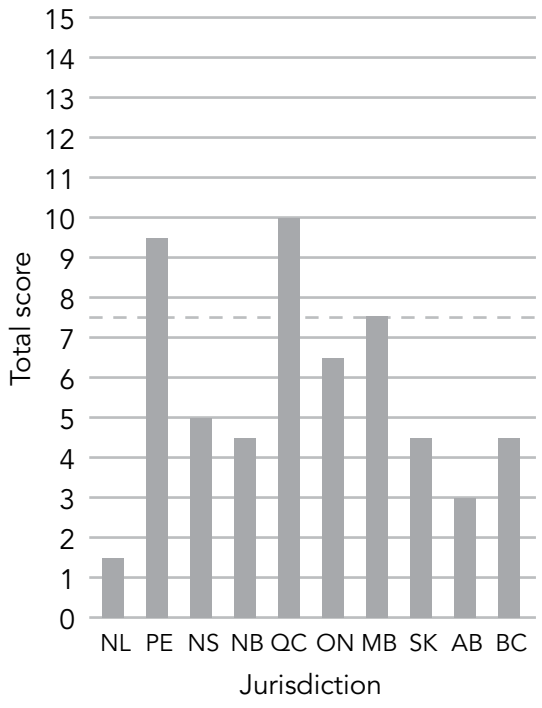
We now have many made-in-Canada examples of good practice and the steps jurisdictions took to achieve their results. Their experiences can serve as a guide to others. The index does not suggest that there is only one route to success. Indeed, the two leading jurisdictions reached their destinations using very different methods.

Obviously there is much room for improvement. More children are involved in early education than ever before. However, the split between oversight and delivery still requires too many parents to piece together arrangements to cover their work schedules. The results are stressful for children and parents alike, but also negate the wonderful payback that comes from delivering early education in a way that simultaneously supports children's learning and their parents' work. These findings are well documented in chapter 4. Early childhood educators now receive more professional recognition and have seen modest salary improvements, but training requirements have not kept pace with the growing demands on the profession.

The big story behind the index is that high-quality, publicly funded preschool education for all 2- to 5-year-olds isn't a utopian fantasy, particularly if it is built on the asset we already have in public education. Much of the groundwork has been laid, many of the tools have been developed and most importantly, universal early childhood education has many, many advocates. They can be found in boardrooms, schoolrooms, science laboratories, health clinics, courtrooms, university classrooms, government offices and home kitchens. Early childhood education leverages the best from other family policies and allows every child to reach her fullest potential.

FIGURE 6.2

Early Childhood Education Index 2011: Total score



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