SUPPORTING ALL CHILDREN TO REACH THE MOST VULNERABLE
Report to the Commission of Inquiry into the Circumstances Surrounding the Death of Phoenix Sinclair
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New technologies confirm that infancy and early childhood are the first and most critical phases of human development. Who our parents are, our health at birth and how we live, eat and play as young children all have an impact on the developing brain and biological systems, establishing lifelong trajectories for learning, health and behaviour.

In the *Early Years Study 3*[1], we update the social, scientific and economic rationales for public investments in early childhood and advocate for publicly funded early education for every child. The research is unambiguous—high quality early education is advantageous for all children as it delivers benefits for society. For children living in disadvantaged circumstances, quality early education can innoculate against adversity and is capable of changing life outcomes. Yet this most influencial period of human development is also the most neglected by public policy. Unlike any other life period, there is no systematic intersection between public programs and preschool-aged children. Programs exist, but they are poorly resourced and lack coherent delivery and oversight. In this paper I recommend that governments address this deficit by better using existing resources to more effectively support young children and to create a foundation for service expansion.

Experiences in early childhood have lifelong consequences

The young child's brain is acutely vulnerable to its environment. If the early experiences are fear and stress, especially if these are overwhelming and occur repeatedly, then the neurochemical responses become the primary architects of the brain. Trauma scrambles the neurotransmitter signals that play key roles in telling growing neurons where to go and what to connect to. Children exposed to chronic and unpredictable stress—including harsh, cold and chaotic parenting, or witnessing the abuse of other family members or the constant, prolonged and unresolved fighting between parents—will suffer deficits in their ability to learn. IQ will be lower—in itself another risk factor for conduct problems and mental illness.[2]

Protracted stress in early childhood influences the size of the brain. The limbic system of the brain (governing emotions) is 20–30 percent smaller and tends to have fewer synapses. The hippocampus (responsible for memory) is also smaller. Both of these stunted developments are thought to arise from the toxic effects of cortisol.[3] Chronic stress is associated with higher levels of cortisol. Sustained high cortisol

[1] McCain, M.N., Mustard, F. & McCuaig, K. (2011). *Early years Study 3, Making decisions, taking action*. Toronto: Margaret and Wallace McCain Family Foundation.
[2] Hoskin, G. & Walsh, I. (2005). *The WAVE Report 2005. Violence and what to do about it.* London: WAVE Trust; Perry, B.D., Pollard, R.A., Blakley, T.L., Baker, W.L. & Vigilante, D. (1996). Childhood Trauma, the Neurobiology of Adaptation and Use-dependent Development of the Brain: How States become Traits. *Infant Mental Health Journal*, Vol. 16, No.4, Winter 1995, 271-291.
[3] Bremner, J.D., Vythilingam, M., Vermetten, E., Southwick, S.M., McGlashan, T., Nazeer, A., et al (2003). MRI and PET Study of Deficits in Hippocampal Structure

levels during the vulnerable growth years increase activity in the brain structure involved in vigilance and arousal.[4] For such children, even slight stressors will unleash a new surge of stress hormones. This in turn contributes to hyperactivity, anxiety and impulsive behaviour.[5]

Adolescence is another developmental period highly vulnerable to toxic stress. The prefrontal cortex, which regulates judgment, impulse control, planning and decision-making, is the slowest part of the brain to develop and continues evolving into the mid-20s. Stress prompts the emotional brain to take over, leading to bad decisions and volatile behaviour. The prolonged development of the "emotional" brain is why the teen years are incompatible with parenting.

Adversity in early childhood manifests itself almost immediately as aggression in the preschooler;[6] poor academic performance and greater school drop out rates; pregnancy, risky behaviour; substance abuse and mental health problems among adolescents and young adults;[7] obesity and type 2 diabetes in adults in their forties; cancers and heart disease manifesting in the fifties and sixties; and early onset dementia in seniors.[8] All of these conditions come with a cost. It is clear that failing children during their early years is very expensive.

The transformative influence of quality early education programs

The most important influence on human development is the family. The best outcomes are found for children born to nurturing parents with the means to support them. Children's health, their parents'—particularly the mother's—educational attainment and the family's socioeconomic status are the primary influencers. The most significant non-family variables are participation in quality preschool education

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and Function in Women with Childhood Sexual Abuse and Posttraumatic Stress Disorder. *American Journal of Psychiatry*, *160*, May 2003, 924-932; Teicher, M.H. (2000). Wounds That Time Won't Heal: The Neurobiology of Child Abuse. *Cerebrum, 2*, 4.

[4] Barnett, W.S. (1996). *Lives in the balance: Age-27 benefit-cost analysis of the High Scope Perry Preschool Program* (Monographs of the HighScope Educational Research Foundation, 11), Ypsilanti, MI: HighScope Press; Eisler R. & Levine, D.S. (2002). Nurture, Nature, and Caring: We Are Not Prisoners of our Genes*. Brain and Mind*, *3*(1), *9-52.*

[5] Incubated in Terror: Neurodevelopmental Factors in the Cycle of Violence. In J.D. Osofky (ed.) *Children, Youth and Violence: Searching for Solutions.* Guilford Press: New York; Hart, J., Gunnar, M. & Cicchetti, D. (1996). Altered Neuroendocrine Activity in Maltreated Children Related to Symptoms of Depression. *Development and Psychopathology*, *8*, 201-214. doi:10.1017/S0954579400007045.

[6] Hay, D.F. (2003). Aggression as an Outcome of Early Childhood Development: Comments on Tremblay, Keenan, and Ishikawa and Raine. In R.E. Tremblay, R.G. Barr & R. DeV. Peters (eds.) *Encyclopedia on Early Childhood Development* [online]. Montreal, Quebec: Centre of Excellence for Early Childhood Development, 1-4. Retrieved from www.child-encyclopedia.com/documents/HayANGxp- Aggression.pdf.

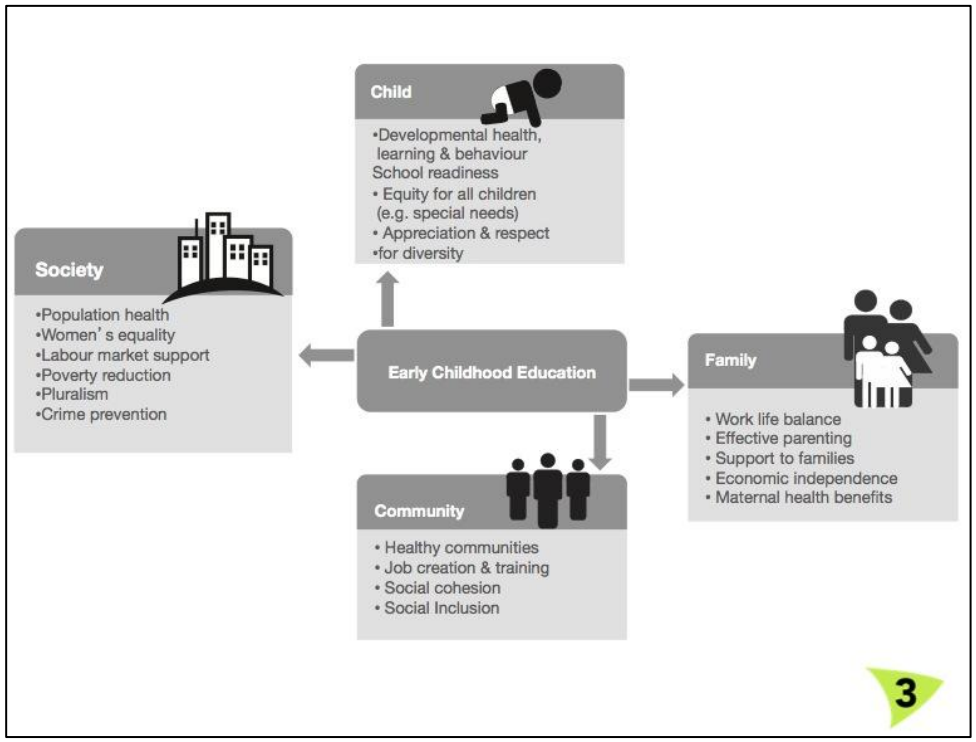
[7] Shonkoff, J.P. & Garner, A.S. (2011). Committee on Psychosocial Aspects of Child, and Family Health Committee on Early Childhood Adoption. The lifelong effects of early childhood adversity and toxic stress, *Pediatrics.* Retrieved from pediatrics.aappublications.org/content/early/2011/12/21/peds.2011-2663.abstract

[8] Johnson, R.C. & Schoeni, R.F. (2011). Early-life Origins of Adult Disease: National Longitudinal Population-based Study of the United States. *American Journal of Public Health, 101*(12), 2317-2324. Retrieved from www.ncbi.nlm.nih.gov/pubmed/22021306

and the quality of primary education. Of these two variables, the effects of preschool are most enduring. Quality early education appears to compensate for poor primary education.[9]

Consistent attendance in good early childhood programs is associated with an enhanced ability to self-regulate. Self-regulation is a biological response that is established in early childhood. It reflects the ability to adapt one's emotions, behaviours and attention to meet the demands of a given situation. It includes the ability to take into account one's own thoughts and those of others. Research is showing that self-regulation may be far more important than IQ in determining the grades children achieve in school, how often they go to class, how much time they spend on homework, how aggressive they are and how vulnerable they are to unfavourable behaviours.[10] Children acquire the capacity to self-regulate through relationships, first with parents and other primary caregivers, and then with other children and adults.

Early childhood education programs support children's ability to develop self-regulatory systems, improve well-being, help create a foundation for lifelong learning and make learning outcomes more equitable.[11] But early education has other benefits: it is a means of liberating mothers to go to work; it reduces poverty; it supports the productivity of the emerging labour force; it is a preventive measure against future health and social costs; and is an opportune time to intervene against family dysfunction and inequalities that are passed down from generation to generation. Early education is also foundational for social cohesion and is an indicator of a more just society.



Children's rights

A more recent discourse, influenced by the UN Convention on the Rights of the Child (United Nations, 1989), argues for a children's rights agenda as the firmest platform for developing public policy. A children's rights agenda within early childhood policies and practices is a

[9] Melhuish, E. (2011). Preschool Matters, *Science, 333*, 299-300.
[10] Shanker, S. & Downer, R. (2012). Enhancing the Potential in Children (Epic). In Denise Hevey (ed.), *Policy Issues in the Early Years*. New York: Sage Publications.
[11] Geoffroy, M.C., Côté, S., Giguère, C., Dionne, G., Zelazo, P.D., Tremblay, R.E., Boivin, M. & Séguin, J.R. (2010). Closing the gap in academic readiness and achievement: The role of early childcare. *Journal of Child Psychology and Psychiatry,* 1359-1367.

relatively new concept, particularly in Anglo-American countries. It requires a paradigm shift in public and professional attitudes. Young children are no longer viewed as passive recipients of services, beneficiaries of protective measures or objects of social experiments. They are not the chattels of families, the clients of agencies or capital for economic growth, but are in themselves fully human with capacities to communicate and contribute.

Respecting young children's rights challenges the deficit model of early interventions where children are identified by their problems and singled out for treatment. Instead, the focus is on children's assets. Parents are integrated into programs out of respect for the intimate knowledge they bring of their child. Communities are involved and celebrated for their values, traditions and sustainability.[12]

Universal access to ECE

A children's rights agenda is reflected in more universal approaches to ECE provision. Researchers and policy-makers often argue that compelling need and scarce resources provide a rationale for targeting public ECE investment to children from disadvantaged homes. Poverty does increase children's chances of delayed development, but it is not the only factor. 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. Countrywide data show that more than one in four children arrive at kindergarten with vulnerabilities that make them more likely to fail in school.[13] Children who have trouble coping in kindergarten are less likely to graduate from high school or go on to post-secondary education.[14] 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.[15] While poverty increases children's risk of vulnerability, not all children from low-income families experience difficulties. In fact, the largest numbers of vulnerable children come from middle- and upper-income households where the majority of children reside.[16]

Poor children do face a string of disadvantages that middle-class children may not encounter, but there remains room for concern for middle-class children. The learning gap between children from middle-income families and those born to the affluent is just as big as the gap

[12] Blackstock, C., Clarke, S., Cullen, J., D'Hondt, J. & Formsma, J. (2004). *Keeping the Promise: The Convention on the Rights of the Child and the Lived Experiences of First Nations Children and Youth*. First Nations Child and Family Caring Society of Canada. Retrieved from www.fncaringsociety.com/sites/default/files/docs/KeepingThePromise.pdf.

[13] Offord Centre for Child Studies. (n.d.). *School readiness to learn national SK cohort results: Based on the Early Development Instrument data collection for senior kindergarten students in Canada*, Spring *2008.* Shonkoff, J.P. & Garner, A.S. (2011). Committee on Psychosocial Aspects of Child, and Family Health Committee on Early Childhood Adoption. The lifelong effects of early childhood adversity and toxic stress, *Pediatrics.* Retrieved from pediatrics.aappublications.org/content/early/2011/12/21/peds.2011- 2663.abstract.

[15] Johnson, R.C. & Schoeni, R.F. (2011). Early-life Origins of Adult Disease: National Longitudinal Population-based Study of the United States. *American Journal of Public Health, 101*(12), 2317-2324. Retrieved from www.ncbi.nlm.nih.gov/pubmed/22021306

[16] Janus, M. & Duku, E. (2007). The school entry gap: Socioeconomic, family, and health factors associated with children's school readiness to learn. *Early Education and Development, 18*(3), 375–403.

that separates middle- and lower-income groups. Middle-class children, particularly boys,[17] drop out of school at alarming rates and with lifelong consequences.[18] Nor does income protect children from learning disabilities, nor from the adverse effects of family violence.

It is difficult to attain the promised benefits of ECE investments without a universal outlook. Labour market enhancements, gender equity, poverty reduction, secondary school graduation rates and the economic benefits these bring do not occur without a critical mass of participation. Moreover, a universal platform with specialized outreach to marginalized populations has been found to be more effective at reaching at-risk groups than targeted approaches, which are inevitably under-resourced and vulnerable to shifting political priorities.

What contributes to quality in early childhood programs?

Quality ECE programs have common principles, approaches and tools that guide practice. There is recognition that children's earliest experiences matter deeply. Educators are reflective practitioners, sensitive to children and knowledgeable about how they develop. Skilled educators match their interactions and responses to what is required to best assist children's learning. They provide children with scaffolding, the kind of assistance that helps children to reach further than would be possible unassisted.[19] A planned curriculum, anchored by play, best capitalizes on children's natural curiosity and exuberance to learn.

ECE programs providing rich opportunities for play allow children to act beyond their age and daily behaviour. As a result, they gain a greatly strengthened capacity for self-regulation. Play, particularly make-believe play, is paramount in the early childhood context for the development of self-regulation. Make-believe play is rich in collaborative dialogues and development-enhancing consequences. As soon as children have the skills to engage in pretense, warm and involved adults can join in and scaffold their play. Through play, preschoolers practice and solidify symbolic schemes. They master fears and anxieties, and as an avenue for exploring social roles, play helps them to gain skills and acquire culturally-valued competencies.[20]

Culturally responsive programming

Diversity, equity and inclusion are prerequisites for learning in early childhood programs. Children grow up with a strong sense of self in environments that support children's full participation and promote attitudes, beliefs and values of equity and democracy. Preconceived

[17] Gilmore, J. (2010). *Trends in Dropout Rates and the Labour Market Outcomes of Young Dropouts.* Ottawa, ON: Labour Statistics Division, Statistics Canada.
[18] Serbin, L., Temcheff, C., Cooperman, J., Stack, D., Ledingham, J. & Schwartzman. A. (2011). Predicting family poverty and other disadvantaged conditions for child rearing from childhood aggression and social withdrawal: A 30-year longitudinal study. *International Journal of Behavioral Development*, *35*, 97-106.
[19] Berk, L. & Winsler, A. (1995). *Scaffolding children's learning: Vygotsky and early childhood education*. Washington DC: National Association for the Education of the Young Child.
[20] Florez, I. R. (2011). Developing Young Children's Self-Regulation through Everyday Experiences. *Young Children,* NAEYC, Washington, DC.

notions about children's ethnocultural backgrounds, gender, ability or socioeconomic circumstances create barriers that reduce engagement and equitable outcomes.[21]

Measuring learning for Aboriginal children have largely focused on the classroom and have not sufficiently reflected knowledge acquired through experiential learning, including learning from Elders, traditions, ceremonies, family and the workplace.[22] Aboriginal early childhood programs that are built on the culture of families and community and that are controlled by First Nations contribute to the preservation of First Nations' culture.[23]

Aboriginal and non-Aboriginal early childhood settings require programming that values Aboriginal languages and culture. It is one thing to know and value one's own culture; it is another to have others know and value it. In much of Canada, Aboriginal content in preschool and school settings, where it exists, is targeted to Aboriginal children.[24] New Zealand provides a different approach. Based on recognition of two founding peoples, the Māori and the colonists, and the need for a common understanding of the islands' history, traditions and values, New Zealand developed a blended curriculum that is mandated for *all* preschool settings. The *Te Whāriki/Early childhood curriculum* (Ministry of Education, 1996) (*Te Whāriki* translates from the Māori language as "a woven mat for all to stand on") has five strands that shape outcomes for children: Belonging, Well-Being, Exploration, Communication and Contribution.

The principles and strands of *Te Whāriki* are enshrined in legislation (Amendment to the Education Act, 2008). Close connections have been developed between the curriculum framework, children's assessment and processes for teachers' self-evaluations. Government-funded professional development helps educators to understand and promote sociocultural learning.[25] The Northwest Territories is now leading a territorial initiative to create an integrated early learning framework, which incorporates Aboriginal and European cultures.

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[21] Bernhard, J., Freire, M. & Mulligan, V. (2004) *Canadian Parenting Workshops*. Toronto, ON: Chestnut; Center for Community Child Health; Policy Brief No 11 2008: Rethinking the transition to school: Linking schools and early years services. (2008). Melbourne, VIC: Author; Robinson, K. & Diaz, C. (2006). *Diversity and Difference in Early Childhood Education: Issues for theory and practice,* Bertkshire, England: Open University Press.

[22] Ball, J. (2008). Promoting equity and dignity for Aboriginal children in Canada, *IRPP Choices, 14*(7); Canadian Council on Learning. (2007). Redefining How Success is Measured in First Nations, *Inuit and Métis Learning*, Ottawa, ON: Author; Fearn, T. (2006). *A Sense of Belonging: Supporting Healthy Child Development in Aboriginal Families.* Toronto, ON: Best Start: Ontario's Maternal, Newborn and Early Childhood Development Research Centre.

[23] Greenwood, M. (2006). Children Are a Gift to Us: Aboriginal-Specific Early Childhood Programs and Services in Canada. *Canadian Journal of Native Education 29*(1), 12-28; Native Council of Canada. (1990). *Native Child Care: The Circle of Care.* Ottawa: Author.

[24] The exception is the Northwest Territories where officials are developing a new curriculum approach for use in all early years' settings that combines the cultural and linguistic contributions of the nine aboriginal and the European communities.

[25] Meade, A. & Podmore, V. (2010). Caring and Learning Together: A case study of New Zealand. *Early Childhood and Family Policy Series n° 16*, Paris, France: UNESCO.

Modern families, outdated policies

Modern families are raising young children in circumstances that are significantly more complex, and for many, more stressful than in the past. Internationally, public policy is responding to help families transition to the technical, social and economic changes. Driven by the growing and sustained presence of mothers in the labour force, the need for a knowledge-based workforce, combatting family poverty, demographic patterns and the scientific evidence, policy-makers are reshaping their responses to focus on the early years.

Canadian policy-makers have been slower to follow suit. The Organization for Economic and Co-operative Development (OECD)[26] reports that Canada spends the lowest amount per child on early years programming among all the industrialized countries. As a result, most Canadian children participate in universal preschool much later than their European counterparts and have the lowest rate of access to child care and intervention services.

Not only is Canada's public investment well below international benchmarks, our service delivery systems are chaotic. Across the country, much of children's programming is still divided into three distinct streams: education, child care and family supports. All promote the healthy development of children as a primary goal, yet they have no, or little, interaction. There are pockets of innovation and increased levels of investment, but service overlap prevails alongside large gaps. Each stream has its own bureaucracy, culture and mandate based on a narrow range of needs. The result is service silos. Reducing family stress and improving outcomes for children require a greater public commitment, but new investments must be accompanied by smart decisions about program and system design if the transformative effects of investing in early childhood are to be realized.

The OECD review found that in jurisdictions where the policy and delivery of education, child care and related supports 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 on-going contact with families during children's early years
- Inflexible mandates and funding criteria leave providers unable to provide cohesive support
- Services are funded on the basis of outputs rather than outcomes, making it difficult to tailor services to families' diverse needs and circumstances

[26] *Starting Strong.* (2006). The OECD provides economic and social analysis for the governments of its member states. Starting Strong is the most comprehensive examination of early childhood education and care delivery ever undertaken. It took eight years to complete and involved 15 countries.

- Services are typically treatment-focused, rather than prevention- or promotion-focused, and are unable to adapt to emerging needs
- It is difficult to attract and retain qualified staff[27]

Noting our fragile patchwork of early childhood services, the OECD encouraged decision-makers to "build bridges between childcare and kindergarten education, with the aim of integrating ECE both at ground level and at policy and management levels" (OECD 2004, Canada Country Note, p. 6). Despite the 2007 cancellation of the federal/provincial early learning and care agreements, provinces have acted on the advice. Even in the short period since the release of the *Early Childhood Education Report* (www.earlyyearsstudy3.ca) in November 2011, much has evolved.

- New Brunswick became the first jurisdiction with a legislative and regulatory framework combining oversight for education, child care, family supports and intervention services. Its 0 to 8 years strategy extends early intervention services into the primary grades. Child care and family support services districts now mirror those for schools and are overseen by the same regional directors.
- Nova Scotia has established an early years' office in the Department of Education and has released the results of province-wide consultations to renew its early childhood service policies.
- Quebec's premier has committed to full-day preschool for all 4-year-olds and to eliminate wait-lists for child care.
- Ontario has released a discussion paper seeking sector/public input into new approaches to improve child care quality, oversight and access.
- Newfoundland has partnered with Memorial University to conduct a feasibility study of ECE integration and has instituted scheduled budget increases that tie child care operating funding to parent fees.
- Prince Edward Island continues to build on its Preschool Excellence Initiative with the development of its new *Early Learning and Childcare Act* and the alignment of its preschool and kindergarten curriculum approaches, supported by province-wide professional development for its ECE workforce.
- British Columbia is preparing *Play Resource* for primary teachers that builds on the provincial Early Learning Framework.
- Saskatchewan is exploring a single integrated unit within Department of Education for its early childhood programs.
- Alberta's Education and Human Services departments are working toward an ECEC framework. Grant McEwen University and Mount Royal University are developing a provincial curriculum framework.
- The early childhood sectors in Manitoba and British Columbia have formally proposed moving child care into their respective education departments.[28]
- The three territories are developing a joint early years curriculum framework embedding Aboriginal and European perspectives and cultures. The NWT has also worked with the Offord Centre – the developer of the EDI – to create another developmental domain which includes cultural awareness.

Four provinces and two territories have now combined oversight for their education and care services. Prince Edward Island and New Brunswick have also merged their child and family support programs. Successful service delivery requires more than co-locating services in the same department. It requires a common policy framework with defined goals, benchmarks and timelines and an appropriately

[27] These same challenges were noted in the September 2009 paper prepared for the Child Welfare Intersectoral Committee, Promoting Health Child Development Work Team. *The Challenge of integrated Children's Services in Manitoba*.

[28] For more information about provincial/territorial ECEC policy developments, see www.oise.utoronto.ca/atkinson/Resources/Policy_Monitor/index.html.

resourced infrastructure to support quality, sustainability and accountability. Without a coherent framework, new investments are less effective for the child, fail to address family needs and waste public resources.

The following chart shows the steps provinces are taking to address service fragmentation.

	NL	PE	NS	NB	QC	ON	MB	SK	AL	BC
ECEC under common department/ministry	Under discussion	Y	Y	Y	Y*	Y		Y		
Common ECEC supervisory unit		Y	Y	Y		Y		Under discussion		
Common ECEC policy framework		Y	Under discussion	Y	Y		Y			
Common local authority for ECEC management and administration				Y		Under discussion				

*Quebec schools are responsible for out of school programs for children 5–12 years old. McCuaig, Bertrand & Shanker (2012) Updated 2013

Integrated program delivery and its impact on family/child function

Researchers have found that parents whose children attend early education programs that are integrated and connected to their school are much less stressed than their neighbours whose children are in the regular jumbled system.[29] Reducing parental stress matters. Stress disrupts parents' ability to manage their own conduct, leaving them with fewer resources to regulate their children's behaviour. The more harried the parents, the less likely they are to engage positively with their children. Chronic stress drips down on children influencing academic and other developmental outcomes.

Extensive evaluations of integrated service delivery, including Sure Start in the UK,[30] Communities for Children in Australia,[31] Toronto First Duty,[32] the Atlantic Children's Centres[33] and Better Beginnings, Better Futures in Ontario[34] found children in neighbourhoods with

[29] Toronto First Duty. (2009). *Research findings from Phase 2 of Toronto First Duty and their implications for full day learning in Ontario.* Toronto: Atkinson Centre Society and Chlld Development.
[30] Siraj-Blatchford, I. & Siraj-Blatchford, J. (2009). *Early years knowledge review 3: Improving development outcomes for children through effective practice in integrating early years services.* London, UK: Centre for Excellence and Outcomes in Children and Young People's Services (C4EO).
[31] Edwards, B., Wise, S., Gray, M., Hayes, A., Katz, I., Misson, S., Patulny, R. & Muir, K. (2009). *Stronger Families in Australia study: the impact of Communities for Children*, Commonwealth of Australia, Canberra.
[32] Toronto First Duty. (2008). *Toronto First Duty: Lessons from the TFD research.* Retrieved from http://www.toronto.ca/firstduty/tfd_research_summary.pdf.

integrated children's services showed better social development,[35] more positive social behaviour and greater independence/self-regulation compared with children living in similar areas without an integrated program. Less use was made of emergency health, justice and child welfare services.[36] When mandated and resourced to connect with every family in their catchment area, integrated early childhood programs reach families across the socioeconomic spectrum. Integrated service delivery enhances the effectiveness of intervention programs[37] and appears to play a preventive role in reducing aggressive behaviours.[38]

Modelling ECE integration

Some provinces have developed small-scale models to develop processes and identify barriers to service integration. Elements of each have since been scaled up into public policy. Toronto First Duty began as a partnership between the City of Toronto, the Toronto District School Board, Public Health and community partners. The unique teacher/ECE team, play-based curriculum and extended day programming options are now imbedded in Ontario's *Education Act* and govern the roll-out of full-day kindergarten for all four- and five-year-olds.

Smart Start in Prince Edward Island brought together CHANCES, a multi-site ECE and family support agency, with the school district, public health nursing and post-secondary institutions. Its seamless program continuum from birth through to formal schooling informed the province's Preschool Excellence Initiative, which is transforming private preschools into a publicly-managed ECE system.

New Brunswick's Early Childhood Development Centres model the coordinated delivery of child care, family supports and special needs interventions from school settings. Their learnings are reflected in the new legislation and a three-year, $38-million action plan, *Putting Children First*, which integrates early childhood services with the schools.[39]

The Kettle Stoney Point First Nations are collaborating with the Margaret and Wallace McCain Family Foundation and the Martin Aboriginal Education Initiative to combine their many programs and initiatives into a seamless birth to high school continuum of education and family

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[33] Morrison, W., Peterson, P. & Morrison, R. (2012). *Year 2 Report: New Brunswick Early Childhood Centres*, Health and Education Research Group, University of New Brunswick. Retrieved from http://www.mwmccain.ca/year-2-research-report-nb-early-childhood-centres.

[34] Peters. R.D., Nelson, G., Petrunka, K., Pancer, S.M., Loomis, C., Hasford, J., Janzen, R., Armstrong, L. & Van Andel, A. (2010). *Investing in our future: Highlights of Better Beginnings, Better Futures Research findings at Grade 12*. Kingston, ON: Better Beginnings, Better Futures Research Coordination Unit.

[35] Centre for Community Child Health. (2011). *Policy brief 21: Evidence-based practice and practice-based evidence: What does it all mean?* Melbourne, AU: The Royal Children's Hospital.

[36] Peters. R.D., Nelson, G., Petrunka, K., Pancer, S.M., Loomis, C., Hasford, J., Janzen, R., Armstrong, L. & Van Andel, A. (2010). *Investing in our future: Highlights of Better Beginnings, Better Futures Research findings at Grade 12*. Kingston, ON: Better Beginnings, Better Futures Research Coordination Unit.

[37] Morrison, W., Peterson, P. & Morrison, R. (2012). *Year 2 Report: New Brunswick Early Childhood Centres*, Health and Education Research Group, University of New Brunswick. Retrieved from http://www.mwmccain.ca/year-2-research-report-nb-early-childhood-centres.

[38] Côté, S., Pingault, J.-B., Boivin, M., Japel, C., Nagin, D., Xu, Q., Zoccolillo, M., Junger, M. & Tremblay, R.E. (2010). Pre-school education services and aggressive behavior: A preventive role in vulnerable families. *Psychiatry Science Human Neurosciences*, 77-87.

[39] www2.gnb.ca/content/gnb/en/news/news_release.2012.06.0506.html.

supports with a focus on literacy.[40]

The Lord Selkirk Park Childcare Centre has partnered with Healthy Child Manitoba and Red River College to implement the Abecedarian approach to program delivery. The Abecedarian approach is based on a scientific study conducted in North Carolina during the 1970s. Highly-trained educators, skilled at working with marginalized communities, focus on promoting literacy and language development in both children and parents. Initiated in April 2012, the Lord Selkirk program is too new to assess results, but early observations suggest multiple benefits as parents are able to train, seek work and receive medical treatment while their children participate in enriched programming. The young adult findings from the original study demonstrate that important, long-lasting benefits were associated with early and regular participation in the program.

Two models of integrated service delivery using the school as hub

The following are two examples of integrated childhood service delivery, which are part of schools. Toronto First Duty model (2000–2012) was delivered in both inner city and suburban schools included highly disadvantaged to affluent families. Its goal was to maximize opportunities for children's healthy development as it supported parents to work study and enhanced their parenting capacities. Attempts to scale up the model are now in progress across Ontario.[41] The Doveton example is new. Instituted in January 2012 in Melbourne, Australia, it focuses on breaking intergenerational poverty and reducing childhood maltreatment. It employs a unique outreach program that tracks every child from birth. Both models operate with no additional funding beyond the norm for the service partners. However by integrating staffing, resources, administration and facilities, the school, public health, municipal and community partners are able to serve more families with higher quality programs—

The building blocks for integrated programming

Demonstrating the possible...early leaders **Smart Start (PEI)** **ECD Centres (NB)** **BBBF (ON)** **KSPFN (ON)** **Toronto First Duty**	• Single identity combining education, child care, early intervention, parenting supports • Single funding envelope • Play-based curriculum and pedagogical approach • Common program policies and practices • Core staff team of responsive educators • Seamless participation • Full-day, half-day, regular part-time and occasional • Child and family focus • Parent engagement in children's early development and learning • Universal—all children and families can participate • Cultural inclusion and identity

Source: McCuaig, Bertrand & Shanker (2012)

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or

in

[40] http://www.mwmccain.ca/martin-aboriginal-education-initiative/

[41] Pascal, C. (2009). *With our best future in mind: Implementing early learning in Ontario. Report to the Premier by the special advisor on early learning*. Toronto, ON: Queen's Printer of Ontario.

the ways they want to be served—for the same cost as traditional "siloed" program delivery.

The Toronto First Duty model begins with pre- and post-natal information and nutrition resources and parent–child activities that encourage parents to choose appropriate behaviour guidance strategies and to read and talk more with their children. As children progress through play-groups to enroll in the flexible program for preschoolers and onto kindergarten and primary school, they and their families have continuous access to supports such as health screening, special needs interventions and links to family counselling and employment, immigration and housing services.

Surveys note that parents using the integrated program view the school as the centre of child and family services, and are more likely to feel empowered to talk to their child's educator and to help their child learn at home than their counterparts in neighbourhoods with traditional service delivery. This capacity building worked for parents across the socioeconomic spectrum.[42]

The Doveton Learning Centre in Melbourne, Australia serves a highly vulnerable population. Only 30 percent of adults have graduated high school and only 14 percent have full-time employment. Violence, substance abuse and other mental health issues fuel intergenerational poverty. Evaluations shows 55 percent of children arrive at kindergarten vulnerable on one or more domains,[43] compared to 10 percent nationally. By high school, 84 percent of students perform below expectations compared to 3 percent of their peers. The learning centre is part of the neighbourhood school and oversees an integrated and shared case management system that starts with the families developing learning plans for their children. Through this process, parents identify and seek supports to improve their own parenting capacities. The centre's activities include:

- An on-campus high quality early learning program, supported playgroups, early literacy, after-school and other specific programs with a prenatal to adolescence focus
- On-site health and intervention programs
- Adult education and support groups
- Support to access offsite therapies and programs

Doveton aims for ongoing contact with every family in their catchment area (2,000 children). Health, housing and social agencies inform the school when new families move into the community. Families using the school's programs are also a source for identifying their new neighbours. This ensures that every child and family is registered at birth. Parent volunteers introduce new families to the centre and its programs. Public health nurses visit every new mother within 10 days of giving birth. An additional nine visits for vaccinations and

[42] Corter, C., Janmohamed, Z. & Pelletier, J. (Eds.). (2012). *Toronto First Duty Phase 3 Report.* Toronto, ON: Atkinson Centre for Society and Child Development, OISE/University of Toronto.

[43] Vulnerability is determined by teacher assessments at kindergarten using the Early Development Instrument which measures children's readiness for the school environment in five domains: physical health and well-being; social competence; emotional maturity; language and cognitive development; and communication skills and general knowledge in relation to developmental benchmarks rather than curriculum-based ones.

assessments are scheduled to 42 months. If appointments are not kept, public health nurses and/or early educators conduct home visits to encourage families to use the school's programs..

STRATEGIES THAT MAKE A DIFFERENCE IN EARLY CHILDHOOD AND BEYOND

Creating an early childhood system linked to public education was introduced in *Early Years Study 2* (2007) and built upon in *Early Years Study 3* (2011). Since then, many reports have envisioned children entitled to rich preschool opportunities. Building on the tremendous assets Canadians have in our public education systems, they argue for the transformation of elementary schools into child and family centres, welcoming infants to adolescents and operating year-round. The proposal is based on considerable international evidence that indicates education is the logical base to grow an early childhood system. Education is unambiguous. It is about children—all children. With education there is no need to reinvent the wheel. It already comes with a strong infrastructure: financing, training, curricula, data, evaluation and research. Joining early education and care with schools, both on-the-ground and at the systems level, avoids the wasteful expense of service duplications. Stable funding allows for the planning of and building in of quality assurances.

Canadians invest heavily in their schools, yet they are largely underused. Transforming schools into year-round vibrant family centres would have the added advantage of maintaining the public's trust in education.

A common policy framework for education, child care and family support services is a prerequisite to developing a systemic approach to early childhood program delivery. It doesn't negate the need for new investments, but it does ensure that existing investments are used more effectively and that new money supports the intended outcomes. Getting there requires saying goodbye to legislative, administrative and funding silos, and leaving territorial and professional jealousies behind. All the elements exist in the hodgepodge of child care, public health, education and family support services to create a *system* that can that can contribute to children's happiness and our collective futures.

1. **Implement strategies that support integrated early childhood service delivery from prenatal through the school system at the policy, governance and delivery level.**

   Families with young children need public, non-stigmatizing spaces within their neighbourhoods to call their own. Rather than a place separating children from the world, schools as community learning centres celebrate children, giving them a sense of grounded identity from birth. This promotes social cohesion and breaks down the isolation, which is a breeding ground for neglect, abuse and violence.

2. **Develop a tracking protocol to provide at least one additional intersection between young children and public agencies.**

   In Manitoba, children are registered at birth and all residents receive a personal health identification number (PHIN). The PHIN is also used to track childhood immunization. Children next come into public contact when they enrol in the school system, usually at age 5. Research finds a strong

correlation between children who do not receive their well-baby medical care, family function and later developmental vulnerabilities.[44] PHIN tracking could flag whether children have been vaccinated. Much like the Doveton example, outreach from public health and family support programs could identify families, connecting them to community resources as required.

3. **Integrate Aboriginal knowledge into early childhood curriculum frameworks for use in all early childhood settings.**

   Winnipeg is home to most Manitobans, and Winnipeg has the highest population of Aboriginal peoples of any Canadian urban centre. Promoting a shared understanding of Manitoba's founding peoples—Aboriginal and colonists—and their history, traditions and values is essential to social cohesion. The optimal place to build cross-cultural understanding is in early childhood settings. The Northwest Territories is developing a curriculum model for early childhood settings worth considering. While not immediately transferrable to Manitoba, (New Zealand has one first peoples where Manitoba has many), New Zealand's *Te Whāriki/*Early childhood curriculum also provides lessons for culturally inclusive programming.

[44] Pierce, T., Boivin, M., Frenette, E., Forget-Dubois, N., Dionne, G. & Tremblay, R.E. (2010). Maternal self-efficacy and hostile-reactive parenting from infancy to toddlerhood. *Infant Behavior and Development,* 149-158.

Appendix A

WHAT THE RESEARCH SAYS

Large-scale longitudinal studies indicate that regular and prolonged attendance in quality early education and care programs supports children's health outcomes and provides a foundation to academic learning and social competencies.

- ***Effective Preschool and Primary Education (EPPE)***

EPPE is the largest study in Europe on the effects of preschool education on children's intellectual, social and behavioural development. The 3000 children in the study were randomly selected at age 3 from 141 preschool settings in England. At the core of the study is a developmental profile for each child, drawn from cognitive, language, social and behavioural assessments taken at ages 3, 5, 6, 7, 10 and 16. A sample of children with no preschool experience was also included.

The longitudinal design of the study provides sound evidence on the impact of different types and amounts of preschool provision after taking into account children's characteristics and their home background. It was found that children growing up in integrated program areas:

- Had lower BMIs than children in non-integrated areas
- Experienced better physical health
- Had less contact with child welfare and justice agencies
- Made more cognitive and social/behavioural progress compared to those who remained at home
- Had higher vocabulary and numeracy scores at age 5

Both quality and duration of preschool were important for children's development. Every month of preschool after age 2 was linked to better cognitive development and improved independence, concentration and sociability.

The positive effects were also associated with maternal well-being and family functioning for mothers residing in program areas in comparison with those in non-program areas. Mothers residing in program areas reported:

- Providing a more cognitively stimulating home learning environment for their children
- Providing a less chaotic home environment for their children
- Experienced greater life satisfaction and less social isolation
- Engaged in less harsh discipline

Case studies showed that children made better progress in preschools that viewed educational and social development as complementary.

A similar study in Northern Ireland showed children who attended high quality preschools were 2.4 times more likely in English, and 3.4 times more likely in mathematics, to attain the highest grade at age 11 than children without preschool.

EPPE concludes that three elements lead to educational success:

- Good home learning environment
- Good preschools for longer duration
- Good primary schools

Those children with all three elements will out-perform those with two, who will out-perform those with one, who will out-perform those with none, all other things being equal.[45]

Nested within the broader EPPE study was an examination of the effect of preschool settings on children requiring special educational needs supports during preschool or upon entry to school. Findings show a correlation between resilience during school years and self-regulation at school entry. Self-regulation in turn was highly linked to the quality of the preschool environment.[46]

- ***Better Beginnings, Better Futures (BBBF)***

Canada's largest and longest running study (est. 1993) on the influence of programs on children, Better Beginnings, Better Futures (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.

A sample of children from each site was selected to study the impact of the interventions at a community level. 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

[45] Siraj-Blatchford, I. & Siraj-Blatchford, J. (2009) *Improving Children's Attainment through a Better Quality of Family-based Support for Early Learning,* London, Centre for Excellence and Outcomes; Siraj-Blatchford, I., Sylva, K., Taggart, B., Sammons, P., Melhuish, E.C. & Elliot, K. (2003) *The Effective Provision of Preschool Education (EPPE) Project: Technical paper 10 – Intensive case studies of practice across the foundation stage,* London, DfES/Institute of Education
Sylva, K., Melhuish, E.C., Sammons, P., Siraj-Blatchford, I. & Taggart, B. (2004) *Provision of Preschool Education (EPPE) Project: Final report,* London, DfES/Institute of Education.

[46] Anders, Y., Sammons, P., Taggart, B., Sylva, K., Melhuish, E. & Siraj-Blatchford, I. (2011). The influence of child, family home factors and preschool education on the identification of special educational needs at age 10 . *British Educational Research Journal*, 37, 421-441.

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.[47] 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 scaled up policies.

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.[48] Program spending in the older children's sites was on top of investments already made for every child via the school system. Schools offer a universal platform so that enriched supports reach all children, while no equivalent service is available for children during their preschool years.

- ***NICHD Study of Early Childcare (U.S.)***

The NICHD followed 1,300 children across the U.S. from birth through their preschool years and into adolescence. It found that higher quality child care was linked to:

- pre-academic skills
- language skills

Conversely, children's experiences in low quality centres were linked to problem behaviors. The more hours spent in poor child care, the more problems.[49]

- ***National Child Development Study (NCDS)***

The NCDS study examined the effect of preschool on a random sample of children born in 1958 in the UK. Controlling for child, family and neighbourhood, the study found long-lasting effects from participation, including better cognitive scores at 7 and 16 years. In adulthood, preschool was found to increase the probability of good educational qualifications and employment and better earnings at age 33.[50]

[47] Peters. R.D., Nelson, G., Petrunka, K., Pancer, S.M., Loomis, C., Hasford, J., Janzen, R., Armstrong, L., Van Andel, A. (2010). *Investing in our future: Highlights of Better Beginnings, Better Futures Research findings at Grade 12*. Kingston, ON: Better Beginnings, Better Futures Research Coordination Unit.

[48] Corter, C. & Peters, R. D. (2011). Integrated early childhood services in Canada: Evidence from the Better Beginnings, Better Futures (BBBF) and Toronto First Duty (TFD) projects. In R. E. Tremblay, R. G. Barr, R. D. Peters, & M. Boivin (Eds.), *Encyclopedia on Early Childhood Development*. Montreal, QC: Centre of Excellence for Early Childhood Development.

[49] Vandell, D., Belsky, J., Burchinal, M., Steinberg, L., Vandergrift, N. & the NICHD Early Child Care Research Network. (2010). Do effects of early child care extend to age 15 years? Results from the NICHD Study of Early Child Care and Youth Development. *Child Development, 81*(3), 737-756.

[50] Goodman, A. & Sianesi, B. (2005). Early education and children's outcomes: How long do the impacts last? *Fiscal Studies*, 26, 513-548. Retrieved from http://www.ifs.org.uk/docs/ee_impact.pdf.

- ***PISA results for 2009***

PISA is an international assessment of the reading, science and mathematical literacy of 15-year-old students in OECD countries. It takes place in three-year cycles, monitoring changes in student achievement and other features of the education system over time. The 2009 results showed 15-year-olds who had attended preschool were on average a year ahead of those who had not. PISA also suggests that preschool participation is strongly associated with reading at age 15 in countries that sought to improve the quality of preschool education and provide more inclusive access to preschool education.

The relationship between preschool and performance at age 15 is strongest when:

- A larger percentage of the population attend preschool
- Duration is two or more years prior to compulsory schooling
- Preschools have smaller pupil-to-teacher ratios
- More per child is spent on preschool

The OECD's report on PISA results concludes: "The bottom line: Widening access to pre-primary education can improve both overall performance and equity by reducing socioeconomic disparities among students, if extending coverage does not compromise quality."[51]

- ***France's école maternal system***

In France, preschool is available to children from age 3 years, and most children attend. Analysis showed that preschool leads to higher income in later life and reduces socioeconomic inequalities. Children from less advantaged backgrounds benefit more from preschool than those from advantaged background. Duration also matters. In all income groups, children who attended preschool for three years did better than those attending for two years, who did better than those attending for one year. [52]

[51] Pisa in Focus 2011/1: *Does participation in pre-primary education translate into better learning outcomes at school?* Paris: OECD. Retrieved from www.pisa.oecd.org.dataoecd/37/0/47034256.pdf.
[52] OECD Country Note, *Early Childhood Education and Care Policy in France.* Directorate for Education, OECD, February 2004.

- ***Selected examples of meta-analysis reviews linking ECE to cognitive and social development***

Study	Methodology	Findings
Burger, K. (2010). How does early childhood care and education affect cognitive development? An international review of the effects of early interventions for children from different social backgrounds. *Early Childhood Research Quarterly, 25*(2), 140-165.	Systematic review to assess the effects of various preschool programs on cognitive development and impact for children from different social backgrounds. Randomized trials were generally conducted with small samples and at a single site only. The majority of studies had a quasi-experimental design that investigated the impact of naturally occurring variations in different types of interventions. Birth cohort studies and large-scale representative surveys provided data on a wide range of information. The studies typically compared children who had experienced some form of early intervention to those with none, while trying to control for other important background characteristics that could influence development.	Program intensity and duration were considered. The vast majority of recent early education and care programs had considerable positive short-term effects and somewhat smaller long-term effects on cognitive development. In relative terms, children from socioeconomically disadvantaged families made as much or slightly more progress than their more advantaged peers. Despite benefits, early childhood education and care cannot entirely compensate for developmental deficits due to unfavourable learning conditions in disadvantaged milieus.
Camilli, G., Vargas, S, Ryan, S. & Barnett, S. (2010). Meta-analysis of the effects of early education interventions on cognitive and social development. *Teachers College Record*.	A meta-analysis of 123 comparative studies of early childhood education interventions. Each study provided a number of contrasts, defined as the comparison of an intervention group of children with an alternative intervention or no intervention group.	Significant effects were found for children who attended preschool prior to kindergarten. Although the largest effect sizes were observed for cognitive outcomes, preschool (regular part-time and full-time delivery) was also found to impact children's social skills and school progress. Specific aspects that were positively correlated with gains included teacher-directed instruction and small-group instruction. Provision of additional services tended to be associated with negative gains. A host of original and synthetic studies have found positive effects for a range of outcomes, and this pattern is clearest for outcomes related to cognitive development.
Barnett, S. (2010). Universal and targeted approaches to preschool education in the United States. *International Journal of Child Care and Education Policy*, Volume 4, Number 1.	A meta-analysis based on the results of 120 studies carried out over five decades. The analysis compared targeted approaches to the universal provision of preschool.	Substantial positive cognitive benefits were found for all children who attend preschool prior to entering kindergarten. Positive results were also found for children's social skills and school progress. The study concludes that universal public preschool education would reach more children in low-income families, as well as children from middle- and higher-income families, and might actually improve program effectiveness, particularly through peer

		effects. While a universal approach would cost more than a targeted approach, it is likely to produce benefits that exceed the additional costs.
Gorey, K. (2001). Early childhood education: A meta-analytic affirmation of the short- and long-term benefits of educational opportunity. *School Psychology Quarterly, 16*(1), 9-30.	A meta-analysis of the effectiveness of early childhood educational program studies. The study examined integrated results across 35 preschool experiments and quasi-experiments.	Preschool effects on standardized measures of intelligence and academic achievement were statistically significant, positive and large, even after 5–10 years. 7–8 of every 10 preschool children did better than the average child in a control or comparison group. Cumulative incidences of an array of personal and social problems were statistically significant and substantially lower over a 10- to 25-year period for those who had attended preschool (e.g., school drop out, welfare dependence, unemployment, poverty, criminal behaviour).

Source: McCuaig, Bertrand & Shanker, S. (2012)[53]

[53] McCuaig, K., Bertrand, J. & Shanker, S. (2012). *Trends in Early Education and Child Care*. Toronto, ON: Atkinson Centre for Society and Child Development, OISE/University of Toronto.

Appendix B

ECONOMIC BENEFITS OF ECE

Early childhood education is economic development, and the research shows it is economic development with a very high public return. 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.

- ***ECE as human capital development***

Validation of the human capital approach is heavily influenced by three U.S. 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; and neighbourhood livability.

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.

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).

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[54] who developed 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.

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. The studies considered only the financial returns for participants as they entered youth and adulthood.

- ***Canadian Cost-Benefit Analyses of ECE***

The first Canadian analysis of the economic payoffs of early education came in 1998 when economists calculated the impact of providing publicly funded educational childcare for all children aged 2–5 years.[55] The net cost of $5.2 billion annually (in 1998 CDN dollars) was premised on an overall parental contribution of 20 percent, with individual fees scaled to income.

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 and 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 personal and family poverty.

- ***ECE as local economic development***

ECE plays a multifaceted role in regional economies: 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.[56]

Prentice (2004, 2007) analyzed the economic impact of Winnipeg's 620 childcare facilities. She 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.[57] Overall, every $1 invested in child care provided an immediate return of $1.38 to the Winnipeg economy and $1.45 to Canada's economy.

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[54] Reynolds, A.J., Temple, J.A., Ou, S., Arteaga, I.A. & White, B.A.B. (2011). School-based early childhood education and age-28 well-being: Effects by timing, dosage, and subgroups. *Science, 333*(6040), 360–364. Retrieved from http://www.sciencemag.org/content/333/6040/360

[55] Cleveland, G. & Krashinsky, M. (1998). *Benefits and costs of good child care: The economic rationale for public investment in young children.* Toronto, ON: Child Care Resource and Research Unit, University of Toronto.

[56] Prentice, S. & McCracken, M. (2004). *Time for action: An economic and social analysis of childcare in Winnipeg.* Winnipeg, MB: Child Care Coalition of Manitoba.

[57] Ibid.

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.[58]

- ***ECE as economic stimulus***

Released on the heels of the 2008 collapse of the financial markets when governments were looking for stimulus projects, economist Robert Fairholm showed how investing in educational child care was a hands-down winner.

- **Biggest job creator:** Investing $1 million in ECE 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 ECE 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.

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.[59]

- ***Quebec's no-cost ECE strategy***

Approximately 69 percent of children 0–12 years of age attend Quebec's low-cost early childhood and after-school services ($7/day). Economist Pierre Fortin's analysis of Quebec's system focused on the economic impacts due to changes in the mothers' labour force behaviour. His work examined:

- Who is working because low-cost ECE is available?
- How much tax revenue are they bringing in?

[58] Prentice, S. (2007a). *Franco-Manitoban childcare: Childcare as economic, social, and language development in St.Pierre-Jolys*. Winnipeg, MB: Child Care Coalition of Manitoba; Prentice, S. (2007b). *Northern childcare: Childcare as economic and social development in Thomson.* Winnipeg, MB: Child Care Coalition of Manitoba; Prentice, S. (2007c). *Rural childcare: Childcare as economic and social development in Parkland.* Winnipeg, MB: Child Care Coalition of Manitoba.

[59] Fairholm, R. (2009) Literature review of socioeconomic effects and net benefits of ECEC labour market – Understanding and addressing workforce shortages in early childhood education and care (ECEC) project, Ottawa, CA: Child Care Human Resources Sector Council; Fairholm, R. (2009). Estimates of workforce shortages – Understanding ad addressing workforce shortage in early child education and care (ECEC) project, Ottawa, CA: Child Care Human Resources Sector Council; Fairholm, R. & Davis, J. (2010). Early learning and care impact analysis, for the Atkinson Charitable Foundation.

- How much less are they drawing on income-tested family benefits?

Fortin's 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. Quebec mothers paid $1.5-billion annually in taxes, and because their earnings raised their family income, they drew lower levels of income-tested government transfers and credits, with both the federal and Quebec governments benefitting.

Overall, Fortin estimated that for every public dollar spent on early education, the Quebec government gets back $1.05 in increased taxes and reduced family payments, while the federal government gets 44 cents for, in Fortin's words, "doing nothing." 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 any other province, including provinces where public funding is solely targeted to the poor.[60]

[60] Fortin, P., Godbout, L. & St-Cherny, S. (2012). *Impact of Quebec's universal low fee childcare program on female labour force participation, domestic income, and government budgets.* Working Paper 2012/02, Université de Sherbrooke.